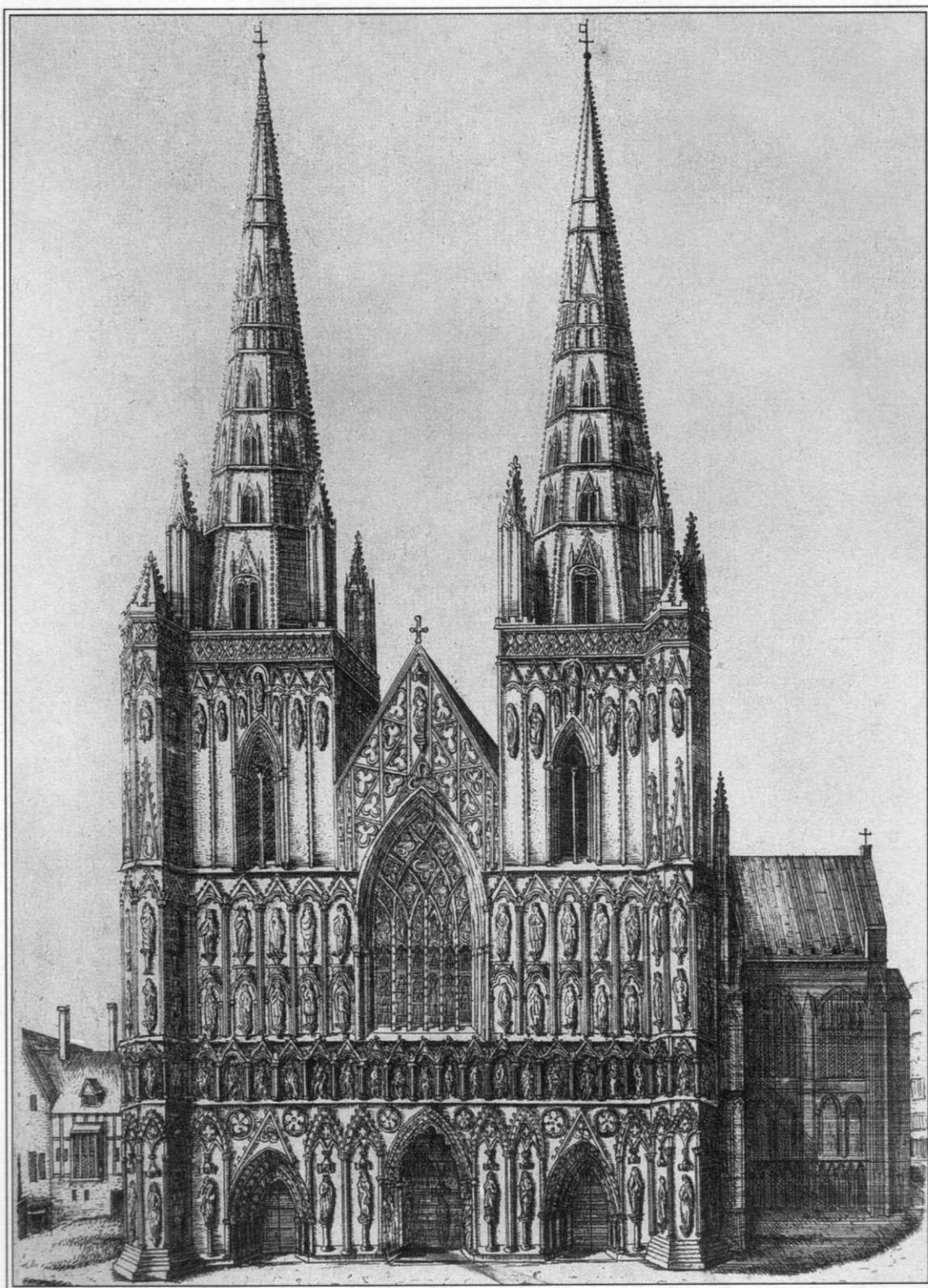




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MEDIEVAL TANNING AND RETTING AT BREWOOD, STAFFORDSHIRE: ARCHAEOLOGICAL EXCAVATIONS 1999-2000

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SUMMARY

An archaeological evaluation, excavation and watching brief in advance of, and during construction of, a relief sewer on land south of The Pavement, at Brewood, Staffordshire (NGR SJ 886 085) was undertaken by Birmingham University Field Archaeology Unit (now Birmingham Archaeology) during September 2000 on behalf of Severn Trent Water Ltd.

The evaluation located the remains of a well-preserved, waterlogged timber raft of probable late medieval date. A subsequent excavation revealed an extensive, well-preserved wooden platform associated with several substantial uprights. The remains of a second, less substantial, wooden platform were recorded to the north of a cobbled surface. In addition, an archaeological watching brief revealed a number of wooden barrels set within clay-lined pits. Mid- to late-medieval and early post-medieval pottery, wooden artefacts and leather fragments were recovered in association with the two wooden structures and the cobbled surface. Dendrochronological dates obtained from the platform and the barrels indicate felling dates in the late 12th to early 13th century. An extensive palaeoenvironmental sampling programme was carried out. The results of the excavation indicate that industrial processes, possibly including hemp-retting and tanning, were being carried out on-site.

INTRODUCTION

The site (NGR SJ 886 085; Figs. 1, 2, and 3) lies within a low-lying field containing a thick peat bed on the course of a small brook (Fig. 3), a tributary to the River Penk (Fig. 1). Adjacent, and to the northwest, is a road known as 'The Pavement', and to the south is Coven Road. The ground is marshy, and a variety of plant species grow within the field, suggesting that there has been little recent agricultural disturbance. Most of the natural depositional processes upon the site are inter-related flooding episodes. The water table is very high, due partly to the low-lying ground and partly to the proximity of the brook, which flows through the centre of the field from southwest to northeast. This has led to the formation of the thick layer of peat (up to 2m deep) that covers the site.

The County Sites and Monuments Record (SMR) indicates the route of a Roman road near the site (Fig. 1). A section has been identified running between a cropmark at Ackbury Heath and the Roman settlement of *Pennocrucium*, about 2km to the northeast of the site. The present road system is, however, the result of the imposition of a planned town onto a pre-existing pattern of routes with a Roman or earlier origin. The grid of streets which was adopted by the 13th century is closely related to the canalised brook which must always have been a strong influence on the local roads and settlements. The absence of habitation on the southeastern side of the brook is particularly noticeable (Horovitz 1992, 54) and is due probably to the marshy nature of the area since prehistoric times (see below).

Geotechnical works in advance of the relief sewer pipe recorded waterlogged remains within one of the test pits. The report noted that 'Togs and sandstone blocks, approximately 200 to 300mm thick, forming a platform or raft, were recorded at around a metre depth within the peaty materials' (S.C.C. 1999). The results of the geotechnical work, in an area where archaeological remains were unsuspected, were noticed by the Conservation Officer of South Staffs District Council, who contacted the County Archaeologist. The subsequent archaeological evaluation of the site in December 1999 (Taylor 2000, Fig. 3) confirmed the presence of a wooden raft located to the northwest of a brook. The raft was constructed of parallel timber poles, the ends of which had been cut with either an axe or a saw. A radiocarbon date of 500 ± 50 BP (Wk-8007; 1 a AD 1333-1445 cal.; 2 a AD

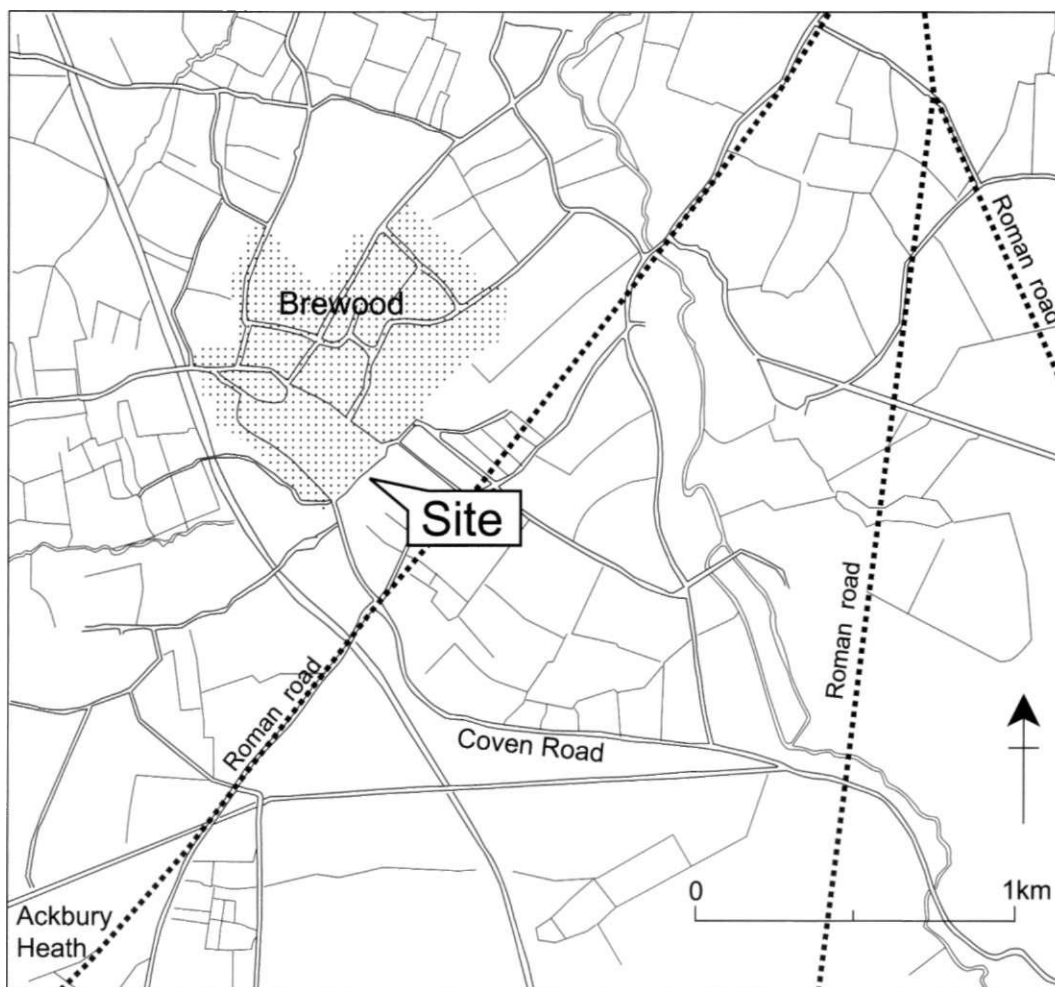


Fig. 1 Location plan

1307-1483 cal.) was obtained from one of the poles, and a date of 1870 ± 55 BP (Wk-8008; 1 a AD 81-216 cal.; 2 a AD 23-319 cal.) was obtained from the peaty deposits believed to pre-date the structure. Several sherds of later medieval pottery (13th–14th century and 15th–16th century) were recovered from above the structure.

On the basis of the evaluation results, it was recommended that an archaeological excavation should take place in advance of the sewer construction with a 'watching brief' in the immediate vicinity during construction. The excavation was commissioned by Severn Trent Water Ltd and was undertaken by Birmingham University Field Archaeology Unit between 18th September and 4th October 2000.

The objective of the excavation was to determine the extent of the wooden structure, and recover waterlogged palaeoenvironmental evidence. It was not clear from the evaluation if the structure was a linear feature such as a trackway, or a discrete structure such as a raft or foundation. The excavation of a section through the structure in advance of the sewer trench provided the opportunity to characterise the palaeoenvironmental sequence and the environmental conditions during the late pre-historic and medieval periods.

The main excavation (Area A, Figs. 3 and 4) measured approximately 14m by 9m and was restricted due to the presence of mature trees to the northeast. A second area (Area B, Fig. 3) was excavated to the southeast of the brook (2.0m x 20m). This was located to ascertain if the structure continued on the opposite bank, even though it lay outside the sewer trench.

The topsoil and overlying silts were removed by machine and the upper surfaces of the wooden structure and associated stonework cleaned by hand. A section, 1.6m in width, was hand-excavated through the structure along the line of the sewer. Composite elements of the wooden structure were sample excavated, and material retrieved for dendrochronological and radiocarbon analysis.

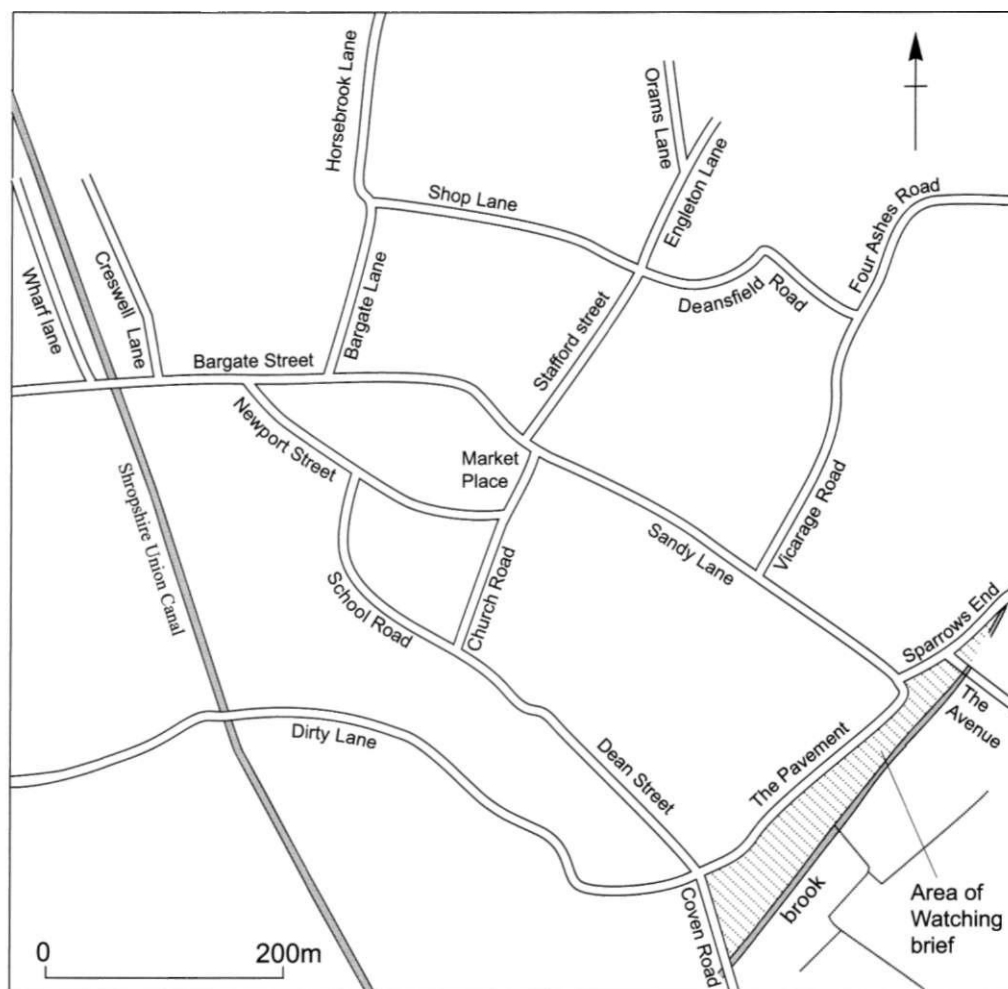


Fig. 2 Brewood village street plan

Under specialist advice, palaeoenvironmental samples were taken from the soil profile as well as from layers containing datable artefacts. Groundworks in the vicinity were subject to a watching brief, the results of which have been integrated into the Area A excavation results (Cuttler and Dingwall 2001).

RESULTS

AREA A (Figs. 4a, 4b and 5)

The natural layer of sand and gravel (1010) was exposed at a depth of 1.15m and was overlain by black, organic silts and peat (2053, 2054, 2055, 3013). Four structures (Structures 1-4, Figs. 4a, 4b and 5 and Fig. 6 sections 1 and 2) recorded within Area A, were represented by a series of uprights, two wooden surfaces, and a cobbled surface.

All medieval activity was clearly pre-dated by peat formation (2053), into which structures had been cut, driven, or overlain. The upper 0.3m of the peat was mixed with a layer (2049) which produced pottery, leather, and wooden artefacts. The relationship of this layer to Structure 2 was not clear, but the layer clearly pre-dated Structures 3 and 4. Stratigraphic relationships between structures proved difficult to determine, due partly to the similarity between deposits (largely black, amorphous, silty peat), partly to the waterlogged conditions, and partly because posts had been piled through deposits rather than set into post hole cuts. Only a narrow area was excavated to natural, while the remainder was exposed in plan, being intended for preservation *in situ*. Features are described below within structure groups, some of which may represent several phases or divisions of a single building; no overall phasing, however, could be defined.

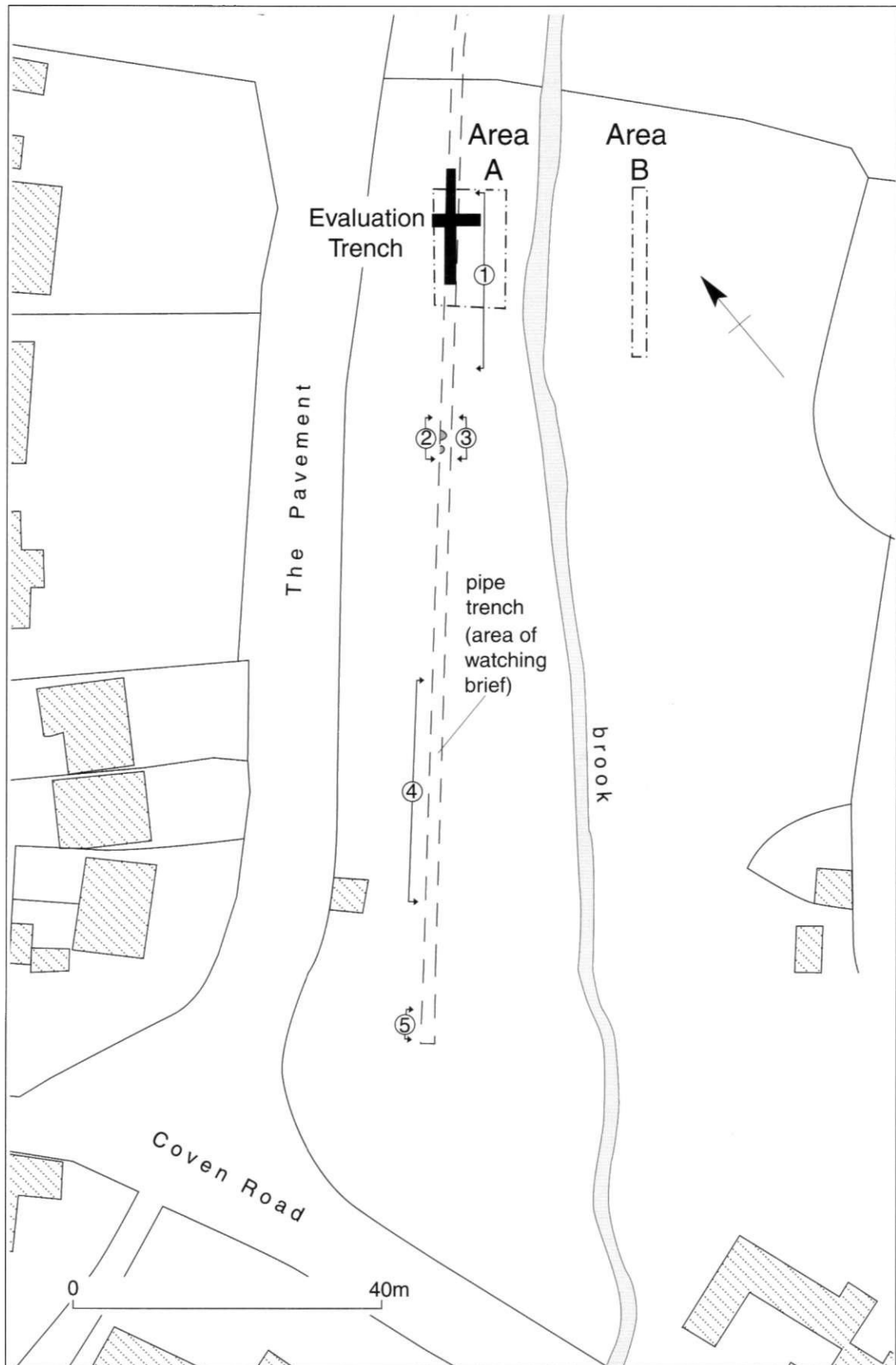


Fig. 3 Location of evaluation trench, excavation areas, and recorded sections

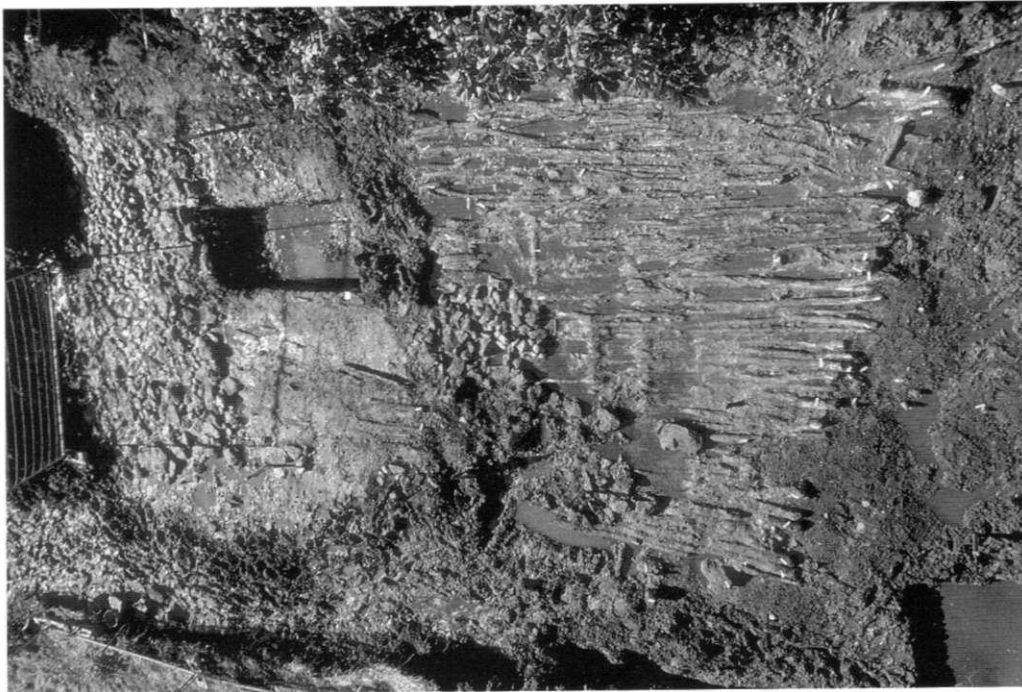


Fig. 4a Area A, structures 1 to 4 under excavation (aerial view)

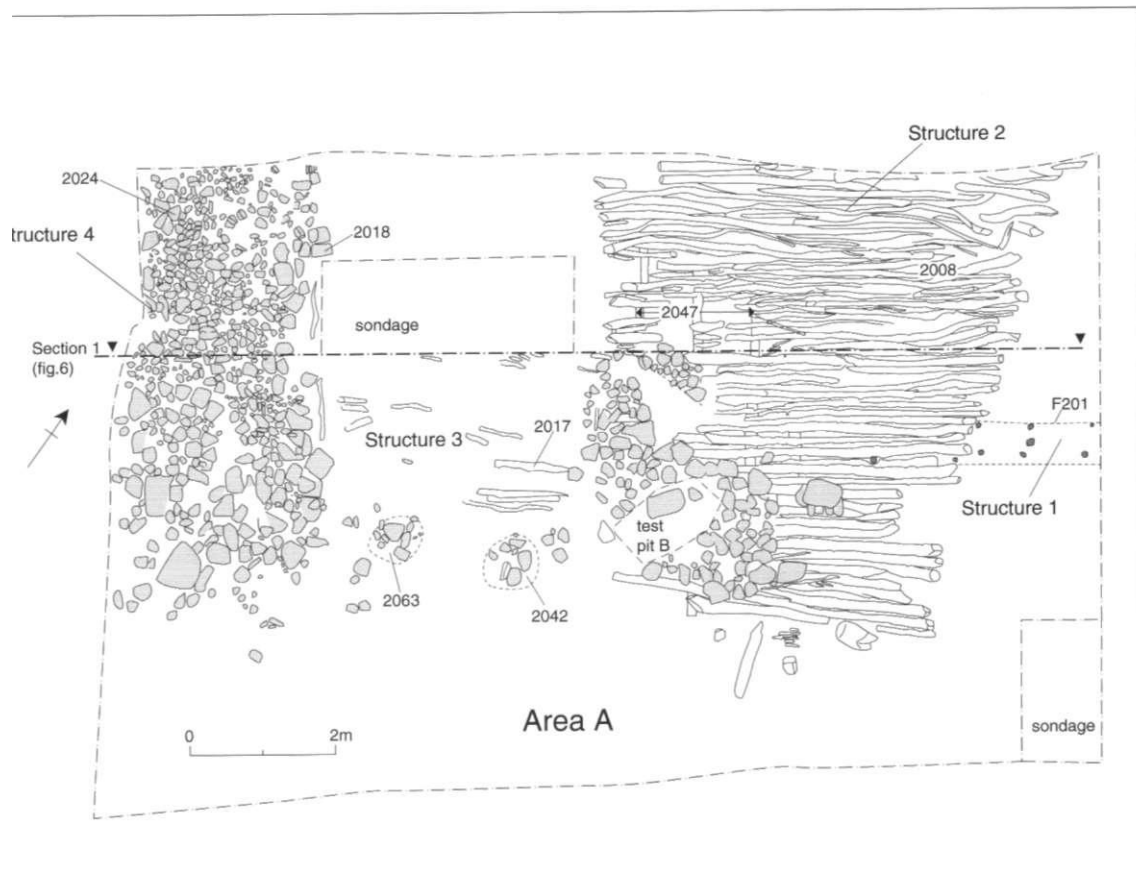


Fig. 4b Area A showing Structures 1 to 4

STRUCTURE 1 (Figs. 4a, 4b, and 5)

Late 13th–16th centuries

At the northeastern end of Area A were seven small uprights, each approximately 0.06m in diameter. The uprights formed a northeast-southwest alignment of parallel posts, approximately 0.4m apart. These had been driven into the peat at intervals of approximately 0.6m. Structure 1 appeared to be associated with a linear cut (F201), which contained a single flat timber (not illustrated), possibly part of the same structure.

Uprights from Structure 1 were higher than the platform for Structure 2, but this may have been due to the subsidence of Structure 2. The subsidence of Structure 2 and the poor survival of Structure 1 made it difficult to determine a stratigraphic relationship between the structures.

STRUCTURE 2 (Figs. 4a to 6)

Late 13th–16th centuries

Structure 2 comprised the timber platform identified in the evaluation. To provide a solid base for the timber platform, the peat had been dug away down to the natural gravel. Despite this it was clear that the structure had subsided, particularly closer to the brook. The platform was constructed from two layers of timbers (Fig. 6, section 1). The lower timbers (2047) were orientated northwest-southeast and spaced at 0.75m intervals. These timbers spanned a width of 6m and were placed directly onto the natural gravel (1010). The upper layer of timber poles (2008), at right angles to the lower timbers, was closely packed together and overlay disturbed gravel (2051).

The whole structure sloped approximately 0.28m from northwest to southeast. It is possible that Structure 2 was level when first constructed and subsequently subsided over areas of deeper peat, particularly closer to the brook channel. The pole-ends comprising the platform had sharpened, faceted points, suggesting that the wood was chopped to size by a bladed tool, probably an axe. The timbers were in very good condition, and, in particular, it was noted that the upper surface had not suffered the sort of damage that would normally be associated with the regular use of a trackway.

Along the southeastern edge of the platform were a series of uprights, each approximately 0.25m in diameter. One of the uprights consisted of a large flat plank (F, Fig. 5). This, however, was on the edge of a geotechnical test pit (test pit B, Fig. 4b), and had probably been disturbed by geotechnical works. One substantial upright (E, Fig. 5), evident in the southeastern corner of the platform provided a dendrochronological interpreted felling date of AD 1229–65. There were no large timber uprights supporting the platform itself, suggesting that the uprights present to the northwest and southeast of the platform may have once supported a superstructure.

The structure was partially sealed by a sand and sandstone matrix (2013) which gradually became more substantial towards the southeastern extent of the platform. This layer was sealed by layers of organic, dark brown silts (2021, 2022), approximately 0.25m. in depth.

The structure overlay, or cut, deposits containing medieval pottery of 13th–15th century date (2049 and 2051), and was sealed by a layer containing pottery from the late 16th century (2022).

STRUCTURE 3 (Figs. 4a to 6)

14th–16th centuries

To the southwest of Structure 2 were the vestiges of a further timber surface (Structure 3, Figs. 4a to 6). This showed no trace of a foundation, but rested directly over organic deposits (2049). The surface consisted of a series of closely spaced narrow poles on a northeast-southwest alignment (2017). Surviving at a slightly higher level, the preservation of the timbers was poor compared to Structure 2. Again, the ends of the poles were worked and respected the alignment of Structure 2. To the southeast were two large uprights, each within a stone-packed cut (2042 and 2063; Fig. 4b). The southernmost timber (2063) was squared, measuring 0.30m across, and was in a poor state of preservation. The northernmost timber (M, Fig. 5) was sampled for dendrochronological analysis. A strap end was recovered during the cleaning of Structure 3 (Hancocks below, p. 19).

STRUCTURE 4 (Figs. 4a to 6)

14th–16th centuries

Structure 4 (Figs. 4a to 6) consisted of a stone surface located at the southwestern edge of the main excavation area and overlying the peaty occupation layer (2049). The southern extent of the surface was recorded within the area of the watching brief although it was not fully exposed in plan. The surface consisted of both sandstone and cobbles and was nearly 8m across. The cobbles (2024)

were in a matrix of pink sand and were edged by sandstone and tile (2018), and some of the more substantial pieces of sandstone had been dressed. Red tile was present throughout the layer, becoming more concentrated towards the southwest. At the southeastern edge of the cobbled surface there were two large sandstone blocks capable of supporting large timber uprights.

To the southwest of Structure 4 were groups of small circular stakes (2052, 3004, 3005, 3006; Fig. 6 section 1) which had been piled through the natural peat from the occupation layer (2049), forming a series of four linear clusters running northwest to southeast. Measuring approximately 0.1m in diameter and 0.6m in length, the stakes were worked to a point at the base. Several stakes were also squared along the shaft. The southernmost group (3006) were overlain by a series of five horizontal wooden poles (3007) laid perpendicular to the pipe trench. Sandstone blocks (3027) were laid over the wooden poles (3007), compressing the wooden stakes and the peat (2053).

THE WATCHING BRIEF *by Mary Duncan*

Excavation of the sewer was observed by an archaeologist (a 'watching brief') (Figs. 3, 6, and 7) during the construction of the sewer in two fields to the northeast of the excavation area and to the southwest. The majority of the subsoil to the northeast of the excavation area consisted of natural clay, sand, and gravel overlain by topsoil. The northernmost deposits of peat (3000) were evident approximately 17m to the northeast of Area A. A watching brief which was maintained to the southwest of Area A (Fig. 3) highlighted the presence of activity between Area A and Coven Road to the south.

THE BARRELS (Figs. 3 and 6: sections 2 and 3)

At a distance of approximately 16m to the southwest of Area A, four timber barrels were recorded within three pits (barrels F300/3031, F301/3033, F302/3017, and F302/3032). The pits were each dug to a depth of approximately 0.6m through the peaty occupation layer (2049). None were inter-cutting, although the similarity of the pits suggests a contemporary use. The base and sides of the pits were lined with pink clay, into which the wooden barrels had been inserted.

Each of the four barrels was cylindrical, with a diameter of 1.1m and a surviving depth of 0.3m. The base of each barrel was constructed from shaped planks (thicker in the case of barrel 3017). Around the outside of each base was a double layer of overlapping planks, forming the sides of each barrel. While it was not apparent how these planks were bonded, it is possible they were supported solely by pressure from the clay linings.

REMAINING DEPOSITS WITHIN RELIEF SEWER TRENCH (Fig. 7, sections 4 and 5)

The layer of peat (2053), while undulating in places, was observed within much of the pipe trench, ending 57m to the southwest of Area A and at a consistent depth of 0.5m. Just before this point, the peat was cut by a shallow feature (F307), measuring 4m in width and 0.30m in depth, which was filled by a narrow band of sand and sandstone pebbles (3035), and a layer of charcoal and coal (3034). This feature was sealed by a waterlogged silty layer (3012) which appeared to be the similar to the occupation layer (2049) in Area A.

At a distance of 20 metre southwest of Area A, the sandstone and cobble deposit (3040 and 3044) was cut by two features (F304 and F305 Fig. 7, section 4). Feature F305, located at the northeastern extent of the cobbled surface, was a deep pit measuring at least 0.7m in depth. The primary fill (3037) consisted of an organic, waterlogged deposit. The feature to the south (F304) extended 0.5m into the pipe trench on a north-south alignment. This consisted of two square timbers (3049) placed at the base of a cut (F304), with a narrow plank resting horizontally across the two. This feature was interpreted as a drain. It was not possible to determine the full extent of these timbers within the width of the sewer trench. A sample of the fill between the wood (3042) was taken for palaeoenvironmental analysis but it produced no useful evidence for the interpretation of this structure.

At a distance of 94m southwest of Area A, close to Coven Road, was the cut for a silt-filled ditch (F306; Fig. 7, section 5). The ditch was aligned northwest-southeast and had two rows of wooden posts driven into the base. These posts were on the same axis as the ditch and were placed 1m apart. The ditch (F306) lay at the southern extent of a cobble and sandstone deposit (3040 and 3044), which also sealed the fill of the ditch (3048). This deposit was evident for a distance of 28m and appeared to overlie the waterlogged silt (3012). Possible occupation deposits above the cobbles (3046 and 3047) contained waterlogged organic material, coal, and charcoal.

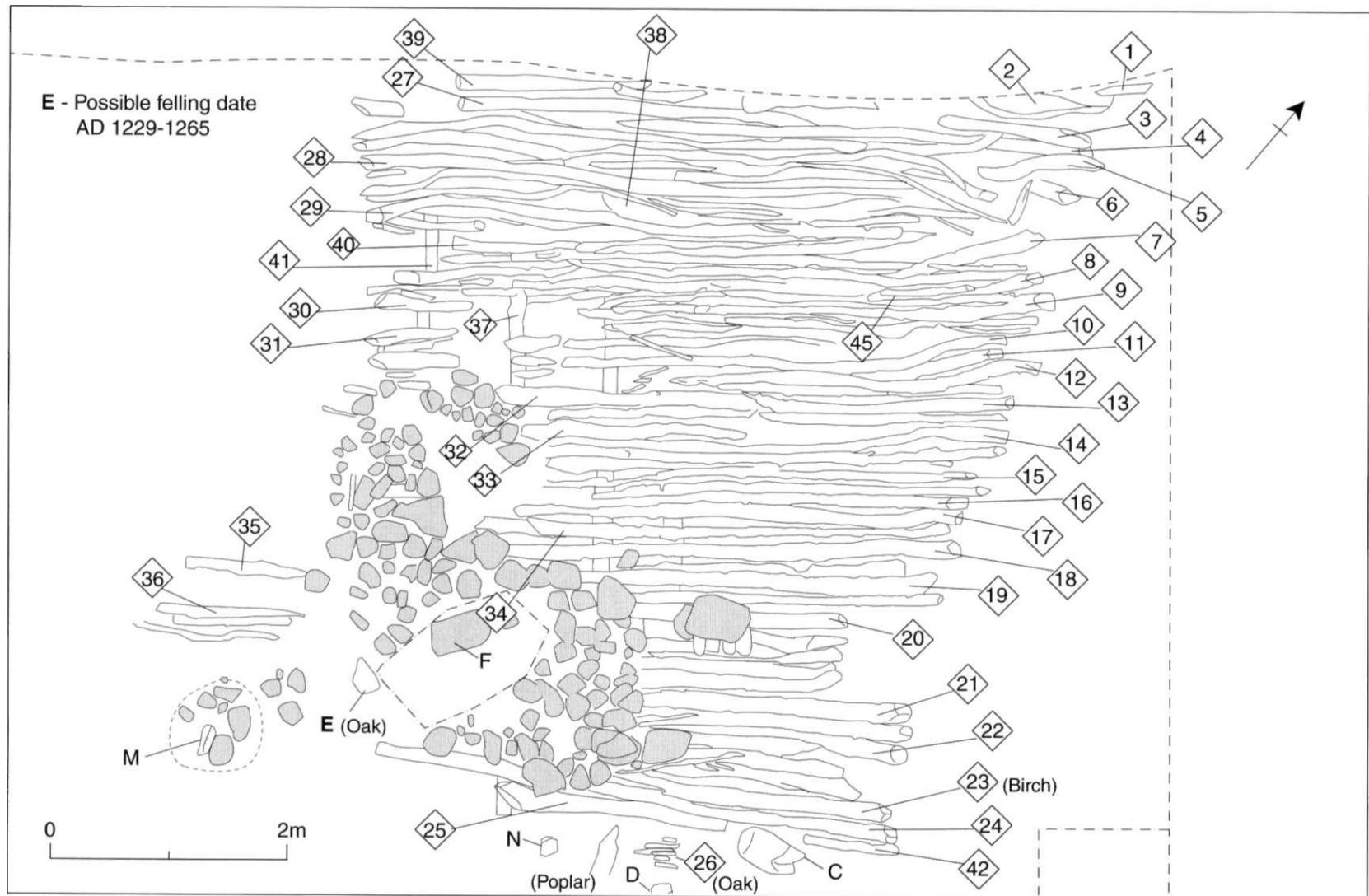


Fig. 5 Plan showing the location of the wood samples removed from Structures 2 and 3

All deposits were sealed by a light orange-brown alluvial horizon (2011, Fig. 6 sections 2 and 3) which had been cut by a relatively modern land drain (F101). This in turn was sealed by topsoil (2010) approximately 0.24m in depth.

TRIAL TRENCH, AREA B (Fig. 3)

A trial trench (Area B), measuring 20m x 2m, was excavated on the opposite bank of the brook in order to investigate evidence for the continuation of the timber structure across the brook. No archaeological deposits were encountered and excavation of the trench ceased at a depth of 1.25m. The earliest deposit revealed was a soft layer of peat (2004) sealed by layers of alluvial silts (2003, 2002) to a combined depth of 0.4m. These in turn were sealed by an orange-brown silt, similar to the alluvial horizon (2011) in Area A, and 0.30m of topsoil.

DATING EVIDENCE

During the 1999 evaluation, two samples, one from Structure 2 and one from the underlying peat, were submitted for radiocarbon dating by the Waikato Laboratory in New Zealand. The two samples produced the following results:

Peat underneath Structure 2: 1870 $\pm$ 55 BP (Wk-8008: 1a AD 81-216 cal.; 2a AD 23-319 cal.)

Structure 2: 500 $\pm$ 50 BP (Wk-8007: 1a AD 1333-1445 cal.; 2a AD 1307-1483 cal.) (dates were calibrated according to Stuiver *et al.* 1998 and Bronx Ramsey *et al.* 2000).

The excavation that followed this initial evaluation provided the opportunity to collect other samples suitable for radiocarbon and dendrochronological dating. The objectives were:

- to confirm the date of the main platform (Structure 2)
- to determine whether Structure 2 and Structure 3 were contemporary
- to determine whether the barrels were contemporary with the main platform (Structure 2)
- to establish the beginning of the formation of the peat

In view of these research aims, a sample taken from the bottom of the pollen column (Fig. 6 section 1) was radiocarbon dated. This produced a date of 2260 $\pm$ 57 BP (Wk-9438: 1a 400 BC-200 BC cal.; 2a 410 BC-170 BC cal.).

Only four samples of wood from those collected during the excavation and the watching brief proved to be suitable for dendrochronological dating (Tyers below, pp. 56-7). The sample from Structure 2 was dated to AD 1229-65? (The question mark refers to those samples which had some sapwood, but were not complete to the bark-edge. In these cases a felling date range is obtained by applying the maximum and minimum numbers of rings of sapwood normally seen in oaks for the relevant areas. The question mark indicates an estimated end felling date). Two samples from barrels F302/3017 (Fig. 6 section 2) produced dates later than AD 1185 and AD 1192 respectively. The last sample, collected from feature F304, located to the southwest of the barrels (Fig. 7 section 4), produced a date later than AD 1222.

The dendrochronological and radiocarbon dates, together with the dating evidence obtained from the pottery (see Ratkai below, pp. 11-16), provide a useful chronological frame for the interpretation of the archaeological evidence.

- The date of 410 BC-170 BC cal. marks the beginning of the peat sequence. We also know that the peat continued to form during AD 23-319 cal. as this is the level at which the peat is cut and the main wooden platform (Structure 2) is laid.
- The main platform (Structure 2) has been dendrochronologically dated to AD 1229-65?, radiocarbon dated to AD 1307-1483 cal. and dated by the pottery to the 13th-14th century. This represents a very consistent set of dates and places the construction of Structure 2 firmly in the 13th-14th century. The construction of Structure 3 (the wooden surface) and Structure 4 (the cobbled surface) followed that of Structure 2.
- The set of dendrochronology dates obtained from the barrel (after AD 1185 and after AD 1192) and the wooden boards (after AD 1222) are earlier than those obtained from the platform, but this would be consistent with the theory that they might have derived from re-used wood or re-used barrels (Tyers below, pp. 56-7).

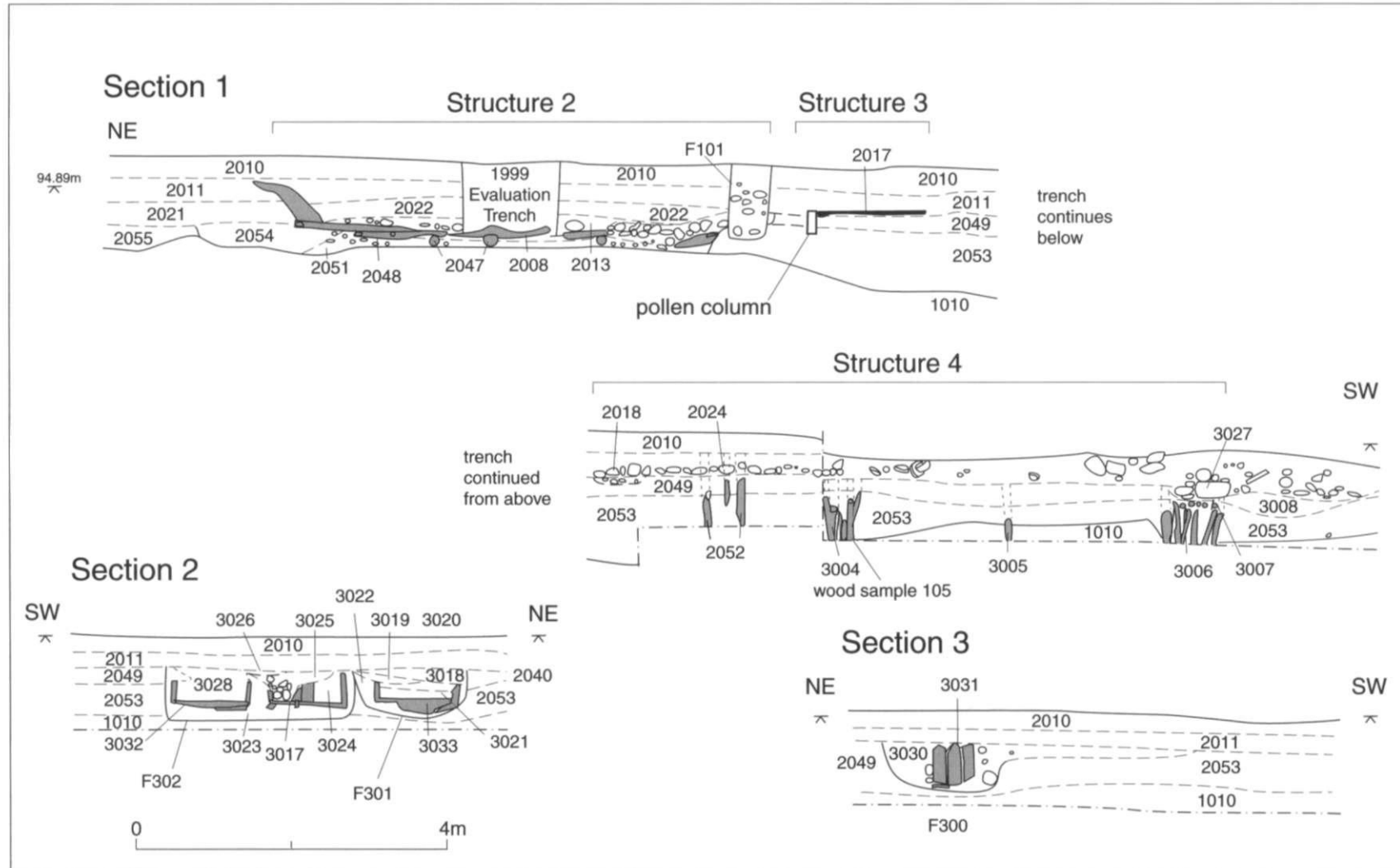


Fig. 6 Sections of Structures 2 to 4 and Features F300, F301, and F302

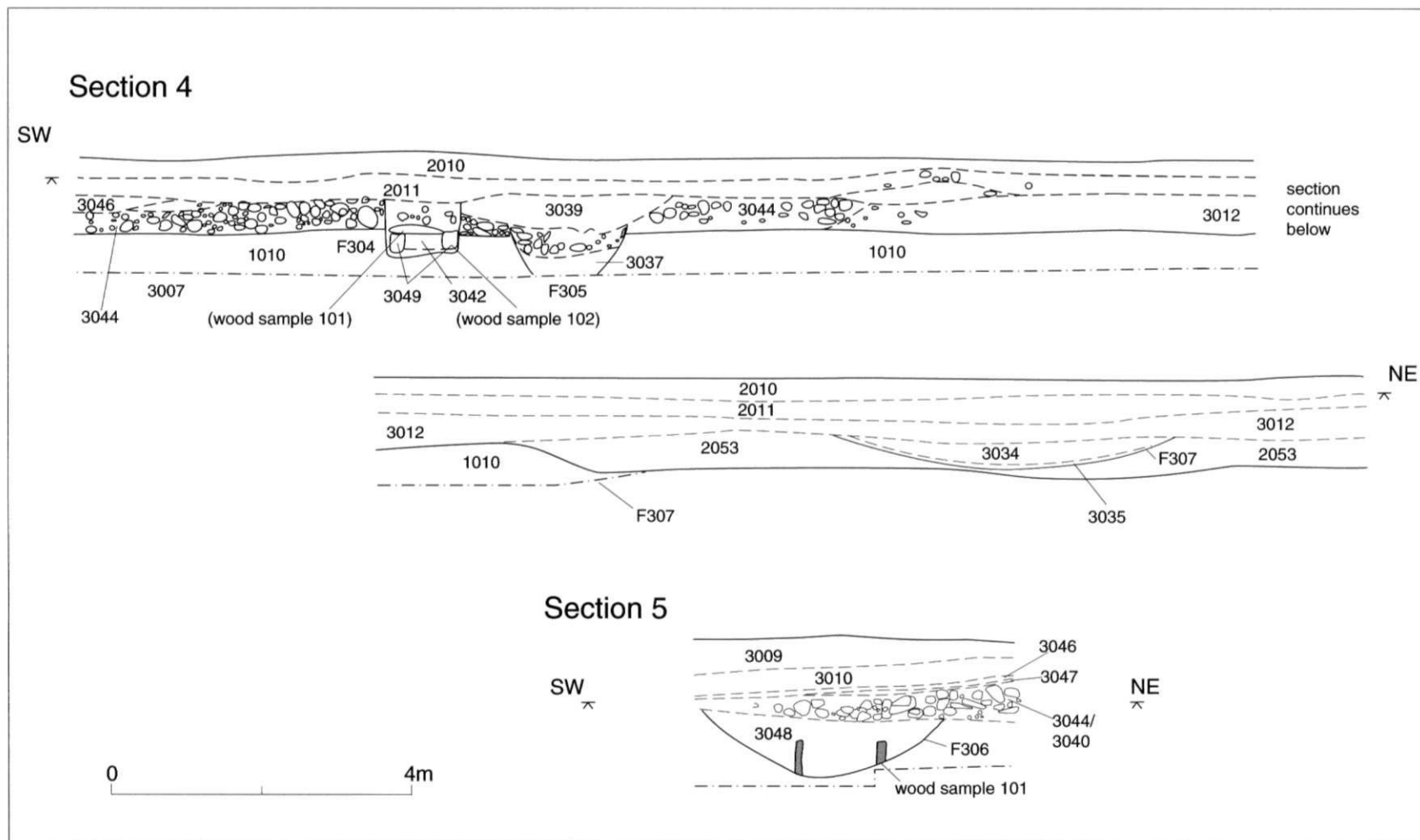


Fig. 7 Sections of Features F304, F305, and F306

MEDIEVAL AND POST-MEDIEVAL POTTERY *by Stephanie Rdtkai*

The medieval and late-medieval/early post-medieval pottery from evaluation, excavation and watching brief was examined under x20 magnification and divided into fabrics. Details of vessel form, decoration, sooting, and abrasion were recorded. The pottery was quantified by sherd count, sherd weight, minimum rim count, and rim percentage.

A total of 204 sherds, weighing 4447g and representing a minimum number of 26 vessels by rim count, were recovered. Seventeen medieval or late-medieval/early post-medieval fabrics are described below. In addition, Cistercian ware and Midlands purple ware were found, but being well-known fabrics, they are not described here. There was also a small amount of later pottery consisting of blackware (later 16th-18th circa), slipware (late 17th-early 18th circa), manganese mottled ware (late 17th-mid 18th circa), coarseware (17th-8th circa), white salt glazed ware (18th circa), cream ware (later 18th- early 19th circa), pearlware (late 18th—19th circa), brown stoneware (18th—19th circa), utilitarian white ware (19th circa), and painted ware (19th circa). These latter wares were not recorded in detail (Appendix 1, p. 56).

Table 1 Quantification of vessels by count and weight (g)

Vessel form	Sherd count		Sherd weight (g)	
Bowl	23	(11.27%)	815	(18.32%)
Chafing dish	07	(3.43%)	72	(1.61%)
Cooking pot/jar	29	(14.21%)	521	(11.71%)
Dish/platter	02	(0.98%)	5	(0.11%)
Drinking vessels	23	(11.27%)	235	(0.56%)
Jar/cistern	43	(21.07%)	1943	(43.69%)
Jug	16	(7.84%)	137	(3.08%)
Jug/cistern	03	(1.47%)	131	(2.94%)
Jug/jar	03	(1.47%)	94	(2.11%)
Lid	01	(0.49%)	47	(1.05%)
Miscellaneous hollow wares	05	(2.45%)	45	(1.01%)
Unknown/unrecorded	49	(24.01%)	402	(9.03%)
Total	204	(100%)	4447	(100%)

THE POTTERY FABRICS

WHITEWARES (WW) AND IRON POOR (IP) WARES

Fabric IP1

Inclusions: abundant well-sorted rounded quartz *c* 0.25mm. Hard, ?hand-made

Fabric IP2

Inclusions: clean buff fabric with moderate rounded quartz *c* 0.1mm. Glossy olive glaze.

Fabric WW1

Inclusions: sparse-moderate, ill-sorted, sub-rounded quartz, up to 0.25mm. Soft (scratched with fingernail), hand made.

Fabric WW2

Inclusions: moderate, well-sorted, sub-rounded, quartz, *c* 0.1mm, sparse, rounded, iron ore. Hard-fired, wheel thrown. Whitewares seem to date from the 13th to 14th centuries in Staffordshire. There is as yet no evidence for their occurrence before the mid 13th century. The white wares appear to have been superseded in the ?late 14th or more probably 15th century by wheel-thrown red wares (see RW1, RW2, and RW3 below, which when fired to a higher temperature become Midlands Purple wares) and by wheelthrown clean buff-pale orange wares (see LMT2 and LMT4 below). Iron poor wares are also known from the 13th—15th centuries. However, the firing of IP1 suggests a 14th- or 15th-century date. The fineness of IP2 and its firing are also suggestive of a 14th- or possibly 15th-century date.

CLEAN BUFF - PALE ORANGE WARES (LMT)

Fabric LMT2

Inclusions: moderate, rounded, quartz, 0.25-0.5mm, sparse, small irregular organic voids. Soft, wheel-thrown.

Fabric LMT4

Inclusions: sparse-moderate rounded quartz, up to 0.25mm, sparse-moderate, irregular organic voids. Soft-hard, wheelthrown.

Fabric LMT5

Inclusions: sparse, ill-sorted, sub-rounded, quartz, up to 0.25mm, sparse organic voids, sparse iron oxide, rare ?sandstone c 0.25mm. Hard, wheel-thrown.

Fabrics LMT6

Inclusions: moderate quartz <0.1mm. Hard clean fabric, wheel-thrown.

The jug forms, glazing, cleanness of the fabric and firing indicate that fabrics LMT5 and LMT6 date to the 14th or 15th centuries. Fabrics LMT2 and LMT4 are typical of pottery of the 15th and 16th centuries in Staffordshire and similar fabrics have been found at Dudley castle, Stafford castle and Lichfield, and also in northern Warwickshire at Birmingham and Coventry. They are very often associated with Cistercian ware and Tudor green-type ware. Vessel forms tend to be fairly limited, consisting mainly of large jars, cistern, and plain jugs with little or no glaze. Less well-represented forms are bowls and chafing dishes. Heavy knife trimming on the lower half of the vessels is typical of these fabrics.

IRON RICH WARES (CPJ)

Fabric CPJ1

Inclusions: sparse rounded quartz <0.25mm, sparse siltstone/mudstone <0.25mm. Hard, hand-made, possibly finished on slow wheel.

Fabric CPJ2

Inclusions: sparse ill-sorted rounded quartz, up to 1mm. Hard, possibly hand-made.

Fabric CPJ3

Inclusions: rare ill-sorted, sub-rounded quartz <0.25mm, sparse-moderate siltstone/mudstone up to 5mm. Hard, hand-made.

Fabric CPJ6

Inclusions: moderate ill-sorted sub-angular quartz, up to 2mm, sparse sub-angular siltstone/mudstone, sparse organic voids. Hard, hand-made.

The cooking pot fabrics probably form the earliest component of the assemblage. The occurrence of siltstone/mudstone in cooking pots associated with the earliest phases of Stafford castle has been noted by the author and petrological examination of the Stafford castle fabrics has suggested that they derive not only from the Mercian Mudstones but also in some cases from Boulder Clays. At Brewood, these fabrics could be as early as the 12th century but, as they were generally found with whitewares or occurred residually, it is possible that their occurrence here is contemporaneous with the whitewares. The waterlogged peat (3000), to the northeast of Area A, contained a single sherd of CPJ6 and contexts (3012) and (3035), both associated with Feature F307, respectively contained a single sherd of fabric CPJ3 and fabric CPJ1. These sherds represent the only possible (and rather nebulous) evidence for occupation before the mid 13th century. The cooking pot sherds were generally very fragmentary and it was difficult to gauge forms, although some sherds appeared to have come from fairly straight-sided vessels which would tend to support the 12th—13th century date given to them here.

Fabric GLW1

Inclusions: Clean matrix with some small mica flecks, rare, ill-sorted, rounded quartz up to 0.25mm, sparse red iron oxide, <0.25mm. Soft, hand-made.

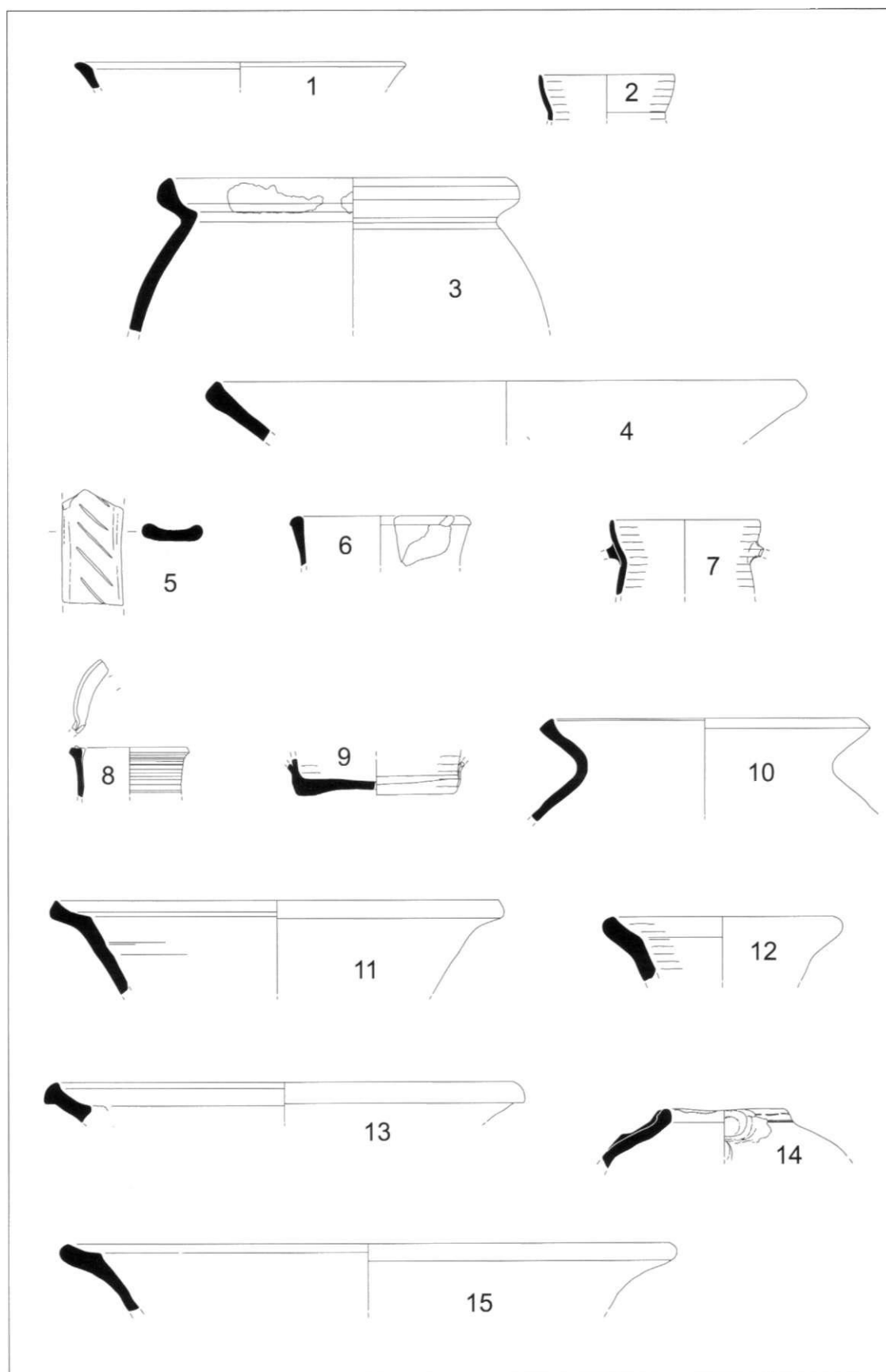


Fig. 8 Medieval and Post-medieval pottery

There is some similarity between this fabric and Deritend ware, which was made in Birmingham in the 13th and early 14th centuries. One sherd was decorated with white slip like Deritend but none of the sherds was as micaceous as typical Deritend ware. Most of the GLW1 sherds were from jugs or not attributable to form.

Fabric RW1

Inclusions: Moderate ill-sorted rounded quartz up to 0.5mm, sparse organic voids, sparse sub-angular red iron ore, up to 1mm. Hard wheel-thrown.

Fabric RW2

Inclusions: Fine sandy clean slightly micaceous matrix with rare organic voids. Hard, wheel-thrown.

Fabric RW3

Inclusions: Clean matrix with rare rounded quartz <0.25mm and sparse organic voids. Hard, wheel-thrown.

Fabrics RW1 and RW3 are nearly always found in conjunction with the iron poor fabrics LMT2 and LMT4 and have a similar distribution and date range, i.e. 15th–16th centuries. There is, however, some evidence from the site that RW1 may have been made in the 14th century. Forms are mainly utilitarian and comprise for the most part jars and wide mouthed bowls. There were also one or two possible jugs and cisterns but, if anything, the range of forms is more limited than those found in the LMT2 and LMT4 fabrics. Glazes tend to be dark olive or mid-brown. Fabric RW2 is rather different from the other two redwares but similar micaceous redwares have been noted in Lichfield.

The medieval sherds were generally small. The largest sherds were found mainly among the late medieval/early post-medieval pottery. There was comparatively little glazed or decorated pottery, the pottery up to the 16th century having a marked utilitarian appearance with few table wares. There was one notable exception, a chafing dish in fabric LMT4 found in (2015) and (2007).

Nearly all the medieval cooking pot sherds were sooted externally and a small number were sooted both internally and externally. One sherd in fabric CPJ1 (2007) had a black pitted vitreous deposit of an industrial nature on its exterior. A WW1 cooking pot had heavy external sooting and heavy external abrasion. The WW2 jug sherd from beneath Structure 2 (2051) was burnt and five GLW1 jug sherds were burnt or sooted.

Sooting on cooking pots is to be expected and this alone does not suggest links with industrial activity. However, the deposit on the sherd from Context 2007 would seem to indicate some medieval industrial activity, as do the burnt or sooted jug sherds.

Twenty-six late medieval/early post-medieval sherds, about a third of the pottery of that date, were burnt or sooted and a few were abraded. The proportion of sooted sherds is quite high for pottery of this date. In addition, the vessel forms on which sooting occurred tended to be large jars or cisterns, which are not usually sooted. The lower half of a LMT4 vessel had a sooting pattern on the base and base-angle, which suggested the use of a trivet or stand of some kind. Two Cistercian ware cup sherds were burnt, which again is uncommon.

The later post-medieval pottery, that dating from the later 17th century and later, was not sooted or abraded.

The small quantity of sherds found in most contexts has made functional analysis difficult but burnt or sooted sherds were associated with all four structures and the uprights M (2050). Abrasion did not appear to affect the assemblage significantly. One CPJ3 sherd was worn around the external base-angle and was sooted internally and externally, and a blackware drinking vessel was worn around the external base circumference and was also sooted externally. These two vessels were the only two clear examples of function abrasion.

STRUCTURE 1

The only pottery associated with Structure 1 was found in the fill of F201, a linear feature associated with the structure. The fill contained sherds of fabric CPJ1, WW1, and WW3. The white-wares indicate a date after the mid 13th century. The cooking pot sherds could be earlier. Of the two cooking pot sherds, one was sooted with external abrasion and the other had internal and external abrasion with traces of a possible industrial deposit on the interior. Jug sherd, fabric WW1, had

heavy external soot and heavy external abrasion and may also have been burnt post-breakage. The small WW3 jug sherd was neither sooted nor abraded. The fill of F201 was sealed by 2028 and contained a large sherd from a later 16th-century blackware cup.

STRUCTURE 2

The earliest context associated (2051) with this structure contained a CPJ1 sherd (Fig. 8.1) and a WW2 jug sherd. The cooking pot had heavy external sooting and a small diameter of *c.* 18cm and may date to the 12th or earlier 13th century. The jug had a dark olive glaze. The external surface appeared to have been burnt and there was a sooty deposit on part of the internal surface, which continued over one of the broken edges indicating that it had occurred post-breakage. The jug probably dates to the late 13th or possibly, 14th centuries.

The remaining pottery associated with Structure 2 came from the layers above the timber platform. The earliest of these was from a layer of sandstone (2013) which contained a small rim-body sherd from a Cistercian ware cup, (Fig. 8.2), dating to the late 15th-mid 16th centuries, and a large (47g) sherd from a jar in fabric LMT4 dating to the 15th-16th centuries.

Above Context 2013 was a layer of organic matter (Contexts 1004/2007) which contained a comparatively large quantity of 83 sherds, weighing 2072g (78 from 2007, weighing 1791g, and five from 1004, weighing 281g). There was comparatively little 12th/13th—14th century pottery and over half the pottery (44 sherds) dated to the 15th—16th centuries (Fig. 8.3-7). There was also later post-medieval pottery, such as manganese mottled ware, coarseware, and 18th-century blackware and a number of modern glazed wares like creamware, painted ware, blue transfer printed ware, and utilitarian white ware sherds. This mix of pottery of all dates is problematic since the organic silt Context 1007 (equivalent to 2022) which sealed Context 1004 (equivalent to 2007) contained only 16th-century material, consisting of a Cistercian ware cup, a RW1 jar, and a LMT2 vessel of unknown form, with some internal soot, which joined with a sherd from Context 1004.

STRUCTURE 3

Fill 2050 around the wooden uprights associated with Structure 3 contained fabrics CPJ4, GLW1, IP1, and RW1 and was probably of 14th-century date.

An organic layer above the structure (2014) contained fabrics CPJ1, CPJ3, GLW1, LMT4, LMT5 (Fig. 8.8), RW1, and Cistercian ware. Layer 2014 would therefore seem to date to the late 15th or 16th centuries. The Cistercian ware was burnt and the RW1 bowl had heavy external soot. The GLW1 sherd was heavily abraded externally.

STRUCTURE 4

The largest quantity of pottery was associated with this structure. The earliest context (3013) was a layer which pre-dated Structure 3, Structure 4, and the inset barrels. The context contained two sherds, one in fabric CPJ1 from a cooking pot with an applied thumbled strip and heavy internal and external soot, and the other in fabric RW1 from a jug with a thumbled base with heavy external sooting on base. The cooking pot probably dates to the 13th century, but the jug is unlikely to be earlier than the 14th century.

Above 3013 was layer 2049, which lay beneath the cobble surface (2018) and (2024). This layer appears to have been cut for the insertion of the barrels. The pottery consisted of fabrics CPJ1, CPJ3, GLW1, IP2, LMT5, RW1, and WW1. The pottery was comparatively little burnt or sooted. The latest pottery from 2049 was represented by fabrics IP2 (one jug body sherd), LMT5 (a body-base sherd from a jug or jar, a body-handle sherd from a jug, or possibly cistern and a body sherd from an unidentifiable form), and RW1 (one base sherd from a bowl with an internal olive glaze). These fabrics are unlikely to be earlier than the 14th century and may possibly date to the 15th century.

Cobble surface 2024 over layer 2049 appears to be very much later since it contains a mixture of coarseware and creamware sherds. The latter cannot be earlier than the late 18th century. The cobble edge 2018 to cobbles layer 2024 did not, however, contain pottery of this date but a mix of 13th-16th century sherds (GLW1, WW1, IP1, LMT4, RW1, and RW2).

Deposit 2015 (overlying the cobbles) contained a mix of 12th/13th—19th century pottery (CPJ1, LMT4 (Fig. 8.11), RW1 (Fig. 8.12), RW3 (Fig. 8.10), Cistercian ware, Midlands purple ware

(Fig. 8.13), blackware (Fig. 8.9), coarseware, manganese mottled ware, slipware, white salt glazed stoneware, creamware, pearlware, and brown stoneware).

Layer 3008, associated with, Structure 4 contained two large joining sherds from a large jar or cistern in fabric LMT2 (Fig. 8.14) which dated to the 15th or 16th centuries.

OTHER FEATURES

The sandstone layer beneath 3001 and layers 3012 and 3015 all appeared to be medieval, containing only cooking pot sherds. Alluvial deposit 2011 which sealed the site contained a small amount of mixed pottery, including a RW3 bowl or pancheon of 16th-century date (Fig. 8.15). The latest pottery was utilitarian whiteware dating to the 19th century.

DISCUSSION

The pottery could not be linked to precise kiln sites but it is likely that most of it derived from local sources. The similarity, for example, of fabrics LMT2 and LMT4 may indicate that they were merely variations of the same fabric, likewise the similarity between fabrics RW1 and RW3. Many of the 15th-16th-century pottery fabrics are similar to those found at Dudley castle and it is thought that some of these may have come from Wednesbury, where there was a flourishing late-medieval and early post-medieval pottery industry.

The pottery spans the 12th or 13th centuries to the 19th century, with just under half (by sherd count) dating to the 15th—16th century. The pottery seems to be in accord with the dendrochronological dates (Structure 2 AD 1229-65?; barrel F302 AD 1185 and AD 1192; drain F304 after AD 1222), although some of it may in fact be earlier. There was very little whiteware, which is unusual for sites in Staffordshire, although this may have been because Brewood lay outside the main distribution area for whitewares. There was very little early glazed ware, which may reflect the industrial nature of the site. There were enough sooted and/or burnt sherds of the 12th/13th—14th-centuries to indicate that industrial activity had affected the pottery but whether this was through use or post-breakage is hard to gauge.

Although some of the pottery may date to the 12th century, layers below Structure 2 and Structure 4 and the fill (2050) surrounding the wooden uprights seem to date to the 14th century at the earliest. Likewise layer (2049), which was cut for the insertion of the barrels, appears to be 14th century at the earliest. Taken together this would seem to indicate that the structures and associated industrial activity are unlikely to pre-date the 14th century, supporting the view that the barrels were re-used.

Layers above the structures are remarkably uniform and all contain pottery of the 15th or 16th centuries. The 15th-16th-century ceramic forms the largest single group of pottery and appears to have been used in an industrial environment. However, it is not clear whether this pottery is associated with the use of the structures or indicates a cessation of activity. Much of the pottery was sooted or burnt, and it therefore seems probable that it had been in proximity with some sort of industrial activity. It is possible that the wooden structures dated to the 13th—14th century might still have been in use in the 15th—16th century, which would explain the presence of this later pottery. Alternatively, it is possible that in the 15th and 16th centuries industrial activity continued away from, but close, to the excavated structures and that the 15th—16th century pottery represents dumping of material from that area onto a now disused site. The comparatively large sherd size evidenced among this pottery suggests that it had not travelled far.

The small amount of 18th- and 19th-century material presumably represents general accumulation of debris after the site had gone out of use.

The sooting found on the sherds did not suggest particularly cooking or industrial uses apart from one example, which indicated the use of a trivet or stand (see above). Sooting could be internal as well as external and it is difficult to establish how much burning took place post-breakage. There is a good case to be made for the pottery showing signs of having been on an industrial site, if not actually used in an industrial process. The nature of the industrial process is difficult to establish, but the burning and sooting and the quantity of pottery suggest that it was not tanning, since there is generally very little, if any, pottery associated with tanning sites (Ratkai 1994 and 2000).

ILLUSTRATED VESSELS

STRUCTURE 2

Gravel layer below structure

- 1 Fabric CPJ1, brown fabric, black surfaces, external soot, cooking pot/jar (2051)

Sandstone layer over wooden platform (2013)

- 2 Cistercian ware, red fabric, internal and external mid-brown glaze, cup

Organic material over timbers (1004)

- 3 Fabric LMT2, buff-pale orange surfaces, pale orange margins, thin orange core, olive glaze (burnt in patches) on internal rim, lid seated jar or cistern

Organic material over timbers (2007)

- 4 Fabric LMT2, buff fabric, burnt, ?lid
- 5 Fabric LMT2, pale orange surfaces and margins, grey core, thin burnt glaze, jug or cistern handle
- 6 Fabric LMT6, pale orange fabric, buff internal surface and margin, external tan-olive glaze, jug
- 7 Cistercian ware, weak red fabric, internal and external brown glaze, two handled cup

STRUCTURE 3

Organic layer over structure (2014)

- 8 Fabric LMT5, buff surfaces and margins, trace of thin orange core, trace of external burning, jug

STRUCTURE 4

Soil layer above cobbled surface (2015)

- 9 Blackware, clean weak red fabric, internal and external dark brown glaze, large drinking vessel
- 10 Fabric RW3/LMT3, buff surfaces, buff, grey and orange sandwich effect in section, jar)
- 11 Fabric LMT4, reddish surfaces, orange margins, pale orange core, bowl
- 12 Fabric RW1/LMT1, large jar, pale orange external surface and margin, grey core, brown internal margin, internal dull brown glaze
- 13 Midlands purple ware, fabric largely overfired grey, orange external margin in places, purple surfaces, lid seated jar

Layer outside Structure 4 (3008)

- 14 Fabric LMT2, buff surfaces and margins, cream core, thin external dull olive glaze, jar or cistern

ALLUVIAL SEAL OVER ALL STRUCTURES (2011)

- 15 Fabric RW3, red fabric, darker red internal surface (possibly slipped) bowl/pancheon

OTHER FINDS *by Annette Hancocks*

FLINT

A single flint flake was recovered from the layer 2050 dated to the 14th—15th century by the pottery, clearly representing a residual find.

SLAG

Three contexts (2007, 2009 and 2014) produced 836g of slag. At least three possible smithing hearth bottoms were identified. These are typified by a rough convex base and smoother vitrified upper surface, which is flat or slightly hollowed as a result of the downwards air blast. Layer 2014 is dated to the late 15th—16th century by the associated pottery, whereas layers 2007 and 2009 date to the late 17th—19th century.

CERAMIC BRICK AND TILE

384 fragments of post-medieval brick and roof tile were recovered from the site and are associated with pottery of the same date. No significant diagnostic pieces were identified. All the roof tiles appeared to be of the same type and fabric. The bricks were made from poorly levigated clay and were of modest appearance.

COPPER ALLOY

A single copper alloy item, probably a strap end, was recovered from a well-sealed context (2014, associated with Structure 3), dated to the late 15th–16th century by the pottery.

LEAD

Several lead tokens and a two lead weights were recovered from the ploughsoil using a metal detector.

IRON

Two iron nails and a single iron peg were recovered.

LEATHER

11 fragments of worked leather were recovered from five contexts. Five pieces were recovered from context 2007, a layer primarily dated to the 16th–17th century and containing some intrusive 19th-century pottery. The leather consisted of indeterminate off-cuts of no particular form. A further triangular-shaped piece was recovered from a layer (2016) overlying Structure 4. Stitching holes were recognised on two of the three sides of the fragment, which from its shape probably represents an apex of a shoe.

A single, rectangular-shaped off-cut was recovered from layer 2049, a deposit dated by pottery to the 14th–15th century.

Four leather off-cuts were recovered from a layer of peat (3000) located approximately 17m to the north of Area A. This deposit dated to the 13th–14th century AD and the leather fragments recovered comprised a large rectangular off-cut, a semi-circular shaped off-cut with stitching holes on the curve edge and two possible apexes from the upper of a shoe.

ENVIRONMENTAL SAMPLING AND RESEARCH QUESTIONS *by Marina Ciaraldi*

Due to the waterlogged nature of the site, organic materials had preserved extremely well and a sampling strategy was adopted to address the following research questions:

- whether there was evidence which could aid the interpretation of the site
- whether there was evidence for environmental change (e.g. changes in the drainage, pollution etc.) caused by human activity by comparison between the periods before and after occupation
- whether the wooden posts used for the construction of the platform could reveal details about medieval woodland management
- whether any posts were suitable for dendrochronological dating

Sampling of datable features, such as barrels, drains, and pits, were considered a priority. Samples were also taken from the layers above and below the wooden and cobbled surfaces. A column sample and three bulk samples were taken from section 1 (Fig. 6) to examine the pollen sequence, the insects, and the plant macroremains. The wooden platform was also extensively sampled for taxa (Gale below, pp. 31–40) and submitted for dendrochronological dating (Tyers below, pp. 56–7). Waterlogged bark and a twig from the base of the pollen column were submitted for radiocarbon dating.

PLANT MACROREMAINS FROM THE BARRELS *by Marina Ciaraldi*

Of the four wooden barrels identified in the watching brief a 20 litre soil sample (F301/3021 and F302/3024) was collected from two barrels (section 2, Fig. 6). Oak slats from barrel 3017 produced felling dates after AD 1185 and after AD 1192 (Tyers below, pp. 56–7), but these dates relate to the age of the wood and not necessarily to the period when the barrel was in use. Indeed, the wooden slats could easily have come from re-used wood or re-used barrels. The radiocarbon date obtained from the main platform (Structure 2) and the pottery evidence both suggest that the earliest period of activity occurred around the 13th–14th century.

METHODOLOGY

The plant macroremains from the two barrels were waterlogged and perfectly preserved. On the basis of the assessment (Ciaraldi 2001), a 1.5 litre sample of the sediment was considered sufficient to understand the nature of the plant assemblage and the samples were washed on a set of sieves

(including a 2mm, 1mm, and 0.3 mm mesh). The entire flot above 2mm was sorted by eye and that between 2mm and 1mm was sorted under a low power microscope, while only 10% of the riot between 1mm and 0.3mm was sorted. These plant macroremains have been listed in Table 2 according to a semi-quantitative criterion, and the final number of the seeds of each taxon was calculated by multiplying those recovered from the sub-sample below 1mm by 10 (as only 10% of this flot was sorted). The seeds were identified by comparison with modern specimens from the reference collection of the author, following the botanical nomenclature of Stace (1997).

DISCUSSION OF THE PLANT ASSEMBLAGES

The sediment from barrel F301/3021 consisted of a highly organic waterlogged material, with a sandy/silty component and occasional lumps of reddish clay, probably derived from the lining of the barrels. The deposit contained numerous waterlogged seeds, a few fragments of insect remains, and decomposed wood. Sporadic flakes of charcoal and coal were also observed. However, the sediment recovered from barrel F302/3024 had a very different matrix, and was formed mainly by decomposed organic matter consisting of small fragments of bark and wood. The wood fragments appeared to be those of hazelnut, whereas the bark belonged to alder (*Alnus* sp.) and oak (*Quercus* sp.) (Gale below, pp. 31¹-0). The presence of numerous bark sclereids (Hall below, p. 24) confirmed that bark was the main constituent of this organic deposit.

The wild plants identified in the two samples are grouped in Table 2 according to their ecological characteristics. However, the groupings are largely overlapping and have to be considered as a working hypothesis, whilst exceptions will be discussed in more detail later. The cultivated species, likewise, are arranged according to their most likely use, as suggested by their relationship to their archaeological context.

The main types of environments reflected by the species present in the two samples are aquatic/wet ground, arable/disturbed ground and hedgerows/woodland (Fig. 9). The presence of a wet environment and disturbed/cultivated fields in the vicinity of the site is also confirmed by the occurrence of some insect species in the two samples (Smith below, pp. 40-45). Some of the plant species, in particular, are typically associated with riverbanks or marshy fields, as in the case of the buttercups (*Ranunculus acris* *repens* *bulbosus*, *R. flammula* L. and *R. scleratus* L.), blinks (*Montia fontana* L.), northern yellow cress (*Rorippa islandica* Borbas), and gypsywort (*Lycopus europaeus* L.). There are also species typical of slow-flowing waters or ponds, such as the sweet-grasses (*Glyceria* sp.) and water plantain (*Alisma plantago-aquatica* L.). The presence of this group is particularly important since it implies the proximity of a slow-flowing brook (as it is today) or of a pond, two types of natural features which would have represented an important resource for the undertaking of intensive water-consuming human activities in the area.

Plants of hedges and woodlands such as raspberry (*Rubus* cf. *ideas*), blackberry (*Rubus* cf. *fruticosus*), *Prunus* sp., and elder (*Sambucus nigra* L.) seem to indicate that these environments were also present in the vicinity of the site. This evidence is supported by the insect remains (Smith below, pp. 40-45). It should be noted, however, that some of the seeds present in sample F302/3024 might have been introduced through the use of bark and wood and therefore may not necessarily reflect the immediate surroundings of the excavated area.

The last group of wild species present in the assemblage from the barrels is rather small and includes species typical of arable or disturbed grounds (Fig. 9). Some of the plants identified include species found on nitrogen-rich soils, for instance the two species of nettles (*Urtica dioica* L. and *U. urens* L.). Other species are associated either with trampled places, such as the knotgrasses (*Polygonum aviculare* L.), or with cornfields, such as the mayweeds (*Tripleurospermum* sp.), stinking chamomile (*Anthemis cotula* L.), and narrow-leaved comsalad (*Valerianella dentata* Pollich). The species associated with trampled places and nitrogen-rich soils were probably growing in the most well-trodden areas of the site. Those typical of arable lands were probably introduced with some of the cultivated plants present in the assemblage, for instance hemp (*Cannabis sativa* L.).

The plant assemblage from Brewood, apart from the presence of hempseeds, bears little resemblance to the assemblage from the contemporary site of Stone (Moffett and Smith 1996). This probably reflects the different nature of the activity at each site, which was predominantly domestic at Stone and industrial at Brewood.

Table 2 Waterlogged plant remains from samples F301/3021 and F302/3024

Feature/Context		F301/ 3021 1.3 barrel	F302/ 3024 1.3 barrel	Ecological characteristics
Vol. soil processed (L.) Type of context				
Cereals				
bread wheat	<i>Triticum aestivum</i> s.l.	s/ch	1	cultivated
Nuts and fruits				
hazelnut	<i>Corylus avellana</i> L.	sh	3	hedgerows, scrub and woodland
(wild) plum	<i>Prunus insititia</i> L.	st	1	hedgerows, scrub and wasteland
Other cultivated plants				
hemp	<i>Cannabis sativa</i> L.	s	11	1 cultivated
Wet ground and aquatic species				
meadow/creeping buttercup	<i>Ranunculus acris</i> repens <i>bulbosus</i>	s	7	3 wet places
celery-leaved buttercup	<i>Ranunculus scleratus</i> L.	s	10	1 marshy fields, ditches, ponds and riversides
?lesser spearwort	<i>Ranunculus</i> cf. <i>flammula</i>	s		1 wet places
blinks	<i>Montia fontana</i>	s	~~25~~	damp places
pale persicaria	<i>Persicaria lapathifolium</i> Gray	s	25	1 damp ground, waste, cultivated and open places
knotgrass	<i>Polygonum aviculare</i> L.	s	13	open ground, trampled places
curled dock	<i>Rumex crispus</i> L.	s	~~xxx~~	1 large variety of habitats included marshlands and arable and waste lands
docks	<i>Rumex</i> sp.	s	~~xxx~~	3
northern yellow-cress	<i>Rorippa islandica</i> Borbas	s	10	pond sides and other damp places
hemlock	<i>Conium maculatum</i> L.	s	~~13~~	1 damp ground, wastelands
woundwort	<i>Galeopsis tetrahit</i> L.	s	10	arable lands, woodland clearings, damp places
gypsywort	<i>Lycopus europaeus</i> L.	s	31	fens, wet fields, by lakes and rivers
water-plantain	<i>Alisma plantago-aquatica</i> L.	s	4	ponds, ditches, canals and slow rivers
sedges	<i>Carex</i> sp. trigonous	s	2	2 wet places
sedges	<i>Carex</i> sp. oval	s	20	1 wet places
rushes	<i>Cyperus</i> sp.	s	2	wet places
sweet-grasses	<i>Glyceria</i> sp.	s	20	shallow-water
			100	
Hedgerow/woodland species				
? raspberry	<i>Rubus</i> cf. <i>ideaus</i>	s	1	woods and marginal grounds
bramble	<i>Rubus</i> cf. <i>fruticosus</i>	s	5	5 hedgerows, woods and marginal grounds
elder	<i>Sambucus nigra</i> L.	s	1	2 hedgerows, wood clearings
nipplewort	<i>Lapsana communis</i> L.	s	3	open woods, hedgerows, waste and rough grounds
Buds and bud scales			x	
<i>Prunus</i> sp.			th	1
Species of arable/disturbed grounds				
common nettle	<i>Urtica dioica</i> L.	s	150 E	150 E disturbed places rich in nitrogen, used for fibers
small nettle	<i>Urtica urens</i> L.	s		1 disturbed places rich in nitrogen, used for fibers
fat hen/goosefoot	<i>Chenopodium album</i> L.	s	4	2 disturbed places rich in nitrogen
spear-leaved oraches	<i>Atriplex</i> cf. <i>prostrata</i> Boucher	s	27	disturbed places rich in nitrogen
oraches	<i>Atriplex</i> sp.	s		2
common chickweed	<i>Stellaria media</i> Villars	s	~~80~~	11 weed of crops and in open ground
knotgrass	<i>Polygonum aviculare</i> L.	s	~~13~~	1 open ground, trampled places
knotgrasses	<i>Polygonum</i> sp.	s		2
sheep's sorrel	<i>Rumex acetosella</i> L.	s	1	variety of habitats included cultivated lands, acid soils
cinquefoils	<i>Potentilla</i> sp.	s		20
carrot family	Apiaceae	s	1	
dead-nettles	<i>Lamium</i> sp.	s	5	
woundwort	<i>Galeopsis tetrahit</i> L.	s	4	arable lands, woodland clearings, damp places
ground balm	<i>Glechoma hederacea</i> L.	s	1	
self heal	<i>Prunella vulgaris</i> L.	s		1 grasslands, wood clearings and rough grounds
bellflowers	<i>Campanula</i> sp.	s		1
narrow-leaved cornsalad	<i>Valerianella dentata</i> Pollich	s		1 cornfields and rough grounds
thistles	<i>Carduus</i> / <i>Cirsium</i>	s	1	1 disturbed places
yarrows	<i>Achillea</i> sp.	s		20
stinking chamomile	<i>Anthemis cotula</i> L.	s		11 arable lands, waste places and rough
grounds, heavy soils				
mayweeds	<i>Tripleurospermum</i> sp	s	~~10~~	10 waste and cultivated lands
daisy family	Asteraceae (mayweed type,)	s	~~80~~	
oats	<i>Avena</i> sp	s/ch		1
small grasses	Poaceae (small)	s		20

Key ch= charred, E= estimated, s = seed, st = stone, th = thorn

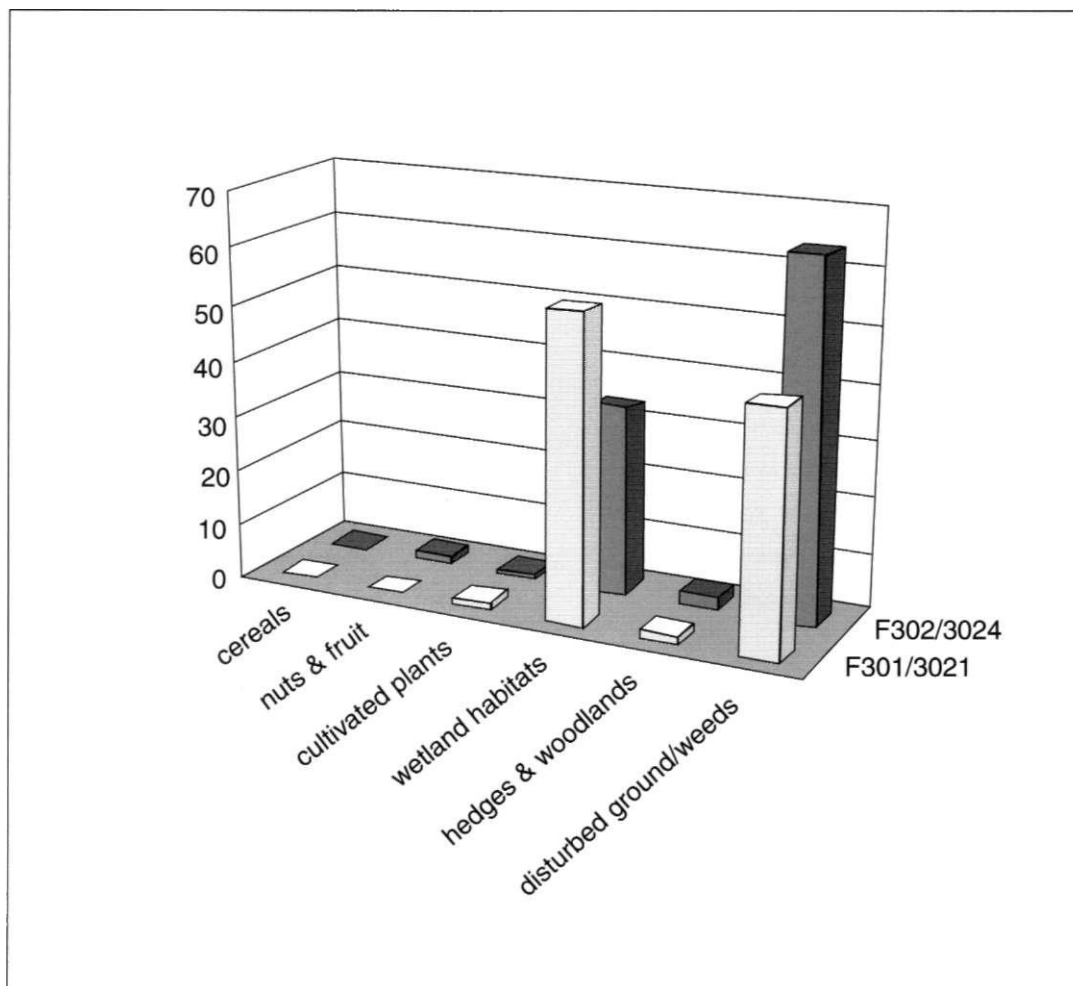


Fig. 9 Percentages of different plant macroremains arranged by habitats

EVIDENCE OF INDUSTRIAL ACTIVITIES

The wild plant assemblage from the two barrels gives important information regarding the local habitat. Similarly, the cultivated plants provide important information on the activities associated with the barrels. The large concentration of wood fragments (Gale below, pp. 31¹⁰), decomposed bark and bark sclereids (Hall below, p. 24) from sample F302/3024 certainly relate to tanning (Hall 1997; Cameron 1998; Ciaraldi forthcoming). It is known that oak bark was particularly suited to the curing of leather (vegetable tanning) because of its high tannin content, and one stage of the tanning process involved the soaking of hides in a tanning liquor obtained from oak bark which aided the preservation of the hide and the uniformity of the colour (Thomson 1981). This activity may have been undertaken using the barrels discovered on the site, or other structures present in nearby areas, not excavated. Tanning, indeed, is generally associated with the presence of large structures, such as tanning pits, but if only barrels were part of the tanning process, that could indicate small-scale activity, in contrast with other sites in the West Midlands. In medieval and post-medieval Birmingham (Mould 2001; Burrows 2002) and Lichfield (Nichol and Ratkai 2004), the evidence points to the presence of larger-scale industry. The presence of leather off-cuts in deposits of the same period (Hancocks above, p. 19), seems also to suggest that leatherworking was carried out on-site.

Hemp seeds were found in both sampled barrels, though more abundantly in sample F301/3021, where unusual quantities of *Cannabis-like* pollen were also recorded (Greig below, p. 29). This suggests that both barrels might also have been used during stages of retting hemp. The process of retting hemp involves the immersion in water of the plant stems (reeds) which have been cleaned of their leaves. During immersion the reeds slowly rot, allowing an easier separation of the bast fibres

from the rest of the stem. The well-retted reeds were then left to dry in fields or on river banks and were then broken with wooden mallets or between two fluted rollers, so that the fibres were separated. The separation of the fibres was then further aided by scutching (rubbing and striking of the stems) and heckling (or hackling: the combing of the fibres with special combs). After these processes, the fibres were ready to be spun.

The use of barrels to ret hemp, though possible, is surprising given the fact that hemp plants can reach heights of 3[^]1m, making the immersion of the reeds in the barrel quite difficult (Allan Hall pers. comm.). Archaeological sites where hemp or flax retting (flax undergoes a similar retting process for the fibre extraction) is attested, generally have large vats dug into the ground (e.g. Pals *et al.* 1988; Murphy 1988) and are found in the vicinity of streams and ditches (e.g. in the case of Birmingham: Ciaraldi 2002). It is possible, however, that only some of the stages of the retting process took place in a barrel; for instance, the leaves and other parts of the plants might have been discarded in the barrels or the seeds might have been stored or soaked in them before being planted. This latter hypothesis seems to be supported by a practice in use during the 18th century and mentioned by Mortimer. Talking about the cultivation of hemp, Mortimer (1707, 50-52, cit. in Finberg 1967, 166) says:

the best hempseeds were imported from Holland. Various steeps for seeds were used before sowing. A much-used method was to steep the seeds in brine and then mix it with unslaked lime. This was to prevent smut and deter birds. Another recipe used salt, red lead and water and yet another sheep dung steeped in water.

Evidence of an increase in the cultivation of hemp is also revealed in the pollen sequence (Greig below, p. 28), possibly correlating with the activities of retting associated with the barrels. If retting did not occur in the barrels themselves, it might have taken place somewhere else on the site, perhaps in an area not covered by the excavation, either in vats dug into the peat, as seems to have been the case at Askam Bog (Bradshaw *et al.* 1981), or in a nearby stream, ditch, or pond as was the case at Birmingham (Ciaraldi 2002).

It is not clear what Structure 1 was used for, but in light of the suggestion that hemp retting might have been carried out on the site, it is interesting to compare Structure 1 with one of the stages of hemp processing described in the 17th century (Markham 1986, 178-79):

... according to the quantity (of hemp bundles); knock foure of fixe strong stakes into the bottom of the water, and set them square-wise, then lay your round baits or bundles of Hempe downe under the water, the thicke end of one bundle one way, and the thicke ends of another, bundle another way; and so lay baite upon baite, till you have laid in all, and that the water covereth them all over; then you shall take over-lyers of wood and binding them overthwart to the stakes keepe the Hempe downe close, and especially, at the foure cornerns' then take great stones, gravell and over a heavy rubbish, and lay it betweene; and over the over-lyers, and so cover the Hempe close....

This would imply that the area around Structure 1 was underwater and that it progressively emerged due to the growth of the peat deposit.

Hemp seeds are rarely found charred but they are frequently preserved, together with hemp pollen, under waterlogged conditions. This is not surprising since the retting process requires the proximity of watercourses and wet areas. The need for the large quantities of water required for retting and tanning must have played an important role in the choice of the site location. The area of 'The Pavement', with easy access to water and at the edge of the town, must have represented an ideal setting.

Hemp fibres can be used in the manufacture of numerous articles, such as cordages, coarse clothes, bed linen, sacks, and sails. The high content of cellulose, moreover, makes it a suitable and cheaper substitute for trees in the production of paper (Robinson 1996). The importance of these products in the past suggests that the role of hemp in the economy must have been important during the medieval and post-medieval periods. There is, in fact, a growing body of archaeological evidence which demonstrates widespread cultivation and processing of hemp. The available evidence for hemp processing and cultivation has so far been concentrated in areas such as Norfolk (Peglar *et al.* 1989), Yorkshire (Bradshaw *et al.* 1981; Bronx Ramsey 2000), Cumbria (Cox *et al.* 2000 and 2001), and Scotland (Edwards and Whittington 1990), but more recently there is growing evidence from the Midlands too (Ciaraldi 2000, 2002, and forthcoming; Hall 2001). Hemp was also present at the nearby site of Stone (Moffett and Smith 1996), although there seemed to have been little evidence of hemp processing at Stone. Historical sources also mention hemp or flax retting at Aqualate Mere, Staffordshire during the 17th century (Leah *et al.* 1998)

Although hemp cultivation was a labour-consuming occupation, it was evidently profitable as hemp was considered particularly suitable for the production of coarse clothes (Finberg 1967, 13).

The production of ropes and sacks must have been very important and, at Brewood, in particular, a certain Elisabeth Bate, was registered as a rope maker in the poll tax of 1381 (Horovitz 1992), a date which corresponds relatively well with the archaeological evidence for the use of the site. The direct involvement of a woman in the manufacture of hemp products is not surprising as this occupation was regarded as particularly suited to women, especially in the 16th and 17th century (Finberg 1967, 40; Walton 1991). The production of ropes at Brewood must have had a long history, and was still carried out at the Black Lion at Slade Heath in 1838, where there was a rope walk (Horovitz 1992, 280), a straight, flat path along which the ropemaker walked backwards, drawing out fibres from a bundle of hemp round the waist (Green 1981). Evidence of a long-standing hemp cultivation and processing is also attested in areas of Shropshire, where the presence of suitable environmental settings as well as local skills played an important role in the permanence of the industry (Green 1981).

Finally, a note should be made about the presence of another plant species, that of the curled dock (*Rumex crispus* L.), found in the assemblages from Sample F301/3021. The seeds were particularly abundant in that context, unlike in other areas of the site (with the exception of 2060: Greig below, p. 29), and it is possible that plants of curled dock started to proliferate in a barrel after it had gone out of use. The high production of seeds per plant can explain such a high concentration of seeds in a single context. The presence of curled dock in the peat sequence in Sample 3 (Greig below) might suggest that the plant was present also in other parts of the site. There is, however, a more intriguing explanation: possible use of curled dock in relation to the tanning or hemp retting process. The roots and stems of the plant are used for the production of tannin/dyestuff (Wiggings 1980, cited in SEPASAL database: Kew Gardens), and it could be that the dye produced by the plant was employed in the dyeing of hemp clothes, or as another source of tannin for leather.

BARK SCLEREIDS *by Allan Hall*

A small sub-sample taken from the deposit from barrel F302/3024 was examined to check the presence of bark sclereids: stone-cells found in the support tissue of plants (schlerenchyma). Their occurrence in the fill indicates that bark was present and that it was partially degraded, a fact consistent with the production of tanning liquor. The coarser (>2mm) fraction of the sample contained mostly rather decayed bark in fragments up to about 25mm, on the surfaces of which bark sclereids are beginning to appear as erosion occurs. There are rather fewer fragments of wood, including one large fragment (to about 30mm) which may well be a 'chip', and a smaller, very dark-coloured fragment (probably of oak). Much of the <2mm fraction consists of further fragments of very decayed bark with modest numbers of sclereids, the bulk being bark rather than sclereids. The latter are usually paler in colour and spongier in texture when prodded with fine forceps, and they break up less easily when thus prodded than do the bark fragments of similar size and shape.

POLLEN AND SEEDS FROM PEAT DEPOSITS *by James Greig*

During the evaluation (Cutler and Dingwall 2001) a 100cm profile was collected in section 1 (Table 3) from the peat bed for pollen analysis, and was evaluated on the basis of seven pollen samples and some seed results (Greig 2001). The subsequent excavation opened up more of the peat bed and provided the chance to sample another, deeper section of 150cm for pollen analysis, in order to discover the history of the landscape.

The stratigraphy observed in the section was as follows (with depths given from the present ground surface):

- 0-c. 25cm grassland vegetation and topsoil (not sampled)
- 25-125cm silty peat with some wood c. 60-65 but little visible stratigraphy
- 125-150cm peat
- 150cm gravel (not sampled)

The section was sampled using monolith boxes and these were later sub-sampled at an interval of 5cm. Sixteen of these sub-samples have been processed and counted. In addition samples from the two barrels uncovered during the watching brief were also examined for pollen and macrofossils, in addition to those studies by Ciaraldi (above, pp. 19-24).

Table 3 Pollen profile from Section 1. Main results and interpretations

Depth cm	Change	Interpretation	Suggested date
40-0	no Tilia, lowest tree and shrub pollen ca 20%. No more Cannabaceae above 20 cm; increased Plantago lanceolata and Lactuceae; Sparganium present, Cyperaceae increased from 30cm; no more Trichuris	Further woodland clearance; changing agriculture; more grassland; some local changes to wetland; drainage changes	?Fairly recent changes
60-40	lower Tilia and Alnus, increased herb pollen; Centaurea cyanus starts	woodland clearance	medieval
120-60	lower Quercus, Alnus, Corylus; Ericales and Ilex start; Cannabaceae starts at 80 cm; Secale, Anthemis tp, Centaurea nigra, Trichuris start at 110 cm; herbs increase, peak of Cyperaceae at 110 cm; peat becomes silty from 120 cm	clearance of woodland on dry land and alder carr on peat; development of health and secondary holly woodland; hemp and rye grown with associated weeds, erosion of soil on to marsh, increase in grassland, deposition of sewage on marsh, growth of sedge following clearance of alder carr.	was this the assart when Brewood was founded?
150-120	woodland with Quercus, Alnus, Corylus, Tilia, Fraxinus; 30% herb pollen includes Plantago lanceolata and Cerealia	mainly wooded with alder/oak carr on marsh and mixed lime and oak wood on drier land; slight signs of human activity.	sequence starts, may be Roman date

METHODOLOGY

Pollen samples were processed using the standard method: about 1cm³ sub-samples were dispersed in dilute NaOH and filtered through a 70um mesh to remove coarser material, which was then scanned under a stereo microscope. The finer organic part of the sample was concentrated by swirl separation on a shallow dish. Fine material was removed by filtration on a 10um mesh. The material was acetolysed to remove cellulose, stained with safranin and mounted on microscope slides in glycerol jelly. Counting was done with a Leitz Dialux microscope. Identification was using the writer's pollen reference collection, seen with a Leitz Lablux microscope. Standard reference works were used, notably Faegri and Iversen (1989) and Andrew (1984). In addition to pollen, parasite ova were identified and counted for the extra evidence that they provide.

The pollen diagram is based on the rather small pollen counts that could be done in the limited time available for this project. The evidence, although not very accurate statistically, is nonetheless useful. The pollen counts have been calculated into percentages and drawn in a pollen diagram with the TILIA programme (Grimm 1990) (Fig. 10 and Table 3). The nomenclature and order of the taxa follow Bennett (1994) and Kent (1992), respectively.

The pollen results are supported by results from macrofossils such as seeds. Three samples cover the monolith, No.52/2060 bottom peat however - about 110cm, No.53/2060 top peat - roughly 60cm and No.54/2058 - roughly 35cm. Sub-samples of 100-200ml material were measured out, broken down in water, and the lighter, organic, fraction, which was usually the majority of the material, washed over to separate it from the inorganic material and caught in a 300um sieve. The washover was sorted in water under a x10 stereo microscope and the plant remains identified and checked with the writer's own reference collections. The results are listed in taxonomic order (Kent 1992) in Table 4 (the pollen profile) and Table 5 (the barrels).

RESULTS

The results from the pollen column sampled (Table 4 and Fig. 10) can be discussed together with the pollen samples counted from the profile of the evaluation excavation and the macrofossil sample (Greig 2001) as these earlier results compare closely with the more recent ones. They confirm the consistency of the deposits, so it seems likely that the stratigraphy was not disturbed by insertion of wooden structures or other activities.

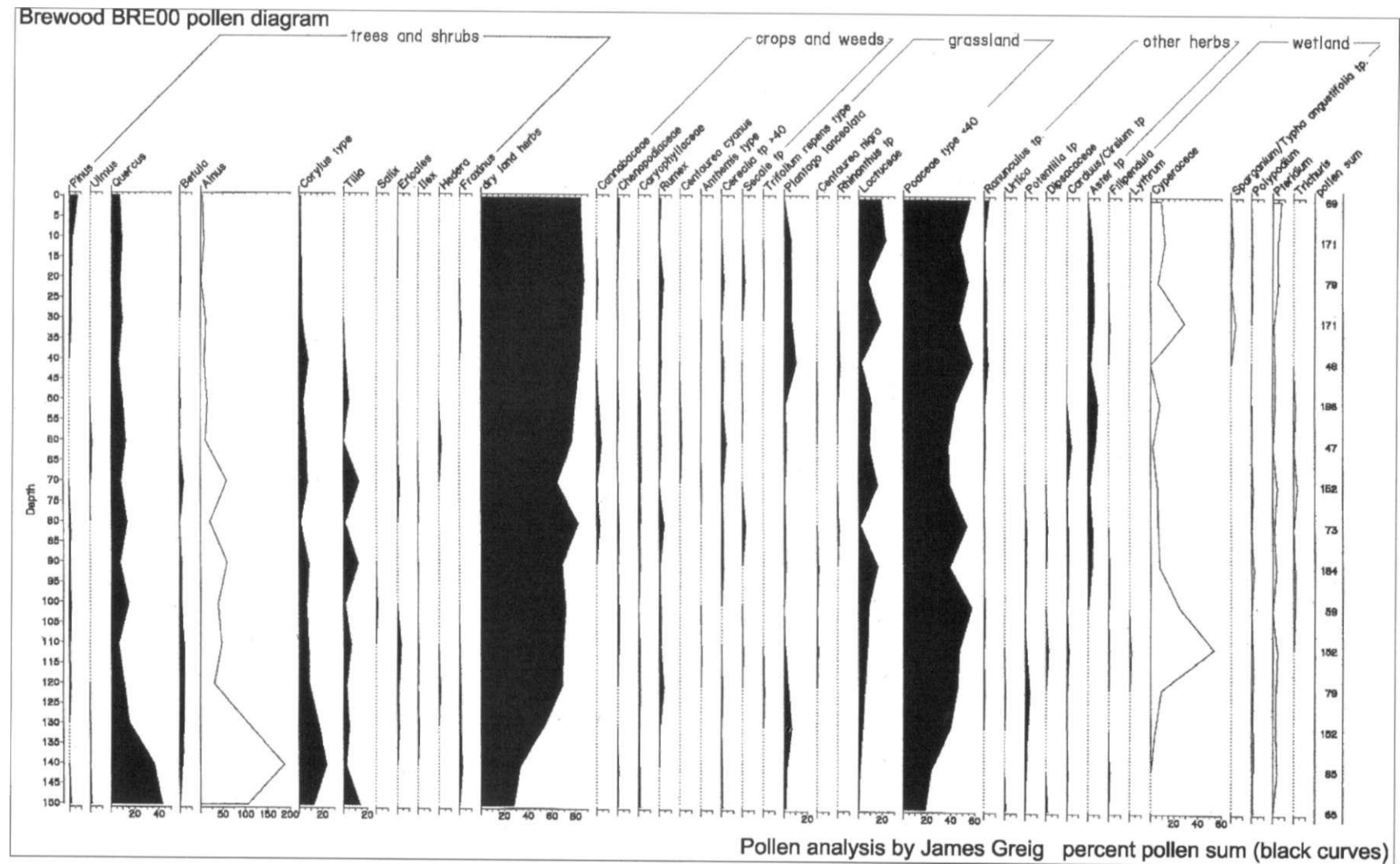


Fig. 10 Pollen diagram. Percent pollen sum.

Table 4 List of plant macroremains from Section 1. Names and order according to Stace (1997)

Sample:	52/2060 bottom peat	53/2060 top peat	2058	2049
Approx. depth (cm) in core	110	60	30	
bracken	<i>Pteridium aquilinum</i> L. frond	3-		
meadow buttercup	<i>Ranunculus</i> cf. <i>acris</i> L.		1	1
buttercup	<i>Ranunculus</i> sect <i>Ranunculus</i>	21	6	3
celery-leaved buttercup	<i>Ranunculus sceleratus</i> L.	1	36	4
lesser spearwort	<i>Ranunculus flammula</i> L.	1-		
hemp?	? <i>Cannabis sativa</i> L.	1-		
common nettle	<i>Urtica dioica</i> L.	6	7	8
small nettle	<i>Urtica urens</i> L.	2-		
alder seed	<i>Alnus glutinosa</i> (L.) Gaertner	1+	-	-
alder bud	<i>Alnus glutinosa</i> (L.) Gaertner	+	-	-
alder bud	<i>Alnus glutinosa</i> (L.) Gaertner	+	-	-
alder catkin	<i>Alnus glutinosa</i> (L.) Gaertner	+	-	-
fat hen	<i>Chenopodium</i> cf. <i>album</i> L.		2-	1
orache	<i>Atriplex</i> sp.	-	-	2
chickweed	<i>Stellaria media</i> (L.) Villars		1	22
bog stitchwort	<i>Stellaria uliginosa</i> Murray	2	13+	
mouse-ear chickweed	<i>Cerastium</i> sp.		2-	
ragged robin	<i>Lychnis flos-cuculi</i> L.		1	22-
corn spurrey	cf. <i>Spergula arvensis</i> L.		2-	
com cockle	cf. <i>Agrostemma githago</i> L.		1-	
pale persicaria	<i>Persicaria lapathifolia</i> (L.) Gray		1-	1
water-pepper	<i>Persicaria hydropiper</i> L.		1-	2
knotgrass	<i>Polygonum aviculare</i> L.			1
sheep's sorrel	<i>Rumex acetosella</i> L.			
dock	<i>Rumex</i> sp. (including <i>R. sanguineus</i>)	1	50	18
curled dock	<i>Rumex crispus</i> L.		10-	
clustered dock	<i>Rumex conglomeratus</i> Murray		3-	
wood dock	<i>Rumex sanguineus</i> L.		4-	
St John's-wort	<i>Hypericum</i> sp.	1-	-	
violet, pansy	<i>Viola</i> sp.		1-	1
willow bud	<i>Salix</i> sp.		2-	
cabbage, mustard	<i>Brassica</i> sp.		1-	
water-cress?	? <i>Rorippa</i> sp.		3-	
(wild) raspberry	<i>Rubus idaeus</i> L.		2-	
bramble or raspberry	<i>Rubus</i> sp.	2	1-	4
tormentil	<i>Potentilla erecta</i> (L.) Rausch	4-	-	
parsley-piert	<i>Aphanes</i> sp.		1-	
clover	<i>Trifolium</i> sp. calyx	+	-	-
willowherb	<i>Epilobium</i> sp.		13-	
spurge	<i>Euphorbia</i> sp.		1-	
flax capsule?	<i>Linum usitatissimum</i> L.		1-	1
marsh pennywort	<i>Hydrocotyle vulgaris</i> L.	6	2	-
fool's water-cress	<i>Apium nodiflorum</i> (L.) Lag.		15-	
henbane	<i>Hyoscyamus niger</i> L.	+	-	-
vervain	<i>Verbena officinalis</i> L.	2	-	-
dead-nettle	<i>Lamium</i> sp.	-	-	4
hemp-nettle	<i>Galeopsis</i> sp.		2-	
self-heal	<i>Prunella vulgaris</i> L.	1+	-	-
gypsywort	<i>Lycopus europaeus</i> L.		2-	
mint	<i>Mentha</i> sp.			1
greater plantain	<i>Plantago major</i> L.			1
elder	<i>Sambucus nigra</i> L.	+	-	2
cornflower	<i>Centaurea cyanus</i> L.	+	-	-
prickly sow-thistle	<i>Sonchus asper</i> (L.) Hill	+		1-
hawks-beard	<i>Crepis capillaris</i> (L.) Wallr.			
daisy	<i>Bellis perennis</i> L.		1-	
stinking mayweed	<i>Anthemis cotula</i> L.		2-	
corn marigold	cf. <i>Chrysanthemum segetum</i> L.		5-	
marsh ragwort	<i>Senecio aquaticus</i> Hill		3-	
rush	<i>Juncus</i> sp.	2	5-	3
bristle club-rush	<i>Isolepis setacea</i> R. Br.	3-	8	-
sedges	<i>Carex</i> subg. <i>Vignea</i>	4	2-	1
sedge	<i>Carex</i> subg. <i>Carex</i>	28-	-	3
flote-grass	<i>Glyceria</i> sp.		14+	
grasses	Poaceae nfi		2+	
cereals	Cerealia (rachis)	+	-	-
rye or oat	<i>Avena</i> / <i>Secale</i> charred grain			1
other remains				
moss				
charcoal fragments*		+	+	+
brick		-	+	-
coal		+	+	+
Trichoptera		+	-	-

POSSIBLE PRE-MEDIEVAL PHASE 150-120CM

The base of the sequence has been radiocarbon dated to 2260 ± 57 BP (Wk- 9438: 10 400 BC-200 BC cal.; 20 410 BC-170 BC cal.), suggesting that the early part of the sequence probably dates to the Iron Age. The sequence starts with signs of a dense woodland of alder and oak. Nearly 80% of the pollen is from trees and shrubs, not including alder. The alder and oak could well have been growing as carr woodland on or around the damp area by the brook, but the presence of *Tilia* (lime) and *Fraxinus* (ash), both of which are under-represented as pollen and are therefore more important than the records suggest, shows that there was probably extensive woodland with lime, ash, and oak on the drier land as well. *Betula* (birch) and *Pinus* (pine) were also present in small amounts, and a trace of *Ulmus* (elm).

Signs of open land are correspondingly few, but some weeds are present and there is a small but constant record of cereal pollen, suggesting that there was some settlement in the vicinity. This early wooded phase was also recorded in the pollen diagram of the evaluation (Greig 2001).

POSSIBLE SAXON TO MEDIEVAL ACTIVITY 120-60CM

The presence of pollen of *Secale* (rye) and *Centaurea* (cornflower) suggests a possible medieval date for the pollen assemblage from this part of the section. Rye was grown as a crop in Saxon and medieval times, while cornflower is a typical medieval weed. There are a number of connected changes at 120cm. There is a great reduction in trees down to 40% of the pollen. The reduction in tree and shrub pollen shows that woodland was cleared, both the local alder carr as well as the wood on dry land, the latter now having records of *Ilex* (holly). *Populus* (poplar) was not found as pollen, although it was identified from the wood (Gale below, p. 35). There are corresponding macrofossil records only of *Alnus* (alder), *Corylus* (hazel), *Salix* (willow), with the addition of elder (*Sambucus nigra* L.), but this is normal, for macrofossil records of most trees and shrubs are rather poor. The seeds do indicate a possible woodland understory of herbs such as nettle (*Urtica dioica* L.) and possible bramble (*Rubus* sp.).

There is a corresponding increase in pollen records from herbs from 30% to around 65%. There are pollen records of crops such as rye (*Secale cereale* L.) from 110cm and *Cannabis* type (probably hemp) from 80cm. The ova of the intestinal parasite *Trichuris* sp. is present from 100cm, showing that sewage probably flowing into the mire (Dyer below, p. 49). The corresponding identifications from seeds give a much more detailed idea of the plants that were present and add a number of significant ones. There are macrofossil records of possible hemp (*Cannabis* sp.), *Brassica* sp. (cabbages mustard etc.), flax (*Linum usitatissimum* L.), and rachis remains of cereals. All are normal medieval crops. Although the presence of hemp and flax remains in the swamp could be explained by the need to process them there by retting (Ciaraldi above), the other remains must have come from dry land, together with a range of weeds and grassland plants discussed below. This dry land flora shows that human activity or settlement was close enough to the mire for remains to be deposited and preserved there and provide a very useful record of the history of the small town of Brewood.

The Cannabaceae pollen record from the profile is quite small, and much less than would be expected from large-scale hemp retting in the vicinity, in which hemp can be one of the most abundant pollen types of all (Bradshaw *et al.* 1981). This does not exclude hemp retting, which could well have been done at other places in the marsh. Indeed, a larger hemp pollen record was found in one of the barrels (see below, p. 29).

There are seed records of a number of weeds. Some of these are specifically cornfield weeds such as possible com cockle (*Agrostemma githago* L.), cornflower (*Centaurea cyanus* L.), stinking mayweed (*Anthemis cotula* L.), and possible com marigold (*Chrysanthemum segetum* L.). Along with many of the other less habitat specific ones such as small nettle (*Urtica urens* L.), fat hen (*Chenopodium* cf. *album*), chickweed (*Stellaria media* Villars), com spurrey (*Spergula arvensis* L.), parsley piert (*Aphanes* sp.), and prickly sow-thistle (*Sonchus asper* L.), they probably represent cornfield weeds together with cereals being stored, processed, or used nearby, close enough for their remains to be blown or otherwise deposited on the mire. The cornfields themselves were probably elsewhere, on suitable dry land around the town. Some of the weeds, such as com spurrey, show that the local soils being tilled were light and sandy. Henbane (*Hyoscyamus niger* L.) is a weed that may have grown on dung heaps.

Grassland of dry land is also shown by pollen records of ribwort plantain (*Plantago lanceolata* L.), knapweed (*Centaurea nigra* L.), and probably by Lactuceae (composites such as dandelions, hawkweeds, and so on) and Poaceae (grasses, but these can grow in a wider range of habitats than

just grassland). A fairly small number of grassland plants were also identified from seed records such as possible meadow buttercup (*Ranunculus cf acris*), clover (*Trifolium* sp.), self-heal (*Prunella vulgaris* L.), daisy (*Bellis perennis* L.), and hawks-beard (*Crepis* sp.), which, like the cereals, may not have grown locally, but may have been brought in with hay or dung. Bracken (*Pteridium* sp.) is present as spores throughout the diagram and also as frond fragments in sample 2060 (top peat). Bracken does not grow in wet places, so it must have been growing on dry land and possibly brought in to the town for uses such as animal bedding. There is also a record of Ericales pollen, representing heathers and so indicating heathland.

The plants actually growing on the mire have the best chance of being recorded in its deposits. Cyperaceae (sedge) pollen increases to a peak at 110cm (also seen in the pollen diagram of the evaluation), which seems to have been the response of swamp herbs to clearance of the alder wood, allowing them to grow and flower much more abundantly. The macrofossils show that sedge (*Carex* sp.) species were abundant. Other mire plants include buttercups (*Ranunculus* sect *Ranunculus*), lesser spearwort (*R. flammula* L.), celery-leaved buttercup (*R. sceleratus* L.), blinks (*Montia fontana* L.), bog stitchwort (*Stellaria uliginosa* Murray), ragged robin (*Lychnis flos-cuculi* L.), pale persicaria (*Persicaria lapathifolia* L.), water-pepper (*P. hydropiper* L.), willowherb (*Epilobium* sp.), marsh pennywort (*Hydrocotyle vulgaris* L.), fool's watercress (*Apium inundatum* Lag.), marsh ragwort (*Senecio aquaticus* Hill), rush (*Juncus* sp.), bristle club-rush (*Isolepis setacea* R.Br.), and sweet-grass (*Glyceria* sp.). A mire with such a flora could have been grazed.

A further local change is that the peat became silty in correspondence with this level. This is probably the result of cultivating the land, especially during the winter, which would have caused silt to be washed into the forming peat, making it silty. Other materials were being scattered around as well and included with the peat, such as charcoal and coal fragments.

With the town of Brewood right beside the mire, it would be only normal for the people to have used watercourses as natural drains to carry away their waste, and thus causing parasite ova to be deposited there. Such things are commonly found in urban deposits such as ditches, and especially in latrines. It would seem that this phase represents the growth of the settlement of Brewood, together with assarting of the surrounding woodland, during the 13th-14th century.

LATER CHANGES, 60-0CM

At 60cm there is further reduction in tree pollen indicating clearance of the alder and lime wood. There is a corresponding increase in herb pollen at 40cm, with a distinct increase in ribwort plantain (*Plantago lanceolata* L.) and Lactuceae (dandelions and similar composites), which suggests that grassland probably replaced swamp as the area gradually changed to damp pasture. The macrofossil assemblage from sample 2060 (top peat), representing the top of the peat has a rich dry land flora and a few sedges. The *Trichuris* records cease at this point (i.e. 40cm), whilst Cannabaceae records continue only to 20cm, but it is not clear whether this relates to changes in the deposition of sewage or from retting, or is the result of the cessation of hemp growing altogether.

There is a record of bur-reed or reedmace (*Sparganium/Typha angustifolia*) and increased Cyperaceae from 30cm upwards which could be from the flora of the stream bank.

It is not clear when deposition ends. Hemp was cultivated until the end of the 19th century, and the hemp record does appear to end before the top of the diagram, but there are few other indicators of age from the plant remains.

THE FINDS FROM THE BARRELS

Two pollen samples from F302/3021 and F302/3024 and a single small seed sample from F302/3024 have been examined (Table 5). Barrel F302/3024 contained 17% *Cannabis* pollen, which together with the seed records (Ciaraldi above, pp. 19-24) suggests hemp retting. Otherwise, the results proved very similar to those obtained from the rest of the deposit, suggesting that the other material accumulated in the same way as the rest of the deposit.

DISCUSSION AND CORRELATION WITH OTHER SITES

Most sites where there is evidence from waterlogged pollen and seeds, including this one, are wet places, which reflect swamp conditions, and to a lesser extent the nearby drier landscape which was farmed. The value of such sites for information on human activities depends largely how well they reflect events on the dry, occupied land as well as local events affecting the mire. Work on

Table 5 List of pollen and plant macroremains from the barrels. Names and order according to Stace (1997)

	Sample: Approx. depth (cm) in core	3024 macrorem.	3024 pollen	3021 pollen
pine	PINUS			3 -
buttercup	<i>Ranunculus</i> subg. <i>Ranunculus</i>		2 -	
probable hemp	CANNABIS-tp			20
common nettle	<i>Urtica dioica</i> L.		7 -	3
oak	QUERCUS			1 1 7
birch	BETULA			1 -
lder	ALNUS			9
hazel	CORYLUS			8
lime	TILIA	-		4
fat hen	<i>Chenopodium</i> sp.		1 -	
orache	<i>Atriplex</i> sp.		1 -	
above two taxa	CHENOPODIACEAE			1 -
chickweed	<i>Stellaria media</i> (L.) Villars		2 -	
bog stitchwort	<i>Stellaria palustris</i> graminea		1 -	
corn cockle	? <i>Agrostemma githago</i> L.	+	-	-
above 3 taxa	CARYOPHYLLACEAE		1 -	
sheep's sorrel	<i>Rumex acetosella</i> L.		1 -	
dock	<i>Rumex</i> sp. (including <i>R. sanguineus</i>)		9 -	
docks	RUMEX			2
violet, pansy	<i>Viola</i> sp.		1 -	1
bramble/raspberry	<i>Rubus</i> sp.		2 -	
meadowsweet	FTLIPENDULA			1 -
rest-harrow	ONONIS			1 -
vetch/wild pea	VICIA/LATHYRUS		-1	1 -
umbellifer family	Apiaceae		1 -	
self-heal	<i>Prunella vulgaris</i> L.		1 -	
mint	<i>Mentha</i> sp.		1 -	
ash	FRAXINUS			3
stinking mayweed	<i>Anthemis cotula</i> L.		1 -	
daisies etc	ASTER tp			1
dandelions etc.	LACTUCEAE			6
rush	<i>Juncus</i> sp.		1 -	3
spike-rush	<i>Eleocharis</i> sp.		1 -	
sedges	<i>Carex</i> subg. <i>Vignea</i>		2 -	
sedges etc.	CYPERACEAE			1
grasses	Poaceae nfi		1 -	
grasses	POACEAE			31
mainly cereals	CEREALIA			1 -
rye	SECALE			2 -
Other remains				
whip-worm	<i>Trichiuris</i>			2 -
	charcoal fragments+	+	-	-
	brick	+	-	-
	Coleoptera remains	+	-	-

pond and moat deposits at another site, Lawn Farm near Stoke-on-Trent (Greig 1998), provided a picture rather similar to that obtained from Brewood, with signs of local alder carr and rather slight evidence of farming and occupation.

However, other parts of the medieval landscape show much stronger signs of occupation and farming. Pollen results from Lamascote Road, Stafford, provide a radiocarbon-dated medieval sequence, which can be compared with the results from Brewood (Greig 1999). There was generally much less tree pollen at Stafford in the medieval period, but the local alder wood was again the last to be cleared, although long before that at Brewood. Also at Stafford, there was a much larger range of crops and more signs of cereals and of hemp, as one might expect from a site a few hundred metres from such a substantial town, and a landscape which was probably far more intensely occupied than the one around Brewood. The King's Pool seems to have been used by the people of Stafford as a rubbish dump and provides a rather good record of human activities in its sediments.

In contrast, a pollen diagram from Cookley, Worcestershire (Greig in preparation), which covers the medieval period in unusual detail, also seems to show extensive occupation of the landscape,

although there was no large settlement nearby, with records of the many crops that were grown on the adjoining dry land such as rye and other cereals, hemp, beans, and flax, together with occasional records of walnut.

The density of occupation and amount of surviving woodland during the medieval period may well have varied considerably from place to place, as shown by an historical study of woodlands in Warwickshire (Wager 1998). Doubtless there is a similar story to be unravelled from the records of Staffordshire.

The importance of a site such as Brewood is that it provides a very rare chance to follow the establishment and history of a small town in the middle ages, and the results can be compared with the historical record (Dyer below, pp. 46-9).

WATERLOGGED WOOD *by Rowena Gale*

The waterlogged soils on site ensured that wooden components in the medieval platform and other features were unusually well preserved. In Structure 2, for example, over 100 wooden poles remained *in situ* as part of the platform. Dendrochronology on an upright post (Sample E) dated the structure to the mid 13th century. The economic evidence (discussed below, pp. 37-9) for the selection and use of timber is supplemented by detailed analysis of its growth and development and the implications for environmental reconstruction. These results are considered in relation to the rest of the palaeoenvironmental evidence to obtain an overall picture of the woodland environment at Brewood. The study is important not only for Brewood, which is located in an area of Staffordshire for which few comparative records exist for the medieval period, but also on a regional level.

Fifty-seven samples were selected for detailed examination as follows:

Timbers from Structure 2: 47 samples

Narrow roundwood from Structure 2: 1 sample

Timber from Structure 3: 1 sample

Upright from Structure 2/3: 1 sample

Timber from contexts 3048 and 3004: 3 samples

Wood from barrel 3017 and drain 3049: 4 samples

A sample from the contents of barrel F302/3024 was also examined.

MATERIALS AND METHODS

Short sections were removed on site from selected timbers by M. Ciaraldi. Most of the samples were extremely well-preserved although a few in the vicinity of the brook were degraded. The former were pale in colour and firm in texture, and several specimens retained bark. The wood was prepared for identification using standard methods (Gale and Cutler 2000) and examined using a Nikon Labophot-2 microscope at magnifications up to x400. The anatomical structure was matched to reference material.

The diameter and number of growth rings were recorded for each sample. The maturity of the wood was assessed and, when possible, the number of rings of sapwood and heartwood was noted, although in most samples the sapwood/ heartwood interface was inconspicuous. In ring porous wood (e.g. oak) the heartwood is easily identified by tyloses present in the large earlywood vessels, whereas in diffuse porous woods (e.g. alder, birch, and poplar) heartwood is often indicated by colour changes; these may be comparatively slight and are usually impossible to detect in archaeological material.

RESULTS

A summary of the wood analysis (Tables 6-8) gives details of coppiced stems from Sample 45. Table 9 shows the wood taxa identified from the contents of barrel F302/3024. The taxa identified are indicated in the list below. Where a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features, and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). Classification follows that of *Flora Europaea* (Tutin *et al.* 1964—80):

Table 6 Wooden components of the main platform and barrel 2049: taxa identified and details of taxa and growth and dimensions of roundwood.

		Number of growth rings					
Samp	Taxon	Roundw'd diameter in mm	Total	Sap wood	Heart wood	Bark	Description and comments
Structure 2							
I	<i>Populus</i> sp.	220	c.76	-	-	-	Large log in section. Wood very hard; growth very slow; s/h inconspicuous; v/c abraded
3	<i>Alnus</i> sp.	110	c.22	c.4	c.18		South side of platform. Group with 2, 4 and 5, worked wood. Wood degraded; growth fairly slow; v/c present
4	sp.	85	28		-	-	South side of platform. Group with 2, 3 and 5, worked wood. Wood firm; s/h inconspicuous; v/c abraded
5	<i>Alnus</i> sp.	90	35	-	-	-	South side of platform. Group with 2, 3 and 4, worked wood. Wood fairly slow grown; s/h inconspicuous; v/c abraded
7	<i>A/rtMs</i> sp.	95	c.41	-	-	+	South side of platform, thick log. Wood slow grown, early rings narrow, s/h inconspicuous, felled winter/ early spring
7.5	<i>Alnus</i> sp.	50	6	-	-	-	South side of platform, thin log. Wood fast-grown
8	<i>Alnus</i> sp.	85 x 80	31	c. 5	c. 19		South side of platform, thin log. Wood firm; inner rings narrow, slow grown; v/c abraded
9	<i>Alnus</i> sp.	110 x 100	26				South side of platform, worked wood. Wood firm; s/h inconspicuous; v/c abraded ; felled when dormant
9.5	<i>Alnus</i> sp.	56	14	-	-	-	South side of platform, smaller wood. Wood firm, v/c abraded, coppice growth
	<i>A/nus</i> sp.	50	19	-	-	-	South side of platform, smaller wood. Wood firm, v/c abraded, coppice growth
10	<i>Alnus</i> sp.	100 x 95	35		-	-	Grouped with samples 10.5, 11 and 12, similar in thickness and wood-working; almost as long as the entire platform. Wood firm, outer rings rather narrow; s/h inconspicuous; v/c abraded
II	<i>Alnus</i> sp.	110	38	-	-	-	Grouped with samples 10, 10.5, and 12, similar in thickness and wood-working; almost as long as the entire platform. Wood firm; s/h inconspicuous; v/c abraded; felled when dormant
12	<i>Alnus</i> sp.	95	39				Grouped with samples 10, 10.5, and 11, similar in thickness and wood-working; almost as long as the entire platform. Wood firm; outer 22 rings very narrow; s/h inconspicuous; v/c abraded
13	<i>Alnus</i> sp.	100 x 90	30		-	-	Grouped with 13.5-16, all of similar thickness, sample 13 is the thin end of the log. Wood firm; s/h inconspicuous; v/c abraded
13.5	<i>Alnus</i> sp.	60	10			+	Grouped with 13-16, all of similar thickness. Wood moderate growth; s/h inconspicuous; v/c abraded
14	<i>Alnus</i> sp.	85	26				Grouped with 13-16, all of similar thickness. Wood firm, early rings wide; s/h inconspicuous; v/c abraded
14.5	<i>Alnus</i> sp.	35	17		-	-	Grouped with 13-16, all of similar thickness. Wood firm, inner rings wide; s/h inconspicuous; v/c abraded
15	<i>Alnus</i> sp.	85 x 75	22		-	-	Grouped with 13.5-16, all of similar thickness. Wood firm, early rings fast-grown; s/h inconspicuous; v/c abraded
15.5	<i>Alnus</i> sp.	70	14		-	+	Grouped with 13-16, all of similar thickness. Wood firm; early rings wide; s/h inconspicuous

Table 6 (Continued)

Samp	Taxon	Roundw'd diameter in mm	Number of growth rings			Bark	Description and comments
			Total	Sap wood	Heart wood		
16	<i>Alnus</i> sp.	100	14				Grouped with 13-16, all of similar thickness. Wood firm; moderate growth rate; s/h inconspicuous; v/c abraded
17	<i>Alnus</i> sp.	110 x 105	c. 37				North side of platform, worked wood. Wood firm; moderate growth rate; s/h inconspicuous; v/c abraded
17.5	<i>Alnus</i> sp.	80	24	-	-	-	North side of platform, worked wood. Wood firm; s/h inconspicuous; v/c abraded
18	<i>Alnus</i> sp.	100	c. 25	-	-		North side of platform, worked wood. Wood very degraded; s/h inconspicuous; v/c abraded
19	<i>Alnus</i> sp.	140	c. 41				North side of platform, long log L=1.7m, worked wood. Wood degraded; s/h inconspicuous; v/c abraded
20	<i>Alnus</i> sp.	90	29				North side of platform, short log, L=30cm, running under sandstone slabs. Wood degraded; s/h inconspicuous; v/c abraded
21	<i>Alnus</i> sp.	140 x 130	33				North side of platform, short log, L=30 m, worked wood. Wood degraded; s/h inconspicuous; v/c abraded
22	<i>Alnus</i> sp.	140	28			+	North side of platform, short log, L=25cm, worked wood. Wood moderate to fast growth, inner rings not wide; s/h inconspicuous; v/c abraded
23	<i>Betula</i> sp.	140	31	c.8	c.23	+	Wood growth fairly slow, average ring width 2-3mm
24	<i>Alnus</i> sp.	135	29			+	North side of platform, L=2.5m, worked wood, runs under sandstone in centre of platform. Wood degraded, early rings wide fast-grown; s/h inconspicuous
25	<i>Alnus</i> sp.	125	c.22			+	Wood degraded; s/h inconspicuous; v/c abraded
26	<i>Quercus</i> sp.	est. >160	>42	-	-		Incomplete radial segment, heartwood very degraded, growth variable mostly slow, sapwood probably absent
27	<i>Alnus</i> sp.	100	27				South side of platform. Wood firm, moderate growth, s/h inconspicuous; v/c abraded
27	<i>Alnus</i> sp.	100 x 80	34				Wood degraded; moderate growth rate, s/h inconspicuous; v/c abraded
28	<i>Alnus</i> sp.	120 x 110	34			+	South side of platform, L=3.5^m, worked wood. Wood firm, growth rate moderate but with conspicuous band of 14 decreasing rings, abruptly returning to moderate growth, s/h inconspicuous; v/c abraded
29	<i>Alnus</i> sp.	105 x 95	25				South side of platform, log not straight, L=3.5m, worked wood. Wood degraded; s/h inconspicuous; v/c abraded
30	<i>Alnus</i> sp.	100	35			+	South side of platform, short log, L=c.50cm, worked wood. Wood firm; moderate growth; felled when dormant
31	<i>Alnus</i> sp.	80	28				South side of platform, worked wood. Wood degraded, inner rings wide; s/h inconspicuous; v/c abraded
32	<i>Alnus</i> sp.	80 x 70		-	-	-	South side of platform, worked wood, log ? running beneath cobbled area. Wood very degraded; s/h inconspicuous; v/c abraded
33	<i>Alnus</i> sp.	90 x 80	25		-	-	South side of platform, worked wood, ? running beneath cobbled area, ? same log as 13-14. Wood degraded; s/h inconspicuous; v/c abraded

Table 6 (Continued)

Samp	Taxon	Roundw'd diameter in mm	Number of growth rings			Bark	Description and comments
			Total	Sap wood	Heart wood		
34	<i>Alnus</i> sp.	90 x 70	29		-	H	South side of platform, worked wood, log runs under sandstone. Wood degraded; early rings wide; s/h inconspicuous; v/c abraded
37	<i>Alnus</i> sp.	95 x 80	18	c. 4	c. 14	H	South side of platform. Felled when dormant
38	<i>Alnus</i> sp.	135 x 120	26	c. 4	c.22	H	Wood firm; moderate growth rate
39	<i>Alnus</i> sp.	90	16	c.2	c.13	-	South side of platform. Wood firm, v/c present
40	<i>Alnus</i> sp.	90 x 80	30			-	South side of platform, worked wood. Wood: early rings narrow; s/h inconspicuous; felled early spring
41	<i>Alnus</i> sp.	80	29			H	Wood degraded; early rings narrow; s/h inconspicuous
42	<i>Alnus</i> sp.	75	21	-	-	-	North side of platform, L=3.5m. Wood firm, early rings wide; s/w inconspicuous; v/c present
45	<i>Alnus</i> sp.	Table 2	-	-	-	±	Various small twigs/ stems collected from the top of the platform, in the central area. 21 fragments identified, see Tables 2 and 3.
D	<i>Populus</i> sp.	200 x 160	16			+	Upright. Wood very fast grown, inner 3 rings 10mm wide
E	<i>Quercus</i> sp.	> 180	>105	-	>105	-	Upright. Heartwood fragment from wide trunk/ cordwood; consistently slow growth, average ring width <1mm
Structure 3							
36	<i>Alnus</i> sp.	75	14	c.2	c.12		Wood firm
M	<i>Quercus</i> sp.	radius: 85	28	23	5	-	Upright. Wood growth moderate: rings 3-5mm wide
Structure 4							
105	<i>Alnus</i> sp.	est. 70	-	-	-	-	3004 Upright squared and pointed. Wood fragmented
106	<i>Alnus</i> sp.	75	11	-	-	-	3004 Upright. Felled mid/ late summer
Other artefactual samples							
61	See Table 4	-	-	-	-	-	Woody remains from the fill of barrel 3024 F304/3049 Flat board, from top of drain.
100	<i>Quercus</i> sp.	est. >320	>49	-	-	-	Incomplete radial segment, heartwood, moderate growth, average ring width 3mm, sapwood absent
101	<i>Quercus</i> sp.	est. >220	>31		>31		F306/3048 Upright. Incomplete radial segment; heartwood, moderate growth, average ring width 3^tmm, sapwood absent.
102	<i>Alnus</i> sp.	est. >180	31				F304/3049 Flat board from side of drain. Incomplete radial segment; wood firm, fast grown; s/h inconspicuous; v/c abraded
103	<i>Quercus</i> sp.	est. > 360	>149	-	>149		F302/3017 Barrel. Incomplete radial segment of heartwood; inner growth rate moderate; outer 80 rings decreasing to average width <1mm.
104	<i>Quercus</i> sp.	est. >520	>161	-	>161		F302/3017 Barrel. Round-sided bottom. Incomplete radial segment of heartwood; average inner ring width 2-3mm, reducing to 1-2mm at outer edge

Key: s/h = sapwood/ heartwood interface; v/c = vascular cambial surface.

Betulaceae. *Alnus glutinosa* (L.) Gaertner, European alder; *Betula* spp., birch
 Corylaceae. *Corylus avellana* L., hazel
 Fagaceae. *Quercus* spp., oak
 Oleaceae. *Fraxinus excelsior* L., ash
 Salicaceae. *Populus* spp., poplar

STRUCTURE 2 (Table 6)

The existing structure consisted of two layers of horizontal timber poles, set at right-angles. The lower layer (2047) extended to a width of 6m and rested on natural gravel, while the upper layer (2008) was more closely packed and overlay a reworked deposit of gravel. Uprights set at intervals along the south-eastern edge of the platform may originally have supported a superstructure. Tool-marks present on many of the timbers (Table 6) demonstrated their conversion to useable components.

Almost 100 poles were exposed in Structure 2, from which 46 horizontal members and two uprights were examined in detail (Fig. 5). Forty-three of the horizontal poles were identified as alder (*Alnus glutinosa*) poles, from 30-140mm in diameter but mostly within the 75-100mm range (Table 6). Exceptions included:

- Sample 23, a wide birch (*Betula* sp.) timber on the eastern edge of the structure.
- Sample 26, an incomplete radial segment of oak (*Quercus* sp.), from a timber estimated at more than 160mm in diameter. The sample was recovered from a small group of short timbers adjacent and close to the eastern edge of Structure 2.
- Sample 1, a substantial poplar (*Populus* sp.) log, some 220mm in diameter, consisting of very hard, slow grown wood. The timber was located at the northern corner of the excavated structure.

The occasional use of other timbers in the platform is difficult to interpret. It is possible that some, for instance Samples 1 and 26, were not actually incorporated into the body of the platform. Sample 1 was located at the interface of the northwestern boundary of the excavation in Area A and it is not known how far Structure 2 extended beyond this point. Sample 26 did not appear to be directly associated with the construction of Structure 2 but lay adjacent to it. Sample 23, on the other hand, was positioned towards the eastern edge of the structure but here the similarity in girth of the birch pole (Sample 23) to the adjacent alder poles suggests that this was probably the reason for its use.

The uprights included a substantial oak (*Quercus* sp.) post (Sample E), on the southern corner of the structure, measuring 180mm in diameter, and a wide poplar (*Populus* sp.) post (Sample D), some 200 x 160mm in diameter, located in the centre of the platform. Dendrochronological examination of Sample E produced a possible felling date of AD 1229-65 (Tyers below, p. 57).

A group of narrow roundwood fragments (Sample 45) was recovered from an area in the centre of Structure 2. The 21 pieces of alder (*Alnus glutinosa*) examined derived from coppiced stems, which ranged in diameter from 10-40mm (but mostly between 10-20mm) and in age from 2-9 years. All except two retained their bark and most were felled in late summer or early autumn. Ten of the stems included similar growth patterns and season of felling, suggesting that these either represented fragmented pieces from the same stem or several stems growing close together (i.e. in similar environmental conditions) and felled at the same time. The function of the rods was not clear; they may have been used to fill in gaps between the poles or, perhaps, they represent the remains of some other type of structure, such as a hurdle or a basket.

In summary, the timbers identified from Structure 2 indicated the consistent use of alder poles for the horizontal members of the raft, with very occasional use of poplar and birch. Wide trunks from oak and poplar were used for the uprights; alder does not appear to have been used, although not all the uprights were sampled. Size or strength may have been the relevant criteria in selecting the uprights. A group of narrow coppiced alder rods occurred in mid-platform, although their function or origin was not clear.

STRUCTURE 3

Structure 3 was located southwest of Structure 2. The remains of the timber raft lay directly over organic deposits (2049). Narrow poles were closely spaced and respected the alignment of Structures 2 and 4. Tool-marks on many of the timbers were related to felling and trimming. This structure was significantly smaller in area than Structure 2. A horizontal member, Sample 36, was identified as alder (*Alnus glutinosa*).

Table 7 Sample 45: coppiced wood fragments from mid-platform, Structure 2.

Taxon	Diameter in mm	No of growth rings	Bark in situ	Coppice growth	Season of felling
<i>Alnus</i> sp.	10	2	+	+	winter
<i>Alnus</i> sp.	10	3	+	+	undetermined
<i>Alnus</i> sp.	10	5	+	+	late summer/ autumn*
<i>Alnus</i> sp.	12	4	+	+	winter
<i>Alnus</i> sp.	13	4	+	+	late summer/ autumn
<i>Alnus</i> sp.	13	5	+	+	undetermined
<i>Alnus</i> sp.	15	4	+	+	undetermined
<i>Alnus</i> sp.	15	5	+	+	late summer/ autumn*
<i>Alnus</i> sp.	15	5	+	+	late summer/ autumn*
<i>Alnus</i> sp.	15	5	+	+	late summer/ autumn*
<i>Alnus</i> sp.	16	5	+	+	late summer / autumn*
<i>Alnus</i> sp.	18	5	+	+	late summer/ autumn*
A/ra« sp.	19	5	+	+	late summer/ autumn*
<i>Alnus</i> sp.	20	4	+	+	late summer/ autumn*
/M«H.S sp.	20	5	+	+	late summer/ autumn
<i>Alnus</i> sp.	20	5	+	+	late summer/ autumn*
<i>Alnus</i> sp.	20	6	+	+	late summer/ autumn
A/nMS sp.	25	5		+	undetermined, v/c abraded
<i>Alnus</i> sp.	25	9		+	undetermined, v/c abraded
<i>Alnus</i> sp.	30	6		+	undetermined
A/«M,s sp.	40	6	+	+	late summer/ autumn*

Key: v/c = vascular cambial surface. * Roundwood fragments with similar growth patterns and season of felling

Table 8 Sample 45: evidence of coppice cycle for *Alnus* sp.

	Age of coppice rods in years					
	2	3	4	5	6	9
Number of coppice rods	1	1	4	11	3	1

A substantial post (Sample M) sited just northwest of Structure 1 and to the east of Structure 3 was also sampled and identified as oak (*Quercus* sp.). Although the post appeared to have been dislodged, it is thought to have been part of Structure 3.

STRUCTURE 4

This structure was sited southwest of the Structures 2 and 3, and consisted mainly of cobbled sandstone. Groups of small circular stakes (2052, 3004, 3005, and 3006) were recorded to the southwest of the structure. The stakes were pointed and measured about 0.1m in diameter and 0.6m in length. A squared stake, Sample 105 (3004), was worked from an alder (*Alnus glutinosa*) pole, estimated to be 70mm in diameter. Sample 106 from the same group of posts was also identified as alder, from a pole 75mm in diameter, felled in mid to late summer.

OTHER ARTEFACTUAL WOOD SAMPLES

Wooden artefacts from other features included:

Sample 101, one of series of uprights from ditch F306. The ditch was aligned northwest-southeast close to Coven Road, about 94m southwest of Area A. Two rows of posts were orientated along the axis of the ditch, about 1m apart. Sample 101 consisted of a wide radial segment of oak (*Quercus* sp.), with a radial measurement of 110mm.

A sandstone and cobble deposit (3040) to the southwest of Area A was cut by features F304 and F305. In one corner of feature F304, a horizontal oak (*Quercus* sp.) plank (Sample 100) rested on top of two large square cut timbers (including Sample 102, alder) to form context 3049. The feature was interpreted as a drain. The oak plank (Sample 100) consisted of a radial segment of heartwood from a timber probably at least 320mm in diameter. The side plank (Sample 102) also consisted of a radial segment from a trunk, which probably exceeded 180mm in diameter.

Table 9 Sample 61: wood remains from the fill of wooden barrel 3024

Sample	Context	Taxon	N. of frags	Diam.	N. growth rings	Comments
61	3024	<i>Corylus</i> sp.	4	10	2	Coppiced roundwood, bark absent
		<i>cf. Corylus</i> sp./				Bark only, thin, smooth
		<i>Alnus</i> sp.	5	-	-	and shiny; probably from hazel roundwood, see above
		<i>Quercus</i> sp.	4	-	-	Heartwood fragments
		<i>cf. Quercus</i> sp.	34	-	-	Slivers of bark, thick and fissured

Samples 103 and 104 from barrel F302/3017 (the latter from the round-sided bottom) were identified as oak (*Quercus* sp.). Both consisted of planks of heartwood converted from radial segments of wide trunks (estimated diameters: <360 and 520mm respectively).

Four barrels were found at the site and although their function is unknown, the contents from two (3024 and 2049) hint at industrial use. Sample 61 from the contents of barrel 3024 included pieces of coppiced hazel (*Corylus avellana*) roundwood, and slivers of thin, smooth bark possibly from hazel or alder roundwood, and, in addition, oak (*Quercus* sp.) heartwood and a quantity of thick, fissured bark probably from oak. The origin or use of these fragments is unknown, although the possibility of tanning has been suggested (Ciaraldi above, pp. 19-24).

DISCUSSION

The structures were dated using dendrochronology, radiocarbon dating, and the ceramic evidence. The dates obtained, however, are not consistent since the dendro-dates were significantly earlier and produced a possible felling date for the components of Structure 2 as AD 1229-65 (Tyers below, p. 57), while the radiocarbon dates find another phase as 1 o AD 1333-1445 cal.; 2 a AD 1307-1483 cal. (Wk-8007).

THE UTILISATION OF TIMBER AND COPPICE

The ready availability of alder (Greig above, p. 28) was probably a prime factor for its frequent use in the building work at the site. Alder wood is soft, easy to work, and generally rather perishable, except in permanently wet conditions when it becomes extremely durable (Edlin 1949). The predominant use of alder to construct the wooden rafts underlying the sandstone floor of Structures 2 and 3, on what may have always been rather boggy terrain, suggests that its use here was more than fortuitous and that it was specifically selected for the job. Less durable timbers, such as birch and poplar, were rare amongst the horizontal members of the platform. British species of poplar include white poplar (*P. alba*), the now rare black poplar (*Populus nigra*), and aspen (*P. tremula*). The first two species occur in meadow and hedgerow, whereas aspen is a woodland tree. If the timbers were felled from the immediate vicinity this would suggest either black or white poplar as the more likely. Black poplar grows to a massive size and in the medieval period was commonly used as cracks in timber-framed buildings (Rackham 1986). Birch species include *B. pendula* and *B. pubescens*; the wood from both is rather perishable (Farmer 1972). Both poplar and birch occur on damp soils, commonly in alder communities (Rodwell 1991).

Alder timbers examined from the horizontal base of Structure 2 consisted of various lengths of whole (unsplit) tree trunks, mostly within a diameter range of 75-100mm, although exceptionally from 30mm^t0mm; and in age from 6-42 years with the highest incidence between 22 and 35 (Table 6). Growth rates were very variable and, apart from Samples 7.5, 9.5, 15, 15.5, and 24, there was no anatomical evidence to suggest the use of coppiced poles for the basic platform. The use of poles which retained bark would have enhanced the life expectancy of the timbers. On excavation, the bark was still *in situ* on some poles, although in many instances it had become detached or had fallen away. On most timbers the outer wood surface (vascular cambium) was too abraded to establish the season of felling (Table 6) but in a few instances this was recorded as during dormancy (i.e. autumn/ winter).

A group of narrow roundwood stems (Sample 45) were clearly coppiced from managed alder (*Alnus glutinosa*) woodland (Tables 7 and 8). The wood was recovered from the centre of Structure 2 and included stem widths from 10mmw+0mm, cropped on a fairly short rotation (5 years appears

to have been the average cycle). Recognition of coppice stems is based on both morphological and anatomical features (Morgan 1982). The large well-developed rootstocks of coppice stools enable the rapid regeneration of long, straight rod-like stems with few laterals. At an anatomical level, this fast initial spurt of growth is demonstrated by particularly wide growth rings, which subsequently reduce in width. In contrast, lateral branches on uncoppiced trees and shrubs grow more slowly and unpredictably and rarely produce the rod-like lengths characteristic of coppice stems. The purpose or use of the wood is unknown and may have had artefactual uses not directly associated with the platform construction. Further evidence of coppicing was provided by pieces of narrow hazel (*Corylus avellana*) stem recovered from the contents of Sample 61, barrel 3024 (Table 9). The similarity in stem width (10mm) and age (2 years) suggests that these may have derived from the same stem, although it is feasible that stems of similar dimensions were selected for a particular, although unknown, use.

In contrast to the horizontal members, the uprights from Structure 2 (Samples E and D), consisted of oak and poplar, although alder uprights (Samples 105 and 106) were recorded in Structure 4. An oak upright (Sample 101) was also recorded from among the rows of posts along the axis of ditch F306. Uprights were used either whole, as the case of Sample D (Structure 2), or squared, as is the case of 105 (Structure 4).

The exploitation of specific qualities or properties of different woods at Brewood is again demonstrated by the construction of a field drain using durable oak heartwood and alder (Samples 100 and 102). Similarly, two components from one of the four barrels (F302) associated with the platforms verified the use of oak heartwood, the traditional wood for cooperage (Edlin 1949; Gale and Cutler 2000). The wood was obtained from trees aged in excess of 150 years. Dendrochronological analysis detected differences in tree-ring grouping between the barrel Samples (102 and 103) and an upright (Sample E) and oak wood from a possible drain (Sample 100), which might imply the use of wood from non-local sources (for the barrel), although, at present, there is still some doubt as to the origin of the barrel (Tyers below, p. 57). The barrels appear to have been associated with industrial activities including hemp processing (Barrel F301/3021) and tanning (Barrel F302/3024) (Ciarraldi above). Tanbark was traditionally stripped from 18-25 year-old coppiced oak trees in the late spring when the concentration of tannin was at its highest level, although bark from mature oak and other taxa (e.g. alder; birch; willow; elm, *Ulmus* sp.; and rowan, *Sorbus aucuparia*) was also used (Edlin 1949; Clarkson 1974; Prance and Prance 1993). The reference to the use of alder bark may be of interest given its prevalence at the site.

THE ENVIRONMENT AND THE PROCUREMENT OF WOOD AND TIMBER

Evidence from early horizons in the pollen record (Greig above) suggests a rather wet, wooded environment with frequent alder (*Alnus glutinosa*), carr and oak (*Quercus* sp.), also birch (*Betula* sp.), willow (*Salix* sp.), hazel (*Corylus avellana*), elm (*Ulmus* sp.), and ash (*Fraxinus excelsior*), and with trees and shrubs including lime (*Tilia* sp.), holly (*Ilex aquifolium*), and elder (*Sambucus*) on the drier ground. Sometime later, however, the woodland appears to have undergone extensive clearance, as is testified by significant reductions in pollen production.

When compared with the results of the wood identification (Table 6), the reduction in tree pollen could be interpreted as correlating to the extensive felling of timber, particularly alder, for the construction of the wooden platform, as by implication, the timber used for building the structures was obtained from the immediate vicinity of the platforms (Greig above). It is difficult to estimate how many trees were required to build the structures since only certain parts of the platforms and a few uprights were preserved. However, the sudden reduction in alder pollen suggests that almost the entire woodland was felled, as a consequence of the intensive use of timber during this period. The sequence of building is also unknown: the separate structures may have been erected either simultaneously or sequentially with several years or decades elapsing between each phase (and so possibly allowing some regeneration of the woodland). The effect of felling a large number of trees on what was already rather wet or marshy soil may have increased the level of ground water through reduced evapotranspiration.

Over 100 poles were recorded from Structure 2, most of which consisted of unsplit lengths of roundwood of various dimensions. Each of the longer poles, some of which almost spanned the entire width of the platform (e.g. Sample 42, 4m in length and 75mm in diameter), probably represent individual trees. The shorter poles (e.g. Sample 22, which measured just 25cm and 140mm in diameter) are clearly sections from trunks or branches. The poles in Structure 2 were obtained mostly from relatively young alder trunks (up to 42 years old), probably felled after leaf-fall, and mostly from naturally growing (i.e. not managed) trees.

It is interesting that the alder trees used in the construction of the platforms were all fairly immature (from 6-42 years old). This could indicate:

- either that trees of this age/size were specifically targeted, in which case older trees would have remained on site and would have continued to flower and produce pollen (unless felled for other purposes). It could be argued that a fairly high proportion of trees in mature (or 'naturally developing') woodland would exceed 42 years in age.
- or that none of the trees in the alder carr exceeded 42 years, i.e. the entire woodland was relatively young.

The first suggestion seems unlikely, given the dramatic fall in the pollen record for alder. The second suggestion, if correct, could indicate that poles were cropped from managed woodland (e.g. coppice poles grown on a 42-year cycle), despite the lack of supporting evidence from the wood structure (see above, p. 38).

Unless the stumps of the felled trees/poles were killed or removed, rapid re-growth would have initiated the development of coppice rods - a useful source of wood or fuel, perhaps provisioning the activities associated with the structures. The remains of coppiced alder rods recovered from Structure 2 may have derived from this growth. If coppice stools were subsequently cropped on short rotation (as suggested by Sample 45), pollen production would have remained relatively low.

COMPARABLE SITES

The analyses of pollen and seed macrofossils from the late Saxon/early medieval site of Tamworth, Staffordshire (Rahtz and Meeson 1992) show evidence of an open woodland with lime (*Tilia* sp.), elm (*Ulmus* sp.), birch (*Betula* sp.), alder (*Alnus glutinosa*), hazel (*Corylus avellana*), oak (*Quercus* sp.), and heathers (Ericaceae). The range of woodland trees identified at Tamworth corresponds to that at Brewood, although there appears to be little evidence for extensive alder carr at Tamworth (Greig *et al.* 1992).

Evidence of a possible medieval tenement was recovered from what appeared to have been a marshy site at Stone (Moffett and Smith 1996). The earliest phase was dated to the 15th century and although the archaeological evidence was rather ambiguous, a timber structure may have been built on the silted remains of a swamp or brook, which was possibly pooled or dammed. The interpretation of the site as a possible dwelling house was based largely on the plant and insect remains, the latter dominated by house fauna. The few woody plants represented by macrofossils were mostly shrubs or hedgerow species, e.g. hazel (*Corylus avellana*), elder (*Sambucus*), holly (*Ilex aquifolium*), briar (*Rosa* sp.), blackberry/raspberry (*Rubus* sp.), hawthorn/sloe (*Crataegus* sp./*Prunus spinosa*), and/or plum type (*Prunus* sp.). Heathland species such as gorse (*Ulex* sp.) and heathers (Ericaceae) probably grew at a distance from the site, and it is probable that willow (*Salix* sp.) also grew further away. Wood and charcoal were present in the deposit but were not studied. If larger woodland trees were growing in the vicinity they were not recorded from the samples. The sites at both Stone and Brewood were by the water, and in view of the excellent preservation of structural timbers at Brewood their absence at Stone could suggest either the use of different building techniques or that the deposits at Stone represented discarded household debris rather than the site of the house itself.

In some respects the medieval structures at Brewood are comparable to a farming complex at Gouda-Oostpolder in the peatlands of Holland (Bakels *et al.* 2000). The buildings there date from about AD 1120-1135 and were constructed in an area of land reclamation. Former woodland had consisted of alder (*Alnus glutinosa*) and ash (*Fraxinus excelsior*) on a subsoil of eutrophic peat. The pollen record testifies to a greater diversity in tree flora than at Brewood, being predominantly alder (*Alnus glutinosa*) but also including ash (*Fraxinus excelsior*), oak (*Quercus* sp.), willow (*Salix* sp.), hazel (*Corylus avellana*), birch (*Betula* sp.), maple (*Acer campestre*), lime (*Tilia* sp.), purging buckthorn (*Rhamnus cathartica*), elm (*Ulmus* sp.), beech (*Fagus sylvatica*), hornbeam (*Carpinus*), and pine (*Pinus* sp.). The dominant woodland at the time of building appears to have been alder (*Alnus glutinosa*), probably alder carr. Over 1200 pieces of wood were examined, enabling the authors to assess the character and dimensions of the local woodland from the type of wood used for the building work. Wood and timber were used very economically and the dominance of alder as a building material was attributed to its ready availability. Ash was also used fairly frequently, but other species (birch, hazel, alder buckthorn (*Alnus glutinosa*), oak, willow, purging buckthorn, pine, fir (*Abies* sp.), honeysuckle (*Lonicera* sp.), *Prunus* sp., and the hawthorn/*Sorbus* group (Pomoideae) only sparingly.

The predominant use of alder wood for construction was common to both Gouda-Oostpolder and Brewood. At the former site this was attributed solely to the ready availability of alder. The same may be true at Brewood, but given the empirical knowledge of traditional craftsmen, it could be argued that the durable properties of alder wood in waterlogged conditions would almost certainly have been an important consideration in the selection of this wood.

CONCLUSIONS

The analysis of well-preserved timbers from a complex of medieval platforms at Brewood established the dominant use of alder (*Alnus glutinosa*) wood, particularly for the horizontal members in contact with waterlogged soil. It is suggested that craftsmen exploited not only the abundance of alder trees on site but also the naturally durable properties of alder wood in wet conditions. The sharp reduction in alder pollen probably corresponded to the clearance of alder carr, probably as a consequence of a change in the exploitation of wood resources. Despite the lack of anatomical evidence to indicate that these poles were obtained from managed woodland, the use of comparatively young trees (maximum age 42 years) combined with the apparent felling of most of the alder woodland (as suggested by the pollen record) could suggest that they were indeed from managed woodland. Short rotation coppicing of alder and, probably, hazel (*Corylus avellana*) was suggested by rods from Sample 45 associated with Structure 2 and from the contents of Barrel F302/3024.

At the time of building, the wet land at the site appears to have been colonised mainly by alder (*Alnus glutinosa*) carr, although birch (*Betula* sp.), poplar (*Populus* sp.), oak (*Quercus* sp.), hazel (*Corylus avellana*), and other trees (identified from pollen analysis) including elm (*Ulmus* sp.), lime (*Tilia* sp.), holly (*Ilex aquifolium*), elder (*Sambucus*), willow (*Salix* sp.), and ash (*Fraxinus excelsior*) also grew on drier land in the vicinity. The site at Brewood is comparable to other waterlogged or potentially wetland sites in Staffordshire such as those at Stone and Tamworth, and to Gouda-Oostpolder in Holland. Although none of these was strictly contemporary with Brewood, they all shared similar environments.

INSECT REMAINS *by David Smith*

The insect faunas described in this report came from a number of deposits associated with the wooden platform and barrels discovered during the excavation and subsequent watching brief. Three of the samples examined, 52/2060 - bottom peat in pollen column, 53/2060 - top peat in pollen column and 54/2058, form a continuous sequence through the peat deposit sampled from the section (Fig. 6). Sample 58/2053 came from an organic-rich peat that appears to be cut by the wooden platform and is sealed by the cobbled surface of Structure 4. Sample 50/2015 came from above one of the cobbled layers encountered in the watching brief. Sample 61/3024 is the fill of barrel F302, also excavated during the watching brief.

METHODS AND ANALYSIS

The weights and volumes of the samples examined are provided in Table 10. The samples were processed using the standard method of paraffin flotation as outlined in Kenward *et al.* (1980) and sorted and identified under a low-power, binocular microscope. Where achievable, the insect remains present were identified to species level by direct comparison to the Gorham and Girling insect collections, housed in the Institute of Archaeology and Antiquity, University of Birmingham.

The taxa recovered are presented in Table 10. The nomenclature used follows that of Lucht (1987). The majority of the taxa present are beetles (Coleoptera) with very small numbers of caddis fly larvae (Trichoptera), ants (Formicoidea), and bugs (Hemiptera) present. The minimum number of individuals and the number of species present are also shown in Table 10.

In order to aid interpretation, where possible, the taxa present have been assigned to ecological groupings following the scheme suggested by Robinson (1981, 1983). The affiliation of each species to a particular ecological grouping is indicated in the second column of Table 10. The meaning of each ecological code is explained in the key of the same table. The occurrence of each of the ecological groupings is expressed as a percentage in Table 11 and in Fig. 11. The pasture/grassland, dung/rotting material, and woodland/timber groupings are calculated as percentages of the number of terrestrial species, as opposed to the whole fauna.

Table 10 The insect remains

Sample no.	2015	2060	2060	2058	2053	3024	Ecol.	Phytophage host plants
Weight (Kg)	12.5	5	6.5	8	7	6		
Volume (L)	10	5	5	9	8	4		
COLEOPTERA								
Carabidae								
<i>Nebria salina</i> Fairm. Lab.						1		
<i>Elaphrus uliginosus</i> F.	-	1	-	-	-	-	ws	
<i>Clivina fossor</i> (L.)								
<i>Dyschirius globosus</i> (Hbst.)								
<i>Trechus micros</i> Hbst.	-	-	-	1	-	-	ws	
<i>T. quadristriatus</i> (Schrk.) or								
<i>T. obtusus</i> Er.		1						
<i>Bembidion guttula</i> (F.).	1	1	-	-	-	-	ws	
<i>B. sp.</i>		-	1	-	-	-		
<i>Harpalus rufibarbis</i> (F.)				1				
<i>Acupalpus c.f. exiguus</i> (Dej.)	-	-	-	1	-	-	ws	
<i>Poecilus versicolor</i> (Sturm)		1	-	2	-	-	ws	
<i>Pterostichus diligens</i> (Strum)		1	2	-	1	-		
<i>P. nigrita</i> (Payk.)		-	-	1	2	-	ws	
Dytiscidae								
<i>Hydroporus sp.</i>		-	1	-	-	-	a	
Hydraenidae								
<i>Hydraena spp.</i>		1	-	1	-	-	a	
<i>Octhebius minimus</i> (F.)		1	-	-	-	-	a	
<i>O. spp.</i>		11	1	-	-	-	a	
<i>Helphorus spp.</i>	-	10	1	4	4		a	
<i>Limnebius spp.</i>		3	1	-	-	-	a	
Hydrophilidae								
<i>Coelostoma orbiculare</i> (F.)		4	1	-	1	-	a	
<i>Cercyon impressus</i> (Sturm)						1		
<i>C. ustulatus</i> (Preysl.)	-	1	1	-			a	
<i>C. sp.</i>								
<i>Megasturum boletophagum</i> (Marsh.)		2	-	-	-	1	rf	
<i>Hydrobius fuscipes</i> (L.)		-	1	-	-	-		
<i>Laccobius spp.</i>		1	1	-	1	-	a	
<i>Chaetarthria seminulum</i> (Hbst.)		-	7	3	1	-	a	
Orthoperidae								
<i>Corylophus cassidoides</i> (Marsh.)	-	1	1	-	1		ws	
Ptiliidae								
Ptiliidae Gen. and spp. indet.		4	-	-	1	-		
Staphylinae								
<i>Megarthus sp.</i>		1						
<i>Omalium spp.</i>		-	-	-	1	-	ws	
<i>Olophrum sp.</i>	-	2	1	-			ws	
<i>Lesteva longelytrata</i> (Goeze)	1	2	1	1	1		ws	
<i>L. spp.</i>	-	-	1	-	-	-	ws	
<i>Trogophloeus corticinus</i> (Grav.)		1	-	-	-	1		
<i>T. spp.</i>		2	-	-	-	-	rf	
<i>Aploderus caelatus</i> (Grav.)		1	7	2	1	3	rf	
<i>Oxetelus rugosus</i> (F.)							rf	
<i>O. nitidulus</i> Grav.		-	1	-	-	-	- rf	
<i>Platystethus sp.</i>		-	1					
<i>Stenus sp.</i>	4	9	10	2	9	1		
<i>Euaesthetus sp.</i>		1						
<i>Paederus sp.</i>	-	-	-	-	1	-	ws	
<i>Stilicus orbiculatus</i> (Payk.)		2		1	1	1		
<i>Xantholinus spp.</i>		2	-	-	1	-		
<i>Gyrophypnus spp.</i>		-	-	1	-	1		
<i>Neobisnius sp.</i>		-	-	1	-	-	rf	
?N. sp.						1		

Table 10 (Continued)

Sample no.	2015	2060	2060	2058	2053	3024	Ecol.	Phytophage host plants
Weight (Kg)	12.5	5	6.5	8	7	6		
Volume (L)	10	5	5	9	8	4		
<i>Prasocuris phellandri</i> (L.)	-	-	1	-	-	-	ws	Aquatic Apiaceae, <i>Oenanthe</i> , <i>Cicuta</i> and <i>Slum</i>
Staphylinidae								
<i>Erichsonius signaticornis</i> (Muls. Rey)								
<i>Philonthus</i> spp.		-	-		1	1		
<i>Gabrius</i> spp.								
<i>Ocypus</i> sp.								
<i>Quedius</i> spp.	1	2	1	2		1	2	
<i>Tachinus</i> spp.								
<i>Tachyporus</i> spp.		1	1	-	-	-		
Aleocharinae gen. & spp. indet.	5	2	10	4	2	-		
Pselaphidae								
<i>Brachygluta</i> spp.								
Malchiidae								
<i>Anthocomus fasciatus</i> (L.)		2	-	2	-	-		
Elateridae								
<i>Agrotis</i> spp.								
		1						
Helodidae								
Helodidae Gen. and spp. indet. (<i>ICyphon</i>)	1	1	-	-	-	-	ws	
Dryopidae								
<i>Dryops</i> spp.		2	-	1	-	-	a	
Cucujidae								
<i>Monotonia</i> sp.								
Cryptophagidae								
<i>Cryptophagus</i> spp.		1	2	-	-	-		
<i>Atomaria</i> sp.								
Lathridiidae								
<i>Lathridius minutus</i> (group)	1		1	1	1	-	4	
<i>Cartodere</i> spp.								
<i>Corticaria</i> spp.		1	-	1	-	3		
Endomychidae								
<i>Mycetea hirta</i> (Marsh.)								
Lyctidae								
<i>Lyctus brunneus</i> (Steph.)	-	-	-	1	-	-	1	
Anobiidae								
<i>Anobium punctatum</i> (Geer)	1	1	-	-	-	5	1	Decaying timber
Ptinidae								
<i>Ptinus fur</i> (L.)	-	-	1	1	-	1		
Scarabaeidae								
<i>Geotrupes</i> sp.		1	-	-	-	-	rf	
<i>Aphodius sphacelatus</i> (Panz.) or <i>A. prodromus</i> (Brahm.)	-	2	-	1	4	1	rf	
<i>A.</i> spp.		-	2	-	-	-	-	rf
<i>Phyllopertha horticola</i> (L.)					1	-	g	
Chrysomelidae								
<i>Plateumaris sericea</i> (L.)	-	6	-	-	-	-	ws	<i>Carex</i> , <i>Iris pseudacorus</i> and <i>Cladium mariscus</i>
<i>P. braccata</i> (Scop.)	-	3	-	-	2	-	ws	<i>Phragmites communis</i>
<i>Hydrothassa marginella</i> (L.)	-	-	1	-	-	-	ws	<i>Ranunculus</i> species <i>mdCaltha palustris</i>

Table 10 (Continued)

Sample no.	2015	2060	2060	2058	2053	3024	Ecol.	Phytophage host plants
Weight (Kg)	12.5	5	6.5	8	7	6		
Volume (L)	10	5	5	9	8	4		
<i>Phyllotreta</i> spp.	1	2	1	-	-	1		
<i>Chaetocnema</i> spp.	-		1	1	-	1	-	
Scolytidae								
<i>Phleophthorus rhododactylus</i> (Marsh.) -		-	1	-	-	1	1	Various scrubs
<i>Dryocoetes villosus</i> (F.)	-	-	-	-	-	j	1	<i>Quercus pedunculata</i> and <i>Castanea vesca</i>
Curculionidae								
<i>Rynchites</i> sp.	-	-	-	1	-	-	1	Various trees
<i>Apion</i> spp.	-	1	2	1	1	-	g	
<i>Otiorhynchus ovatus</i> (L.)	-	-	-	-	1	-		
<i>Cneorhinus exaratus</i> (Marsh)	-	1	-	-	-	-		
<i>Sitona lineatus</i> (L.)	-	-	1	4	-	-	g	<i>Fabaceae</i>
<i>S.</i> spp.	-	1	-	-	1	-	g	
<i>Bagous</i> spp.	-	-	1	1	-	-	ws	
<i>Notaris acridulus</i> (L.)	-	-	-	-	1	-	ws	<i>Glyceria</i> species often <i>G. maxima</i>
<i>Notaris</i> sp.	-	-	1	-	-	-	ws	
<i>Hypera</i> sp.	-	-	-	-	1	-	ws	
<i>Limnobaris pilistriata</i> (Steph)	-	1	-	-	-	-	ws	<i>Juncaceae</i> and <i>Cyperaceae</i>
<i>Ceutorhynchus contractus</i> (Marsh.)	-	-	-	1	-	-	g	<i>Brassicaceae</i>
<i>Gymnetron</i> sp.	-	-	1	-	-	-	g	<i>Plantago</i> sp.
DIPTERA								
Adult	-	2		1	-	-	-	
puparia	-	2	-	-	-	-	-	
TRICOPTERA								
Genus and spp. Indet.	-	-	1	-	-	-	-	
HEMIPTERA								
Hemiptera Gen and spp. Indet	-	4	-	-	-	-	-	
HYMENOPTERA								
Formicoidea Genus and spp. Indet.	-	2	1	-	-	-	-	
Key to ecological groupings								
a	- aquatic species							
aff	- aquatic, fast flowing waters							
ws	- waterside species either from muddy banksides or from waterside vegetation							
rf	- species associated with dung and foul matter							
g	- species associated with grassland and pasture							
1	- species either associated with trees or with woodland in general							

The right-hand column in Table 10 indicates those species of beetle that are associated with specific plants. The ecology for this information was mainly derived from Koch (1992).

Three samples from the environmental sequence were studied in detail.

Context 2060: bottom peat in pollen column

The lowest of the three samples from the sequence produced the largest insect fauna examined. The majority of the species present are characteristic of an area of swampy, fresh water marsh.

The relatively large numbers of water beetles present indicate that pools of fresh, but slow-flowing, water were predominant in the site area (these taxa account for the majority of the species in the aquatic (a) category in Table 11 and Fig. 11). Typical of these conditions are the various Hydraenidae 'water beetles'. Amongst these there are *Coelostoma orbiculare*, *Cercyon ustulatus*, and *Chaetarthria seminulum*. All of these species are associated with wet, muddy and vegetated watersides, often by still and stagnant bodies of water (Hansen 1987). The same conditions are indicated by the *Dryops*, Helodidae species, and the *Bagous* weevil (Harde 1984). The ground beetles *Elaphrus uliginosus*,

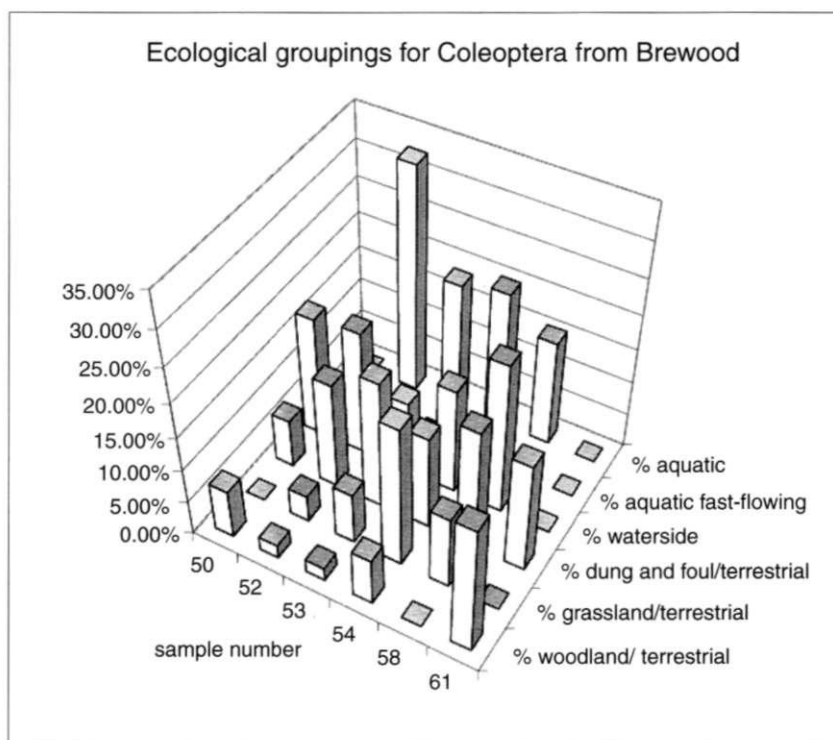


Fig. 11 Ecological groupings for Coleoptera

Table 11 The proportions of the ecological groupings

	2015	2060	2060	2058	2053	3024
% aquatic (a)	0.00%	32.69%	18.67%	20.00%	15.56%	0.00%
% aquatic fast-flowing (aff)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
% waterside (ws)	17.65%	18.27%	10.67%	15.56%	22.22%	0.00%
% dung and foul / terrestrial (rf)	7.14%	15.69%	18.87%	13.79%	17.86%	16.21%
% grassland/terrestrial (g)	0.00%	3.92%	7.55%	20.69%	10.71%	0.00%
% woodland/terrestrial (l)	7.14%	1.96%	1.89%	6.90%	0.00%	18.91%

Bembidion guttula, *Poecilus versicolor*, and *Pterostichus diligens* are all also associated with vegetated watersides (Lindroth 1974).

Several species of Chrysomelidae 'leaf beetles' and Curculionidae 'weevils' indicate the species of plants that grew locally in this environment. The two species of 'reed beetle' present (respectively *Plateumaris serciea* and *P. braccata*) feed on *Carex* (sedges) and *Phragmites* (water reed) (Koch 1992). The weevil *Limnobaris pilistriata* is also associated with reed swamp and beds of sedges.

There are a few individuals of dung beetle present that might suggest grassland and pasture. These species form the ecological grouping 'g' or 'grassland' (Tables 10 and 11, Fig. 11), and consist mainly of *Aphodius* and *Geotrupes* dung beetles. Given the relatively small numbers of individuals concerned and the flight potential of these species, it is not possible to suggest how close this grassland may have been to the platform nor, indeed, its extent.

Only one species that is associated with trees or dead wood: the 'woodworm' *Anobium punctatum*. Its occurrence would appear to suggest a cleared landscape, as this species is more often associated with structural timber than with woodland.

Context 2060: top peat in pollen column

The middle of the three samples from this environmental section produced a moderately sized fauna. Many of the species present, and the ecological conditions indicated, are essentially similar to those in Sample 52 (i.e. a swampy fresh water marsh). This implies that there has been no substantial change in environment over time in this part of the site (Tables 10 and 11, Fig. 11).

- Two of the 'leaf beetles' present in this fauna suggest that the marsh marigold (*Caltha palustris* L.)
- the food plant of *Hydrophassa marginella* (Koch 1992) - and various species of waterside Apiaceae
- the food plants of *Prasocuris phellandrii* (Koch 1992) - were present in the surrounding area.

Context 2058

The upper sample from this sequence produced a smaller fauna that, again, suggests the presence of a fresh water swamp in the area. The presence of *Notaris acridulus* suggests that reed sweet-grass (*Glyceria maxima* (Hartm.) Holmb.) may have been present in the local reed bed at this time.

There is a slight suggestion that habitation, or more probably human activities, may have become more important. There are a range of beetles, such as the Cryptophagididae, Lathridiidae, the spider beetle *Ptinus fur*, and *Mycetea hirta*, which are common inhabitants of human settlement and settlement waste in the past (Hall and Kenward 1990; Kenward and Hall 1995). Equally indicative of some level of human activity in the area at this time is the presence of the 'powder post' beetle (*Lyctus brunneus*), a species which, though present in woodland, is commonly associated with structural timbers. However, these species are present only in relatively small numbers, much lower than would be expected in structures and waste found at a range of other medieval settlements (Hall and Kenward 1990; Kenward and Hall 1995; Moffett and Smith 1996).

Context 2053

Sample 58 produced a fauna of insects that is essentially similar to that seen in Samples 52 and 53. This suggests that the material underlying the platform developed in a similar fresh water marsh environment to that seen in other areas of the site.

Context 2015

Sample No. 50 was overlying the cobbled areas. Although this produced a small and un-diagnostic fauna, the species present would appear to suggest that a similar environment existed to that seen in other locations at this site.

Sample F302/3024

This sample came from barrel F302, which was uncovered in the watching brief, and produced a moderately sized fauna of insects. The data (Table 10, Fig. 11) clearly illustrate that this fauna lacks the evidence for fresh water and reed bed seen in the other deposits. There are no water beetles or species associated with emergent vegetation present. Equally, the beetles that were recovered in this fauna are species associated with mouldering organic matter such as rubbish and rotting vegetation. Amongst them are the Cryptophagididae, Lathridiidae, the spider beetle *Ptinus fur*, and the *Montoma* spp., essentially the same species, which appeared to indicate human activity in context 2058. Also present are a number of species that are associated with timber or rotting wood. This fauna consists primarily of a 'woodworm' (*Anobium punctatum*) that may be associated with the staves of the barrel itself or with the large quantities of wood fragments present in the deposit. However, the 'shot borer' beetles (*Phleophthorus rhododactylus* and *Dryocoetes villosus*) may also have been associated with scrub or woods surrounding the area and, therefore, may have accidentally become incorporated in the material of the barrel.

Although this fauna does suggest that the material in the barrel had started to decay and that it may have had an origin in a human settlement, it is not informative as to the specific nature of the contents.

CONCLUSIONS

The insect fauna recovered from Brewood suggests that the various platforms and cobbled areas were constructed in an area of marshy, wet reed swamp. It would seem that these conditions persisted once the archaeological structures fell out of use. Although it seems that some material from human settlement was brought to the site, it appears not to have been a substantial volume. Although the archaeoentomological assemblage from Brewood and that from Stone (Moffett and Smith 1996) both represent urban assemblages, there is a clear contrast between their insect faunas. Brewood's is essentially a fauna derived from the local natural landscape, whereas that from the tenement at Stone is dominated by insects associated with human housing and settlement.

ANIMAL BONE *by Emily Murray*

A small number of animal bones were hand-collected during the course of the excavation (Table 12). The bones came from a number of poorly defined contexts, dated to the 14th–15th centuries (2049, 2050), late 17th–early 18th centuries (2009), 18th century (2011), and 19th century (2007 and 2015). The faunal remains were recorded using a modified version of a system devised by Davis (Davis 1992; Albarella and Davis 1994), which considers a selection of anatomical elements as 'countable', while the presence of non-countable specimens are merely noted.

The bones recovered all came from domestic species: horse, cattle, sheep/goat, dog, and pig (represented by a humerus shaft). The single pig bone showed signs of gnawing, probably by a dog. The non-countable elements included a cattle horncore, which was attached to a fragment of skull; there was a chop mark located below the base of the core on the dorsal side. The greatest width at the base of the horncore was 66mm and the minimum breadth was 56mm.

All of the bones showed signs of waterlogging and were very light in weight. A couple of fragments (from contexts 2007 and 2009) also had blackened patches which appeared as though they had been singed, while a calcined ovicaprid metapodial shaft was also noted in context 2007. The possibility that tanning was being carried out at the site has been raised in the plant remains assessment (Ciaraldi above), but the animal bone assemblage is too small to provide definitive evidence either for or against this process, particularly since the bones were recovered from later contexts.

Table 12 Number of 'countable' animal bone elements by context

Taxa context	Equid		cattle		sheep/goat		dog
	2007	2007	2009	2050	2007	2050	2007
Teeth				1	1	-	-
Ulna		-					1
Metacarpal	-	-	1	-	-	-	-
Pelvis	-	-	-	-	1	—	-
Astragalus	-	-	-	-	-	1	-
Calcaneus	-	-	1	-	-	-	-
Metatarsal		1 1	-	-	-	-	-

THE HISTORICAL EVIDENCE *by Christopher Dyer*

Brewood's role as a market town developed from its special character in the early middle ages. Although no document survives which describes it is such, the church has all the hallmarks of having been a minster. Such a church would have a large parish, coinciding with a great landed estate, and would have been served by a group of clergy who lived on a substantial endowment. By analogy with other minsters in the area, such as those at Penkridge and Wolverhampton, and a network of similar churches throughout England, Brewood was probably founded in the 7th or 8th century, on a great estate of an aristocrat or a member of the Mercian royal family. It later came under the control of the diocesan bishop, as did many minsters in other dioceses. When the Domesday inquest was carried out, Brewood was described as a large manor of the bishop of Chester (the see having temporarily moved from Lichfield), with a priest subordinate to the bishop. Although the local clergy had lost much of their former importance, the parish church remained an unusually large and rich institution. The parish, which coincided with the bishop's manor, persisted until modern times, when it covered 4,800 hectares, and included more than eight hamlets, among Chillington, Gunstone, and Somerford (*VCH Staffs.* 5, 18–48).

Staffordshire appears to have been a thinly populated county in 1086, and most manors had only a handful of tenants and dependents, so that Brewood, with its 42 peasants and 8 slaves, was unusually large (*VCH Staffs.* 4, 41). From the number of ploughs enumerated in Domesday Book, the area of arable can be estimated at about 400 ha. and the area of woodland probably amounted to about 600 ha. With large quantities of grazing for livestock, Brewood, like much of the county, can be described as having a woodland landscape, with an economy biased towards the pastoral, and much exploitation of the woods for timber, fuel, fodder, and raw materials. In the centuries after Domesday, the peasants lived in dispersed settlements and practised mixed farming - growing crops in enclosed fields and on patches of common field and keeping animals on extensive common pastures.

The settlement at the heart of the great territory of Brewood, around the minster church and the bishop's manor house, became a town. In some other places, hints of trade or crafts can be detected before the Conquest, but at most former minsters, including Brewood, a town only becomes visible in the 13th century. The market charter granted by the king in 1221 could have been confirming an existing weekly gathering for trade, though it may have been the starting point for the town. The second market grant of 1259, fixing the market day as Monday rather than Friday and also founding a fair in September, may have been a second attempt after an initial failure, or a move to give further encouragement to an existing town (*VCH Staffs.* 5, 18). If the excavated timber and stone platforms that are the subject of this report were, as seems almost certain, related to industries based in the town, then urban growth could have been happening by the 1220s. By 1280 a burgage is mentioned, and there were at least 24 burgages by 1298, though they could have been established many years earlier (Beresford and Finberg 1973, 161). Tenants of the burgage plots were committed to paying a fixed annual rent of 12d. (or, in a few cases, 18d. or 24d.), which makes them resemble those with privileged burgage tenures found elsewhere, though the bishops were reluctant to allow them exemption from such dues as pannage (for feeding pigs in the bishops' wood) and heriot, a death duty usually of the best animal (SRO, D. 1734/J2268, fos. 13r-16r). These conditions of tenancy, which were preferable to those of unfree peasants who owed labour services and servile dues, were no doubt granted partly to encourage existing tenants, but also to attract immigrants to take up plots and practise their crafts and trades in the town.

An urban space with a market place and streets with regular rows of burgage plots had come into being by the late 13th century. Analysis of the modern town plan (which here, as elsewhere, is likely to preserve elements from the remote past) suggests that a rectangular enclosure originally surrounded the church and the bishop's manor house, now bounded by the Market Place, Sandy Lane, The Pavement, and Dean Street (Fig. 2). The small market place and the group of properties around it may have been the original core of the peasant settlement which had existed before the foundation of the town. The burgage plots along the Market Place were presumably the first to be laid out, while those in Stafford Street were likely to have been an early addition. Bargate Street and Newport Street run into the Market Place and could represent another stage of growth, while Dean Street has the appearance of a separate development, perhaps at a later date. Roads coming into the town show signs of having been diverted to take travellers along the town streets and especially through the Market Place in order to maximise the opportunities for trade. The presence of the brook made the settlement possible at all times, and a likely occasion for its canalisation would have been the planning of the town, as part of the general reordering of the landscape.

The success of the market charters, the grants of burgage tenure, and the town planning can be judged by the numbers of people who settled in the town and by their involvement in profitable occupations. The survey of the bishop's manor, compiled in 1298 but with annotations made soon afterwards, is the first indication of the progress that had been achieved. A total of 29 tenants are listed, holding between them 24% burgage plots, a cottage, a toft, a garden, a chamber, a 'seld' (a stall or group of stalls), and 23 acres of land (SRO, D. 1734/J2268, fos. 13r-16r). Some of the burgages were split into halves and other fractions, which suggests some demand for property. The surnames of the tenants indicate their occupations: smith, tailor, brewster, two skinnners, carpenter, shoemaker, and two dyers. A chaplain and clerk are also mentioned. A pillory is recorded, standing presumably in the market place, to punish traders guilty of bad practices.

At first sight there seems to be some discrepancy between the wide range of occupations and the very limited size of the community of burgesses, but the enumeration of tenants in the town is seriously incomplete. Firstly, the 1298 survey includes 20 cottagers in Brewood, whose names include tailor and launderer, suggesting that some of the smallholders were involved in the urban economy, even if they did not share in the privileges of the burgesses. Secondly, there were two lords with tenants in the town. In addition to the manor belonging to the bishops, the dean of Lichfield cathedral had by c. 1176 been granted a manor based on the glebe of the parish church (*VCH Staffs.* 5, 35-6). In effect the heirs of the minster clergy, the deans had much land around the church on which they were able to grant burgage plots, presumably forming the separate development along Dean Street. These plots can be glimpsed in a series of court rolls of the mid 15th century, when, judging from the number changing hands in a short period (13 in five years), there could have been at least 25 burgages, some of which had been divided into fractions (SRO, D. 590/434). If these burgages dated back to the 13th century, Brewood's burgess community (both bishop's and dean's) would be increased to 54, and with the cottagers the town could well have had more than 70

households, or about 350 inhabitants. Many medieval market towns were of similar size: a concentration of 300-400 people pursuing non-agricultural occupations was sufficient to serve the needs of a local rural population (Dyer 2002).

The growth of Brewood as a small town in the 13th century formed part of a general movement towards urbanisation in that period. Twenty towns had been established in Staffordshire by 1300, as had about 600 in the whole of England, the majority of them after about 1180 (Dyer 2003). The expanding area of cultivation in the countryside helps to explain urbanisation. In Brewood's rural manor, there were 102 tenants in 1298 compared with 42 in 1086, and a number of them were holding land recently cleared from the woods. More importantly, both lords and peasants were becoming committed to production for sale: prices of foodstuffs were rising and peasants were expected to pay a higher proportion of their rent in cash (*VCH Staffs.* 6, 6-30). The multiplication of towns, therefore, was closely linked to the commercialisation of rural society. Brewood, like other small towns, would have established close trading links with a rural hinterland within a radius of about 12km. Produce would have been brought into the town for use and sale, like the vegetation from dry heathlands found in the pollen samples from the excavation (Greig above). The town's people would also have had links over a longer distance, as the traders in salt, iron, and fish, whilst the artisans who used raw materials such as dyestuffs would have obtained their supplies from larger towns such as Bridgnorth, Wolverhampton, and Shrewsbury.

In the 14th and 15th centuries, the documents tell us much more about Brewood, and we can envisage how the platforms on the brook to the southeast of The Pavement related to its daily life. The people concentrated in the streets around the church stand out in the records of the bishop's manor court as more troubled and quarrelsome than their rural neighbours (SRO, D. 590/433, 1-10); they assaulted one another in some numbers, and they raised the hue and cry when they suspected others of threatening behaviour. The frequency with which women are mentioned in the courts, whether as raising the hue, or as brewers, or as the sellers of ale and foodstuffs, suggest their prominence in urban society and economy.

The townspeople were busily engaged in a number of trades and crafts. In the bishop's manor court, the townspeople were reported for allowing their animals to trespass in their neighbours' crops or breaking their neighbours' hedges for firewood, just like those living in the rural hamlets. Townspeople were also accused of activities more appropriate to their lives as traders and artisans, such as forestalling (buying goods outside the market in order to increase prices) and litigation over small lengths of textiles (31/2 ells, 21/2 ells, 5 ells, 10 yards) which in some cases had been put out for fulling or dyeing but had been stolen. A plea in 1384 concerned a pair of combs, which were the implements used to prepare wool for spinning. We can glimpse the full range of activities when the poll-tax collectors in 1381 listed the taxpayers and their occupations. Although this tax was resisted by the taxpayers, resulting in under recording, the principal groups who evaded or who were exempted were young people, women, servants and the poor, so the list is still of great value for indicating the main occupations of the established households in any community. Of 122 households at Brewood, the majority were peasants and labourers living in the rural hamlets (Fenwick 2001). A total of 40 households were said to have non-agricultural occupations, and most of them lived in the town. They pursued 21 distinct trades, in all the main economic activities: mercantile (chapmen, draper, Salter), woodworking (cooper, wheelwright), textile manufacture (chalonier, dyer, fuller, weaver), clothing (tailors), building (carpenter, dauber, thatcher), and food trades (baker, brewer, butcher). The trades which are of particular relevance for the use of the platform are those associated with leather: four tanners or barkers were named in 1381, and also two shoemakers, a glover, and a roper, who may have used hemp, and two smiths.

The form of the poll tax returns simplify the occupational structure of the town, because many individuals and households had more than one trade. In particular, women contributed to the income of the household by brewing and selling ale, and men dealt in foodstuffs too. In 1372, for example, William Parker was acting as a butcher, though he appears in the 1381 poll tax return as a cooper. However, both the poll tax and the manor court records support one another in showing that the tanning was a major activity in the town. Tanners (who are often called barkers) are named in the court from 1347 and they are consistently linked with the brook as users and polluters of its water. In 1363 and 1364, John Barker, John son of Adam Barker (probably the same man), and John de Pekis were accused of placing hides in the water of the brook and polluting the water to the annoyance of their neighbours. This was clearly regarded as a very serious offence, as, on one occasion, an amercement of 12d. was to be paid. Similar complaints were made in 1372, and in 1424 Thomas

Normal was said to have put bark, *wose*, and lime - all waste products from the tanning process - into the brook (SRO, D. 590/433, m.16). This information clearly confirms the archaeological evidence that tanners were major users of the timber and stone platform, as the documents show that tanners were working near to the brook and using its water.

The activities of the tanners would have been closely linked with the shoemakers who are mentioned in the documents and who were presumably the sources of the off-cuts found in the excavations. Shoemakers are named in Brewood documents from 1298 onwards, and usually they bought their leather from tanners, though sometimes shoemakers are found also acting as tanners and leather dealers.

The tanners in their turn would have obtained their leather from butchers, as hides were a by-product of the slaughter of animals for meat. Brewood's role as a considerable centre of the butchery trade is shown by intermittent attempts in the manor court to regulate the butchers and, in particular, to ensure that they did not take excessive profits. Nine butchers are recorded in 1341, and seven or eight in a single year between 1406 and 1425 (SRO, D. 590/433, mm.13-16). They were also polluters of the water supply, as for example in 1424 when a complaint was made that six butchers were putting the entrails of beasts into the brook. This may refer to the disposing of rubbish from the slaughterhouses, or to the practice of washing entrails preparatory to making sausages and puddings. The number of hides supplied by seven or eight butchers may not have been enough to keep four tanners busy and, judging from the trade in hides and leather in late medieval Devon, they may well have obtained their raw material from larger towns at some distance, such as Wolverhampton (Kowaleski 1995, 300-7). Similarly, the output of four tanners would have been traded over a long distance to places with concentrations of shoemakers, saddlers, and other users of leather. Thomas Northale, described as both a barker and a yeoman, clearly had business links with the capital, as he was reported to have owed money to Londoners in 1472 (Wrottesley 1901, 181, 202). The tanners' supplies of bark are more likely to have come from the surrounding district, in which oak trees were being regularly felled for building timber, fencing, and other uses. An account for Brewood manor in 1472-3 refers to the felling of oak trees in three named woods, but explains that on this occasion that there was no income from bark, which implies that normally bark was sold after felling (WSL, S. MS. 335(1)). The felling of trees near Brewood is clearly demonstrated in the pollen analysis from the site at The Pavement (Greig above).

Other crafts would have had need of the brook, and therefore the platforms. A dyer was said to have poured effluents into the brook in 1425, and the archaeological evidence suggests that the smiths dumped their debris nearby. The hemp retting process would have been carried out in the brook, as is shown by the botanical residues, though we do not know who would have carried out this process. There may have been a demand for hemp in the town from the roper recorded in 1381, though the craft also used bast (lime bark) as a raw material. Local linen weaving is implied by a reference to linen cloth in the court records in 1341, and people who practised this craft would on occasion have used their looms to make coarse cloth (*harden*) from hemp yam.

Medieval crafts were normally based in the household, so we should presume that the tanning pits at Brewood lay near to the tanners' houses. Because of their need for water, they are likely to have lived on the southeastern edge of the town, with easy access to the platform. Judging from the combination of written and archaeological evidence, however, there would have been a regular procession of artisans and their dependents from all over the town coming to the platform to use the water for a number of purposes and to dump various noxious substances into the brook. Presumably anyone wishing to obtain water for drinking or for brewing would have taken their supplies upstream from the platform. The platform, therefore, evokes vividly the intensity and variety of the crafts in medieval towns, but also reminds us that pollution and its control has been an ever-present feature of urban life.

CONCLUDING DISCUSSION

The environmental evidence recovered from the peat suggests that in late prehistory and during the Roman period the excavated area was wooded with an alder carr probably present on marshy land and a mixed lime and oak on the drier land. Agricultural activities were present in nearby areas but not directly on site.

Analysis of the pollen and peat shows an episode of woodland clearance, both on dry and marshy soils in the following period, probably corresponding with the initial phases of intensive occupation in the area around the site. The clearance of wooded areas was accompanied by an expansion of

open heath and grassland, an increase of soil erosion, and more intensive agricultural activities (presence of rye, hemp, and weeds). There is also evidence for sewage contamination, which suggests that already at this early stage the site along The Pavement was developing as a focus for human activity. The water channel would have provided a resource, which enabled the continuous occupation for several centuries.

Further episodes of woodland clearance resulted in a reduction in lime and alder, and it is possible that the clearance of the alder carr corresponds to the construction of the wooden platforms and to the general re-landscaping of the area to accommodate industrial activity. The final periods of occupation at Brewood had a strong impact on the local environment, as wooded areas were reduced and the stream was channelled.

The character of the artefacts and the types of organic remains recovered from the site all indicate an industrial function for the structures, evident from the earliest phase of activity during the medieval period (hemp retting and tanning) through to the post-medieval period (tanning? smelting or metalworking?). It is fairly clear that these platforms and the brook relate directly to the industries of the artisans described in documentary sources. The location of the platforms, adjacent to an artificially straightened stream, is particularly important, since that would have provided the constant flow of fresh water needed by many industrial processes. The lack of wear on the upper surface of the wooden poles forming Structure 2, and the fact that there is no continuation on the opposite side of the brook confirms that the structure is not a trackway, as was originally postulated. The most likely interpretation is that the wooden structures provided a raft foundation for overlying sandstone blocks, on which industrial processes were undertaken.

Clearly, the wooden structures represent only one part of a much larger complex of structures associated with the stream channel, of which the barrels to the southwest were an element. Within that area there is evidence for a range of activities over a long period. Structure 1 may represent an area where hemp bundles were laid down to soak in the water as part of the retting process. The presence of oak bark and off-cuts from leather working attest to tanning and associated industries. Metalworking or smelting possibly took place on site during a later period or close to its abandonment (15th to 16th century), as is suggested by the presence of sooted potsherds in deposits of that period (Ratkai above), as well as by the presence of slags and smithing hearth bottoms (Hancocks above).

It is possible that the platforms once supported a superstructure which housed a variety of small, self-contained working areas, possibly within the backplots of properties fronting onto The Pavement. Workshops have been excavated at York within an area also known as 'The Pavement', where evidence of leather working was recorded (Hall *et al.* 1983; Addyman and Hall 1991). The original idea, however, that tanning might have been carried there (Buckland *et al.* 1974) has been discarded in favour of the later stages of the leather working process.

The occurrence of hemp macroremains from the fill of barrel F301/3021 coincide with the presence of hemp pollen, and this suggests that hemp was actively cultivated and retted, probably for the manufacture of rope (Sassen *et al.* 1995) or coarse hempen clothes, and while hemp seeds were recovered from within the barrels it seems likely that the processing was actually undertaken nearby. Hemp was also used for the manufacture of paper but this was rare before the late medieval period, and even then, took place only on a limited basis (Coleman 1958). It is possible that this plant had an important economic role during the medieval and post-medieval periods at Brewood.

The decayed alder and oak bark recovered from the fill of barrel F302/3024 are certainly connected to the tanning of leather, while leather off-cuts attest to a further stage of leather production. Tanning and retting processes are normally associated with large vats and pits (for instance Shaw 1996; Mould 2001; Burrows and Martin 2002). The evidence of tanning associated with relatively small barrels is, therefore, puzzling. If only barrels were used in the tanning and retting processes, this could indicate the occurrence of these two industrial activities at a small-scale. It is likely, however, that larger tanning and retting vats and pits might have been located nearby, in areas not included in the excavation.

Some of the evidence provided by the archaeological features and by the palaeoenvironmental evidence suggests that the area underwent important modifications, particularly in the management of the water resources. The straightening of the brook and the creation of cuts into the peat to accommodate wooden structures or to create small ponds (Structure 1) are evidence of the reshaping of the area. Although no direct dating evidence is available for these activities, it is likely that they were associated with the industrial use of the area during the medieval and post-medieval periods. The only dating evidence is indirect and is represented by the presence of plants associated with slow-flowing or standing water.

The excavations at The Pavement, Brewood, have shown that a concentration of archaeological activities and exceptionally well-preserved remains survive in an area that extends from the north-eastern field boundary as far as the Coven Road to the south. The site is one of the few waterlogged sites found in the West Midlands in which evidence of human activity from the medieval to the post-medieval period is preserved. Both the location, right at the edge of a small town, and the evidence of industrial activities are particularly relevant, because they allow a better understanding of the spatial organisation and growth of this West Midlands town during a period of expansion and re-organisation of the medieval society.

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- WSL William Salt Library, Stafford

APPENDIX 1

Spot dating by *Stephanie Ratkai*

<i>Context</i>	<i>Date</i>
2007	19th century (<i>Pottery is mainly 16th—17th century in date with some residual medieval material. Odd sherds from the 18th and 19th centuries are almost certainly intrusive.</i>)
2009	late 17th-early 18th century
2010	17th-early 18th century (<i>Topsoil</i>)
2011	later 18th century
2013	late 15th-16th century
2014	late 15th—16th century
2015	19th century (<i>Similar to 2007 in that the pottery is mainly 16th-17th century and odd sherds from the 18th and 19th centuries are probably intrusive.</i>)
2018	15th-16th century
2022	(later 16th-17th century)
2024	18th century
2025	13th-14th century
2026	13th-14th century
2049	14th (15th) century
2050	14th-15th century
2051	13th-14th century
3000	13th-14th century
3001	18th century
3008	13th-14th century
3009	18th century
3013	13th (14th) century

APPENDIX 2

Dendrochronological spot-dates of samples by *Ian Tyers*

A total of seven samples were submitted for spot-dating and summary notes on their origin were supplied with the samples. Three samples come from a timber platform (Structure 2), one sample is from a possible drain (F304), two from a barrel (3017), and the final sample is an upright post (F306). All the submitted samples were oak, another 49 timbers from the site were identified as alder (46), birch (1), and willow/poplar (2) (Rowena Gale pers. comm. 2000).

Two oak samples from the submitted group were unsuitable for measurement (both 101 and M had too short a sequence for reliable analysis), and standard dendrochronological methods (see e.g. English Heritage 1998) were applied to the remaining five samples. Four samples cross-matched with externally dated site masters or regional chronologies. A summary of the results is provided below. It is important to appreciate that although the dendrochronological dates will not change in the future, the interpretations of the results are of necessity interim and liable to change, particularly as aspects of re-use and repair are revealed by post-excavation analyses. The other measured sample was not found to cross-match reference chronologies and is undated by the analysis reported here.

Three types of dating result are usually obtained by dendrochronological analysis. Firstly, where a sample is complete to bark-edge a precise year of felling is obtained directly from the date of the last ring on the sample. Secondly, where a sample has some sapwood, but is not complete to the bark-edge a felling date range is obtained by applying the maximum and minimum numbers of rings of sapwood normally seen in oaks for the relevant areas, to the relevant samples. The range 10-46 has been used in this report for local material. Finally, where no sapwood survives a *terminus post*

quern date is obtained by adding the minimum number of sapwood rings likely to have been lost to the date of the latest surviving ring. This type of date is much less useful than the other two types, since a very great number of rings could have been lost either through ancient carpentry practise, or poor site preservation, and thus the felling date of such material may be considerably later than the tree-ring date.

Details of the samples and dates obtained are given in Table 13 and Fig. 12.

The dated samples come from the main platform (sample E), from a possible drain (sample 100), and from a barrel (samples 103 and 104). These four samples appear to form two distinctive tree-ring groupings (E and 100 form a pair, whilst 103 and 104 form another pair). Mutually exclusive pairing is unusual in rural tree-ring analyses and may indicate a variety of local or perhaps non-local sources were used for the timbers (particularly with respect to the barrels). Precisely what this observation means for the site interpretation is currently unclear. The latest tree-rings present on the site are those in sample E which ends with a possible heartwood/sapwood boundary at AD 1219. In the absence of sapwood on any dated sample it is not possible to identify any minor differences in chronological date between the various structures. The fairly narrow spread of end-dates between AD 1175 and AD 1219 suggests much of the timberwork present is, if not exactly contemporary, at least the result of a relatively short period of occupation in the mid 13th century.

Table 13 Details of wood samples

Sample	Description	Type	Rings	Sap wood	Growth Rate (mm/year)	Sequence date	Interpreted felling date
E	Structure 2	Oak	103	?H/S	0.67	AD1117-1219	AD 1229-65?
26	Structure 2	Oak	46		1.46	undated	
M	Structure 3	Oak	c. 28			Not measured	
100	Flat board from F304	Oak	63		2.84	AD1150-1212	after AD 1222
101	Upright/?barrel F306	Oak	c. 31			Not measured	
103	Barrel 3017	Oak	148		1.20	AD1028-1175	after AD 1185
104	Barrel 3017	Oak	168		1.55	AD1015-1182	after AD 1192

Key: ?H/S heartwood/sapwood boundary possibly present

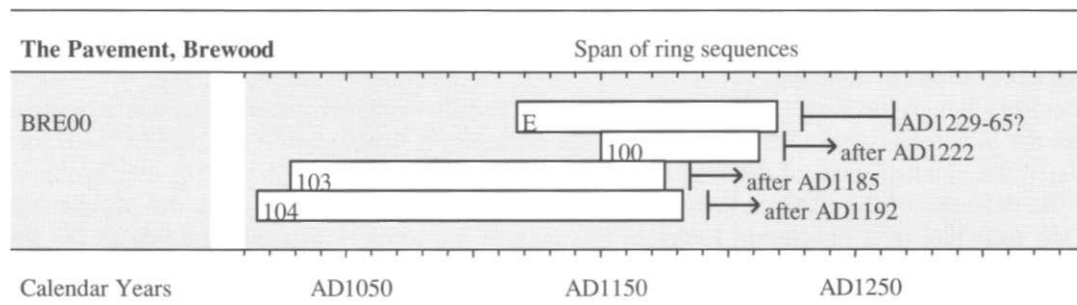


Fig. 12 Bar diagram showing the relative and absolute positions of the four dated samples from The Pavement, Brewood. White bars represent heartwood, the *tpq* dates calculated for each timber using appropriate sapwood estimates is also shown.

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EXCAVATIONS ON THE NORTH SIDE OF SANDFORD STREET, LICHFIELD, STAFFORDSHIRE 2000

KIRSTY NICHOL and STEPHANIE RATKAI

with contributions by

Lynne Bevan, Margaret Bonham, Marina Ciaraldi, and Emily Murray

INTRODUCTION

BACKGROUND TO THE PROJECT

This report outlines the results of an open area excavation and watching brief on the north side of Sandford Street, Lichfield, Staffordshire (centred on NGR SK 1150 0950). The site was situated on the southwest side of the town and comprised *c.* 0.3 hectare under car parking and a large depot. The underlying geology is Keuper sandstone.

The excavation was carried out in accordance with the guidelines set down in Planning Policy Guidance Note 16 (DoE 1990), and was part of a staged archaeological response following a planning application made by Walton Homes Limited to Lichfield District Council. In 1999 a desk-based assessment of the site was carried out by CPM, acting as archaeological consultants to the sponsors. This led to an initial site evaluation, undertaken by Marches Archaeology, which comprised the excavation of seven trenches. A preliminary report described several cut features, and revealed that land towards the frontage had been truncated. It also recorded that cellaring during the 19th century had comprehensively destroyed some areas (Stone 1999).

Findings made during the evaluation led to open area excavation that targeted the main built areas of the proposed development (Areas A and B). The remaining area, including the rear of the property (for car parking) and land under the depot building (after demolition), was the subject of a watching brief during groundworks for service trenches (Fig. 1).

HISTORICAL BACKGROUND

The history of the city of Lichfield has attracted the attention of researchers and academics for many years, resulting in a relatively large corpus of information for today's investigator. Particular consideration has been given to the layout and division of the town itself (Bassett 1982; Slater 1986), and that discussion will not be entered into here. However, the location of Sandford and the anomaly of that area within the town framework will be briefly discussed, in order to place the results of the recent excavations in context.

Sandford lies to the west of Lichfield, and it is generally accepted that a settlement at the point where the Sandford Brook (latterly known as the Trunckfield Brook) could be forded ('Sand ford') predated the planned town of the mid 12th century (Slater 1986, 23; Taylor 1969, 49). Lying outside the defences of the planned town, Sandford developed into a suburb during the Middle Ages, and the founding of a Franciscan Friary in this area of the town, just within the line of the town boundary ditch, *c.* 1237 (VCH Staffs 1970, 268) has been interpreted as evidence for the area being relatively undeveloped during the early life of the new town. Evidence for the town's boundary ditch has usually been taken from Snape's plan of 1781 (reproduced in VCH Staffs 1990, 20), which shows a wet ditch running diagonally across an open area of ground on the southeast side of the town, its northern end nearly reaching Sandford Street (Gould 1976, 12). The evidence of the present excavations, however, shows that the boundary ditch in fact ran further to the east, and that the 18th-century ditch does not preserve the medieval line.

The origin of Sandford Street has also been a matter of debate, and there are two interesting anomalies about the actual line of the street that have been noted. Firstly, there is the nonconformity of Sandford Street with regard to the overall layout of the planned town. Taylor (1969, 45) remarked that 'the road to Walsall (Sandford Street) leaves the town at a very odd place in Bird Street and has no sensible relationship with the main town plan at all'. Bassett (1982, 108) suggested that this was due to the street being laid out later by Bishop Langton, after a great fire that is believed to have consumed this part of the town in 1291. Slater, on the other hand, believed that the street was created as part of the original town plan under Bishop Clinton. He suggested that the main east-west arterial route, linking the town with Walsall, was re-routed when the town was

formally laid out. Consequently, the new road entered the town from the west, crossing the Trunkfield Brook and the town boundary ditch just to the south (rather than north) of a ford on the west side of Bird Street. This realignment, according to Slater, explains the second feature of Sandford Street, the dogleg: the road was redirected to run parallel with the town ditch and so link up with Sandford Street further south (Slater 1986, 22).

The site itself comprised two areas of excavation which were separated by No. 28 Sandford Street and a large depot to the rear of the building. Area A lay to the west of No. 28, which is a listed building (LB 8/151) and was not part of the redevelopment scheme. It was bounded by Sandford Street to the south and by the section of Swan Road that was formerly Sandford Street to the west. Area B lay to the east of No. 28, on the corner of Sandford Street and an access road to a car park (Fig. 1).

THE EXCAVATED SEQUENCE

PROJECT AIMS

The aims of the excavation were to:

- establish the nature, extent, and date of the surviving archaeology prior to its destruction
- determine the profile and date of a possible ditch, identified during trial trenching (situated on the western periphery of the site)
- understand the sequence and structure of the industrial and domestic activity, across the site

EXCAVATION AND RECORDING METHODOLOGY

The removal of overburden was undertaken by JCB, using a toothless ditching bucket, under direct archaeological supervision. The site was then cleaned by hand and a base plan produced. Sampling by hand excavation comprised not less than 50% of discrete features. A higher percentage of discrete features was excavated where more information was required to achieve a full understanding of the date, character, and function of an individual feature or group of features. All finds were kept and have been processed and catalogued, according to IFA guidelines. All datable features were sampled for environmental analysis, principally for charred plant and smaller faunal remains.

A watching brief was also undertaken on the site, during which the excavation of service trenches was monitored, including trenches that were c.3m deep for foul and storm water drains, as well as the insertion of manholes. Due to the unstable nature of the natural subsoil box shoring was used, and thus only sketch sections could be made whilst sections remained visible. Where possible, dating evidence was obtained from identifiable features.

Recording was by means of pre-printed pro-formas for contexts and features, supplemented by plans (at 1:20, 1:50 and 1:100), sections (at 1:10, 1:20 and 1:50), monochrome and colour print, and colour slide photography. Contexts were given individual numbers from a continuous sequence beginning at 3000, and negative and positive features, identifiable by the prefix 'F', had a sequence commencing at 300. Where two-figure numbers appear in the text they refer to the evaluation, undertaken by Marches Archaeology, and have been cross-referenced to the main excavation. It is intended to deposit the paper and finds archive at The Potteries Museum, Stoke-on-Trent (Accession number 2001.k1).

THE STRATIGRAPHIC SEQUENCE

An unbroken sequence of occupation and activity on the site from the 13th century onwards was recorded. Six phases of activity were identified. The earliest deposits (Phase 1) dated to the 13th or 14th centuries when a large ditch, possibly the town boundary ditch, began to silt up. Evidence for a structure on the site was found in the form of a large stone-lined garderobe near to the frontage of Sandford Street, whilst a post-lined pit and a stone-built kiln suggested that some sort of industry was also taking place on the site. The ditch and the garderobe continued to silt up into the 15th century (Phase 2). Phase 2 activity was characterised by the digging and re-digging of pits over much of the site, the pottery evidence suggesting that it was during this period that the Phase 1 ditch silted up completely.

The early post-medieval period (Phase 3) saw a slight shift in land use towards activity of a more industrial nature. The town boundary ditch and garderobe were no longer extant as earthworks by this period, and pits were cut into the top of them. A tanning complex was established to the rear

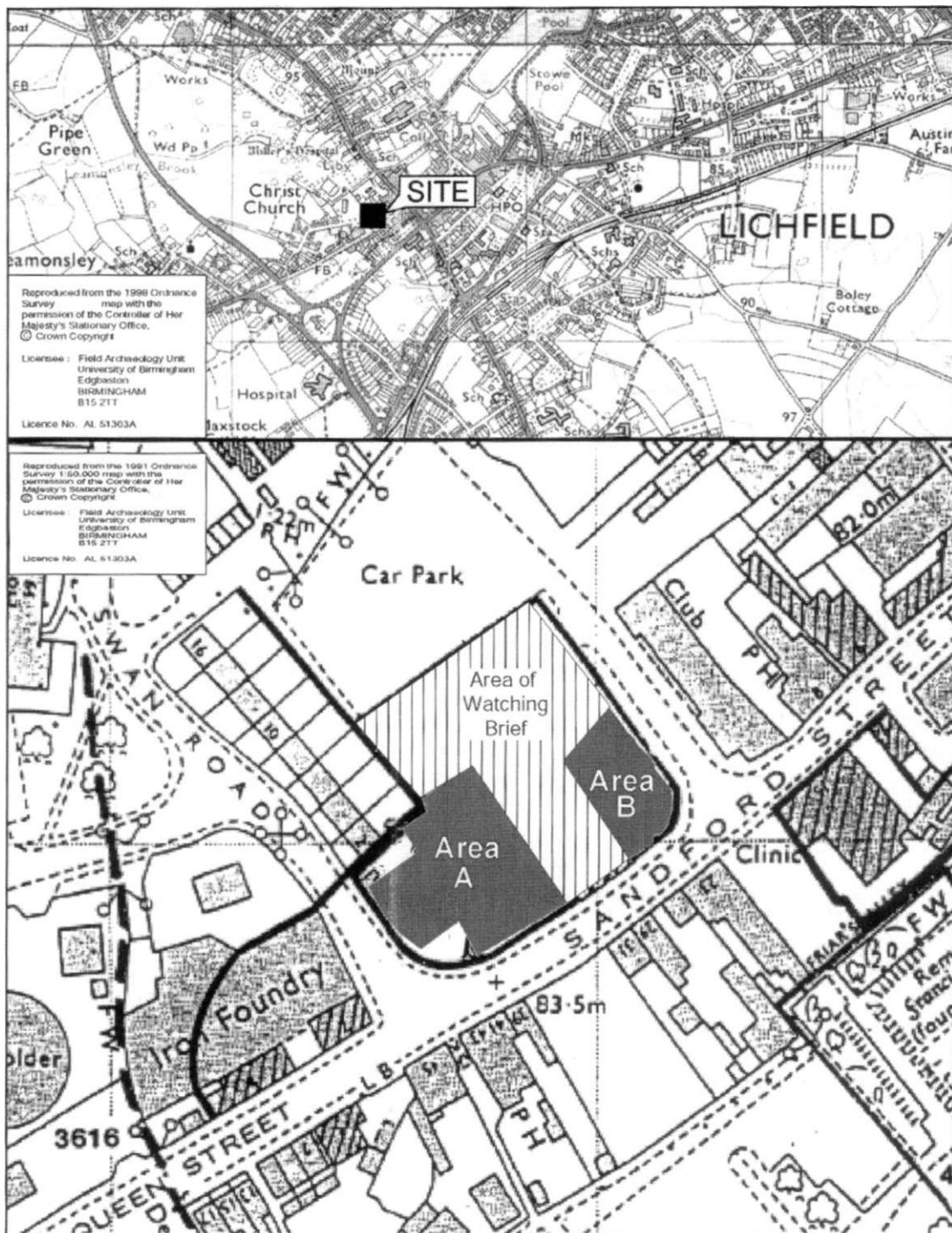


Fig. 1 Site location plan

of a 16th-century property adjacent to No. 28 Sandford Street. In Area B a stone-lined well was built, and several pits were dug across the site. A sandstone building was constructed in the 18th century (Phase 4), and the remains of a cobbled surface that was associated with dumps of bone suggest that tanning may have been taking place in the vicinity or that the site was occupied by a fellmonger. The sandstone building continued in use into the 19th century when it was re-floored. Other deposits across the site, however, were greatly truncated by 19th-century development (Phase 5). Later brick additions to the properties and further improvements in sanitation were undertaken in the ensuing period. Latterly, modern (Phase 6) drains and services were cut through the site and

a large depot was erected in the centre of the plot. When the majority of the houses were demolished in the 1960s and 1970s the demolition material was used to level the site for car parking.

RESULTS

PHASING

The results of excavation can be placed into six broad phases of activity on the basis of the date of the pottery, the development of properties on the site, and the principles of archaeological stratigraphy.

- Phase 0: Saxon
- Phase 1: Medieval (13th—14th century)
- Phase 2: Late Medieval (14th-15th century)
- Phase 3: Early Post-Medieval (16th-17th century)
- Phase 4: 18th century
- Phase 5: 19th century
- Phase 6: Modern

PHASE 0: SAXON

Although there were no features that could be securely dated to this period, the presence of residual pottery found in both a Phase 3 pit (F403) and a later pit observed during the watching brief (F21/21000) attests to some activity in the vicinity during the Saxon period. Also noteworthy is the aceramic V-shaped ditch that was excavated to the rear of No. 15, Sandford Street, to the south (pers. comm. Nick Taverner, Marches Archaeology; Ratkai below).

PHASE 1: MEDIEVAL (13TH-14TH CENTURY)

Due to difficulties with the dating of pottery from this period (Ratkai below, p. 71), only a broad framework can be outlined. The only clear stratigraphic relationship observed was the construction of a stone-built oven/kiln over a post-lined pit, both containing pottery dating to this period.

The Ditch

A large ditch (F475; Fig. 2; Plate 1), identified as the town boundary ditch, on a north-south alignment, was excavated along the western edge of Area A. It is possible, though unlikely, that it was dug in an earlier period and scoured clean. However, it is to this period that the primary and secondary silts date. The earliest fill (3259) was a very dark grey-brown silty sand, containing pockets of clay and charcoal flecks. Overlying this deposit was a thin lens of orange sand where the inner lip of the ditch had collapsed. This was overlain by an orange-brown clay-sand (3255), containing pockets of re-deposited natural sand and sherds of pottery. The inner lip of the ditch had once again collapsed over that layer (3253) reflecting the unstable nature of the underlying geology.

Three slots and a trial trench (Trench 1; Stone 1999) were excavated across the ditch, but only the eastern side of the ditch was located. This gives a minimum width of 10m for the ditch, which survived to a depth of 2m. The ditch appears to take advantage of a natural depression in the underlying subsoil that rises up towards the east. A posthole (F476/3260) in the base of the ditch contained pottery dating to the 13th—14th century, but it was unlikely to have been contemporary with the digging of the ditch. The pottery probably derives from the primary ditch fill (Ratkai below, p. 85).

The Garderobe

The only structural evidence surviving for this period was a large sub-square garderobe (F448; Plate 2), located to the rear of what would have been the frontage onto Sandford Street. The construction trench for the cesspit measured 2.7m by 2.7m and was 3.2m deep. The cut had a stepped profile, narrowing to 1.5m wide at the base. The step provided a foundation level for sandstone walls, and below the step it was cut through bedrock (Plate 3). Walls survived intact on two sides of the garderobe, the northern and western elevations having collapsed some time in the past, forming a rubble layer towards the base of the feature. The upper courses of the surviving walls had been robbed out to 1m below the modern ground level. A layer of cess (3235) survived in the very base of the cut, and was overlain by a more sandy deposit (3234), suggesting that the garderobe had fallen into disuse prior to its abandonment and backfill. These layers were then sealed by the collapse of the stone walls (3233).

The Pits

Pottery dating to the 13th–14th century was also recovered from several truncated pits and postholes (F321/3035, F422/3167, F433, and F457) located immediately south of the garderobe. In the base of two elongated pits (F433 and F457) was a very clean sandy deposit (3186 and 3227), very similar in character to the backfill of the garderobe. The pits were *c.* 3m long, 1m wide, and respectively 0.9 and 0.5m long. They had been re-cut later in Phase 3 (see below) and were not visible in plan.

To the rear of the aforementioned structure, in what would have been the backplot area of the burgrave, were the remains of a heavily-truncated post-lined pit (F442). Only the southern side of the pit remained *in situ*. Three postholes were excavated on the periphery of the pit. The pit itself was flat-bottomed, measuring 1.8m in diameter and 0.7m in depth. It had been truncated by a modern manhole to the north. The pit was filled with a series of deposits, the earliest (3206) being a loose, grey-brown sandy-silt containing rounded river pebbles and bone. This was overlain by a compact, plastic, 0.15m-thick layer of red clay (3205) which may be the vestiges of a lining. The upper fill of the pit was loose grey-brown sandy silt (3197).

The Kiln

Directly overlying the post-lined pit was a stone-built oven or kiln (F411; Plate 4). It was of dry-stone construction, built from a mixture of yellow sandstone and grey mudstone (3162), the sandstone being scorched red (3164) at the southern end of the flue nearest the stoke-hole. The superstructure survived to a maximum of five courses high (0.36m). It was keyhole-shaped in plan, measuring 3.5m in length, with a maximum width of 1.9m. The chamber had an internal diameter of 1.1m and the flue measured 0.62m wide. The base of the structure was lined with red clay (3196) that was luted onto the lowest course of the superstructure. The lining varied in thickness from 0.18m within the chamber of the kiln to 0.06m within the flue. It was heavily scorched, and there was a thin spread of scorched sand around the southern end of the flue (3165). Overlying the clay lining was a layer of brown silt-sand (3180, 3195) that also showed signs of scorching in places. The stokehole (F441) was very truncated and filled with a red, heavily-scorched, clay-sand (3194) that contained pottery datable to the 13th–14th century.

Other Features

Evidence for occupation during this period also survived in pockets across Area B where several small pits and postholes (F367/3090, F372/3097/3104, F393/3123, F394/3126, F400/3125, and F425/3170/3183) were cut and re-cut. The diameter of the pits ranged between 0.45m and 0.72m, and they survived to between 0.08m and 0.39m in depth. They were filled by grey silt that had occasional charcoal flecks and contained pottery dating from the 13th–14th century. Two more pits beneath Structure 2 (F463/3232 and F417/3160) can also be dated to this phase stratigraphically.

Phase 1 Discussion

The exact line and location of the town boundary ditch has been based largely on secondary sources. These include a late 13th-century reference to *afossatum ville* (Bassett 1982, 112) and several contemporary references to the location of gates. The depiction on Snape's Map of 1781 of a ditch to the south-west of the town has often been interpreted as the visible remains of the town boundary (Gould 1976, 12), but the only occasion that the town ditch has been previously encountered archaeologically may have been during Lyon's excavations in the 1960s (*ibid*).

On present evidence it would appear that the section of the ditch now excavated in Sandford Street was cut in the mid 13th century at the earliest, as suggested by the pottery assemblage which is dominated by whitewares (Ratkai below, pp. 73–5). The earthwork attributed to Bishop Clinton, therefore, may have begun under him in the mid 12th century, but was made in a piecemeal fashion, with the Sandford stretch simply being dug later than the remainder of the circuit. Further excavation across other sections of the ditch is needed to clarify this. The distribution of artefacts within the ditch deposits reveals that it was not used for the dumping of refuse, which is surprising given its proximity to a dwelling. Moreover, there was no evidence of this section of the ditch being used for a sewer, although there are references for this practice (Gould 1976, 12).

The building occupied what was probably the corner plot of Sandford Street at its junction with the town boundary ditch. The garderobe appears to have been built on to the rear of the property, and the two elongated pits and postholes directly to the south of the garderobe would, therefore, have been situated inside the building and may have been structural. Stone-lined garderobes have been

identified on other sites of this date in Southampton (Piatt *et al.* 1975) and Leicester (Connor and Buckley 1999), as well as in the immediate vicinity, as at No. 15, Sandford Street (pers. comm. Taverner). It is generally believed that the stone lining facilitated the cleaning of the structure, and may indicate that the owner enjoyed a middle to high social status and lifestyle. However, this is not borne out by either the pottery from the feature (Ratkai below), or from the environmental evidence (Ciaraldi below, p. 108), which could be read either way. The partial chicken carcass which was excavated from the cess deposit in the base of the pit suggests that it was being used as a rubbish pit as well as a garderobe. This may also explain the lack of rubbish pits on the site and the occurrence of the pottery within the fill. The general lack of artefactual evidence for this period is also explained by this process, as rubbish would be removed regularly when the garderobe was cleaned out.

The post-lined pit appears to have had a relatively short life span. The pottery assemblage consisted predominantly of jugs, and may infer that the pit, which, significantly, appeared to have been clay-lined, was associated with water storage or brewing for the household. Conversely, the pottery that was associated with the overlying oven/kiln was largely made up of cooking pots. These assemblages, in combination, suggest that this part of the site was the kitchen area. It was not uncommon for kitchens to be situated at a slight distance from the house during this period, principally due to the risk of fire.

Several structures of similar, key-hole, type have been excavated at sites of comparable date, such as Wintringham, Huntingdonshire (Beresford 1977). However, their overall purpose remains unclear, with interpretations including their use as drying kilns, malting kilns, or baking/bread ovens, and all three purposes may at different times and in different places be true. It was hoped that environmental samples taken during excavation would hold the key to its function. However, the flot contained only a few seeds of cereals, grasses and *Sambucus* sp. Small metal or slag droplets were also noted, and were observed in the sample from the cess pit suggesting that they were contemporary in date. Similar deposits were observed in excavations to the south of Sandford Street (pers. comm. Taverner), suggesting that some sort of industrial process was being carried out in the vicinity in this period. Massive truncation of the southern end of the oven/kiln means that there was little surviving evidence of the stoke-hole. The pottery from the layer immediately overlying the structure (3181) suggests that the oven/kiln had been abandoned in the 14th century.

Evidence for occupation in this period across Area B was very different in character from that of the corner plot, with small pits being dug in what appears to have been a fairly dispersed pattern. None of the pits had the appearance of middens or rubbish pits, artefactual evidence was slight, and the fills were only slightly charcoal-flecked. Pits were situated near to the frontage of the street implying that the area was unoccupied.

PHASE 2: LATE MEDIEVAL (14TH-15TH CENTURY)

The garderobe (F448) had fallen into disuse by the 14th century and had begun to silt up. The ceramic evidence from this sandy deposit (3204) suggests that this process continued into the 15th century. Similarly, the large ditch (F475) continued to silt up throughout the 14th century, and pottery from the upper fills of the ditch (3242, 3246, 3254, 3256, 50, 59, and 62) suggests that this also culminated in the late 15th century. Some intrusive 16th-century material was also recovered from the ditch, indicating a general mixing of deposits during this period.

In Area B, small pits, containing pottery dating to this period, survived below Structure 1 (Phase 5 below) where it was not cellared. The three pits (F348/3064, F356/3220, and F379/3107) were c. 1m in diameter and ranged from 0.35-0.51m deep. They were filled by dark grey-brown silty-sand containing charcoal. Along the western edge of the excavated area was what appeared to be an alignment of pits (Fig. 3). This interpretation is tentative and may be due rather to survival occurring only in pockets in this area. It comprised a series of five pits orientated north-south, which may indicate a property boundary. Running back from the Sandford Street frontage there is firstly pit F352 which was irregular in plan and had a stepped profile. It measured 1.5m in diameter and was 0.6m deep, and contained a very mixed deposit (3053) composed of grey silt, with pockets of unfired red clay. Intrusive material was confined to the upper fill of the pit and probably dates to the demolition and levelling of the site in the 1970s. Fragments of brick, glass, bone buttons (Bevan below, p. 96), and later pottery were also recorded. Moving northwards, pit F346 had a diameter of 1.7m and was 0.46m deep. The primary fill (3083) was dark brown-red silty sand, overlain by a dark grey, charcoal-rich, silty sand, containing pockets of grey ash. Immediately to the north, the third, smaller pit (F375) contained quantities of pottery. It had a U-shaped profile and was 0.9m in diameter and 0.35m deep. It was filled with a single grey brown silty sand deposit (3103).

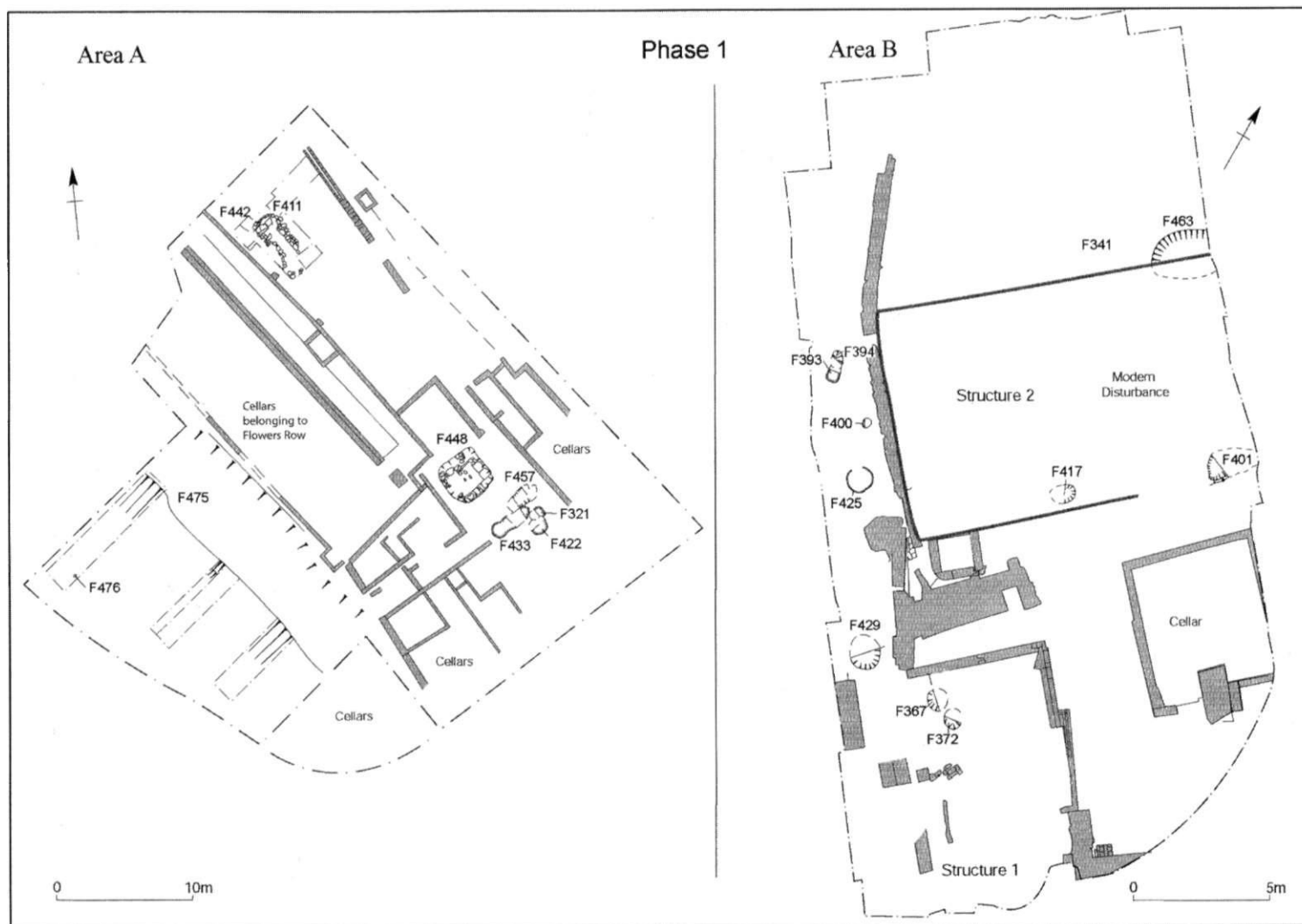


Fig. 2 Phase 1 site plan

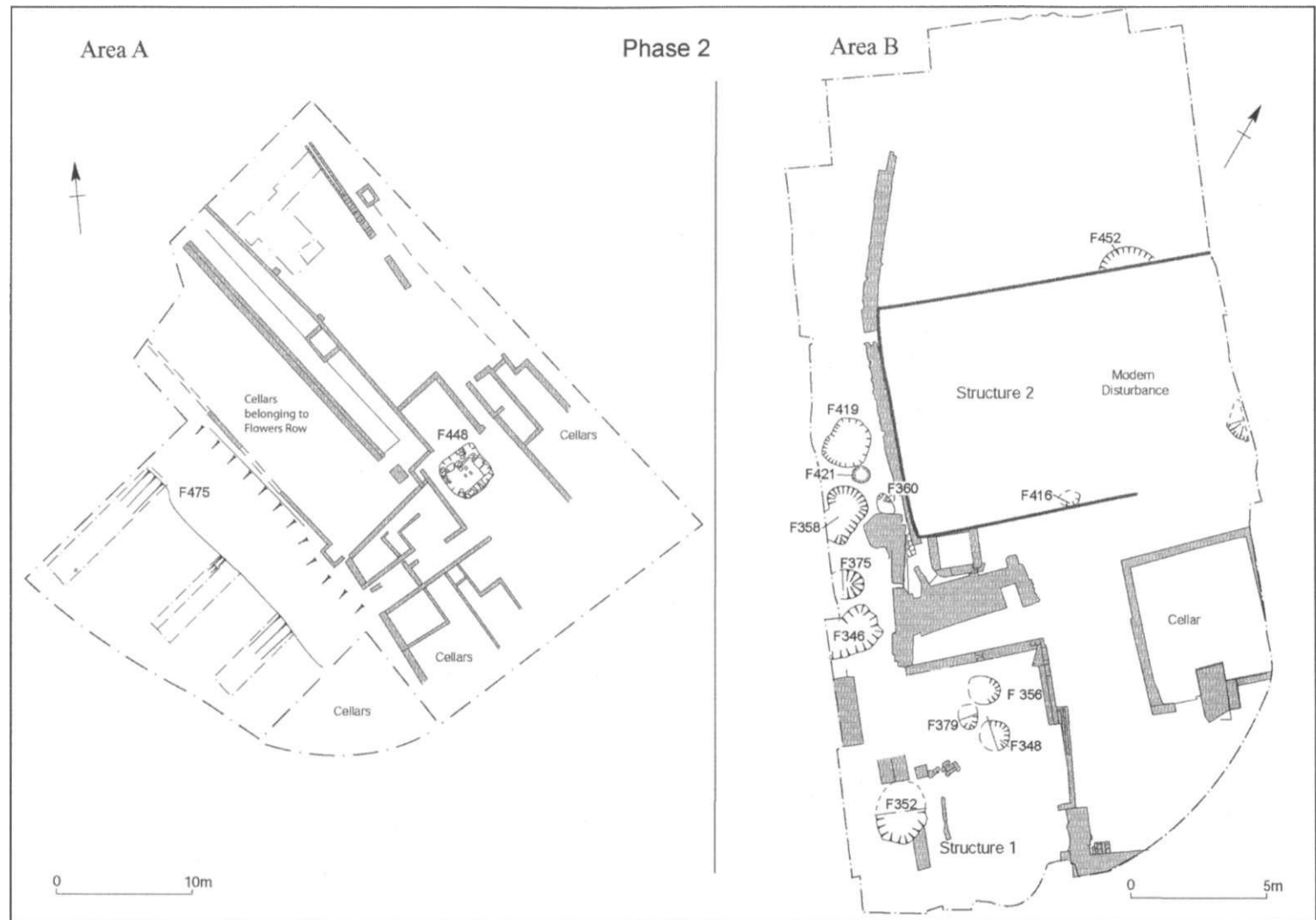


Fig. 3 Phase 2 site plan

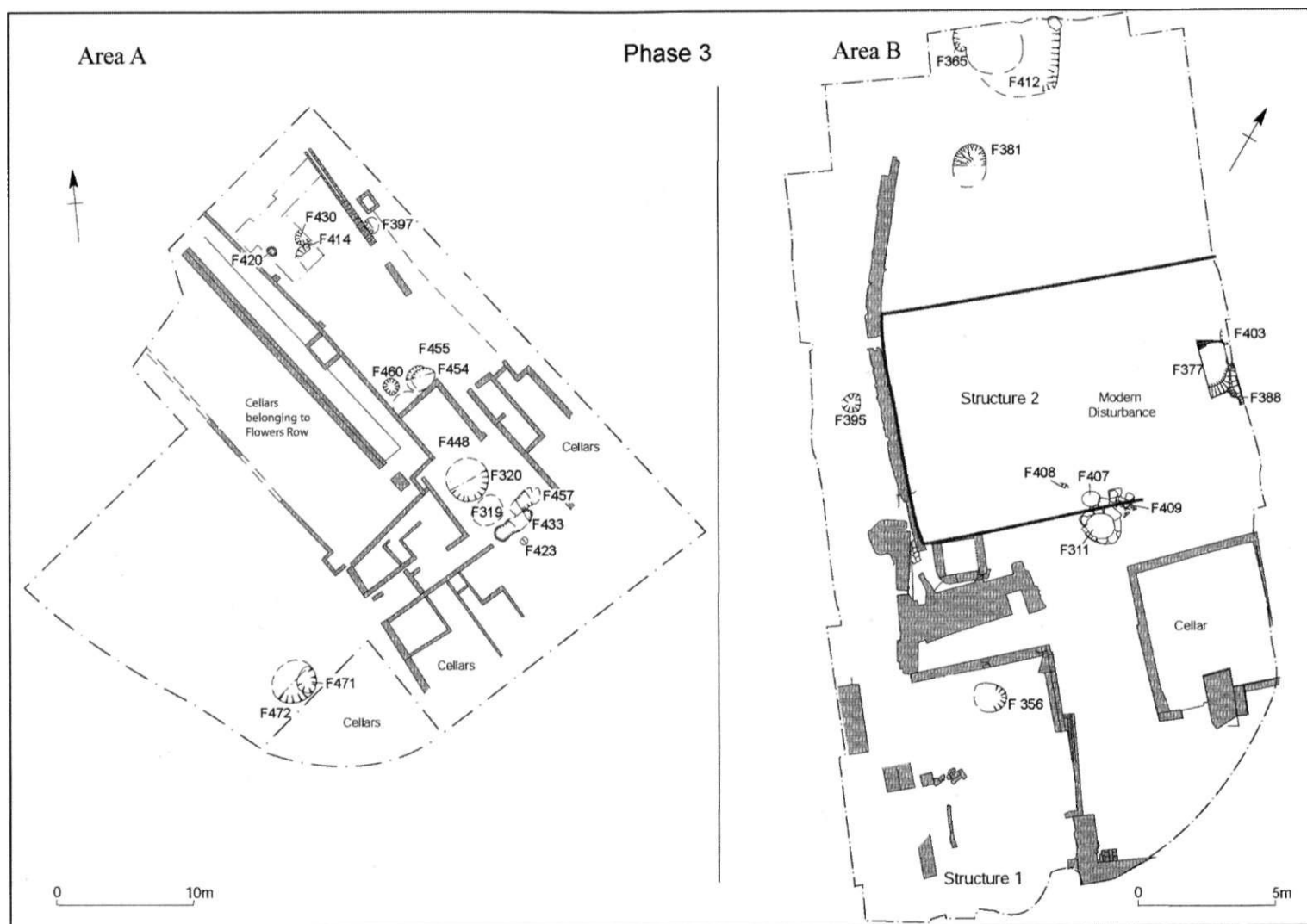


Fig. 4 Phase 3 site plan

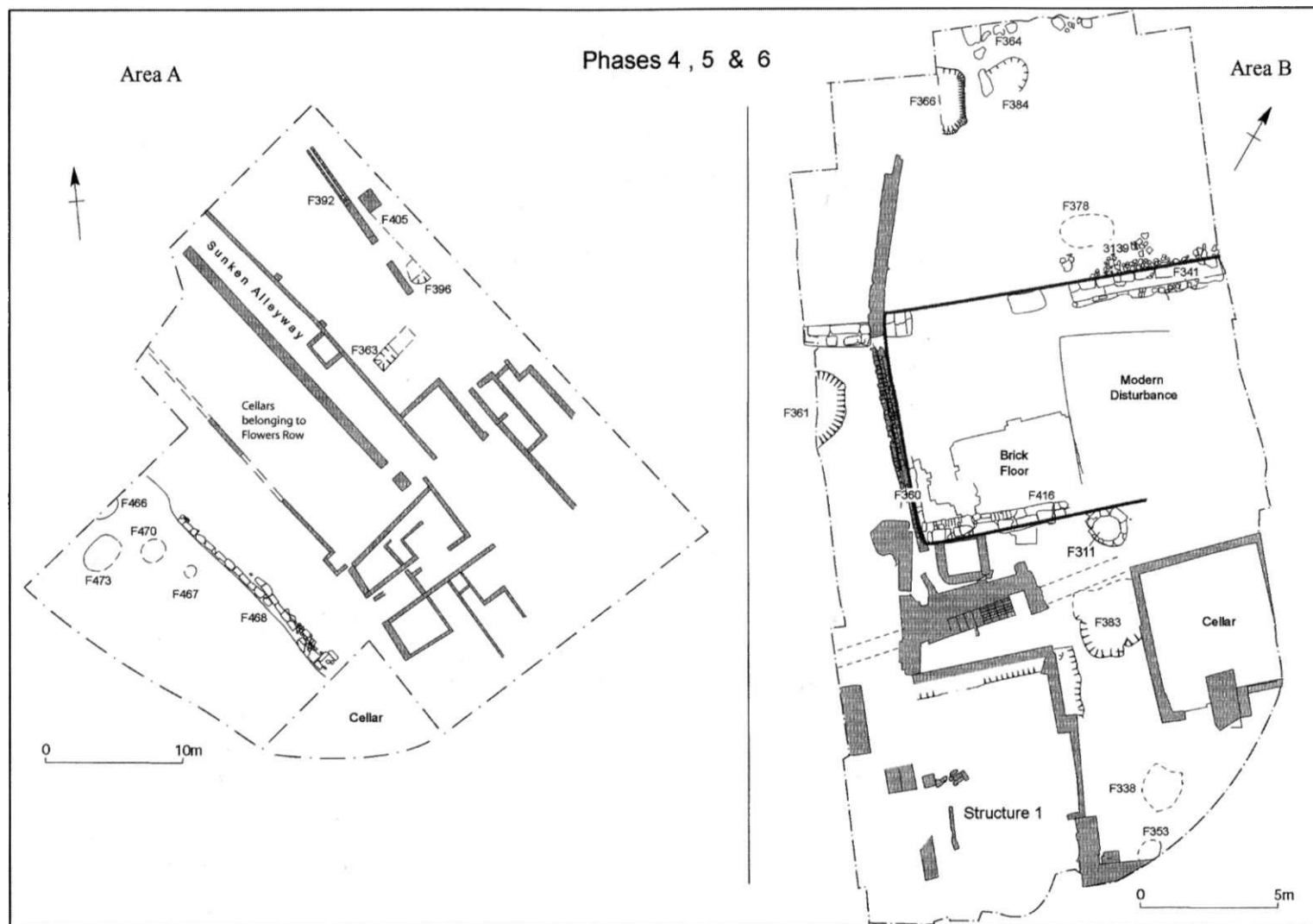


Fig. 5 Phases 4, 5 and 6 site plan

Adjacent to this, pit F358 measured c.2m by 1m and was 0.3m deep. It was filled with a brown clay-silt containing charcoal and coal, fragments of bone, and tile. The fifth pit in the sequence (F419) was sub-circular in plan, c. 1.49m in diameter and 0.39m deep. It was filled with dark grey brown silty-sand (3135), containing ash and charcoal, a copper alloy pin (SF12), and pottery.

Two postholes (F360/3079 and F421/3166), immediately to the east of this group, also dated to this phase. Posthole F421 was filled by a grey silty sand (3166), containing bone, fragments of brick and tile, and pockets of orange clay, which may have been packing for a post. Pottery also dated two pits underlying Structure 2 to this period. Pit F452 had a slightly-stepped profile, with a rounded base. It was 1m in diameter and 0.45m deep, with a single grey silt fill (3216). F416/3143/3159 was a posthole from which residual material was also recovered.

Phase 2 Discussion

There appears to be a shift in the focus of activity between the late 14th and the 15th century. In the earlier period (Phase 1) occupation appeared to be centred on the corner plot, adjacent to the ditch. Following the demolition of the house this area was abandoned, probably some time in the 14th century, and the garderobe was left open. The presence of what have been identified as natural fatalities (Murray below, p. 105) confirms that the pit remained open for a period of time, gradually silting up with wash from the sides of the cut. The alignment of pits is significant in that property boundaries appear to be unusual within the town, and Hummler, during excavations on nearby Wade Street, also noted their absence in the archaeological record (1982, 85).

PHASE 3: EARLY POST-MEDIEVAL PERIOD (16TH-17TH CENTURY)

It is possible to identify two separate properties on the site in the 16th century. Firstly, a fragment of timber framing survives (now under render) in the western elevation of the building occupying the adjacent plot (No. 28 Sandford Street; Plate 5), itself built c.1800 and subject to later alterations. A timber-framed building thus occupied the south-east corner of Area A until at least 1800 when its gable end was incorporated in to the build of the adjoining structure. A single photograph of the wall, still visible at the time of the evaluation but covered by the time the excavation started, shows a timber-frame of 16th-century date (pers. comm. Litherland). The building was two-storeyed, a single room deep, and had a continuous jettied frontage. It had small, relatively light, scantling of the timbers and a single mid-rail, with distinctive straight downward bracing to the frontage. The in-fill appears to have been wattle and daub.

Immediately to the rear of this structure were several contemporary rubbish pits associated with this period of occupation (Fig. 4). A large pit (F320; Plate 6) was cut into the top of the backfilled garderobe. It had a bowl-shaped profile, and measured c. 2.5m in diameter and 1m deep. The earliest fill (3203) was black, charcoal-rich silty-sand, overlain by a dark grey-black charcoal-rich silt (3033). A second, substantial pit immediately to the south of this (F319, 15/16) also contained pottery dating to the 16th century. The upper fills of two elongated Phase 1 pits (F433 and F457) also contained material dating to this period. They were backfilled with broken tile, mortar, and charcoal (3185, 3226, 19 and 3227) and may therefore derive from the demolition of the structure rather than from its occupation. The town boundary ditch had completely silted up by this period, and was cut by several pits of this date. Pit F472 had a diameter of 2.2m, and was 0.5m deep, and was filled with a dark grey silty sand (3248), containing pottery, bone, and fragments of brick and tile. It was cut by a smaller pit (F471/3247) containing pottery of the same date, and which may have been residual. A third pit (74/73) was excavated during the evaluation, and contained a high level of residual material, presumably deriving from the ditch fills.

To the rear (northwest) of the same property were the remains of a tanning complex. Pit F456 was one of the earliest in the sequence, and was severely truncated by two other tanning pits. It was not visible in plan. The clay lining had been removed and it was filled with a black ashy deposit (3220) that contained residual medieval pottery. Pit F456 was cut by another tanning pit (F455), 0.3m deep, with a red clay lining (3219), and which was filled by a black, charcoal-rich silt (3218). This pit was then cut by a third clay-lined pit (F454), measuring 1.2m in diameter and 0.25m deep. It had an orange-red clay lining (3213) that had sherds of medieval pottery mixed into it, and it was filled with an ashy deposit (3209) that contained 16th-century pottery.

Immediately to the west was pit F461, with a diameter of 1.1m and a depth of 0.7m. It also had a red clay lining that had collapsed, sealing two fills (3223, 3224) which were charcoal-rich and contained cattle horn cores. The clay lining had been repaired and the collapse (3222) was converted

into the base of the new pit (F451). This pit was filled with bands of charcoal-ashy silt and lime-rich layers (3210, 3214, and 3221) that contained a re-deposited flint flake (Bevan below, p. 96). To the south lay another clay-lined pit (F460) that measured 1.2m in diameter and was filled with a black ashy deposit (3211). As well as this cluster of pits, there was an isolated example to the north (F397). It measured 1m in diameter and was 0.3m deep. The clay lining had collapsed in places around the edge of the pit. However, the lining of the base was well preserved, revealing a groove around the edge of the pit where wooden slats had been inserted (Plate 7). It was filled by a very mixed deposit (3130) that contained charcoal, ash, clinker and coal, and fragments of brick, tile, and late 17th-century pottery. No boundaries to the complex were noted during the excavation.

A buried soil (3181, 97) overlying the Phase 1 oven/kiln had several 17th-century pits cut into it, and into the superstructure of the oven/kiln itself. Pit F414 had a deep, bell-shaped profile, and was 1m diameter and 0.8m deep. It was filled by a loose, brown-black silt-sand, containing tile, fragments of degraded mudstone, and pottery. A second pit (F420) was a shallow, bowl-shaped feature, possibly a truncated posthole. It was filled by a mixed brown-black silty-sand (3163), containing mudstone, brick, tile, and clay pipe. A third pit (F430) had a bowl-shaped profile, and was 0.9m in diameter and 0.2m deep. It was filled by a soft loamy silt and contained fragments of mudstone and pottery.

A small fragment of stone wall (F409) was the only structural evidence for the second property dating to this period (located in Area B). The wall was constructed from irregularly-faced sandstone blocks (3150). The fills of the associated construction trench (3149 and 3153) contained pottery dating to the 15th–16th centuries, and included an almost complete Cistercian Ware cup (SF8). The wall was contemporary with a stone-lined well (F311) situated immediately to the south. It was constructed from well-dressed sandstone blocks (3019) and had an internal diameter of *c.* 0.5m at the surface, broadening to 1m with depth. The well was not fully excavated. However, dating evidence from the upper 3m of fills showed that it had been backfilled in the 19th century (see below). Two adjacent postholes that appeared to be contemporary with the structure (F407 and F408) may have been associated with some sort of winch mechanism for the well.

A buried garden soil (3086) had built up in the rear of the burgage plot. This was associated with three contemporary pits (F365, F381, and F412). Pits F365 and F381 had U-shaped profiles and very mixed fills (3087 and 3109). The third was a shallow bowl-shaped feature (F412) that was filled with a green cessy deposit (3114). The buried soil had also been truncated by several Phase 4 pits (see below).

A small concentration of pits, containing pottery dating to the 16th–17th century, also survived along the western edge of the site. A large sub-circular pit (F377), *c.* 1.55m in diameter and 0.7m deep, had a primary fill (3119) of a light grey, ashy silt that contained quantities of brick and tile and occasional large sandstone blocks. The upper fill (3105) was a dark brown silty sand, containing pockets of ash and fragments of sandstone blocks. Immediately to the south of this was a smaller pit (F388) which had a bowl-shaped profile, and was 1.2m in diameter and 0.5m deep. It was filled with a grey-brown silt (3118) containing burnt patches of clay and lenses of charcoal and sand. To the north was pit F403 which also had a bowl-shaped profile, a diameter of 1.2m and was 0.5m deep. It was filled by a tile-rich silty-sand, containing ash and charcoal (3138).

To the west was a single posthole (F395) which was filled by dark brown-black charcoal-rich sand (3128), containing glass, a bone spatula (SF4), and pottery. To the south was a small pit (F356) that contained a mid-grey silty sand, with small stones and charcoal (3073).

Phase 3 Discussion

The ditch was no longer visible as an earthwork by the 1500s when pits were cut into the upper fills. This is reflected in the commentary written by John Leland, who visited the city some time between 1538 (the Dissolution of the Friary) and 1543. Leland wrote simply that "a dicke was made in a parte of the towne by Langton, Byshope of Lichfield" (Toulmin Smith 1964, 99), providing no further description. Given the detail of description for other parts of the town we may deduce that the ditch was no longer visible.

Occupation of the site appears to have become more intensive during the 16th century, with a decline in the 17th century. Pits containing 16th-century demolition material were noted across the site. Speed's map of 1610 depicted the northern side of Sandford Street as being open and unoccupied at this time. However, there is evidence for two structures still standing on the northern side of the street at this date. A building of mid to late 16th-century date (No. 6, Sandford Street) still stands at the western end of the street and, as has already been discussed, there is evidence for a timber-framed structure of similar date occupying the excavated site until at least 1800. Contraction and

demolition may have been a product of the troubled times in Lichfield during the 17th century. The city was hit badly by plague in 1593 and in the 1640s (Harrison 1982, 126), and the effect that the Civil War, and in particular the series of sieges, had on the city and its inhabitants must also be considered as a possible factor in this general decline and malaise.

Tanning in Lichfield has a long history, with the earliest tanning pits probably located alongside the Minster Pool. Tanning is more often than not an industry which occupies a peripheral space within a town, due largely to the smell. There are several references to tanners living in Sandford Street during the early post-medieval period. In 1587 a tanner (and junior bailiff), John Blout, is recorded as having land in the street, as was his son, also a tanner (VCH Staffs 1990, 121), and William Tunkes, who on his death in 1668 had leather, tanned skins, and bark worth £200, may also have had premises on Sandford Street (*ibid.*). It seems apparent, therefore, from early records that Sandford Street had a more industrial, rather than domestic, character.

There are good comparisons for this type of tanning pit in those excavated at The Green, Northampton (Shaw 1996, 72). The clay-lined pit with the groove around the base is also paralleled at the Green (*ibid.*, 77; Plate 2). The pits themselves may have been in use during the late 15th century, being backfilled in the early post-medieval period. However, strong parallels with those at the Green make a 16th-century date more likely. The lack of good datable evidence and stratigraphic information poses problems for an absolute date.

PHASE 4: 18TH CENTURY

In the 18th century a building (Structure 2, Area B) was constructed to the rear of the Sandford Street frontage (Fig. 5). The northern elevation of the building, which was built using large, well-dressed sandstone blocks, partly overlay the 16th-century well (see above). The well may have still been in use during this period, with the final backfilling not taking place until the 19th century.

Abutting the building to the north was the remains of a rough surface (3139), composed of large cobbles, fragments of tile, and dumps of animal bone. The bones were solely ovicaprid metapodia and phalanges, and have been interpreted as the result of either primary butchery practices, or as the waste products from tanning (Murray *below*, p. 105). A group of pits to the north of this may also have been associated with tanning. They comprised a large bath-shaped pit (F366), 1.7m long, 0.7m wide, and 0.7m deep. The primary fill was a grey sandy-silt containing pockets and veins of orange sand (3088), the upper fill being a dark grey silt (3089), containing quantities of charcoal and fragments of sandstone and brick. A second, heavily-truncated pit (F384), immediately to the east, contained a cessy deposit (3115). A fragment of rudimentary sandstone wall (F364/3086) may have been the remains of the rear boundary wall of the plot.

A layer of light yellow-brown silty sand (3127) containing small stones overlay the medieval pits immediately to the west of Structure 2. The layer contained residual medieval pottery that may have been dislodged from the underlying pits. This layer was cut by a large pit (F361). The pit had been backfilled with slag, and alludes, once again, to other industrial activities taking place on, or near, the site during this period and for which we have no other surviving evidence.

The foundations of a substantial sandstone wall (F468), constructed from large, well-dressed blocks, probably represent a property boundary. It appeared to respect the inner lip of the ditch (Plate 8) and may, in fact, echo a much earlier division.

Phase 4 Discussion

The construction of Structure 2 in stone may have been in response to several fires in the city in the late 17th century, following which buildings in Lichfield were generally constructed in brick and stone (VCH Staffs 1990, 19, 21). The bone assemblage for this period is interesting, and a map dating to 1766 which records the site as 'Skinhouse Yard' (CPM 1999, 7) appears to confirm its use by leather workers. Tanners are recorded as operating in Sandford Street in the 18th century, Thomas Tunkes (perhaps the son of William mentioned above) being known to have been based in Sandford Street in the early part of the century (VCH Staffs 1990, 124).

PHASE 5: 19TH CENTURY

The 18th-century building was still in use during this period and was re-floored. But it was this period that saw large-scale redevelopment of the site, including the construction of cellared structures fronting on to Sandford Street and the erection of Flowers Row, a terrace of 19 houses (Fig. 5) dating to c.1847 (VCH Staffs 1990, 28). A buttressed boundary wall, following the semi-sunken

alleyway to the rear of Flowers Row, was also revealed during excavation. Later brick additions were related to several properties and improvements in sanitary facilities were also identified. A brick culvert was excavated immediately to the rear of Structure 1, with associated brick drains feeding into it. Several of the later brick walls incorporated re-used sandstone blocks that probably derived from features such as the probable robbed-out well (F383). A buried soil (3054), visible in the west-facing section of Area B, appeared to be associated with Structures 1 and 2, and several large pits and areas of disturbance were also noted across the site.

The majority of pits datable to this period were located within Area A. A rectangular pit (F363) is worthy of note due to the quantity of pottery recovered (Ratkai below). It measured 2.8m in length, and was 0.75m wide and 0.2m deep. It had straight sides and a flat base and was filled by charcoal-rich silt (3085). A second, truncated pit, to the north-east of F363 (F396) had a diameter of 0.85m and was 0.62m deep. It had an irregular profile and was filled by a light sandy fill (3129), containing quantities of shell and pottery. A series of pits dating to this period had been cut into the top of the town boundary ditch. Pits F473 (3249), F474 (3250), and F466 (3239) were all sectioned by machine, and were seen to have straight sides, and flat bases and were filled by very mixed rubble-rich deposits that contained quantities of pottery. Two other pits (F467 and F470), to the south, were not excavated but a sample of material was taken from the surface for the purpose of dating.

Material dating to this period was also excavated from the Phase 3 well (F311). The well was excavated to a depth of 1.9m below what was the ground level and was then augered for a further metre, all deposits encountered being dated to the 19th century.

Phase 5 Discussion

Leather working was gradually phased out and had disappeared by the 1840s (VCH Staffs 1990, 28). The building on the site was then recorded in the Tithe Apportionment (dating to 1850) as being used as a malthouse. This reflects two trends within Lichfield: the abandonment of the more noxious industrial practices and the centralisation of the brewing industry during the late 18th century, when the practice of brewing ale was taken over from inn keepers by maltsters (*ibid*). However, Sandford Street continued to retain some of its industrial character throughout the ensuing period, a foundry was opened in the street in 1879 and other metal working industries are known to have been based here. There was also a cotton manufactory, weaving shops, and a dye house (*ibid*).

PHASE 6: MODERN

Modern service trenches (F405 and several others identified during the watching brief), as well as substantial areas of disturbance were located, relating probably to demolition and site clearance ahead of the construction of the depot. The whole site was levelled, using demolition material that was up to 1.2m deep, prior to a layer of scalplings being laid as a car park surface.

THE POTTERY *by Stephanie Ratkai*

METHODOLOGY

All stratified medieval pottery in Phases 1-3 was examined under x20 magnification. Post-medieval pottery from these phases was divided into ware groups e.g. blackware, yellow ware etc. Midlands Purple was treated as a ware group, although there were variations in the fabric. All the pottery from Phases 1-3 was quantified by sherd count, sherd weight, minimum rim count, and *eves* (rim %). Details of vessel form, decoration, glazing, sooting, and wear were noted.

Each context was spot dated and brief notes made of the range of medieval fabrics or post-medieval wares present. The pottery from Phases 4-6 was also scanned for unusual medieval or early post-medieval forms or fabrics otherwise not represented in the first three phases.

THE POTTERY

Despite the important Saxon production centre at Stafford and the pre-eminence of Staffordshire in the post-medieval period for the production of pottery, there is very little published evidence for the use, dating, and production of pottery in the medieval period. Ford (1995) has neatly summarised all the available information. She points out the similarities of pottery fabrics throughout the region and the inherent difficulties this poses. In general, it would seem that a purely fabric-based approach to the pottery of south-east Staffordshire will not yield sufficient data and that, therefore, subtleties of fabric must be combined with a detailed study of vessel form, manufacturing techniques, and decoration in order to build up a picture of the sources and chronology of the pottery.

FABRIC AND FORM DESCRIPTIONS

The earliest pottery was represented by an early-middle Saxon chaff-tempered body sherd, weighing 9g, which was residual in pit F403 (3138), and four small sherds from F212 (21009) including three more chaff-tempered sherds, weighing 3g and one possible grano-diorite-tempered sherd, weighing 1g.

cpj1

Sparse-moderate sub-angular quartz, 0.25-0.5mm, sparse rounded fe inclusions, 0.25-0.5mm oxidised pale brown surfaces, mid grey core. Hand-formed, hard.

Most of the sherds were undiagnostic body sherds. There was a single rim sherd from a rounded cooking pot with a stubby, everted, lid-seated rim (Fig. 8:14). One sherd was decorated with incised horizontal lines. A third sherd had traces of thin olive glaze.

cpj2

Sparse-moderate, ill-sorted, sub-angular quartz, up to 1mm, sparse organic voids, sparse mica flecks visible on surfaces. Generally reduced greys and blacks. Fairly smooth feel. Can be scratched with finger nail. Hand-formed.

There were two form sherds from rounded cooking pots with a plain, everted rim (Fig. 6:3).

cpj3

Abundant ill-sorted sub-rounded quartz, from 0.0T-0.5mm. Appears as a fine, sandy matrix, with a scattering of larger grains. Oxidised orange surfaces and margins, dark grey core. Hand-formed?, hard.

There were two rounded cooking pots, with thickened rims (Figs 6:1 and 13:45). A third rim fragment was similar to ill 01 drg CD but was too small to identify the body profile.

cpj4

Sparse rounded quartz, 0.5mm, moderate clay pellets, sparse organics, mixed rock fragments -?derived from boulder clay? mica visible on surfaces Smoothed grey surfaces, pale grey core. Hand-formed, hard.

Two forms were represented, a cooking pot with a combed rim (Fig. 8:12) and a probable straight-sided cooking pot with an everted rim with square terminal.

cpj5

Abundant quartz, sub-rounded, 0.5-0.75mm. Hand-formed, mid-grey, hard

One sherd only, from a cooking pot. There was a second sherd with an external olive splash glaze, recorded as cpj5g.

cpj6

Abundant sub-rounded quartz c 0.25, occasional larger grains, sparse, soft brown rounded inclusions, up to 4mm. Hard and a bit amorphous ?, reacts to magnet. Iron-poor clay, surfaces grey, cream margins, grey core. Hand-formed, hard.

Forms: Round bodied cooking pot with expanded rim. One sherd had a thin olive glaze.

cpjV

Abundant sub-angular and sub-rounded quartz, c 0.25mm some larger grains, sparse organics, rare sub-angular sandstone c0.25mm. External surface and margin brown, grey core, internal margin and internal surface. Hand-formed, hard.

Forms: one cooking pot sherd only.

cpj8

Sparse sub-angular quartz, ill-sorted but less than 0.5mm, moderate rounded fe 0.25-0.5mm, sparse organic voids, some small flecks of mica visible in matrix and on surfaces. Surfaces pale brown-dark grey, pale brown margins, mid-dark grey core. The margins are strongly marked giving a distinct "sandwich" effect in section.

Forms: there were only two sherds, both from ditch F475 fills. Both appeared to be from cooking pot/jars.

cm1

Moderate, ill-sorted sub-rounded quartz c 0.25-0.5mm, sparse red or brown ferruginous inclusions. Clay colour varies from buff to orange to grey. Generally oxidised surfaces, often darker than matrix, in reddish or brownish tones. This may be caused by vaporisation of glaze or kiln gases during firing. The matrix is sometimes streaked with red. Wheel-thrown, hard.

Two, joining, overfired sherds in this fabric from 3203 resemble ?Sneyd Green fabrics but the firing makes them almost a proto-Midlands Purple.

Forms: globular jar with elongated S-shaped rim (Fig. 8:11), wide-mouthed jar or bowl (Fig. 15:60) and jug with plain strap handle (Fig. 11:42). Most of the sherds appear to be from late medieval forms eg jars/cisterns and plain jugs, with one or two bowl sherds. Glazing is partial or patchy in the olive-tan range. Knife trimming on the external lower half of the vessel is not uncommon.

cmla

Sparse -moderate sub-angular quartz, 1-2mm, sparse organic voids, sparse ferruginous inclusions. The matrix is quite pasty. The clay fires to a buff pale orange or pale grey and has a distinctive lumpy or pimply surface caused by quartz grains poking through onto an otherwise smooth surface.

Forms: rounded jar or cistern with external olive glaze and simple, everted rim (Fig. 9:18). Forms tend to be jugs or bowls where form can be determined.

cmlb

This fabric is a coarser version of cmla. Only one form was represented, found in the evaluation material (97). This was a jug, with a stabbed strap handle and deep central groove (Fig. 15:59).

cm2

Moderate quartz <0.25mm, sparse-moderate fe up to 0.25mm. External surface, margin and core salmon pink. Internal margin and surface cream Wheel-thrown, hard.

There was one sherd only (from 3062), a heavily sooted base-body sherd. There was some glaze on the underside of the base. The profile of the base angle suggests that the sherd is from a jug or a cistern.

cm3

Sparse quartz 0.25mm, sparse-moderate fe, 0.25-0.5mm. The fabric is pale orange, with an ill-defined cream core. The sherd surfaces tend to be slightly darker than the body of the sherd and similar in this respect to fabrics cml and cmla.

One sherd only, base from bowl internal tan dark green, mottled glaze (3248).

irpl

Moderate ill-sorted, sub-angular quartz 0.1-0.5mm, sparse fe. Fabric is cream or pale grey although the surfaces are sometimes orange. Wheel-thrown, hard. Glaze is a glossy olive.

Most of the sherds are from jugs, although two cooking pots are represented. There was only one rim sherd from a simple, rimmed jug with a plain strap handle and glossy olive glaze. A second glazed sherd decorated with a vertical thumbled strip appeared to be from the same vessels. There was also a handle from a small jug.

irp2

Fine paste-like, pale orange fabric, with a cream internal surface. Sparse sub-round quartz <0.25mm, sparse irregular ?organic voids.

There was one sherd only in this fabric (from context 3053) and it may be a regional import. The sherd had an external yellowish glaze and red slip decoration.

medg

Sparse rounded quartz c 0.25mm, sparse rounded fe c 0.25mm. Generally reduced dark grey, but sometimes with oxidised internal surface and pale grey margin below glaze. Dull olive glaze.

The fabric resembles fabric F05 from Stafford Castle (Ratkai forthcoming). The fabric is thought to have been made in Stafford and probably dates to the late 12th-early 13th centuries. There were three sherds only in this fabric: one with an applied thumbled strip, from the fill of the Phase 1 kiln F411, and a second sherd from the Phase 1 fill of ditch F475. The occurrence of two of the sherds in Phase 1 tends to confirm an early date for this fabric.

wwl (fine sandy whiteware)

Sparse rounded quartz <0.25mm, some quartz iron-stained pink, sparse-moderate fe from specks to c0.25mm.

Fabric white, occasionally buff. Glazes vary from bright green copper-stained glazes, which are more common, to glossy olive brown. Sometimes there is a reddish bloom on the external surfaces ?caused by vaporisation of glaze and kiln gases onto the pot.

Most of the sherds were from jugs, but cooking pots, pipkins and bowls were also represented. The finer fabric may have been deemed better for jugs/tablewares.

Forms: Jug with corrugated neck and bright green copper-coloured glaze (Fig. 7:5). Some jugs were decorated with red paint and these tend to have olive or yellowish-green glazes. Other jugs were decorated with incised wavy lines and bright green glaze similar to jugs from Walsall Moat (cf. Wrathmell and Wrathmell 1977, Fig. 4: 9). Cooking pot forms were similar to ww2 eg drg BF.

ww2 (coarse sandy whiteware)

Moderate-abundant sub-round quartz 0.25-0.5mm, sparse fe. White or cream, paste-like matrix. The fabric can also be pinkish and sometimes the quartz grains are stained pink or red.

The clean pasty matrix sets this fabric apart from Chilvers Coton (Nuneaton) whitewares (Mayes and Scott 1984) and seems to be a feature of Staffordshire whitewares, although a similar fabric is known from Minworth Greaves, Warwickshire (Ratkai 2001).

There was a more evenly-mixed range of forms in ww2 than in ww1, comprising jugs, bowls, and cooking pots. At least one pipkin was represented. The cpjs could be divided into two main types. Both had rounded bodies, with either clubbed rims (Figs. 7:7 and 7:9) or squared, sometimes undercut rims (Figs. 6:2 and 13:49). The latter was the most common type. In addition to the two main types there were some oddities; a deeply notched rim (Fig. 8:16) or a fairly-upright, expanded rim with internal projection (Fig. 13:46). However, this rim form is also seen on one bowl (Fig. 7:6). There is also what appears to be a small-diameter jar (Fig. 8:15). There were three bowl types. The most common has a squared/col-lared rim similar to that found on the cooking pots e.g. Figs. 6:2, 7:9, and 10:30. The other two types were horizontal undercut rim (Fig. 6:4) and a clubbed rim (Fig. 7:6). The presence of a pipkin was indicated by deeply-scored handle (Fig. 9:26). There were few form sherds for jugs. These were a simple rim and stabbed strap handle, with red paint on the handle (Fig. 13:48) and a ribbed handle (Fig. 13:47). The ribbed handle is not a commonly seen feature of whitewares, strap handles with a central depression being typical. Decoration consisted of red painted bands or combed decoration (one example only). Glazes were often coloured with copper but yellowish-green and olive glazes were also represented.

ww3

Sparse sub-round quartz <0.25mm, sparse fe 0.25-0.5mm, sparse organics. White-cream fabric, sometimes pale grey core.

This fabric appears to have been used for cooking pots and bowls only. Glazes were generally pale green or apple green but there were one or two examples of copper speckling in glazes.

The finest fabric ww1 was most frequently used for jugs (see Table 1). The commonest whiteware fabric, ww2, has a more evenly-balanced ratio of cooking wares to jugs. Fabric ww3 seems to have been used primarily for cooking wares. It is, of course, by no means certain that differences in whiteware fabrics represent different sources of production, although there seems to be a reasonable case for suggesting that the ww1 fabric is not made at the same kiln site as ww2, or, rather, that it represents a distinct product rather than a continuum. The main decoration on the whitewares was red paint. Red painted decoration occurred on both fabric ww1 and ww2. However, red painted

Table 1 Whitewares: percentage (by sherd count/sherd weight in grammes) of vessel forms by fabric.

Fabric	ww1		ww2		ww3	
	% count	% weight	% count	% weight	% count	% weight
Vessel Form						
Unknown	24.0	16.5	27.6	15.3	24.0	12.7
Cooking/food prep						
Bowl	6.0	3.9	8.8	17.8	48.0	59.2
Cpj	8.0	7.3	28.6	25.8	24.0	24.4
Cpj/pipkin	2.0	2.0				
Pipkin	<1	4.3				
Total						
Storage/brewing						
Jug/cistern			1.1	1.0		
Jar	4.0	8.7				
Liquid storage/table						
Jug	56.0	61.6	33.0	35.0	4.0	3.7
Total count/weight	50	646	182	2384	25	402

whitewares made up only about 6% of the whitewares recorded. There was insufficient data to determine whether the use of red paint had a chronological significance. Its use seemed to be restricted to jugs in fabric ww1, but in fabric ww2 it was also found on cooking pots and on unglazed body sherds from vessels of indeterminate form. Only three sherds had other decoration, either incised wavy lines, combing, or circular impressions.

Tudor Green type ware

Fine whiteware with abundant quartz <0.0Tmm. Wheel-thrown.

Copies of Surrey-Hampshire Tudor Green were made (see for example Mayes and Scott 1984) but these are generally cruder and of inferior quality in terms of fabric, glaze, and manufacture. The high quality of the Sandford Street sherds suggests that they are from Hampshire or Surrey and not a local copy. Forms: drinking vessels, cup (Fig. 11:39), ?goblet (Fig. 13:54), lobed cup (Fig. 9:19) and one jar (Fig. 11:38). A second ?lobed vessel was present, (Fig. 9:20) possibly a chafing dish.

lmtl

Hard, pale orange paste-like fabric, sometimes partly reduced grey, with sparse rounded quartz <0.25mm, sparse fe, sparse irregular ?organic voids, some reddish and cream streaking through the fabric, which has a smooth, slightly soapy feel. Wheel-thrown.

Forms: jugs, cisterns and jars. It is not always easy to differentiate between these forms in the absence of diagnostic material. There were two flanged-rim jars (Figs. 15:57 and 9:24). Glazing is minimal and tends to be olive or tan.

rw1

Hard-fired, sandy, oxidized orange or red ware with sparse-moderate, rounded quartz 0.25-0.5mm sparse irregular or elongated ?organic voids and hackly fracture. Wheel-thrown.

Forms mainly jar/cisterns (Fig.9:22), jugs, and rounded bowls of medium depth with everted dished rims (Fig. 15:58) but also a few cooking pot/jars (Fig.13:53). A small olive-brown, glazed body sherd (Fig.9:23) was decorated with a "floral" stamped, white, applied clay pad and may have come from a cup, in which case this fabric was used for Cistercian type vessels as well as the more typical finer Cistercian fabric.

rw2

A finer version of rw1 with smooth fracture. Wheel-thrown.

Forms: jugs/jars/cisterns, bowls (Fig. 12:43).

rw3

Oxidized, orange, fine sandy micaceous matrix with sparse larger quartz grains 0.25-0.5mm. Wheel-thrown.

Forms: jugs (Fig. 7:8), generally plain or with some minimal tan or olive glaze. One jug sherd with a tan glaze had traces of white slip decoration beneath the glaze.

rw4

Fine, oxidized ware with few inclusions. Sparse quartz grains up to 0.25mm, sparse elongated ?organic voids, some mica visible on surfaces. Orange surfaces, darker core and margins, smooth fracture. Wheel-thrown.

Forms: ?dripping tray (Fig. 8:13). This form had an internal mid-brown glaze with yellow ?sulphurous staining within the glaze and external glaze splashes. The external base was sooted and abraded and there was an external band of soot extending c 2cm from the rim down. The vessel came from two contexts, (3135 in pit F419, and 3166 in posthole F421).

rw6

Sandy oxidized ware orange fabric with moderate-abundant ill-sorted sub-angular quartz, up to 0.5 mm, sparse rounded fe include up to 2mm.

Forms: bowls and a jar/cistern.

Midlands Purple

Several fabric variations are contained within the general term Midlands Purple. In effect the distinction between the late medieval redwares and Midlands Purple is one of firing, the latter being fired to a higher temperature, sometimes almost to the point of vitrification. Glazes were purple or purplish brown.

Forms: jug/jar/cisterns (Figs. 9:21, 11:37, 9:25, 11:36, and 11:35). The cistern (Fig. 11:35) was in a particularly coarse fabric. The interior of the cistern was covered in limescale. A jug/cistern (Fig. 11:36) also had heavy internal limescale. Two vessels (Figs. 9:21 and 1:36) were decorated with poor-quality roller stamping and (Fig. 9:25) had a thumbled neck cordon.

mp/cw

A hard-fired, purple brown fabric with few visible inclusions but with pale streaks within the fabric. Surface colour purplish brown, glazes dark brown, purplish brown or black, sometimes with a metallic sheen.

Forms: bowl and jars.

Cistercian ware

The fabric is generally a fine well-prepared brick red.

Forms: Vessels are well-made and thin walled and have rounded profiles. The rounded vessel profiles, absence of rilling and overall good quality differentiate Cistercian wares from blackwares. Only a small number of sherds came from the site. All the sherds were from cups (Figs. 10:32, 10:33 and 8:17). One cup (Fig. 10:32) was decorated with applied white clay pads, which appears to be a mark of early Cistercian ware production. A second two-handled cup (Fig. 11:41) was notable for its decoration. Decorated by applied white clay face masks, the faces were bearded and although the vessel form is classic Cistercian ware the face masks probably derive from the bearded faces seen on German stonewares of the 16th century. The earliest of these is found on Raeren jugs (1475-25, cf. Hurst *et al.* 1986, Fig. 94: 302) but the are most commonly encountered in this country on Cologne Bartmanner dating from c. 1525-75. A very fine collection of 16th-century Rhenish stoneware was found at Stafford Castle (Ratkai in prep.), so they were certainly not unknown in Staffordshire. The Cistercian ware cup is, therefore, most likely to date from the second quarter of the 16th century.

Blackware

A small scatter of blackwares was present in Phase 3. There was a concentration in fill 3248 of pit F472, comprising mainly drinking vessels (Fig. 9:27, 28, and 29). Other pottery present in the pit group i.e. yellow ware, slipware, coarseware, and tin-glazed earthenware suggests that this is a mid to late 17th-century group. The drinking vessels comprised a series of mugs or tankards of similar form but increasing capacity, so that the rim diameter varied from narrow-mouthed (dia 8cm, Fig. 9:27) to medium-mouthed (dia 14cm, Fig. 9:29) to wide-mouthed (dia 19cm, Fig. 9:28). Assuming that vessels 9:29 and 9:28 had a similar height to 9:27 of c15cm, the relative capacities of the three vessels would be roughly 1/4 pint, 1 pint, and 1 1/4 pints. Other blackware forms represented were jugs, a jar, a chamber pot, and a pedestal base from a drinking vessel (Fig. 15:61). The latter is a very unusual form for a blackware, and the fabric was somewhat coarser than normal blackware fabrics, lying somewhere between a true blackware and fabric rw1.

GENERAL REMARKS ON ASSEMBLAGE

Phase 1 (13th-14th c) average sherd weight	11.2g.
Phase 2 (14th—15th c) average sherd weight	18.8g.
Phase 3 (16th-17th c) average sherd weight	32.4g.

The average overall sherd weight was just over 22.5g which is somewhat higher than is normally encountered on urban sites. However, there was a marked difference between the average sherd weights by phase. Although the later phases are those in which bulkier items such as cisterns and storage jars are found, this is offset by the occurrence of relatively fine-bodied table wares such as Tudor Green, Cistercian ware etc, which generally break into small light sherds. Clearly the earlier pottery has been subjected to far more post-breakage activity before final deposition than the later material. The presence of quite large quantities of residual pottery in Phase 2 and Phase 3 features suggests a significant background scatter of earlier pottery on the site which had become incorporated into later feature fills. This, in turn, had an effect on the dating, in particular the dating of the abandonment, of certain features.

As can be seen from Tables 2 and 3, whitewares, in particular ww2, were dominant in Phase 1, accounting for c. 80% of the phase group. There is, as yet, no very secure date for the first use of

Table 2 Fabric occurrence by phase (quantification by percentage sherd count and sherd weight)

Fabric	Phase 1		Phase 2		Phase 3	
	% no	% weight	% no	% weight	no	% weight
chaff					<1	<1
shell		<1	<1			
cpj1	3.82	2.80	2.11	1.90	<1	<1
cpj2	7.01	4.74	3.68	1.37	<1	<1
cpj3	1.27	3.54	1.05	<1		
cpj4			<1	<1		
cpj4a *			1.58	<1		
CPJ5	<1	<1				
cpj6	<1	1.14			<1	<1
cpj7					<1	<1
cpj8			<1	<1	<1	<1
medg	1.28	1.37	<1	<1		
cpj5g			<1	<1		
brill?			<1	<1		
ww1	9.55	9.77	11.58	10.96	5.20	1.02
ww2	65.61	65.20	22.63	19.70	14.40	6.75
ww3	4.46	6.11	6.32	5.17	2.40	1.36
cm1	1.28	2.86	6.32	10.96	4.40	3.21
cm1a	<1	<1	3.16	6.46	3.60	1.34
cm2			<1	1.31	<1	1.75
cm3					<1	<1
irp1	1.27	<1	3.68	2.82	2.00	1.45
irp2			<1	<1		
rw1			5.79	6.06	6.80	12.02
rw2	<1	<1	1.05	1.12	1.60	1.43
rw3	1.27	<1	2.63	3.77	<1	<1
rw4			<1	2.18	<1	2.93
rw6					4.00	5.40
lmt1			8.42	6.04	4.00	3.40
nip			3.68	13.72	6.80	10.30
tg			8.95	3.16	1.60	1.21
cist			0.53	<1	4.40	5.10
cistblw			<1	<1		
blw	<1	<1	1.05	<1	9.60	6.54
cw					13.60	21.65
mpcw				3.20	6.40	
yw					4.80	1.65
slpw					1.60	1.31
mang					<1	<1
tge					<1	<1
Jackfield?					<1	<1
Porcelain			<1	<1		
Sherd no/weight	157	1750g	190	3578g	250	8110g

whitewares of this type. Typologically it seems unlikely that they date much before the mid 13th century. They continued to be used in the 14th century, but, again, the precise date at which they were replaced by oxidised orange or red wares is unknown, although again on typological grounds this is likely to have happened in the later 14th century or perhaps early 15th century. It is difficult to decide how many of the iron-rich cooking pot fabrics were in contemporary use with the whitewares. The cooking pots fell into two groups, those with a low average sherd weight (i.e. cpj1, c. 8g; cpj2, c. 7.5g; and cpj5, 3g), and those with a high average sherd weight (i.e. cpj3, 31g; cpj6, 20g). It is, therefore, a possibility that the latter fabrics were contemporary with the whitewares and that the other cooking pot sherds represent earlier residual material. However, with the average sherd weight of the whitewares also being low, at around 11g, any conclusions are tentative. It seems unlikely that there was much, if any, activity on this part of Sandford Street before the 13th century. This is in contrast to the south side of the road (Ratkai in prep.) which appears to have some earlier occupation.

Table 3 Fabric occurrence by phase (quantification by percentage minimum rim count and *eves*)

Fabric	Phase 1		Phase 2		Phase 3	
	% mv	% <i>eves</i>	% mv	% <i>eves</i>	% mv	% <i>eves</i>
cpj1			3.85	<1		
cpj2	11.76	9.02				
cpj3	11.76	14.29	3.85	<1		
cpj4			3.85	2.60		
cpj4a			3.85	3.03		
cpj6					2.38	2.13
brill?			3.85	2.16		
ww1	23.53	15.04	11.54	22.51	2.38	<1
ww2	41.18	48.87	23.08	31.17	14.29	10.64
ww3	5.88	7.52				
cml			3.85	3.03	2.38	4.26
cmla			3.85	3.90	2.38	1.18
irpl					2.38	5.91
*rw1			7.69	3.90	9.52	16.31
rw2			2.38	1.65		
rw3	5.88	5.26	3.85	9.52		
rw4			3.85	<1	2.38	<1
lmtl					2.38	4.49
mp			3.85	<1	7.14	4.73
tg			11.54	10.82	4.76	5.67
cist			3.85	3.90	9.52	12.53
blw					11.90	15.13
cw					14.29	11.35
yw					7.14	2.60
slpw					2.38	1.18
Porcelain			3.85	<1		
mv/eves	17	133	26	231	42	423

Fabric cmla is most unlikely to date to before the later 14th century and may be intrusive in Phase 1. Likewise, the redwares rw2 and rw3 may be intrusive. The two rw3 sherds were found within the ditch fill and the rw2 sherd came from the fill of pit F442 (3206), where in both cases contamination was possible. The blackware sherd from F411 (see below) was also intrusive. On balance it seems most likely that Phase 1 dates to C.1250-C.1350/75.

By Phase 2 whitewares still form a substantial part of the phase group, although a certain component must be residual. The degree of possible residuality in Phase 2 is highlighted when the quantity of whitewares is examined in Phase 3, where they cannot be anything other than residual. However, the average sherd weight of the whitewares is greater than in Phase 1, varying between 16.3 and 17.8g. On the face of it, this would seem to suggest that whitewares were still in use in Phase 2, but even in Phase 3 the average sherd weight of ww2 is 15.2 g and ww3 is 18.3g, although the average sherd weight of ww1 has dropped down to the more expected level of 6.4g. Clearly, complex depositional factors are a major constituent of the site stratigraphy. This makes forays into an absolute chronology for the site hazardous. However, some chronologically-significant data can be obtained. The presence of Midlands Purple ware, Tudor Green, and fabric lmtl, and the very small amount of Cistercian ware in Phase 2 indicates that there is a strong 15th-century component to the group. The first appearance of large storage jars and cisterns in this phase (see Table 4) tends to support this. It can also be said with a degree of certainty, judging by the relative and increasing proportions, that certain fabrics are more likely to have had their *floruit* in the 15th and 16th centuries. These are fabrics cml, cmla, cm2, and rw1-rw4. Again the vessel typology would tend to confirm this. The occurrence of a small amount of Cistercian ware in Phase 2 would tend to confirm its use in the later 15th century. However, there is still some intrusive material (e.g. the blackware and porcelain sherds). Most of the intrusive material was associated with an alignment of pits and may well be the result of trample into the upper part of the pit fills.

Phase 3 shows a certain amount of continuity with the preceding phase, in effect an overlap between the late medieval and post-medieval transitional types of the 15th and 16th centuries and true post-medieval pottery, such as blackware, yellow ware, coarseware, and slipware etc. Evidence from Whitefriars, Coventry (Woodfield 1981, Ratkai forthcoming) has shown that blackwares were in production by the mid 16th century and yellow wares by the later 16th century. They continued

Table 4 Form/function by phase (quantification by sherd count and sherd weight)
Bracketed figures denote intrusive sherd

Phase	Count	Weight	Count	Weight	Count	Weight
Vessel Form						
Unknown	32	203	48	597	52	697
Pantheon					12	602
Food preparation					12	602
Bowl	12	138	16	534	32	1826
Cpj	54	591	41	495	20	318
Cpj/pipkin	1	13				
Pipkin					1	104
Cpj/jar					2	34
Dripping tray			1	78	1	238
Cooking/food prep	67	742	58	1107	56	2520
Chafing dish			1	19		
Cooking/table			1	19		
Cistern			1	138	15	1147
Jar/cistern			3	99	5	159
Jug/jar/cistern			1	7		
Jar			12	617	29	1712
Storage/brewing			17	861	49	3018
Jug	57	797	48	872	44	956
Liquid storage/table	57	797	48	872	44	956
Drinking vessel	(1)	(8)	15	101	30	778
Lobed vessel			3	21		
Dish					4	106
Dish/bowl					1	12
Consumption/table	(1)	(8)	18	122	35	896
Chamber pot					1	66
Miscellaneous					1	66
Total count/weight	157	1750	190	3578	250	13438

in use throughout the 17th century and into the 18th century. Evidence of later 17th to early/mid 18th-century occupation is provided by the light on dark slipwares, manganese mottled wares, tin glazed earthenware, and Jackfield ware.

It is interesting to note that Tudor Green and Cistercian ware were never found together in the same feature fill, apart from in 3062, where one tiny Cistercian or blackware sherd was present. However, as a porcelain sherd that was also present was clearly intrusive, then it is most likely that the Cistercian/blackware sherd was intrusive too. Likewise Cistercian ware and blackware were never found together. This is perhaps the first rather tentative evidence that they occupied different chronological frameworks, although the pattern does not seem to be repeated at 15, Sandford Street on the south side of the road (Ratkai forthcoming).

Pointers to a middling or higher status were provided by two pipkins, which suggest moderately elaborate cooking procedures. However, they are not an uncommon feature of urban assemblages and this may reflect wider consumer choice in towns. Cooking facilities were still rather basic in towns and urban dwellers often had recourse to pie shops and cook shops (Mennell 1985). It is also possible that pipkins in urban settings were used on small portable hearths, as shown in the *Romance of Alexander* (McCarthy and Brooks 1988, Fig. 48), for the heating of small quantities of food or liquids. By the late medieval period the presence of Tudor Green in comparatively high quantities may be taken as evidence of middle to high status occupation. This is perhaps intensified by the presence of a possible Tudor Green and Boarstall-Brill type chafing dishes (Figs. 9:20 and 13:52) and the rw4 dripping tray.

A rare ceramic form, a mortar, was found in the fill of circular rubbish pit (15), which contained much pottery of a 13th- to 15th-century date, as well as animal and bird bone. Only a small fragment survived so it was not possible to describe its form fully. However, it had a worn internal tan glaze and evidence of an external tan glaze also. The exterior appeared to have had some sort of

relief decoration, but the sherd was too small to interpret the design, although it is possible that it was the remains of some lettering.

In the post-medieval period the coarsewares appeared to be under-represented. They were mainly concentrated into four feature fills (3073, 3105, 3114, and 3248 from pits F356, F377, F412, and F472). Of the Phase 3 17th-century pottery, 47% consisted of table wares (blackware, yellow ware, slipware, tin glazed earthenware, ?Jackfield ware, and manganese mottled ware) and 53% of kitchen wares (coarseware bowls/pancheons and jars). Of the 29 sherds (1591g) identifiable to vessel type, two (one rim, *eves* 4%) were from bowls, six were from jars (two rims, *eves* 18%, drgs BX and BY), and 13 (three rims, *eves* 26%) were from bowls or pancheons. On average, therefore, bowls/pancheons were roughly twice as numerous as jars. Roughly the same ratio was present at Ironbridge (Shropshire), although overall bowls/pancheons and jars formed a smaller proportion of the total assemblage (Jones 1988).

SELECTED FEATURES

Only a small number of features contained more than 20 sherds. These were pits F320, F346, F375 and F472, garderobe F448, and ditch F475. These features are here examined the most closely, in terms of fabric and form occurrence. The pottery from features seemingly associated with specific functions, e.g. the post-lined pit F442 and the Phase 3 tanning pits, is also described in more detail.

Industrial features

The post-lined pit F442 contained 15, mainly whiteware, sherds. Other fabrics present were cpj1, cpj6, irp1, and rw2, each represented by one sherd. There was only one rim sherd from a ww2 jug. Jugs predominated by every quantification method.

A different pattern was present in kiln F411 (see Table 5) which overlay the post-lined pit. Here cooking pots were in the majority, with only a single whiteware bowl with a squared undercut rim and a jug sherd. Whitewares and iron-rich cooking pots were more or less equally represented with eight sherds (63g) and seven sherds (60g) respectively. The single blackware sherd found within the

Table 5 Pottery from the kiln (F411)

F411	sherd count	sherd weight	minimum rim	eves
cpj1	2	19g		
cpj2	4	38g	1	7%
cpj5	1	3g		
ww2	8	63g	1	2%
medg	1	9g		
blw	1	8g		
Total	17	140g	2	9%

kiln fill was almost certainly intrusive, caused by the digging of pits F414, F420, and F430 which cut into the superstructure of the kiln and which contained a mix of 17th-century pottery. The average sherd weight of the pottery from F411 was low, at just over 8g. The largest single sherd from the fill was a cpj2 rim sherd weighing 19g (Fig. 6:3). The average sherd weight for F442 was 10.7g, the largest sherd being a cpj6 body sherd weighing 20g. The kiln backfill appeared to be of 14th-century date, but the nature of the pottery within the fill suggests that it derived from a general ground scatter of pottery. This is probably also true of the fill of the post-lined pit. The presence of a rw2 sherd in the fill of the pit, may be intrusive from F411, but would tend to suggest a date no earlier than the 14th century.

Metal droplets were found within the fill of kiln F411 and these were also found in the fill of garderobe F448. This tends to suggest, along with the pottery evidence, that the kiln and the garderobe were in more or less contemporary use/disuse. The metal droplets were presumably part of the backfill material, although evidence for the industrial process that produced them was not found on site. The metal droplets must have had a wide distribution over the site since the function figures for the kiln fill and the garderobe fill were different, suggesting that they had derived from different sources.

Table 6 Quantification of fabrics by sherd count/sherd weight (in grammes).

	garderobe (3234) Ph 1	garderobe (3204) Ph 2	pit 320 (3203) Ph 3	pit 320 (3033) Ph 3
cpjl	-----	1, 19g	-----	-----
ww1	1, 12g	14, 250g	3, 29g	1, 10g
ww2	1, 22g	6, 313g	5, 115g	4, 40g
ww3		7, 123	1, 18g	2, 62g
rw3		4, 128g		
cm1		1, 15g	4, 64g	1, 6g
cm1a			4, 57g	2, 34g
cw				2, 78g
irpl				2, 82g
lmtl				1, 48g
mpcw				1, 17g
rwl				1, 41g
rw2				1, 7g
tg				1, 4g
Total	2, 34g	35, 883g	17, 283g	19, 429g

The buried soil (3181) which had built up over the kiln contained only two whiteware sherds, one from a bowl, which was burnt on the interior (Fig. 6:4). The absence of any later material until the pitting during the 17th century is odd, but suggests that this area was kept relatively clean after the disuse of the kiln.

Garderobe

The dating for the infilling of the garderobe may lie in the 15th century, although by this date the whitewares and cooking pot sherd would be residual (see above). However, there is some disturbance caused by the digging of pit F320 through the garderobe fill which has resulted in a cross-join between sherds from a ww1 jug from the garderobe and the upper fill (3033) of pit F320. The date of the lower fill of F320 seems to be ?later 16th century, on the strength of a mp/cw bowl sherd and two coarseware sherds. However, this disturbance may have contaminated the main fill (3204) of the garderobe, which could, therefore, have gone out of use in the 14th century. The latter view tends to be supported by the presence of two whiteware sherds in the primary fill (3234), which was sealed by the collapse of the garderobe walls. The average sherd weight for the fills of the garderobe was 24.8g, which was significantly higher than the average sherd weight for Phase 1. Indeed, some sherds were quite large, including a ww1 jug (Fig. 7:5), ww2 bowl (Fig. 7:6, 220g), a ww2 cooking pot (Fig. 7:7, 64g), and a rw3 jug (Fig. 7:8, 84g). It seems unlikely that there was a long gap between breakage and deposition in the garderobe of these three vessels. The rw3 jug, as yet unparalleled, is unlikely to be earlier than the 14th century. The minimal glaze present on the handle, the hard, well-fired fabric, and the colour range of glazes in rw3 (ie olive-brown and tans) would tend to favour a date in the 15th century. On balance, the most likely sequence for the garderobe is that it went out of use at some point in the 14th century, after which rubbish began to accumulate or be dumped. At a later date a pit was dug into the now-backfilled garderobe. The presence of a Tudor Green cup and a rwl jar in this fill indicate a 15th- or 16th-century date (whether these pieces were disturbed from the upper level of the garderobe and incorporated into the backfill is difficult to say). Residual material was clearly present (e.g. a ww2 cooking pot/jar (Fig. 7:9) and an iron poor jug (Fig. 7:10)). The presence of two coarseware sherds, however, suggests a later 16th-century date at the earliest for pit F320. A rw3 body sherd from 3204 may have come from the same vessel as a sherd found in 3032, the fill of pit F319, which was dated to the 16th century.

The fill of the garderobe contained a comparatively large number of jugs, and this was the best represented vessel class. The jug sherds were comparatively large and this suggests that they may not have travelled far before deposition. This may indicate a functional bias or a specific function for the area close to the garderobe. Bowls were the next best represented. The bowl sherds represented three vessels in total, two bases and one rim-body. One base had an internal patch of soot and was partially abraded internally; the second was sooted externally and was abraded heavily on

Table 7 Quantification of vessel type by sherd count/sherd weight (in grammes) and minimum rim count/eves (rim %)

	garderobe (3234) Ph 1	garderobe (3204) Ph 2	pit 320 (3203) Ph 2	pit 320 (3033) Ph2/3	
bowl		6, 305g	4, 104g	3, 79g	
cpj	1, 12g	3, 98g	3, 58g	3, 33g	
jug		15, 351g	5, 54g	5, 108g	
cup				1, 4g	
jar				2, 89g	
jar/cpj				2, 34g	
?	1, 22g	11, 129g	5, 67g	3, 82g	
Total	2, 34g	35, 883g	17, 283g	19, 429g	
	garderobe (3234)	garderobe (3204)	pit 320 (3203)	pit 320 (3033)	Form total
bowl		1, 27%	1, 5%		2, 32%
cpj	1, 5%	1, 16%	1, 10%	1, 12%	4, 43%
jug		2, 49%		1, 25%	3, 74%
cup				1, 7%	1, 7%
jar				1, 4%	1, 4%
Total	1, 5%	4, 92%	2, 15%	4, 48%	11

the interior, but also had some external abrasion. The bowl rim was unsooted and abraded. Cooking pots were the least well represented. However, in terms of function, bowls must have often served as cooking pots, since the majority of them from the site are sooted. If the figures for bowls and cooking pots are combined then there is more or less parity between table/serving ware, that is jugs and cooking vessels. The fills of pit F320 reveal a wider range of vessel forms, but the interpretation of these figures is complicated by the strong residual element. If the residual element is discounted, the late medieval/early post-medieval forms appear to comprise jars, bowls, and one cup. These sherds formed a small minority of the pit fill but taken at face value they show a move towards vessels for food preparation and storage with only one tableware, albeit a comparatively high status Tudor Green-type cup.

Phase 2 pits

Most Phase 2 pits contained small quantities of pottery. The fills were mixed with quite clearly residual material (e.g. the cooking pot with combing on the rim (Fig. 8:12) in pit F419). Pit F352 contained mainly medieval pottery (e.g. Figs. 8:15 and 8:16) but two small blackware weighing 7g and a Cistercian ware cup (Fig. 8:17) were also in the fill. These were likely to have been intrusive.

The fill of F346 seems to contain mainly 15th- to 16th-century pottery (Figs. 9:18-21), although there was some residual material, a greater amount than present in the other two pits. Tudor Green ware was well represented and included two lobed vessels (Figs. 9:19-20). A glazed jar in fabric cmla (Fig. 9:18) had a thick external olive glaze and a roller stamped Midlands Purple jug (Fig. 9:21), together with a small Cistercian or blackware sherd, suggested a late 15th- or early 16th-century date for the fill. However, an intrusive porcelain rim-body sherd was also found in the fill and so it is possible that the Cistercian/blackware sherd was also intrusive and that the pit fill is 15th-century.

The fill of F375 contains mainly 15th- to 16th-century pottery (Figs 9:22-25), with little obvious residual material, apart from the ww1 and medg sherds. The lack of residuality is perhaps also reflected in the average sherd weight of 47.5g. The thumbled neck cord on a Midlands Purple jar (Fig. 9:25) and the applied stamped white clay pad on a rw1 sherd (Fig. 9:23) are perhaps more likely to belong in the 16th century, but, if this is the date of the fill, then it is perhaps strange that there are no Tudor Green or Cistercian ware sherds in the fill also.

Pit F472 contains the latest fill and the range of fabrics is clearly different. There was a small amount of residual material, including a whiteware pipkin handle (Fig. 9:26), but a complete absence of some of the 15th- to 16th-century wares, e.g. Midlands Purple, Tudor Green, and Cistercian ware. There was, however, a number of blackware mugs or cups (Figs. 9:27-29). Similar forms were found sealed beneath the Civil War destruction debris at Dudley Castle, showing that mugs of this type were certainly in use in the 1640s. Likewise, light-on-dark slipware with stylized floral motifs

*Larger pit fills***Table 8** Pit fills: quantification of fabrics by sherd count and sherd weight

Context Feature	(3062) F346 Ph 2		(3103) F375 Ph3		(3248) F472 Ph 3	
ww1	3	67g	1	7g	2	4g
ww2	10	99g			2	124g
medg			1	6g		
irpl		35g				15g
cml		251g	1	33g	1	
cmla	5	212g				
cm2	1	47g				
cm3						13g
rw1	4	105g	10	566g	1	
rw2	2	40g	2	79g		
rw3	1	7g				
rw6			2	152g		
lmtl	3	49g	2	155g	1	3g
tg	13	66g				
mp	6	442g	4	93g		
cistblw	1	2g				
blw					11	259g
mpcw					3	64g
yw					3	59g
cw					12	485g
slpw					2	29g
tge					1	6g
pore?			1	4g		
Total	62	1432g	22	1045g	39	1041g

Table 9 Pit fills: quantification of vessel forms

(3062) F346	sherd count	sherd weight	minimum rim count	eves
jar/cistern	2	198g	3	15%
jug	13	220g		
bowl	3	81g		
drinking vessel	9	43g	1	19%
cooking pot	8	10g	1	15%
lobed vessel	3	21g	1	1%
Total	38	673g	6	50%
(3103) F375	sherd count	sherd weight	minimum rim count	eves
jar/cistern	14	792g	3	51%
jug	2	20g		
bowl	4	213g	1	10%
drinking vessel	1	6g		
Total	21	1031g		61%
(3248) F472	sherd count	sherd weight	minimum rim count	eves
jar/cistern	5	145g	2	18%
jug	3	37g		
bowl	2	61g		
drinking vessel	10	224g	1	21%
cooking pot/pipkin	1	104g		
dish	2	29g		
pancheon	10	384g	1	6%
Total	33	984g	4	45%

of the sort found in F472 (cf. Fig. 11:40) and yellow ware bowls were also found in Civil War levels at Dudley Castle. However, the tin glazed earthenware sherd was decorated with what may have been part of a *chinoiserie* design in blue and brown and as such is likely to belong to the later 17th century. The coarseware jars and pancheon were similar to those found in Civil War contexts at Dudley Castle (Ratkai 1987).

The earliest pit fill (3062) showed a bias towards jars/cisterns but also towards drinking vessels (when quantified by minimum rim count and *eves*). The comparatively high number of jugs and cooking pots was a result of residual medieval pottery within the fill, although some of the jugs (e.g. in fabric lmtl and cm1) were of late medieval or early post-medieval date. Amongst the latter was a heavily knife-trimmed, unglazed small conical jug or drinking jug. This form seems to be found in 15th- and 16th-century contexts in the Midlands.

Pit fill (3103) was dominated by jars/cisterns (Fig. 9:22 and 24-25). A large bowl, with an everted, slightly-dished rim, was unscooted and this may indicate that by the end of the medieval period bowls were no longer used for cooking. There was only one sherd that could possibly have come from a drinking vessel (Fig. 9:23).

Pit fill (3248), the latest of the three pit fills, shows a similar preference for jars/cisterns and drinking vessels. The range of forms has also increased to include a dish and a pancheon. Contemporary with these was a yellow ware bowl.

All three fills show a preference for vessels concerned with food storage or brewing. Table wares generally consist of drinking vessels, although this had expanded to include a slipware dish and possibly a yellow ware bowl by the time of the latest fill (3248) in the 17th century. It is difficult also not to be struck by the presence of drinking and brewing vessels together. The combination of brewing/storage vessels and drinking vessels as the main component of late medieval or early post-medieval assemblages is by no means typical. Secondly, in the case of 3062 the drinking vessels are mainly in Tudor Green type ware. This too is unusual, since, in general, this ware was not common in the Midlands, even on urban sites. Its occurrence is perhaps particularly surprising in view of the fact that Sandford Street was thought to be one of the poorer neighbourhoods. Having said that, 23 families are mentioned as living in Sandford Street in the list of families in the archdeaconry of Stafford 1532-3 (Kettle 1976). If this document does indeed represent contributors to a confraternity, then it might be reasonable to expect that the families named were at the better-off end of the spectrum. However, no gentry were recorded in the list for Sandford Street, although they were recorded in Saddler Street, Stowe Street, and Beacon Street. It is also striking that nowhere on site do Tudor Green and Cistercian ware, both favoured fabrics for drinking vessels, occur together. The one exception to this is 3062, where one Cistercian or blackware sherd was present. This could be interpreted in a number of ways. The first and most likely is that it is chronological, and that the use of Tudor Green was superseded by Cistercian ware and blackwares. There was no obvious spatial patterning to the Cistercian or Tudor Green wares, since they occurred in feature fills across all three areas. The comparative lack of Cistercian ware is something of a mystery. Given the normal ratio of Tudor Green to Cistercian ware, there should be many more Cistercian sherds. It is possible that there was an hiatus in occupation in the 16th century.

Tudor Green forms just under 9% by sherd count and just over 3% by sherd weight at Sandford Street. At Much Park Street in Coventry the figures appear to be about the same. By 1400 Much Park Street had a well established residential and mercantile character (Wright 1987, 46) and, although the evidence is in part ambiguous, the area could be classed as reasonably well-off at the time that Tudor Green was in use, that is the 15th and 16th centuries. Much Park Street seems to have had a variety of occupations carried out by its inhabitants, and, as such, may be a close parallel for Sandford Street. At Moor Street and Park Street, Birmingham, Tudor Green represented less than 1% of the 15th- to 16th-century pottery.

There was no Tudor Green from Greenhill, Lichfield, but this could be chronological, as there were fewer than five Cistercian ware sherds and late medieval or early post-medieval pottery was not so well represented. At 15, Sandford Street, Tudor Green was present (although phase figures are not yet available) and was found in several feature fills, including a latrine similar to garderobe F448. However, the ratio of Tudor Green to Cistercian ware was 20:12 on the north side of the road and 10:34 at 15, Sandford Street on the south side of the road.

Very little pottery was recovered from the tanning pit fills (see Table 10). This is fairly typical, since pottery does not accumulate whilst the tanning process is in operation and any

Table 10 Pottery from Phase 3 tanning pits (quantification by sherd count and sherd weight in grammes)

	3209	3213	3215	3220
cist	6, 92g			
cml			1, 3g	
cpj1		1, 39g		
cpj2			1, 22g	
cpj6		1, 50g	1, 29g	
cwmp	1, 328g			
ww1		1, 4g		
ww2		1, 25g	1, 20g	
Total	7, 420g	4, 118g	2, 23g	2, 51g

pottery from the fill provides a *terminus post quem* only. The fills are unusual in that three of them (3213, 3215, and 3220) seem to have roughly contemporary fills dating to the mid 13th to 14th centuries. However, the fill of 3209 is very much later and belongs to the 16th century. As these pits form part of the same contemporary complex, they demonstrate quite neatly the problems of residuality and attendant problems of interpretation. The medieval fills were presumably derived from material adjacent to the pits that contained medieval pottery, whereas fill 3209 derived from a different depositional activity. However, the medieval sherds were surprisingly large for residual material. Other tanning pits within the complex contained no pottery. An isolated tanning pit F397 (fill 3130) contained a coarseware jar and a coarseware bowl sherd and a Midlands Purple/coarseware jar sherd. These all appeared to have been of 17th-century date.

The range of vessel forms (see Table 11) is what would be expected; bowls (Fig. 10:30), cooking pots (Fig. 10:31) and jugs in the medieval fills, and drinking vessels (Fig. 10:32-34) and ajar in the early post-medieval period.

Table 11 Vessel forms from Phase 3 tanning pits (quantification by sherd count and sherd weight in grammes)

	3209	3213	3215	3220
?	1, 7g		1, 20	
bowl				1, 22g
cpj		2, 89g		
cpj?		1, 25g		
drinking vessel	5, 85g			
jar	1, 328g			
jug		1, 4g	1, 3g	1, 29g
Total count/weight	7, 420,	4, 118g	2, 23g	2, 51g
Total rim count/rim %	2, 32	1, 9	1, 4	

The Ditch (Phase 1: Figs. 13:45-50; Phase 2: Figs. 13:51-54)

There were several phases of ditch fills. Whitewares were the main fabric type in Phase 1, forming 70% (mv), 75% (*eves*) 78.5% (weight), and 83.3% (count) of the phase. They continued to be strongly represented in subsequent phases although they were residual in Phase 3. The percentage quantity of whitewares was roughly the same as that found in the Phase 2 garderobe fill (3204), with an average sherd weight of 9.2g in Phase 1 and 9.8g overall. Abrasion was particularly evident in the latest fills, and the pottery had clearly had a complex depositional history. However, the presence of some larger (over 40g) whiteware sherds in the earliest fills is probably indicative of the ditch beginning to be filled at the time that whitewares were in use the ?mid 13th to 14th centuries. This impression is, in part, reinforced by the presence of seven joining whiteware ?jug sherds, with a post-depositional iron-bearing internal deposit, within the fill (3260) of a posthole which was cut through the ditch into the natural subsoil. The pottery dates from the mid 13th to

Table 12 Ditch: quantification of fabrics by sherd count and sherd weight (in grammes)

Phase	1		2		3	
blw					2	62g
brill?			1	19g		
cml	2	50g				
cmla	1	1g			2	14g
cpj1			1	10g		
cpj2	5	36g	5	39g		
cpj3	1	44g	1	13g		
cpj4a			3	17g		
cpj5g			1	19g		
cpj8			1	7g	1	7g
irp1	1	2g			1	7g
lmt1			3	64g		
medg	1	15g				
rw1			6	89g		
rw3	2	8g				
shell			1	2g		
tg			4	47g		
ww1	10	HOg	3	58g	2	4g
ww2	52	397g	22	246g	13	72g
ww3	4	79g	2	43g	3	30g
yw					1	9g
Total	79	742	54	673	25	205
Average sherd weight	9.4g		12.5g		8.2g	

Table 13 Ditch: Quantification of pottery by minimum rim count and *eves*

Phase	1		2		3	
	rim count	eves	rim count	eves	rim count	eves
brill ?			1	5		
cpj2	1	5				
cpj3	1	9				
cpj4a			1	7		
rw1			1	5		
rw3	1	7				
tg			1	5		
ww1	2	11	2	25		
ww2	4	43	1	8	1	5
ww3	1	10				
Total	10	85%	7	55%	1	5%

14th centuries and derives presumably from the ditch fills above rather than being contemporary with the posthole.

In Phase 1 oxidised, iron-rich cooking pots were not well represented and with the exception of the cpj3 sherd (Fig. 13:45), sherd size was small (average sherd weight 9.4g). Average sherd weight was slightly higher in subsequent phases, at c.12.5 in Phase 2, although this is still small and suggests that the ditch was not used for primary deposition, but rather that some of the infill derived from surface scatters. A small shelly ware sherd from the later ditch fill was residual, but is significant in that it was one of the few non-local sherds from the site. Sourcing shelly ware sherds is particularly difficult, but it can only have derived from Northamptonshire, Buckinghamshire, or the Bedfordshire area. The presence of a Lyveden Stannion sherd at Wishaw and Coleshill (Ratkai 2002), where the 13th- to 14th-century pottery assemblages were very similar to that from Sandford Street, indicates contact between North Warwickshire and Northamptonshire, and may therefore strengthen the argument for this being the source for the Lichfield sherd. Such a sherd is most likely

to represent personal baggage rather than trade/exchange. The two small rw3 sherds in the Phase 1 fill (3259) were almost certainly intrusive.

The infilling of the ditch continued throughout the medieval period, evidenced by the presence of late red wares, and possibly into the 16th century, when the in-filling seems to have been completed, as shown by the presence of Tudor Green cup sherds. There were no Cistercian sherds in the ditch fill and only two blackware sherds from 60, an upper ditch fill, and 55, the fill of a small pit (56) cut into the backfilled ditch. Pit F472 (3248), discussed in detail above, was cut into the backfilled ditch and contained pottery of the later 17th century. This, together with the blackware sherd from pit 56, shows that by the 17th century the ditch had been completely backfilled.

The pottery suggests that the ditch was medieval in date, with the earliest *terminus ante quem* being in the mid 13th century. It may have been associated with the Franciscan friary, that is, the establishment of the friary may have been accompanied by the laying out of this part of Sandford Street. Should this be the case, then the presence of Tudor Green type ware in the uppermost fills could indicate that the final filling of the ditch coincided with the Dissolution. However, if this were indeed the case then it is odd that there was no Cistercian ware within the ditch and the final fill may therefore have happened earlier, in the mid to late 15th century. This is particularly true as there is, as yet, no obvious connection between the Friary and the houses along Sandford Street. The lack of Cistercian ware in the ditch fills may indicate that there was some cessation of activity in this area in the 16th century, which would confirm the evidence of Speed's map of 1610 showing the area as abandoned. This may have only been a short-lived hiatus, since the presence of some Cistercian ware from the site, particularly in Phase 3 suggests at least some 16th-century activity.

Overall, however, there has been some disturbance of the ditch fills, which can be seen in the make-up of fill 3254 which contained a mix of whitewares (13th to 14th centuries), late red wares (15th to 16th centuries), and yellow ware (17th century). Given the lack of any other 17th-century pottery in the ditch fills it seems probable that the one yellow ware sherd from 3254 is intrusive and connected with the 17th-century pitting of the ditch.

The evidence for 17th-century activity above the infilled ditch (which is contained in fills 55, F471/3247, and F472/3248) is limited and they are unlikely to pre-date the Civil War. Further post-ditch activity seems to be concentrated in the 18th, and probably the first half of the 19th, centuries. The 19th-century pottery was dominated by industrial slipwares, with a smaller proportion of transfer printed wares, pearlwares, and blue shell edge plates.

Table 14 Quantification of vessel type by sherd count/sherd weight (in grammes) and minimum rim count/evs (rim %)

Phase	1	2	3			
?	20	108g	14	14g	12	99g
bowl	7	88g	5	55g	3	15g
cpj	15	219g	17	172g	6	37g
cpj/pipkin	1	13g				
chafing dish			1	19g		
drinking vess			3	46g	1	30g
jar/cistern			1	15g		
jug	34	289g	12	174g	3	24g
jug/cistern	2	25g	1	48g		
Total	79	742g	54	673g	25	205g
Phase	1		2		3	
bowl	1	5%				
cpj	5	43%	3	20%	1	5%
cpj/pipkin	1	6%				
chafing dish			1	5%		
drinking vess			1	5%		
jug	3	31%	2	25%		
Total	10	85%	4	27%	1	5%

Of the 158 sherds from the ditch fills, 112 could be assigned to form type. The Phase 1 fills were dominated by jug sherds which represented *c.* 43% of the group. However, by minimum rim count or *eves*, jug sherds lose their pre-eminence. The residual element within the later fills is highlighted by the comparatively large quantity of cooking pot/jars. No very clear picture emerges from the vessel function figures, but they merely confirm the impression that the ditch was infilled steadily over time.

DISCUSSION

The medieval pottery consisted mostly of iron-poor wares such as whiteware and buff wares. Iron-poor wares are an important component of many Lichfield and South Staffordshire sites and seem to date from the mid 13th to 14th centuries. The vessel forms are typical of normal domestic occupation and display once again the preference for using bowls as cooking pots. The abandonment and infilling of the garderobe seems to have begun in the 14th century, but this process may have continued into the 15th century, since red wares were found in the upper fill 3204. This may, however, be due to later disturbance caused by pit F320 cut into the garderobe fill.

The large ditch F475 is of medieval date, but began to be filled when whitewares were in use. This could be as early as the mid 13th century, but could equally have begun in the following century. It is tempting to see the first real occupation of the area and the construction of the ditch being associated with the founding of the friary in the 1230s on the opposite south-eastern side of Sandford Street. Excavation on this side of Sandford Street and closer to the friary seems to confirm that settlement is no earlier than the 13th century. Material continued to accumulate in the ditch throughout the 14th and 15th centuries, although the absence of Cistercian ware may show that this process had ceased before the late 15th century.

The fills of several features including the garderobe F448 and possible industrial features F411 and F442 also appear to have gone out of use when whitewares were the dominant pottery type. It is possible that the ditch, kiln, and garderobe all went out of use at about the same time, and this could indicate a change of land use overall. Since many of the feature fills contain pottery made up of small, often abraded, sherds, it is clear that some of the fill material was derived from redeposited ground surface scatters. This makes it very difficult to judge precisely when some features went out of use: for example, the tanning pit complex (3209, 3213, 3215, 3220), which has three fills which seem to equate roughly with the early ditch fill and garderobe fill and a fourth which was very much later in the 16th century. This could indicate that tanning was carried out in the mid 13th to 14th centuries and that the later pit is completely unconnected with the industry, or that the medieval pottery in three pits is residual and the fourth pit fill (3209) gives the true *terminus ante quern* for the industry.

A second phase of activity seemed to have occurred in the 15th or 16th centuries, or maybe this should be more properly viewed as the end date of processes that were already taking place. For example, both the upper ditch fills and upper garderobe fills contain Tudor Green ware, and maybe this represents a final phase of dumping. The near-total absence of Cistercian ware might also suggest that the majority of the latest medieval activity predates the 16th century. There was, however, a splendid, two-handled Cistercian ware cup (Fig. 11:41) from a Phase 3 construction trench (F409/3153) which was likely to date from the second quarter of the 16th century (see above). Occupation seems to have continued uninterrupted into the early 16th century, as shown by the presence of Cistercian ware, but the lack of Cistercian ware in the fill of ditch F475 may indicate that the ditch was infilled earlier and was of no significance before the 16th century.

The 18th-century material was, nevertheless, still not plentiful, apart from two large pit groups (F363/3085 and F396/3129) which contained an unabraded collection of large sherds from a creamware dinner service, including meat plates, tureens, Queen edge plates and also a chamber pot? (from 3085), and black glazed coarsewares. The creamware probably dates to the 1770s or 1780s but 3129 also contained four sherds of painted ?pearlware, three blue painted pearlware sherds, and one utilitarian whiteware rim sherd, and 3085 included tea bowls, one blue shell edge plate, and one or two pieces of white salt glazed stoneware. These fills may derive from the same place. They look like a clearance rather than disposal of general breakages, so the deposition date could be much later than the date of the pottery. A dinner service suggests high status or at least reasonable wealth. A creamware coffee or chocolate cup from F384/3113 would fit in with a general up-market status for this area in the later 18th century. Apart from the pit fills, 18th-century pottery was concentrated in the area above the ditch, although this pottery may have originated to the west of the ditch, rather than from the excavated areas. There was a marked difference between the 18th-century pottery from above the ditch,

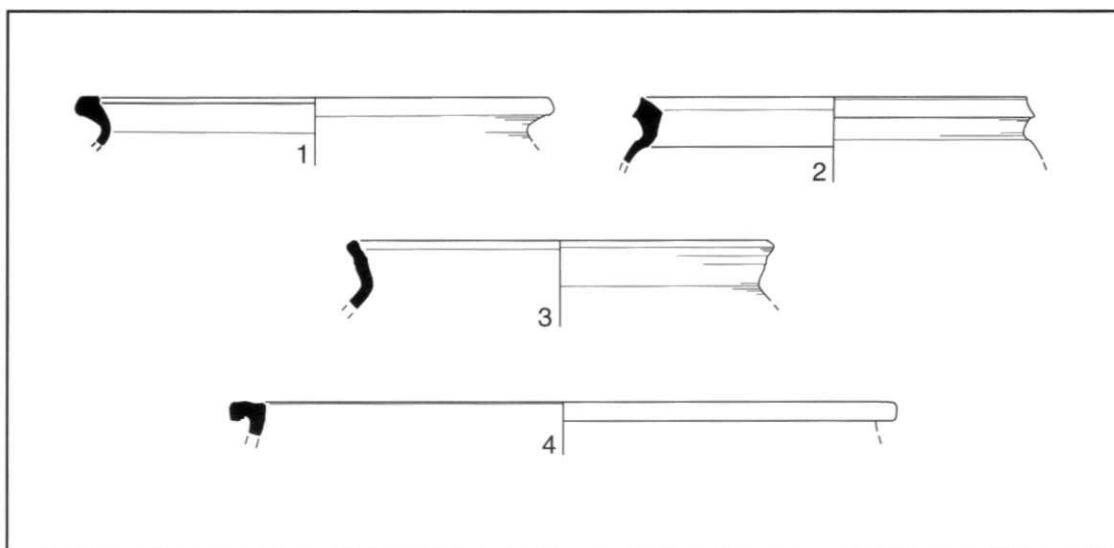


Fig. 6 Pottery: Phase 1 features and associated contexts: Vessels 1-4

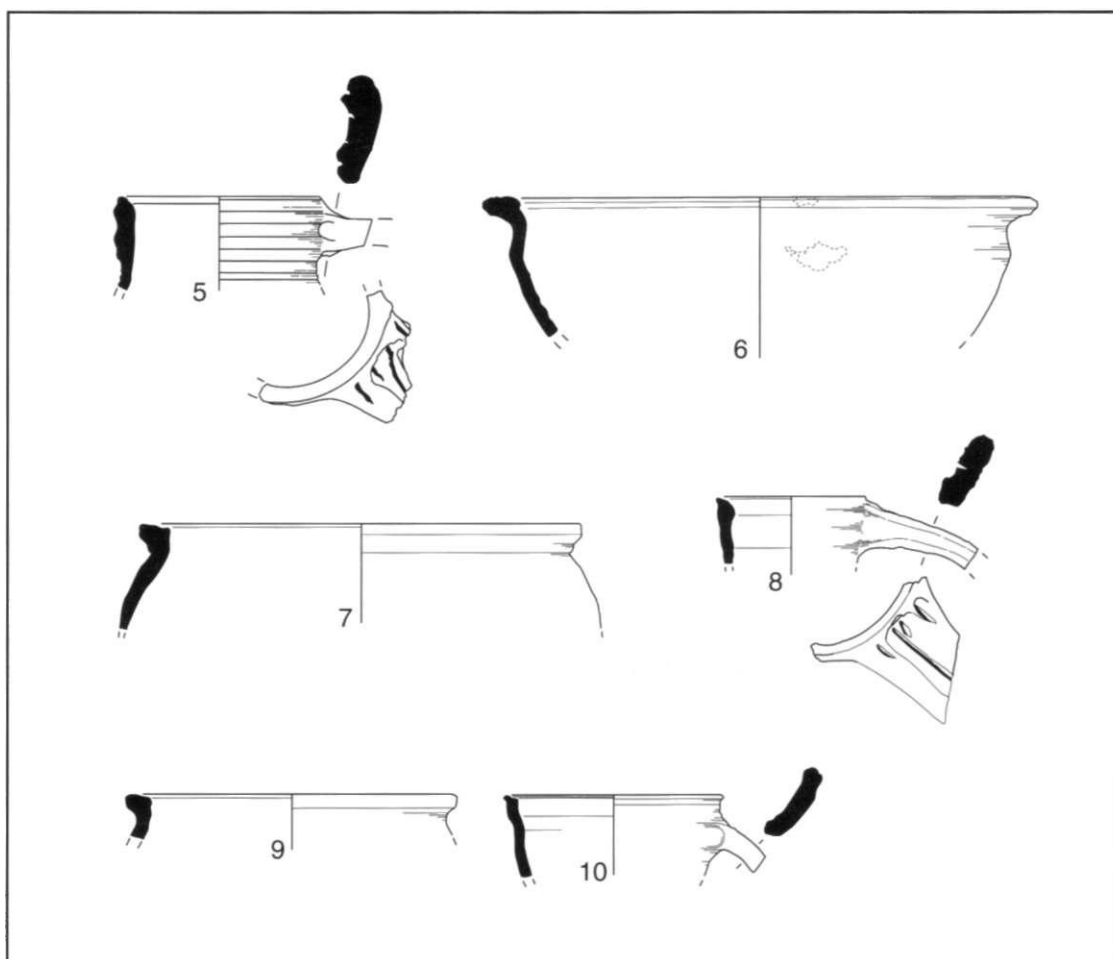


Fig. 7 Pottery: Phase 2-3 garderobe and associated fills: Vessels 5-10

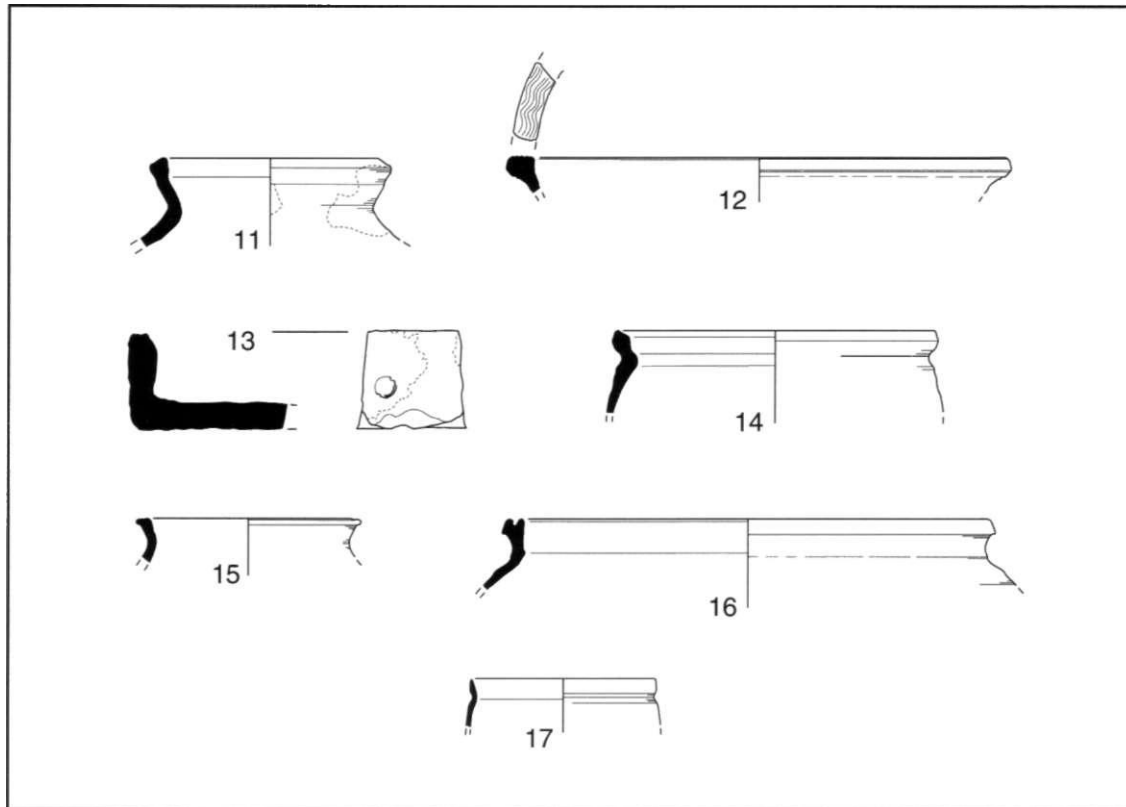


Fig. 8 Pottery: Phase 2 small pits: Vessels 11-17

which comprised mainly coarsewares, stonewares, and black wares (i.e. predominantly kitchen wares), and that from the two pits F396 and F363 which was predominantly table wares

Examples of early 19th-century pottery are few and far between. There are one or two pieces of late yellow ware, some with the ubiquitous tree pattern. There are no Mocha wares or other industrial slipwares. By the time 19th-century pottery, which looks to be post-1850, is found in abundance, it is all from the lower end of the pottery market. This latter phase ties in with conversations with elderly residents who described the area as a slum in their youth.

THE POTTERY: ILLUSTRATED SHERDS

Phase 1 features and associated contexts (Fig. 6)

Context	Description
1 (3090)	F367. Cooking pot, fabric cpj3.
2 (3090)	F367. Cooking pot, fabric ww2.
3 (3165)	Fill of kiln F411. Cooking pot, fabric cpj2.
4 (3181)	Phase 3 layer sealing F411. Bowl, fabric ww2, burning on interior.

Phase 2-3 Garderobe and associated fills (Fig. 7)

5 (3204)	Fill of Garderobe F448. Jug with corrugated neck, fabric ww1, external bright green copper coloured glaze
6 (3204)	Fill of Garderobe F448. Bowl, fabric ww2, splashes of green glaze on interior.
7 (3204)	Fill of Garderobe F448. Cooking pot/jar, fabric ww2, external splash of thin red slip or trace of burnt off glaze.
8 (3204)	Fill of Garderobe F448. Jug, fabric rw3, external olive-brown glaze.
9 (3083)	Fill of pit F320 cut into Garderobe F448. Cooking pot/jar.
10 (3083)	Fill of pit F320 cut into Garderobe F448. Jug, fabric irp1, unglazed.

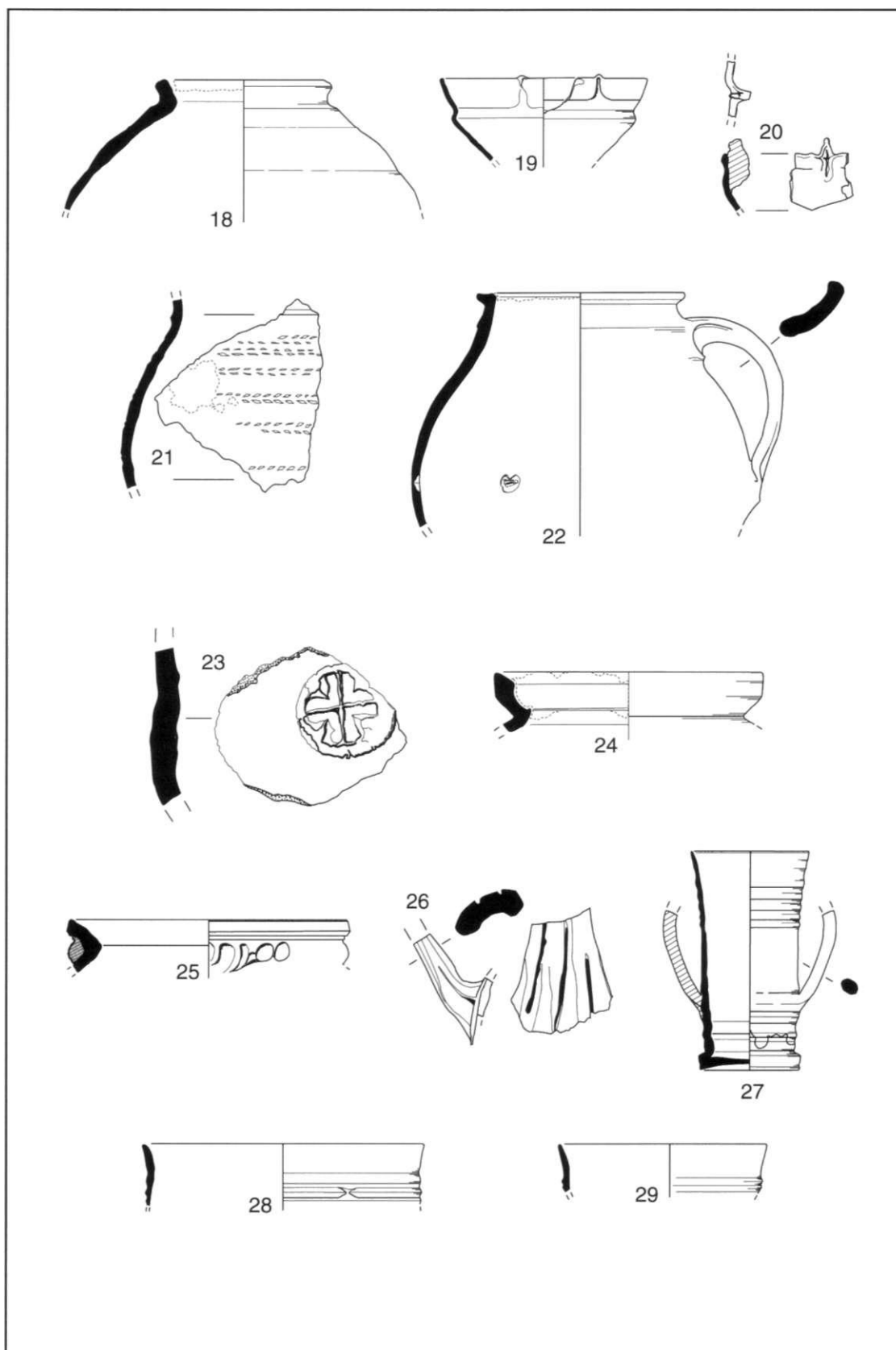


Fig. 9 Pottery: Phase 2-3 large pits: Vessels 18-29

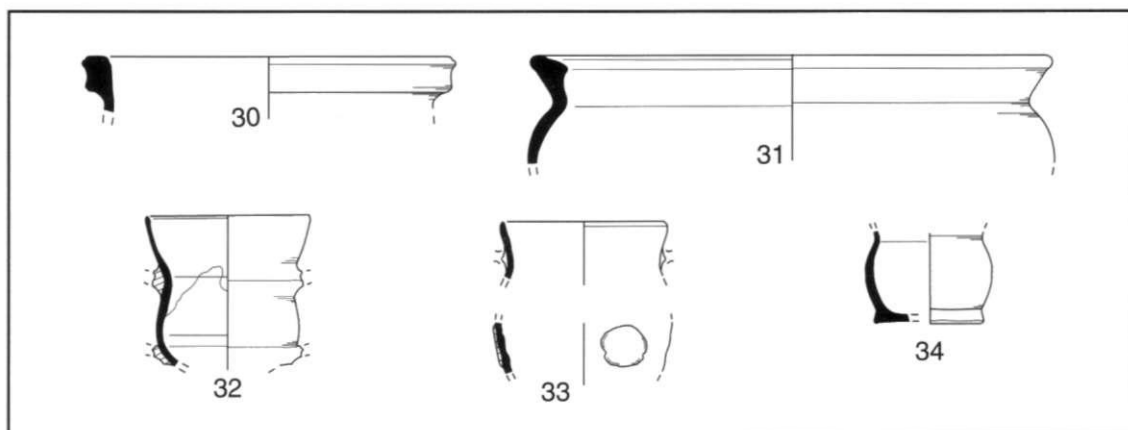


Fig. 10 Pottery: Phase 3 tannins pits: Vessels 30-34

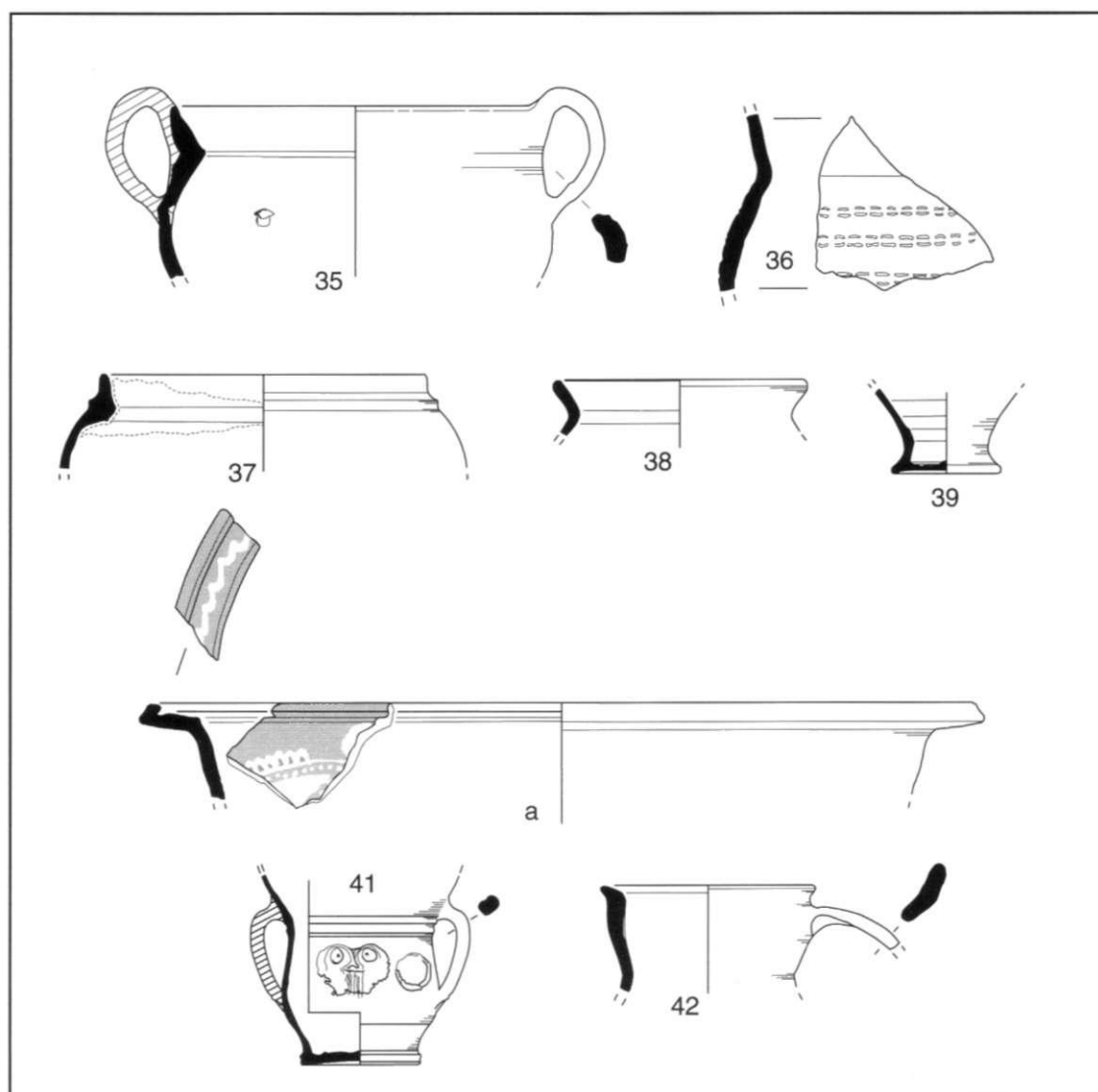


Fig. 11 Pottery: Phase 3 pits and other features: Vessels 35-42

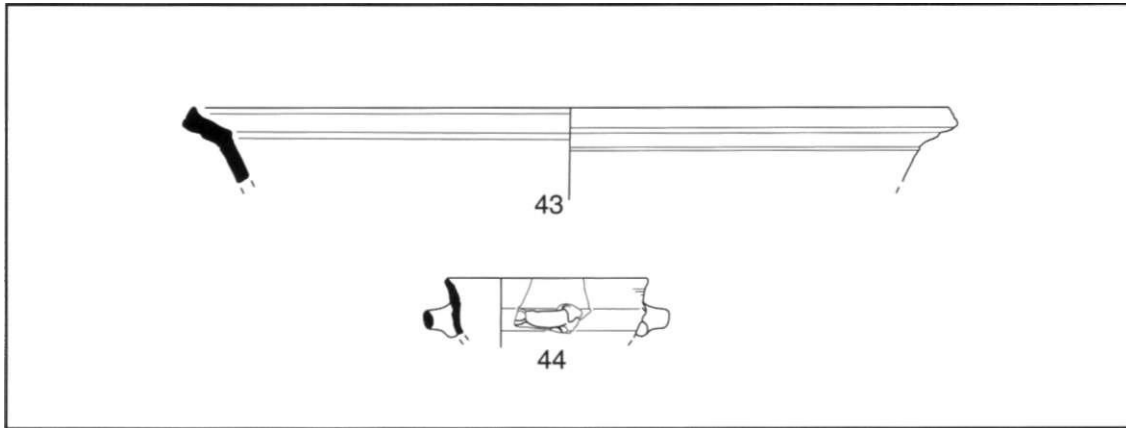


Fig. 12 Pottery: Phase 3 layers: Vessels 43-44

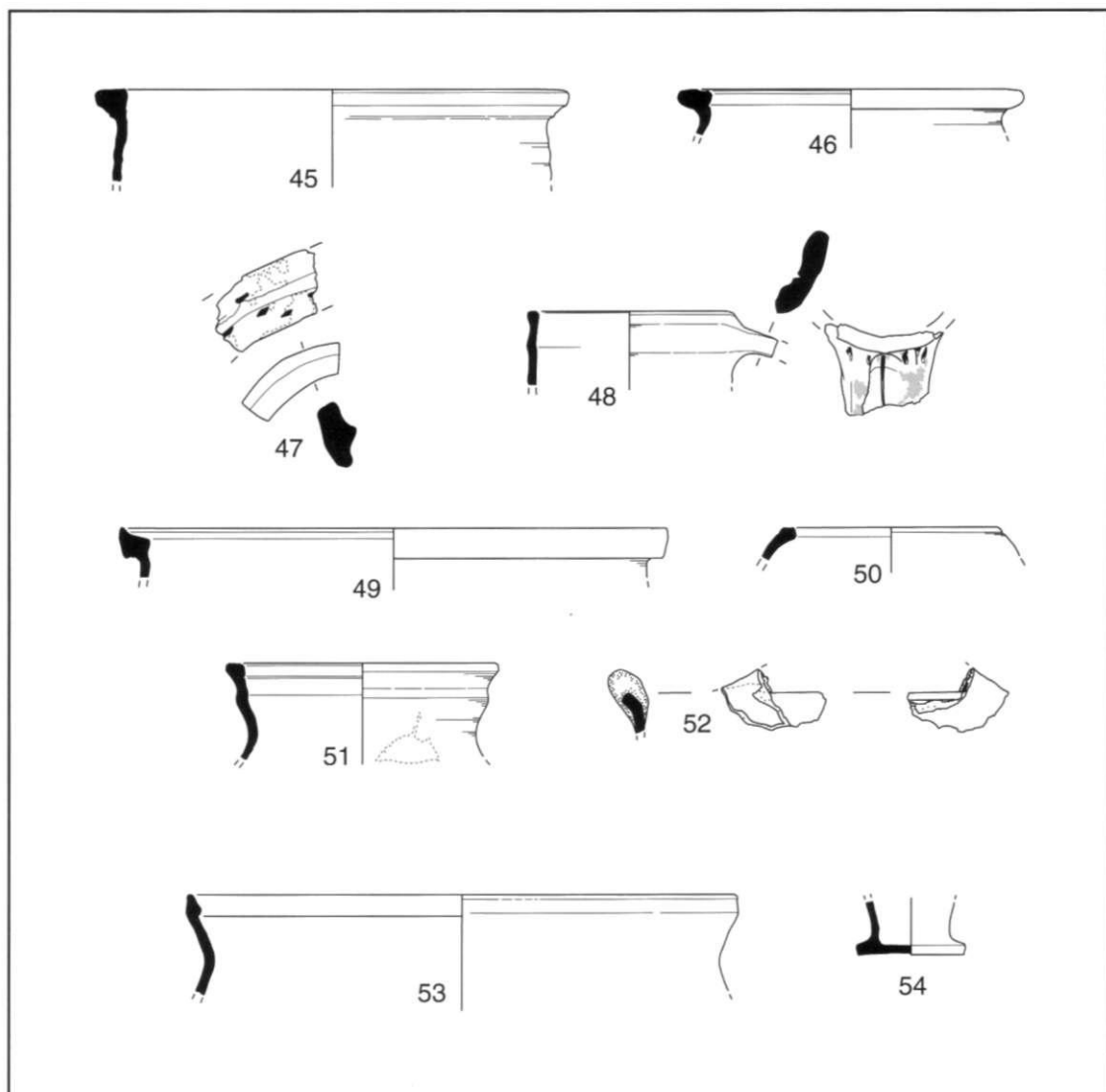


Fig. 13 Pottery: Phase 1-1 ditch fills: Vessels 45-54

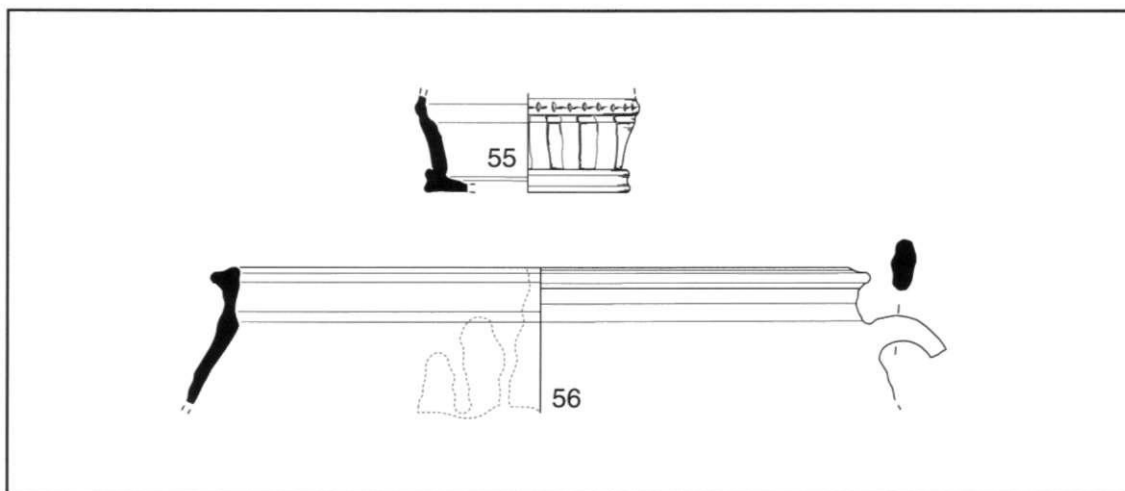


Fig. 14 Pottery: later phases: Vessels 55-56

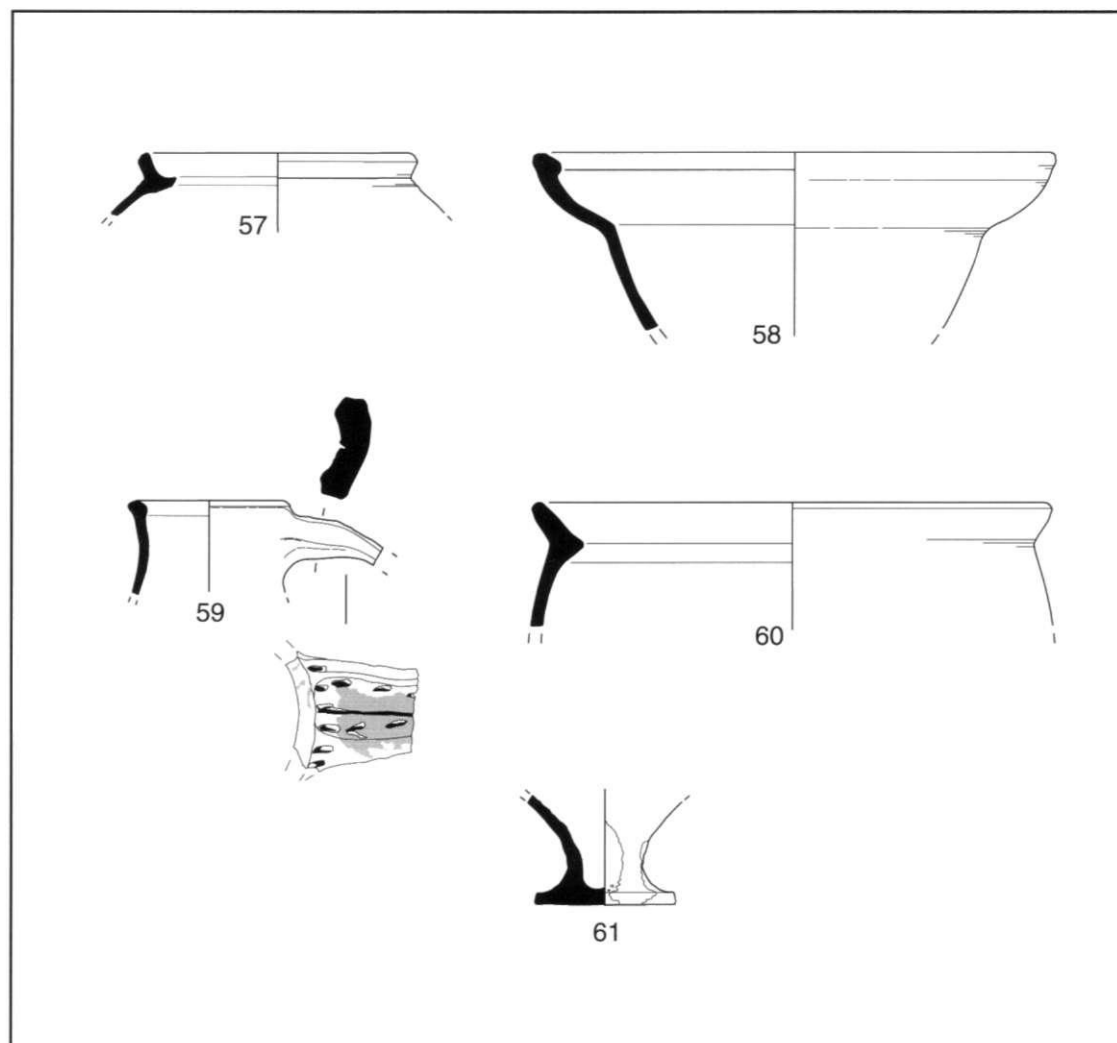


Fig. 15 Pottery: Evaluation and unstratified: Vessels 57-61

Phase 2 smaller pits (Fig. 8)

- 11 (3064) Fill of pit F348. Cooking pot, fabric cml, external sooting.
- 12 (3135) Fill of pit F419. Cooking pot/jar with combed rim, fabric cpj4.
- 13 (3135) F419 and (3166) fill of pit F421. Dripping tray, fabric rw4, internal mid-brown glaze with patches of sulphurous yellow discolouration, external brown glaze splashes, external soot.
- 14 (3216) Fill of pit F452. Lid seated cooking pot/jar, fabric cpj1, overfired.
- 15 (3053) Fill of pit F352. Small diameter cooking pot/jar, fabric ww2.
- 16 (3053) Fill of pit F352. Cooking pot/jar with grooved rim, fabric ww2.
- 17 (3053) Fill of pit F352. Cup, Cistercian ware, internal and external brown glaze, probably intrusive.

Phase 2-3 larger pits (Fig. 9)

- 18 (3062) Fill of pit F346. Globular jar, fabric cmla, external olive glaze.
- 19 (3062) Fill of pit F346. Lobed cup, Tudor Green ware, internal and external copper-coloured glaze.
- 20 (3062) Fill of pit F346. Lobed vessel, Tudor Green ware ?chafing dish, internal and external copper coloured glaze.
- 21 (3062) Fill of pit F346. Jug or cistern, coarse Midlands Purple ware, poor quality ?roller stamped decoration (looks almost like faint cord impressions), splash of external brown glaze, some external sooting.
- 22 (3103) Fill of pit F375. Globular jug, fabric rw1, external tan glaze, deep impression at junction of handle and body.
- 23 (3103) Fill of pit F375. Applied stamped white clay pad on a rw1 body, internal and external olive glaze (yellow over clay pad).
- 24 (3103) Fill of pit F375. Lid-seated jar, fabric lmt1, internal olive glaze.
- 25 (3103) Fill of pit F375. Jar, Midlands Purple ware, thumbled neck cordon.
- 26 (3248) Fill of pit F472. Pipkin handle, fabric ww2, external soot.
- 27 (3248) Fill of pit F472. Two-handled mug, blackware, internal and external dark brown glaze.
- 28 (3248) Fill of pit F472. Mug, blackware, internal and external red-brown glaze.
- 29 (3248) Fill of pit F472. Mug, blackware, internal and external dark brown glaze.

Phase 3 tanning pits (Fig. 10)

- 30 (3215) Fill of pit F451. Bowl, fabric ww2, external copper-coloured glaze.
- 31 (3213) Fill of pit F454. Cooking pot, fabric cpj6, external soot.
- 32 (3209) Fill of pit F454. Two-handled cup, Cistercian ware, external brown glaze, partial internal brown glaze.
- 33 (3209) Fill of pit F454. Two-handled cup, Cistercian ware, applied white clay pads, internal and external brown glaze (yellow over pads).
- 34 (3209) Fill of pit F454. Cup, Cistercian ware, internal and external brown glaze.

Phase 3 pits and other features (Fig. 11)

- 35 (3185) Fill of pit F433. Two handled jar or cistern, coarse Midlands Purple ware, external streaks of purple-brown glaze, deep internal impression at junction of handle and body, heavy internal limescale.
- 36 (3185) Fill of pit F433. Jug, Midlands Purple ware, crude roller-stamped decoration, external purple-brown glaze, heavy internal limescale.
- 37 (3087) Fill of pit F365. Cistern, Midlands Purple, trace of internal glaze.
- 38 (3128) Fill of pit F395. Jar, Tudor Green, external copper coloured glaze, burnt.
- 39 (3138) Fill of pit F403. Cup base, Tudor Green, internal copper coloured glaze.
- 40 (3114) Fill of pit F412. Bowl, slipware, light-on-dark floral decoration.
- 41 (3153) Fill of construction trench F409. Two-handled cup. The decoration consists of two panels. Each panel (situated between the handles) has a white clay bearded face mask between two applied white clay pads. Internal and external brown glaze (yellow over applied white clay).
- 42 (3149) Fill of construction trench F409. Jug, fabric cml, external olive glaze.

Phase 3 layers (Fig. 12)

- 43 (3253) Bowl, fabric rw2, light external soot.
 44 (3086) Cup, yellow ware (white fabric).

Phase 1-2 Ditch fills (Fig. 13)

- 45 (3259) Cooking pot/jar, fabric cpj3, internal and external glaze spots.
 46 (3259) Cooking pot/jar, fabric ww2.
 47 (3259) Jug handle, fabric ww2, heavily abraded, stabbed, trace of apple green glaze.
 48 (3255) Jug, fabric ww2, red painted decoration.
 49 (3255) Bowl, fabric ww2.
 50 (3255) Jar or ?urinal, fabric ww2.
 51 (3251) Jug, fabric ww2, thin red slip decoration.
 52 (3251) ?Chafing dish, fabric ?Brill, external copper-coloured glaze.
 53 (3246) Cooking pot/jar, fabric rw1, heavy external soot.
 54 (3246) Cup base, Tudor Green, trace of external copper coloured glaze.

Later phases (Fig. 14)

- 55 (3074) Handled jar, Midlands Purple ware, internal dribbles of purple-brown glaze.
 56 (3028) Cup, yellow ware (white fabric), internal and external glaze.

Evaluation (Fig. 15)

- 57 (15) Flange-rim jar, fabric lmt1, internal partial olive glaze.
 58 (15) Wide-mouthed bowl, fabric rw1, patchy internal olive glaze.
 59 (97) Jug, fabric cmlb.
 60 (102) Cooking pot/jar, fabric cml, soot along external rim.

Unstratified (Fig. 15)

- 61 Blackware pedestal base from ?chafing dish, internal and external black glaze.

The term copper-coloured glaze refers to the addition of copper filings to a clear lead glaze, which produces a bright green glaze (in a reducing atmosphere).

PREHISTORIC FLINT *by Lynne Bevan*

One retouched flake of light beige opaque flint was recovered (3214). Although of probable later prehistoric origin (Late Neolithic to Bronze Age), this single tool is not chronologically-diagnostic and does not represent activity of any longevity in the vicinity of the site.

THE SMALL FINDS *by Lynne Bevan*

Although the small finds assemblage is generally limited in terms of artefactual variety and dating potential, particularly among the metalwork, certain material groups are of interest in terms of material culture and of considerable importance on a local and regional level.

WORKED BONE

Finds of worked bone comprise an ovoid, spatulate-shaped object (Fig. 16:1); the end of a pin (Fig. 16:2); the bowl from a spoon (Fig. 16:3); the end of a possible lacemaking bobbin (Fig. 16:4); a hollow, cylindrical object which appears to have been part of a recorder or other musical instrument (3024, not illustrated); and four buttons (3052, F338 x 1, F352/3053 x 3, not illustrated).

Contextually, the pin end, which came from a medieval context (c.14th or 15th century) and the spatulate object, which came from a 16th-century context, appear to be the earliest of the bone objects. The spoon bowl (Fig. 16:3) and possible lace bobbin (Fig. 16:4) both came from 19th-century contexts. While a 19th-century date is in keeping with the lathe-turned possible bobbin, the crudely-made spoon might be of a potentially earlier date (c.17th or 18th century). The cylindrical object and buttons are of a modern appearance.

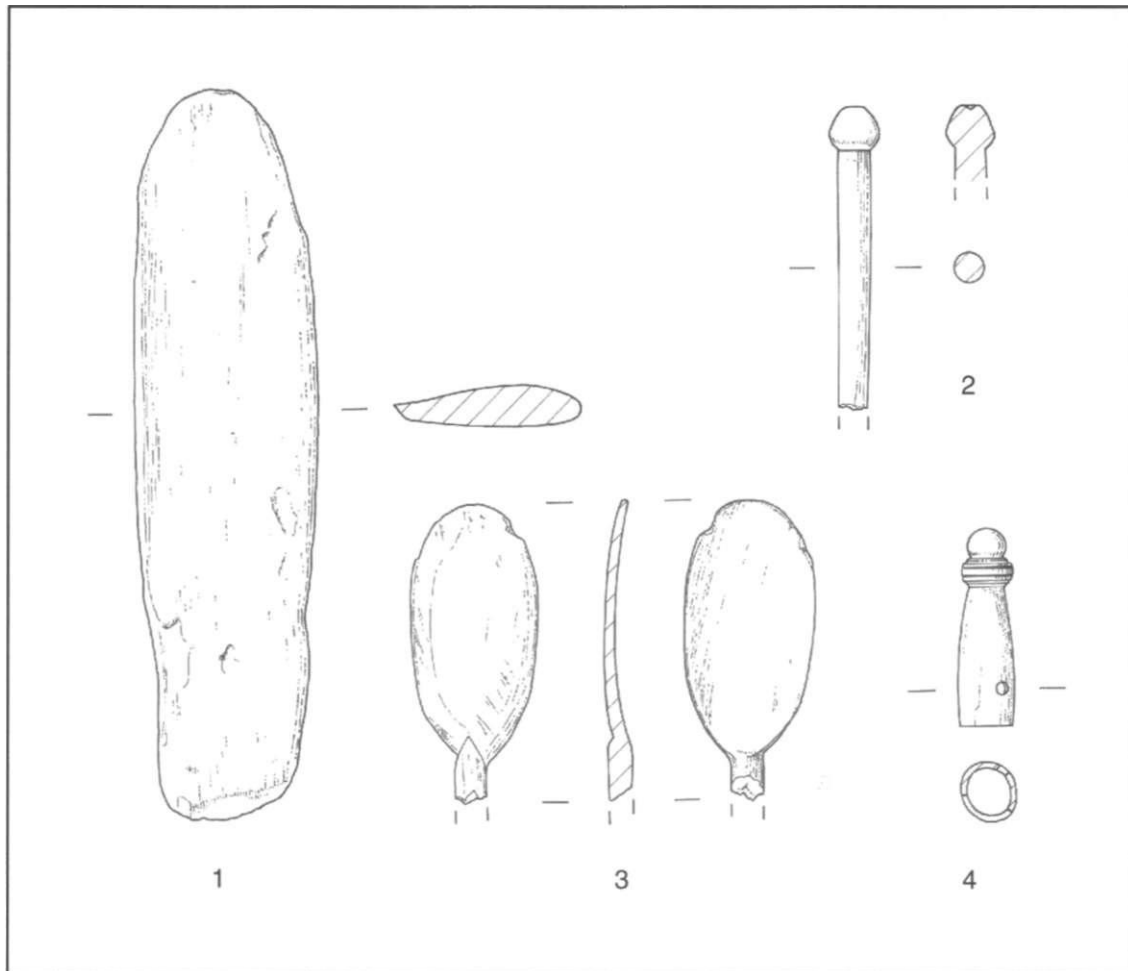


Fig. 16 The small finds: worked bone objects 1-4

Catalogue

1. Spatulate-shaped object, highly-polished on both sides with rounded ends. There is considerable damage to one end where the bone is flaking. Length: 100mm, width: 25mm, thickness: 4-8mm. F395, 3128. Fig. 16:1.
2. The end of a pin, with a bun-shaped head, the apex of which has a slight, lathe-turned indent. Length: 41mm, diameter of head: 6mm, diameter of shank: 4mm. SF10, F475, 3255. Fig. 16:2.
3. Ovoid spoon bowl, broken close to the handle, highly-polished and worn. Length: 40mm, width: 17mm, thickness: 1-3mm. SF3, F392/3124. Fig. 16:3.
4. End of a ?lace bobbin, with a turned bead and reel head. A small perforation is visible near the base and there is damage to one side. Although the dimensions are correct, the perforation (where beads are usually attached) is further up the shaft than is normal for a lace bobbin. Length: 26mm, diameter of head: 4mm, average thickness: 2mm. SF6, F392/3124. Fig. 16:4.

LEAD

Lead objects comprised two pendant weights designed for suspension (Fig. 17:5-6) and a fragment of lead sheet (F320/3203). The weights are almost identical in form, although one is slightly smaller and lighter in weight than the other. The weights are almost certainly of medieval date, since their form is very similar to that of an example from London (Egan 1998, 310-311, Fig. 321) which was probably used for industrial purposes (ibid. 311), the exact nature of which was not specified.

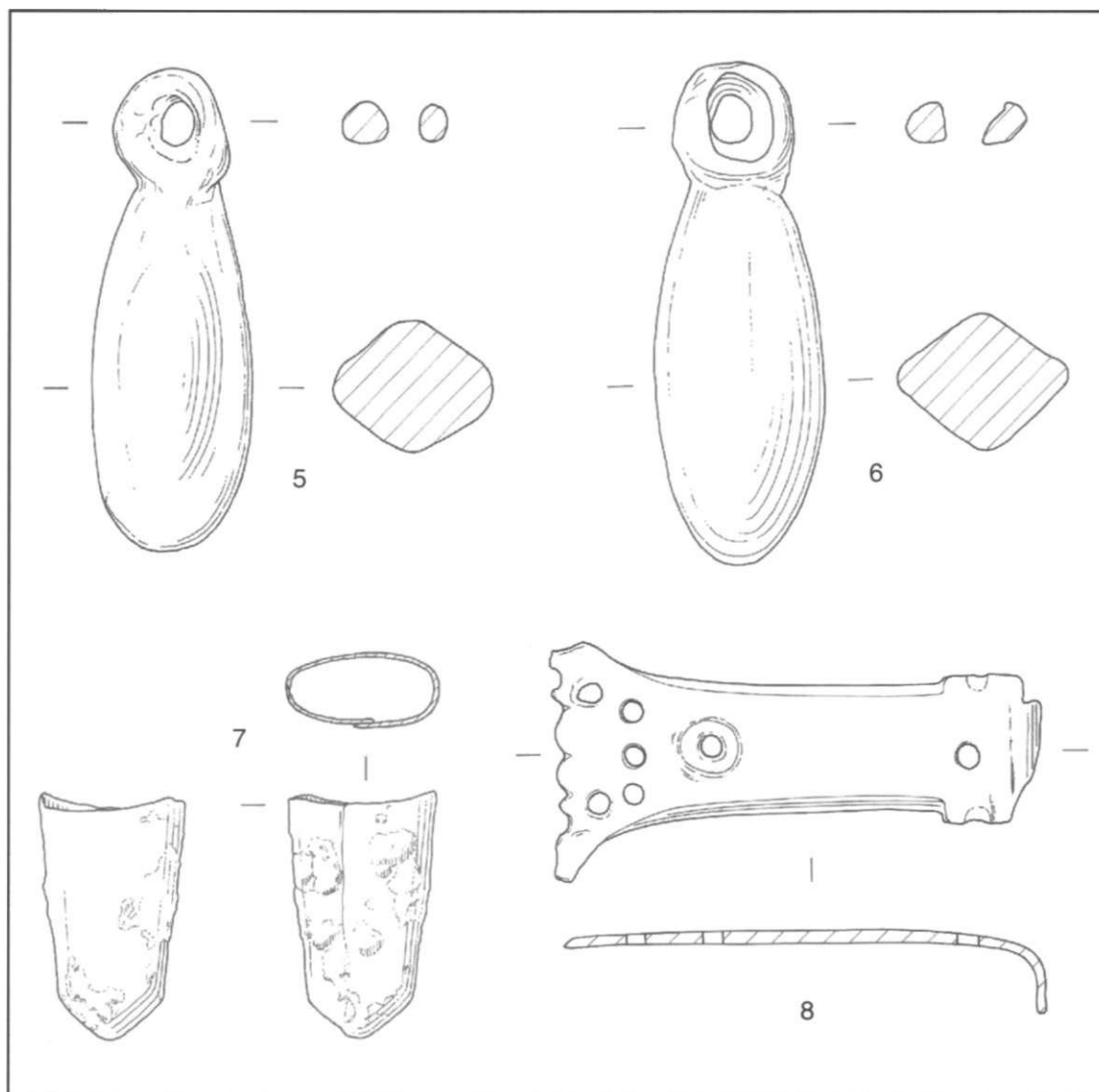


Fig. 17 The small finds: metalwork 5-8

Catalogue

1. Pendant weight with diamond-shaped section and suspension loop. Length: 65mm, width: 23mm, thickness: 17mm, weight: 105 grams. SF1, F400/3125. Fig. 17:5.
2. Pendant weight with diamond-shaped section and suspension loop. Length: 70mm, width: 25mm, thickness: 20mm, weight: 112 grams. SF 2, F400/3125. Fig. 17:6.

COPPER ALLOY

The copper alloy assemblage was quite well-preserved but limited in terms of artefactual variety and potential for further study, since the vast majority of the material came from 19th- and 20th-century contexts. Earlier material consisted of a scabbard chape (Fig. 17:7) and a book clasp (Fig. 17:8).

The chape is similar to an example from Winchester, dated to the late 15th to early 16th century (Hinton 1990, 1083, Fig. 348:4034). The book clasp is similar in form to a more ornate book plate from Sandal Castle, described as a common type of probable 16th-century date (Goodall 1983, 235-236, Fig. 2:113). A closer unstratified parallel, also with five holes at the serrated end, is known from the Norwich Survey excavations (Margeson 1993, 74-75, Fig. 40:453). Another similar example came from a Norwich context dated to 1625-1800 (*ibid.* 74-75, Fig. 40:454). In view of two more

close parallels from Colchester (Crummy 1988, 68, Fig. 67:2992-2993), one of which came from a context dated *c.* 1650-1725-1972 (*ibid.* Fig. 67:2993), a mid to late 17th-century date seems most likely for this style of book clasp. With regard to the kinds of book these fittings adorned, for example family bibles spanning generations or, in the case of the Norwich examples, the Commonplace Book, a kind of land inventory begun *c.* 1560 rather than an every day document (Margeson 1993, Plate XIII, 74-75), the possibility of an earlier date cannot be ruled out. Interestingly, the perforations are believed to have fulfilled a decorative purpose, since 'if the leather were coloured, the bright dots exposed through the holes would have resembled small gemstones' (Crummy 1988, 68).

Other early material consisted of two small pins from a Phase 2 context (F346/3062; 3135, SF 12), and three chainlinks (F408/3148, SF11) and a pin end (F377/3119) from Phase 3 contexts.

More recent finds included a 1943 George VI halfpenny (3084), two rectangular-shaped buckles (F338/3052, F401/3136/SF10), an ornamental doorknob (3251), an ornamental lock plate (F340/3056), a muscular-shaped hollow male leg from a statuette of probable Victorian date and of mythological subject matter (3001), and a copper alloy ring handle and attachment loop mounted to an iron post, probably from furniture (3001). The remaining items consisted of various fittings and unidentified fragments, including two buttons (F338/3052, F392/3124/SF8), two washers (F338/3052, F353/3070), several fragments of plate (3003, F338/3052), 16 wire fragments (3004 x 1, F378/3106 x 10, F392/3124 x 5), two circular fragments of plate (F467/3240), two broken ring-shaped fragments (3003), a curved decorative fragment (F388/3122), and an amorphous lump (F375/3102).

Catalogue

1. Scabbard chape of a simple 'U'-shaped form made from a piece of undecorated folded sheet. The object is well-preserved although the surface is subject to some erosion. Length: 30mm at centre, width: 22mm, thickness: 0.5mm. SF11, F475/3255. Fig. 17:7.
2. Book clasp with seven perforations, five of which are near the serrated terminal. The object is now very worn but traces of possible foliate or feathered decoration are just visible at the serrated end. Length: 65mm, original width at end: 35mm, thickness: 1mm. SF 3, 98. Fig. 17:8.

CLAY TOBACCO PIPE

A small collection of clay pipe was recovered, comprising 13 complete and almost-complete bowls (3003 x 3, F363/3085 x 6, F420/3163 x 1, F433/3226 x 1, 3238 x 2), fragments from 18 further bowls, and 150 stem fragments. Two of the almost complete bowls have stamps - 'IS' (3003) and '?PB' (3238) - and several other bowls and bowl fragments are decorated. One stem fragment bears a partial stamp (3140) and another two stem fragments have impressed decoration (3124, 3257). One stem fragment has traces of green glaze and an unusually-shaped mouthpiece (3140). The stamp 'IS' on the example of a distinctive Broseley form (3003) matches the maker's marks of three Broseley pipemakers, Jeremiah Shaw, John Smith, and Joseph Southom, all of whom were operating in the 1840s (Oswald 1975, 191). However, the dating of the bowl, *c.* 1680-1730, is much earlier (*ibid.* 51-52). The other stamps were unidentifiable.

Table 1S Datable Clay Pipes by Context

Context	Datable Material	Oswald's Type	Dating
3001	Foliate ribbed fragment	Not known	<i>c.</i> 1820-60 (Crummy 1988)
3003	3 bowls	Broseley 5b/c x 1 Type 22 x 2	<i>c.</i> 1680-1730 <i>c.</i> 1730-80
3085	3 complete bowls	Type 22	<i>c.</i> 1730-80
3124	fluted fragment	not known	Late 18th-early 19th
3163	1 complete bowl	Type 17	<i>c.</i> 1640-70
3226	1 complete bowl	Type 5	<i>c.</i> 1640-60
3238	2 complete bowls	Type 5 Type 17	<i>c.</i> 1640-60 <i>c.</i> 1640-70
3241	1 complete bowl	Type 20	<i>c.</i> 1690-1730
3245	1 complete bowl	Type 5	<i>c.</i> 1640-60

This small assemblage had a low incidence of datable forms. Moreover, none of the groups was sufficiently large for any form of metrical analysis, such as comparing stem bore measurements for closer chronological resolution. In view of the low level of archaeological potential exhibited by the assemblage at assessment, further analysis was conducted upon dating only the complete pipe bowls. This was done according to Oswald's general typology (1975), Atkinson's dating of the Broseley pipes (Oswald 1975, 51-52, Fig. 7:5C), and Crummy's discussion of plain bowls with relief-decorated seams (Crummy 1988, 56). The results are as given in Table 15, above.

With the exception of two complete Phase 3 bowls (F420/3163, F433/3226) and a Phase 5 fluted bowl fragment (F392/3124), the datable material from Table 15 appears to have been re-deposited in later contexts. The largest pipe group, comprising six bowls, three of which are complete, a partial bowl attached to a stem, and 20 stem fragments, is noteworthy despite the nature of its deposition in a Phase 5 context (F363/3085). Some of the bowls were dated to *c.* 1730-80, the relative thickness of the bowls suggesting a date within the earliest part of the date range. With one slightly earlier exception (3003), pipe smoking appears to have started on the site during the 1640s and continued into the late 18th and early 19th centuries. Roughly half of the datable material relates to a mid to late 17th-century incidence of pipe smoking, and the rest to the mid to late 18th and early 19th centuries.

VESSEL AND WINDOW GLASS

The substantial glass assemblage consisted of approximately 50 complete and largely intact bottles and other vessels, *c.* 200 small vessel fragments and 165 fragments of window glass. With the exception of some earlier material, the assemblage was divided roughly into two groups dating from the 18th, 19th, and 20th centuries, with some degree of chronological overlapping.

The earliest material in the collection was four fragments of potentially medieval, or early post-medieval, stained glass (Fig. 18:9-10), one of which was deep red in colour with curvilinear decoration appearing to represent foliage or drapery and a curvaceous, irregular shape (Fig. 18:9).

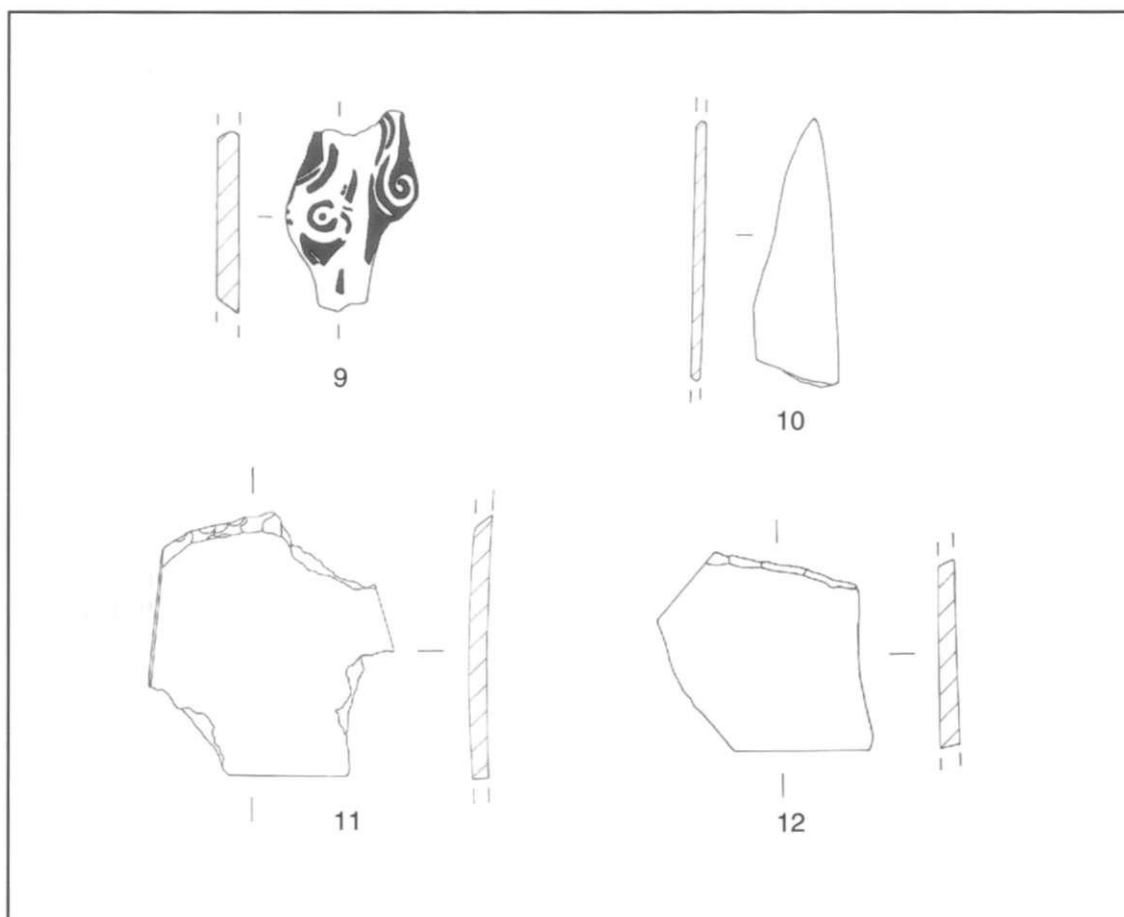


Fig. 18 The small finds: glass objects 9-11

The other three, two of which had single grazed edges, all had the dark, opaque appearance usually associated with medieval window panels (Fig.18:10-12), although all were probably originally of undecorated light green glass. The plain pieces are probably earlier than the deep red piece (Fig. 18:9), which might date to as late as the 16th or 17th century. Other earlier glass consisted of several fragments from wine bottles, including a base of potentially 17th-century date, and some window glass from 16th- and 17th-century contexts.

The later 20th-century component of the assemblage was mainly beer and wine bottles and fragments from several other vessels. The 18th- and 19th-century assemblage included a more diverse range of material, such as medicine bottles, soft drinks bottles, and some fragments from fancy vessels, including part of a decorative bowl of mixed turquoise and white glass (F378/3106). Many of the bottle fragments had retained trade names and addresses indicating both local and non-local sources.

The majority of window glass came from late contexts and appeared to be of recent origin. One fragment of Edwardian glass had an etched floral motif and five fragments of coloured glass probably originated from a Victorian or Edwardian door panel. Due to the predominantly later date of most of the glass assemblage only the diagnostically medieval panels have been illustrated.

Catalogue

1. Irregular-shaped panel with a grazed edge. Deep red in colour, with curvilinear decoration. Some damage to one edge. Length: 28mm, width: 15mm, thickness: 3mm. F355/3072. Fig. 18:9.
2. Triangular-shaped panel, completely opaque glass. Length: 35mm, width: 10mm, thickness: 1mm. F355/3072. Fig. 18:10.
3. Window glass panel, roughly-rectangular, with one curved grazed edge, now very fragmentary. Length: 35mm, width: 28mm, thickness: 2mm. SF 2, 52. Fig. 18:11.
4. Window glass panel, five-sided, with one curved grazed edge. Length: 34mm, width: 25mm, thickness: 2mm. 70. Fig. 18:12.

STONE

A worked stone object was found (3054, Catalogue no.1) and a curved fragment of dressed building stone (97, Catalogue no. 2). The worked stone object was the size and shape of a hone or whetstone but neither function was likely since the only sign of wear was a series of parallel lines near to one end which had been partly-drilled to a depth of 4mm. Since neither end could have been easily attached to a handle or mechanical device the purpose of the object remains enigmatic. In view of its 19th-century context an industrial use cannot be ruled out.

In addition, six small, worked fragments of stone were recovered from Phase 5 contexts (F338/3052 x 4, F353/3070 x 1, Catalogue No. 3 x 1). The fragments had been deliberately faceted into hexagonal pencil forms, one of which had retained its pointed end (Catalogue no. 3). Slate pencils have been found in pre-1600 contexts in Norwich (Margeson 1993, 70-71, Fig. 38: 442-44). The Sandford Street pencils are of a less rounded shape than the illustrated examples from Norwich, but very similar to some 18th-century examples from Aldgate (Thompson *et al.* 1984, 127, Fig. 63:116a and b). Although the Lichfield examples are made of siltstone rather than slate, the purpose of the pencils - that they were intended to write *upon* slate - is the same in all instances. Slates began to be used for writing on in the time of Chaucer, or earlier, when they were employed rather as notebooks for recording 'information of temporary value' (Rhodes 1984, 121; see references cited in Murray *et al.* 1919, 177). However, the widespread use of slate in schools does not appear to have occurred until the late 18th or early 19th centuries (Sturt 1967, 21-6; Rhodes 1984, 120-3). A scholastic function and similarly broad dating is also likely for the Lichfield examples which appear to have originated mainly from late 18th- and 19th-century contexts.

Catalogue

1. Worked stone object of micaceous Coal Measures sandstone. This object is of an ovoid shape with tapering ends, one of which has been partially hollowed. The other end is flat. Length: 95mm, diameter at ends: 20-22mm, depth of depression at one end: 4mm. 3054. Not illustrated.
2. Curved block of dressed Coal Measures siltstone/mudstone with trace fossils, broken along the bedding plane. The stone, which was probably originally ovoid in shape, has an arched appearance. The surface is roughly-hewn. Length: 221mm, width: 140mm, thickness: 40mm. 97. Not illustrated.
3. Pointed end of a ?pencil, broken across the shaft. Siltstone, deliberately faceted into a roughly-

hexagonal shape. Some wear traces are visible on the object. Length: 35mm, thickness. Not illustrated.

IRON

Iron finds comprised four nails (F467/3240, 3242 x 2, F468/3257) and several unidentified corroded fragments (F346/3062, F375/3103, F468/3257), for which no further description was deemed appropriate at assessment stage.

SHELLS

The remains of 18 oyster shells were recovered (3004 x 1, F363/3085 x 3, F378/3106 x1, F396/3129 x 3, F405/3140 x 5, F467/3240 x 2, F468/3257 x 1, F470/3245 x 1, F475/3259 x 1). Three mussel shells (3003 x 2, F392/3124 x 1) and four smaller shells, possibly from clams or cockles (3003 x 1, F338/3052 x 1, F352/3053 x 1, F405/3140 x 1) were also found.

TEXTILE FRAGMENTS *by Margaret Bonham*

A number of very small, heavily-mineralised textile fragments were found in the environmental sample residue from the primary fill (3234) of the garderobe F448. The size of the fragments precluded analysis of the yarn type or type of garment from which they are likely to have come. However, the fragments have been catalogued and details of the yarn construction and weave type have been recorded where possible. Since the layer of cess was a sealed deposit the fragments are certainly medieval and are unlikely to be later than the 14th century in date.

Catalogue

1. Six fragments of yarn between 2mm and 6mm in length.
All are mineralised and a uniform golden brown. The yarn fragments appear to be made from baste fibre and each shows evidence of having once been part of a woven textile. All have been spun with a Z twist, five of them with a medium to light twist.
The sixth yarn fragment has remnants of its interlacing yarns adhering to it; both warp and weft yarns have been spun with a heavy twist. This, together with the spacing, would have produced a hard, stiff, but not heavy, cloth.
2. One fragment of woven textile 3 x 2 mm. Fragment mineralised a uniform golden brown.
The woven fragment is a balanced 1/1 tabby weave, with a count of between 40 and 50 ends per inch. The same yarn appears to have been used in both warp and weft. The yarn is spun with a Z twist and is lightly spun. The yarns in both directions are spaced their own width apart. The twist and the weaving structure would indicate that this was a soft, flexible and slightly diaphanous fabric.
3. One fragment of smooth woody material.
The woody fragment is smooth and slightly twisted. It would appear to be a basket weft.
4. Nine fragments of yarn between 1mm and 5mm in length.
The yarn fragments are mineralised and a uniform golden brown. All are spun with a Z twist - varying from light to medium - and all show evidence of having once been part of an interlaced structure.
5. Ten fragments of woven textile (between 2x1 mm and 15x5 mm).
Textile fragment 4x3 mm: balanced 1/1 tabby weave 40 epi, medium spacing, light to medium Z twist, probably baste fibre, producing a soft, flexible cloth.
Textile fragment 3x7 mm: balanced 1/1 tabby weave 45 epi, medium to loose spacing, light Z twist, probably baste fibre, producing a soft, flexible cloth.
Triangular textile fragment 5x3 mm: balanced 1/1 tabby weave 40 epi, tight spacing, possibly full, medium Z twist with yarns of uneven size, producing a thin, dense cloth.
Textile fragment 5x7 mm: balanced 1/1 tabby weave 30 epi, medium spacing, light to medium Z twist, producing a soft, flexible cloth.
Textile fragment 15x4 mm: balanced 1/1 tabby weave 30 epi, medium to loose spacing, light to medium Z twist, producing a soft, flexible cloth.
Textile fragment 12x5 mm: difficult to ascertain weaving structure, but probably 1/1 tabby, probably 30 - 40 epi, medium Z twist.
Textile fragment 15x5 mm: balanced 1/1 tabby weave 40 epi, medium to tight spacing, medium

Z twist.

The three smallest textile fragments are all balanced 1/1 tabby weave, fairly densely woven using a medium Z twist yam.

6. Three clumps of hair-like fibres and similar loose fibres.

7. One sample of disorganised fibres.

The hairs like fibres in the clumps lie parallel, embedded in some other mineralised material. There was no evidence of spinning, so they are probably bastes inside their original coatings. They are probably remains of wicker or reed.

DISCUSSION

The textile fragments in this collection are all simply but nicely-woven balanced cloths. There is no evidence of specialist or fancy weaves. The yams and spacings are equal in warp and weft, and it is not possible to differentiate warp from weft in these small samples.

All the samples were Z spun, but there was no way of telling if they were spun by wheel or drop spindle. However, given the date of the deposit the latter is the most likely. There was no evidence of plying, and all the spinning was tight enough to hold together the fibres in a single yam without the necessity for plying. Most of the samples appear to be baste fibres, although it is possible that the two samples with a wider set may be wool.

The weave structure and weight of the textiles suggests that these are average domestic or clothing fabrics, neither very fine, nor heavy, nor specialist in purpose.

ANIMAL BONE *by Emily Murray*

Approximately 23 kg of hand-collected animal bone was retrieved from the site. There was an even distribution of bone between phases, but the majority was post-medieval in date. Soil samples of 20 litres were collected from a number of medieval contexts. A small number of these produced faunal remains and these are listed in Table 16. The animal bone from the evaluation conducted by Marches Archaeology was also presented for examination. There was a limited number of recordable elements in this assemblage and these are listed in Table 17.

The material examined was recovered predominantly from pits, although some of the remains came from other features, including layers, drains, postholes, the garderobe, and the ditch. An assessment was made of the bones and only the bones from the garderobe were looked at in detail.

Table 16 Number of countable elements from the sieved samples

Phase	Context	Cattle	Sheep/ Goat	Pig	Other	Bird	Fish	Comment
2	3120							
3	3062	—	—	—	—		9	
2-3	3086	—	—	—	—	—	!	
2-3	3103		1	1	1		4	rodent mandible
Unphased	3088	1		—	—		3	—
	Total	0	1	2	1	0	14	

Table 17 Number of countable elements from the evaluation

Context	Cattle	Sheep/ Goat	Pie	Other	Bird	Fish	Comment
5 5		1	2	*	—	—	—
62				1	—	—	dog
6 4	—	—	—	!	—	—	!Anser
7 3		1	1	—	—	—	—
9 7		1	1	—	—	—	—
Total	3	2	—	1	1	—	

*includes one measurable element

METHOD

The faunal samples were recorded using a modified version of a system devised by Davis (Davis 1992; Albarella and Davis 1994). This system considers a selection of anatomical elements as 'countable', while the presence of non-countable specimens of interest, such as antler, horncores, pathologies, and non-countable elements from unusual species are simply noted. The measurements inferred vary according to element and species but the majority of these follow von den Driesch (1976). Mandibles are considered to be ageable where two or more teeth are present with recognisable wear. At this stage no attempt has been made to distinguish between the closely related species of sheep (*Ovis*) and goat (*Capra*), or chicken (*Gallus gallus*), guinea fowl (*Numidia meleagris*), and pheasant (*Phasianus colchius*).

Half of the assemblage from the excavation was examined in detail (Tables 18 and 19) and the other half given a cursory examination. All of the material from the sieved samples (Table 16) and from the evaluation (Table 17) was assessed and recorded.

Table 18 Number of countable bones

Measurable bones total	Phase	No. of contexts	Area	Cattle	Sheep/Goat	Pig	Other	Bird	Fish	Total	Comment
19	1	7	A & A2	4	4	1	2	21	-	32	dog, cat, duck (Anas), GNP
17	2	5	A & B	5	17	2	-	-	-	24	
11	3	8	A, A2 & B	4	10	4	2	5	3	28	rabbit, GNP, Equid
27	4	1	B		94	1	-	-	-	95	Equid, goose (Anser), neonate pig
5	5	7	A, A2 & B	3	9	5		5	-	22	goose (Anser), duck (Anas - mallard size), Werdix, GNP
8	6	2	A	2	5	1	1	1		10	GNP
9	5-6	4	A & B	1	5	-	3	1		10	rabbit, crab claw
11	Unphased	6	A & B	5	5	2	1		1-	14	fallow deer, antler
107	Total (assessment)			24	149	16	9	34	3	235	GNP, Equid
214	Total (estimate for full assemblage)			48	298	32	18	68	6	470	

GNP = *Gallus/Numidia/Phasianus*

The estimate for the full assemblage does not include animal bone from the bulk samples or the elevation

Table 19 Number of ageable mandible and measurable elements

Ageable mandibles											
Phase	No. of contexts	Area	Cattle	Sheep/Goat	Pig	Total	Cattle	Sheep/Goat	Pig	Other	Bird
1	7	A & A2		1		1	0	3	1		15
2	5	A & B	-		1	1	6	1	1		
3	7	A, B, & A2		-	1	1	3	4			13
4	1	B	-	-	-	-	2	6		1	-
5	7	A, B, & A2	1			1	1	2			2
6	2	A	1	-		1	2	5		1	
5-6	4	A & B	1				1	2	4		2
unphased	6	A & B	-	-		-	7	3			1
Total (assessment)			3	3	-	6	21	58	2	4	22
Total (estimate for full assemblage)			6	6		12	42	116	4	8	44

RESULTS

The state of preservation of the bone from Sandford Street, with the exception of just one or two contexts, was excellent. There was, however, extensive evidence for gnawing, principally by carnivores, probably dogs and/or cats, and rodent gnawing was also noted on bones from a number of Phase 5 and Phase 6 contexts. The main species represented in the assemblage was sheep/goat, followed by bird, principally galliforms (probably chicken), cattle, and pig. Other species represented by occasional bones or teeth were horse, cat (1 juvenile humerus), dog (1 phalanx), duck, goose, and rabbit. Fallow deer was represented by a shed antler from context 3230, although no post-cranial bones of this species were recorded. One crab fragment was noted from context 3052, while a number of fish bones was recorded in both the hand-collected (Table 18) and sieved (Table 16) assemblages.

The most interesting feature of this assemblage was the high frequency of ovicaprid metapodia and phalanges which were recorded, almost to the mutual exclusion of any other specimens, from a cobbled surface (3139). Knife cuts, located on the proximal epiphyses of metapodials, were noted on only three of these 94 bones. The nature of this assemblage is suggestive of primary butchery waste or possibly waste from industrial activity such as tanning. Cattle horncores were also noted to predominate in a small assemblage from a 16th-century tanning pit (F366).

The number of ageable mandibles recorded was limited and no ageable pig mandibles were noted (Table 19). The number of measurable bones was greater, with the largest number of these being caprine metapodials from Phase 4, although cattle and bird bones also contribute a number of suitable elements.

A more detailed study was made of the remains from the garderobe (F448), a small assemblage of animal bones being recovered from the residues and flot of a sample from this feature. Amphibian, bird, fish, and mammal bones are all represented in the sample. The widest range of species is represented by commensals which include Passeriformes of house sparrow size (*Passer domesticus*), thrush/starling (*Turdus/Sturnus*), field vole (*Microtus agrestis*), and amphibians (frog/toad). Also noted was the semi-complete skeleton of a chicken (*Gallus gallus*), probably of a hen as there was no spur or scar on the tarsometatarsus. A lateral third phalanx of a pig and unidentified bones of small-sized fish were also present.

A similar range of species was recovered from disused pits in the keep at Dudley Castle (R. Thomas pers. comm.). The pig and fish bones were probably deposited as part of the gut content of the occupants. The partial remains of the hen were probably discarded, suggesting that they also used the garderobe as a rubbish pit. It is probable that the garderobe acted as a pitfall trap and that the bones of small mammals and amphibians derive from the natural mortalities of animals that fell in. The presence of amphibians in the pit suggests that there was marsh or standing water nearby, while the occurrence of a field vole suggests that grasslands or open fields also existed close-by at this time.

THE MINERALISED PLANT ASSEMBLAGE FROM THE CESSPIT *by Marina Ciaraldi*

A preliminary assessment of the plant remains from various features revealed that, although the preservation of charred remains on this site was poor, mineralised organic remains were present in a single sample collected from the bottom fill of the medieval garderobe (F448; Ciaraldi 2000).

METHODOLOGY AND IDENTIFICATION

A ten-litre sample was taken from the base of the cesspit (3234) and was processed by bucket flotation. The light fraction (flot) was recovered on a 500 µm mesh, and the heavy fraction (residue) was recovered on a 1mm mesh. The flot was entirely sorted under a low-power microscope, while the residue was sieved using a 2mm mesh. The residue >2mm was entirely sorted under the microscope, while the <2mm residue was divided into sub-samples of 100 ml, only one of them was fully sorted under the microscope. This process of examination was made necessary by the fact that mineralised plant remains tend to be heavy and remain in the residue rather than floating to the surface of the water. The species identified are listed in Table 16 below. The number indicated has been approximated, as the seeds recovered from the sub-sample of <2mm had to be multiplied by ten.

Seeds were identified by comparison with modern reference material from the author's reference collection. In some cases, the seed testa was not preserved in the archaeological seed, and it was therefore necessary to remove the testa from the modern specimen to aid identification, as was the case for the fennel seeds (Plate 9). A single seed of common sloe (*Prunus spinosa* L.) was the typical small round shape and had rough ridges on the surface. Raspberry (*Rubus idaeus* L.) and blackberry (*Rubus fruticosus* aggr.) seeds were difficult to separate. Raspberry seeds were identified by their more prominent

hylum and elongated shape (Plate 10) and by their measurement (Jørgensen and Fredskill, 1978). Blackberry seeds were rounder and almost triangular in shape. Several fragments of fruit peel were identified as belonging to *Prunus* sp., on the basis of the cell pattern observed on their surface (Plates 11 and 12).

Fragments of straw of Poaceae were also found in the deposit. However, neither the genus or the species was identifiable. The presence of straw in cesspits is quite common (for instance, Greig 1981), and it was probably thrown into the cesspit on purpose, together with other domestic refuse, either as part of the floor covering or perhaps to reduce the smell. Several mineralised, or partly mineralised, fragments of fabric (Plate 13) were also identified, indicating that cloth was used for lavatory paper (Greig 1981). Fragments of cloth have been noted in mineralised deposits from other cesspits (e.g. Ciaraldi 2001). Some of the body parts and heads of woodlice were very well-preserved and the presence of pronounced crests allowed them to be identified as those of *Porcellio scaber* (Latreille) (Sutton 1972; Plate 14). It is very common to find the remains of woodlice in mineralised deposits, as they tend to be closely associated with cesspits and rubbish pits. The presence of calcium minerals in their exoskeleton seems to be an important factor in encouraging the deposition of calcium-phosphates minerals (Girling 1979).

TAPHONOMY

Calcium-phosphate minerals develop on organic materials either by replacing their cell structure or, more commonly, by forming a cast of the object (a pseudomorph). Calcium phosphate mineralisation occurs in richly organic deposits, such as those found in middens and cesspits (Green 1979; Carruthers 2000), where the main source of the mineral is a combination of the organic matter and the urine present in the deposit (Carruthers 2000). However, other sources can contribute to, and account for, the presence of calcium phosphate minerals. In some shallow archaeological deposits at York it appeared that the degradation of modern cement had contributed to the process of mineralisation (Kenward and Hall 2000). At Pompeii the high content of phosphate minerals in the volcanic sediment contributed to the process of preservation by mineralisation (Ciaraldi 2001). It has also been suggested (Briggs and Wilby 1996) that waterlogging accompanied by anoxic conditions can induce the process of mineralisation, although complete waterlogging of the sediment hinders it (Kenward and Hall 2000).

The existence of a waterlogged stage during the build up of the deposit from Sandford Street seems to be confirmed by the organic remains, some of which were fully mineralised, whilst others were preserved in conditions describable as waterlogged or dry. This was the case with all the seeds of elder (*Sambucus nigra* L.), raspberry (*Rubus idaeus* L.), most of the fig seeds (*Ficus carica* L.), and some of the fabric fragments (Plate 13). The occurrence of this incomplete mineralisation may be related to the nature of the underlying geology. The cesspit was cut into Keuper sandstone, the permeability of which meant that water could easily be lost or taken into the deposit. This would generate variations in the concentration of minerals and, consequently, affect their deposition. A similar type of imperfect mineralisation has been observed in mineralised deposits from sites in Leicestershire (Connor and Buckley 1999; Moffett 1993; and Monckton 1999), which were also associated with permeable deposits such as sands and gravels. The presence of calcium minerals in living organisms also plays an important role in the mineralisation process. This has already been discussed with regard to the mineralised woodlice exoskeletons (Girling 1979). However, it is also true of the calcium minerals present in the seeds of the nettle-tree (*Celtis australis* L.) (Miksicek 1987), where the thickness of the seed testa (Carruthers 2000), the permeability of the seeds, and their molecular structure (McCobb *et al.* 2001) also influence the process of mineralisation.

These factors, combined with the fact that most plant remains found in cesspits are directly associated with human consumption, contribute to an inherent bias in the composition of plant assemblages from mineralised contexts. An over-representation of plants used for food, and those which have chemical and physical characteristics that favour the mineralisation process, is generally observed. The cesspit had no external flow, and therefore the deposit discussed here, which was recovered from the bottom of the structure, is probably representative of the early period of use. However, re-mixing due to the waterlogged conditions and periodical emptying of the cesspit cannot be ruled out.

Apart from numerous mineralised plant remains, the deposit also contained a small percentage of charred plant remains (Table 20). These probably derive from kitchen waste that was discarded in the cesspit. Ashes may have been used as disinfectant or to reduce smells (Ciaraldi 2001). Numerous mineralised fly pupae and pupariae, woodlice (Plate 14), and fragments of centipedes were found in the sample, suggesting that the deposits must have been exposed to the open air for some time. Well-preserved fish and bird bones were recovered in great abundance from the deposit, as is typical of mineralised contexts.

Table 20 Sandford Street. List of charred and mineralised organic remains identified from the garderobe deposit.

Charred/ Cereals and pulses			
wheat/rye	<i>Triticum/Secale</i>	gr	1
barley	<i>Hordeum vulgare</i> L. straight	gr	2
vetch/vetchling/tare	<i>Vicia/Lathyrus</i>	s	1
Charred/ weeds			
redshank/pale persicaria	<i>Polygonum maculosa/ lapathifolium</i>	s	1
Charred/nuts			
hazelnut	<i>Corylus avellana</i> L.	sh	1
Mineralised/ Wild and cultivated fruits and nuts			
fig	<i>Ficus carica</i> L.	s	121
apple	<i>Malus domestica</i> L.	s	33
sloe	<i>Prunus spinosa</i> L.	st	1
elder	<i>Sambucus nigra</i> L.	s	23
blackberry	<i>Rubus fruticosus</i> aggr.	s	20
raspberry	<i>Rubus ideaus</i>	s	100
hazelnut	<i>Corylus avellana</i> L.	sh	1
Mineralised/ Plants of economic importance			
oats	<i>Avena</i> sp.	gr	1
broad beans	<i>Vicia/fabab.</i>	hyl.	2
vetch/vetchling/tare	<i>Vicia/Lathyrus</i>	s	3
fennel	<i>Foeniculum vulgare</i> L.	s	37
Mineralised/ Weeds or wild species			
opium poppy	<i>Papaver somniferum</i> L.	s	1
corncockle	<i>Agrostemma githago</i> L.	testa	1
pimpernels	<i>Anagallis</i> sp.	s	1
common hemp-nettle	<i>Galeopsis tetrahit</i> L.	s	1
cleavers	<i>Galium aparine</i> L.	s	2
thistle	<i>Carduus/ Cirsium</i>	s	1
knapweeds	<i>Centaurea</i> sp.	s	1
? knapweeds	? <i>Centaurea</i> sp.	s	2
greater quaking-grass	<i>Briza maxima</i> L.	s	1
meadow grasses	<i>Poa</i> sp.	s	1
medium grasses	Poaceae medium	s	48
Other mineralised remains			
"apple skin"			numerous frags
straw			xx
leaf (residue)			1
cell patterns			x
Undetermined seeds			xxx
mineralised lumps			x
worm-like fragments			x
woodlice			xxx
fly pupa and pupariae			xxx
textiles			xx

THE PLANT ASSEMBLAGE

The plant remains that were recovered include only a limited number of species. These have been arranged into different groups in Table 20, according to their most likely use or association. This grouping is, however, only hypothetical, and has been adopted to simplify discussion, and it has to be borne in mind that some species could be grouped into more than one category. The few charred remains found in the deposit include barley (*Hordeum vulgare* L.), wheat or rye (*Triticum/Secale cereale*), and a few wild plants including hazelnuts (*Corylus avellana* L.). It is also worth noting the presence of a few seeds of vetches (*Vicia/Lathyrus*), a plant commonly found as a cereal weed but one that is known to have been cultivated in medieval England (Campbell 1988).

In comparison, the mineralised assemblage includes a wider number of species, with the presence of both cultivated and wild fruits being noted, as well as spices, cereals, pulses, and a few weeds. Fig pips

(*Ficus carica* L.) were the most abundant seed present. However, this is typical of mineralised assemblages, and does not necessarily reflect their importance in the diet of the inhabitants of the site. Also, it may simply reflect the high yield of seeds in figs. Figs were probably eaten as dried fruit, and their import from Mediterranean countries is well documented during the medieval period (Dyer 1989). It is, however, possible that figs were cultivated in England, as fig trees nowadays grow in the wild in some of the southern regions of England and Wales (Stace 1997). Greig (1996) suggests that although dried figs were imported, they were not necessarily a luxury item during the medieval period.

Apples (*Malus domestica* L.), together with pears, were amongst the most common fruits available in medieval England (Greig 1996), as is reflected in their abundance in the plant assemblage from Sandford Street. They were commonly cultivated in orchards and it is very likely that they were grown locally in Lichfield. Only a single sloe stone (*Prunus spinosa* sbsp. *microcarpa*) was recovered from the deposit. However, there were also several fragments of skin probably belonging to the genus *Prunus* (figs. 5a and 5b). Sloes were picked from the wild, and were commonly used in hedges (Greig 1996). The fruit of the sloe is very tart and has an acid taste and a high concentration of tannins (Stary 1991). They become more palatable when cooked or oven-dried (Greig 1996) and were generally used to make jams. The scarcity of sloe stones and the relative abundance of peel fragments also suggests such a use. Raspberries (*Rubus ideaus* L.) were also probably collected from the wild as they are often to be found in woodland, but it is also known that they were cultivated in gardens and orchards (Greig 1996). Elder (*Sambucus nigra* L.) and hazelnuts (*Corylus avellana* L.) were, however, certainly gathered from the wild. Elder berries and flowers were used in jams and drinks, and hazelnuts could be stored for consumption throughout the year.

The mineralised hyla of the broad bean (*Vicia faba* L.), and a few seeds from vetches were the only evidence for the consumption of pulses. These are generally under-represented in archaeological assemblages, but they are known to have been cultivated during the medieval period as field crops (Campbell 1988; Ciaraldi in press), as well as horticulturally (Green 1983). The sporadic appearance of pulses on archaeological sites makes it quite difficult to understand whether they were widely consumed or limited to a certain social group. The only spice present in the assemblage was fennel (*Foeniculum vulgare* L.), a plant which was introduced into England but which escaped from cultivation and is widely naturalised nowadays (Stace 1997). During the medieval period its seeds were often used to flavour meat and fish dishes.

Plant remains recovered from drains and cesspits are not exclusively evidence of food consumption, and they can also be related to the use of plants for their medicinal properties (Dickson 1996; Ciaraldi 2001; Ciaraldi in press). Some of the seeds found at Sandford Street, therefore, may be present due to their use as medicinal plants. Fennel seeds, for instance, have well-known medicinal properties, rich as they are in essential oils, flavonoids, coumarins, and ancillary substances (Stary 1991). They were highly regarded during the medieval period (Harington 1607, cited in Greig 1981), and were commonly used to treat inflammations of the respiratory system and disorders of the digestive system (ibid; Culpeper 1995). Culpeper (1995) mentions a remedy where fennel seeds are boiled with barley and are administered to help the milk of lactating mothers. Another plant whose medicinal properties are well attested is the common hemp-nettle (*Galeopsis tetrahit* L.). The flowering stems can be used in the treatment of catarrh, infections of the respiratory system, and tuberculosis (Stary 1991).

Common sloe, apples, blackberries, and raspberries have also been found in medieval deposits from other sites in the Midlands, such as Worcester Deansway (Moffett 1995) and Leicester (Moffett 1993; Monckton 1999). One notable difference between Sandford Street and these other sites is the absence of grape (*Vitis vinifera* L.) from the plant assemblage. The assemblage from a medieval barrel-latrine excavated in Worcester (Greig 1981) is remarkably similar to that of Sandford Street. Despite the different types of preservation (the Worcester deposit was waterlogged, not mineralised) sloe, apple, fig, and fennel seeds were noted in the Worcester deposit, which also contained grape seeds. The grape is commonly found in mineralised deposits, but is absent from Sandford Street. The absence of grape and other exotic plants suggests that the occupier of the site at Sandford Street was not particularly wealthy.

DISCUSSION

The plant species found in the garderobe deposit from Sandford Street provide a unique opportunity to observe some aspects of the daily life of the occupants of Sandford Street during the medieval period. The plant assemblage does not include items immediately identifiable as luxury goods. However, the presence of fig seeds suggests that the occupiers had access to imported goods. The figs were probably imported from Mediterranean countries and, by the 13th and 14th centuries,

they had probably become common even on the tables of an average medieval household. The fruit species present in the plant assemblage were either collected from the wild or cultivated in orchards and gardens. Vegetable gardens and orchards represented an important part of the medieval economy, and were a particularly common feature of monastic sites, where a wide variety of fruits were grown for internal consumption, as well as to supply local town markets. Thus, the adjacent friary may be the source of at least some of the fruit found on the site, as well as the beans and fennel, as they were normally grown in vegetable gardens too.

Given that the deposit represents what has passed through the human gut, the presence of some of the plants in the assemblage, such as fennel and hemp-nettle, is particularly interesting in that they may have been taken for their medicinal qualities. The use of medicinal plants in the past is little explored and deserves a better understanding. It is worth mentioning that knowledge of the pharmaceutical proprieties of plants was traditionally associated with monasteries and priories, which used to maintain physic gardens within their walls. In this respect the proximity of the site to the Franciscan friary is intriguing as they often included infirmaries and dispensaries.

The plant assemblage recovered from the garderobe at Sandford Street, though small, provides an important contribution to the understanding of the plant economy of medieval Lichfield, and is of particular importance due to the general lack of similar assemblages from other sites in the town. The presence of plants traditionally cultivated in orchards and vegetable gardens is of interest, as their presence suggests the existence of cultivated open spaces within the medieval town bounds, and suggests that they were important in the economy of the town.

DISCUSSION *by Kirsty Nichol and Stephanie Ratkai*

Evidence for prehistoric activity or occupation within the bounds of the city of Lichfield itself is limited. However, evidence for a Neolithic settlement was located on the site of the Theological College in the Cathedral Close in 1977 (Carver 1982, 5). Other evidence relating to this period is represented by a handful of chance finds (Gould 1976, 9) and small quantities of residual material from excavations where they were not associated with any archaeological features (Hodder 1982, 15). Similarly, a single retouched flake of later prehistoric date was recovered from one of the 16th- or 17th-century tanning pits in Sandford Street, and must be seen, along with the other finds, to represent an, as yet, ill-defined prehistoric presence in the archaeological record.

Evidence for the Romano-British period in Lichfield is also scanty. The principle focus of settlement during this period was Wall, or *Letocetum*, to the south-west of Lichfield itself. However, Roman finds from the town include pottery (Carver 1982, catalogue 3.1-3.2), coins, (ibid, catalogue 3.4), and a possible burial (ibid, catalogue 3.3). Roman tile was also excavated from what was probably a Middle Saxon context in the Cathedral Close (ibid, catalogue 3.5). Interestingly, a large ditch and a pit, on a second site at 15, Sandford Street, also produced a small quantity of Roman building material. The Roman material is probably residual and associated with Anglo-Saxon activity, a relatively common feature of Anglo-Saxon sunken floored buildings being that Roman pottery and building materials are often found within the fill.

According to Bede, the Mercian bishop Chad was given Lichfield as his seat in 669 and was interred in the first cathedral there in 700 (Gould 1976, 8). Despite these references, Saxon finds from the town are, again, extremely rare. Before the recent excavations at Sandford Street, there was no definitive evidence for occupation in this area of Lichfield prior to the 13th century. However, the presence of five Early-Middle Saxon sherds from the site, in combination with the findings from 15, Sandford Street, suggests that this may need to be revised.

The excavated evidence reveals that settlement on the north side of Sandford Street took place some time in the 13th century, almost a century after the creation of the planned town by Bishop Clinton. This is not unusual in itself, as the peripheral areas of planned towns were often occupied later than those in the centre. It may have been the founding of the Franciscan friary, immediately to the south of the site, in 1237 that stimulated this growth. It is also possible that the laying out of Sandford Street itself dates to this period of expansion, which may explain its disparity within the overall layout of the planned town. A notable feature of Sandford Street is the dogleg that occurs as the road leaves what was believed to have been the medieval town bounds. There are several references to the town being bounded by a ditch, including a late 13th-century reference to *afossatum ville* (Bassett 1982, 112), but the exact line and location of the ditch has been a matter of debate. This is the first excavation in Lichfield to have encountered the ditch, albeit a small section, and

pottery from the primary fill indicates a 13th-century date. However, whether the dogleg was contemporary with the ditch, or whether it was a post-medieval realignment, remains unclear, as no evidence of a medieval road was observed during the recent excavations. The road was probably located outside the ditch, between the town and the Sandford Brook, where it is today, and thus outside the area of excavation. If this was the case, then the site of the Sandford Gate, for which there are medieval references, was in all probability immediately to the south of the site where the road would have crossed the ditch into the town.

It is impossible to say exactly when the earliest building was constructed on the site. The only structural evidence remaining in the archaeological record was a carefully-constructed stone-lined garderobe, or cesspit, of some proportions (it had a capacity of over 7m³), and two elongated pits which may have been internal features of the structure. Pottery from the base of the garderobe dates to the 13th century. However, cesspits such as this were regularly cleaned out and emptied by companies of 'gong-farmers' who carted the rubbish and excrement away, and so we are probably not looking at the first use of the latrine. Similarly, due to the lack of evidence for the superstructure of the building, it is almost impossible to say what the building looked like. In terms of layout, however, the garderobe appears to have been built on to the rear of the structure, and could have been accessed from either ground level, as seen as Baddesley Clinton, Warwickshire, or from the upper storey of the building, via a chute.

The sheer size of the garderobe suggests that an important, relatively high status building occupied the frontage during the 13th century. Whilst we cannot be sure of the date of construction, pottery evidence suggests that the garderobe was no longer in use by the 14th century. Deposits within the latrine also reveal that abandonment of the site was not due to fire, and it may rather be the case that the structure was dismantled and moved elsewhere at this time, when stone from the upper part of the garderobe was also robbed out. It is most likely that the building was timber-framed, rather than being of stone construction, which is why no evidence of foundations was discovered. The building may simply have been moved or dismantled and moved in parts. The mobility of timber-framed buildings has been discussed by Moran and Smith (Moran 1989; Smith 1985) with reference to 17th-century structures. What is again interesting is that Smith noted that the historical documents relate to houses, rather than cottages, being moved, which implies that it was the size and style of the building that warranted its dismantling and re-use. This and the presence of the garderobe may be suggestive of a degree of wealth and status.

Whilst the garderobe itself could be interpreted as a physical sign of the wealth and status of the occupants, the artefactual and ecofactual evidence does not appear to corroborate this. Pottery from the garderobe included roughly equal quantities of tablewares and kitchenwares, all of which were relatively low quality, with the tablewares being predominantly jugs. The faunal evidence reflects that the inhabitants had a fairly diverse diet, and the presence of fig pips is suggestive of a degree of sophistication and wealth which is interesting. Figs were routinely categorised as a spice in the medieval period, and were recorded as costing *VAd.* for 21bs in the mid 15th century. In comparison, *Id.* bought 2¼lbs meat or nine herrings in the late 14th century, and earlier in that century 8d. bought a capon baked in pastry, 4d. a roast rabbit, and 6d. one gallon of sweet wine from Gascony or Spain. In 1337 a skilled craftsman could earn 6d. per day (Hammond 1993). Comparatively then, figs do not appear to be cheap and their use in aristocratic recipes, often in conjunction with raisins, pine nuts, and other Mediterranean imports, is well attested in cooking manuals (cf Renfrow 1991). Figs are also mentioned in aristocratic accounts and ecclesiastical accounts, and were often used to vary the diet during Lent (Hammond 1993). It is interesting that at the Sandford Street site the fig seeds were found with an abundance of fish bones, and their presence together may be evidence of fast day observances. Fig seeds were also present in the keep garderobe at Dudley Castle in an early post-medieval context where they were definitely associated with high-status occupation, evidenced not particularly by the pottery but rather by the very large assemblage of glass vessels, including *cristallo* and *fagon de Venise*. Unfortunately the range of vessel forms at Sandford Street in the 13th and 14th centuries does not seem to differ much from those found on rural sites such as Drayton Bassett (pers. comm. D. Ford), Minworth Greaves (Ratkai 2001), and Wishaw (Ratkai 2002). With the exception of one or two vessels, there was nothing in the Sandford Street assemblage to suggest unusual or sophisticated cooking methods.

Evidence for the status of the occupants in this period is therefore equivocal. The environmental evidence raises questions regarding the wealth and social standing of the occupants. However, this is based only on the primary fill of the garderobe which, by its very nature, can only represent what has passed through the gut, giving only a partial representation of the lifestyle of the inhabitants.

Unfortunately the number of animal bones (Murray above) from Phases 1 and 2 activity on the site is not large enough to enhance our understanding of the medieval diet and its possible status. The presence of textiles in a latrine/rubbish pit context, however, does suggest an element of wealth. For, although the cloth was simple and not the velvets and silks found in a garderobe at Dudley Castle (pers. comm. Ratkai), cloth was routinely recycled and not simply discarded.

The juxtaposition of the artefactual remains with what was a rather grandiose latrine demands more thought. The garderobe from Sandford Street is on a par with those excavated at very high-status sites, including castles such as Dudley, yet the inhabitants appear not to have lived a comparable lifestyle. One hypothesis is that following the settlement of this area of the town and, possibly, the construction of the Sandford Gate, the building may have been an inn. Its proximity to the gate meant that it would have been well placed to attract passing pilgrims as they entered the town *en route* to the shrine of St Chad and the Cathedral. Thus the kiln, which was situated to the rear of the building and was contemporary with the structure, may actually have been a bread oven. This hypothesis may also account for the lack of environmental evidence from within its fill and explain the preponderance of jugs found in the garderobe itself. No documentary evidence, however, survives for an inn on the street during this period (VCH Staffs 1990, 12).

During the early 1300s Lichfield grew as a trade centre, with the major Whitsun fair being extended to 15 days and other fairs being added (ibid.). Pilgrim traffic to the town was another important economic benefit, which must also have influenced the social life of the community. With this in mind, one would expect to see a rather better standard of living in a town where there was greater access to a wider variety of foodstuffs and other commodities, but such consumer choice was not clearly represented by the pottery assemblage of the 13th–14th centuries. Nor indeed was it obvious from the ceramics that the occupants had a wider range of commodities from which to choose. Following the abandonment of the site and the dismantling of the structure in the 14th century the area appears to have been left as open ground. By the 15th century there was a change in the relative frequency of vessel types, with vessels associated with drinking, brewing, and storage being to the fore, the latest late medieval to early post-medieval pottery being represented by Tudor Green type ware and Cistercian ware, both primarily table wares rather than kitchenwares. They are not uncommon in an urban setting where standards of living and general sophistication were generally somewhat higher than in rural settlements. Nevertheless, their presence in Sandford Street suggests occupancy of middling status or above during this period, which was also characterised by the digging of pits across the site, and includes a possible pit alignment. However, once again, there is no structural evidence for buildings of the period.

Following the Dissolution, the area appears to have taken on a more industrial character, with tanning taking place from the 16th century onwards. The ceramic evidence also suggests a drop in the intensity of occupation during the early post-medieval period, particularly in the 17th century, when pottery was not common. Speed's map of 1610 shows little evidence of activity, with the whole of the northern side of Sandford Street standing empty. However, the evidence of the relic timber framing in the adjacent standing building shows that there was at least one building standing on the site at that time.

The area was more intensely occupied during the 18th century, which is reflected on Snape's Map of 1781 and also by a number of 18th-century buildings still standing along the street. Skin working, which begun in the 16th century, continued on the site during the 18th century, eventually declining only in the 19th century. This is consistent with a general decline, across England, in provincial tanning centres (pers. comm. Schwarz), and is reflected by the conversion of the Skin House to a malthouse by the mid 19th century.

Throughout their history these plots on Sandford Street appear never to have been occupied by particularly affluent residents. Rather, this part of Sandford Street appears to have been the focus of specialised crafts and industry from the 16th century onwards, and was most probably an industrial suburb of the town occupied by artisans.

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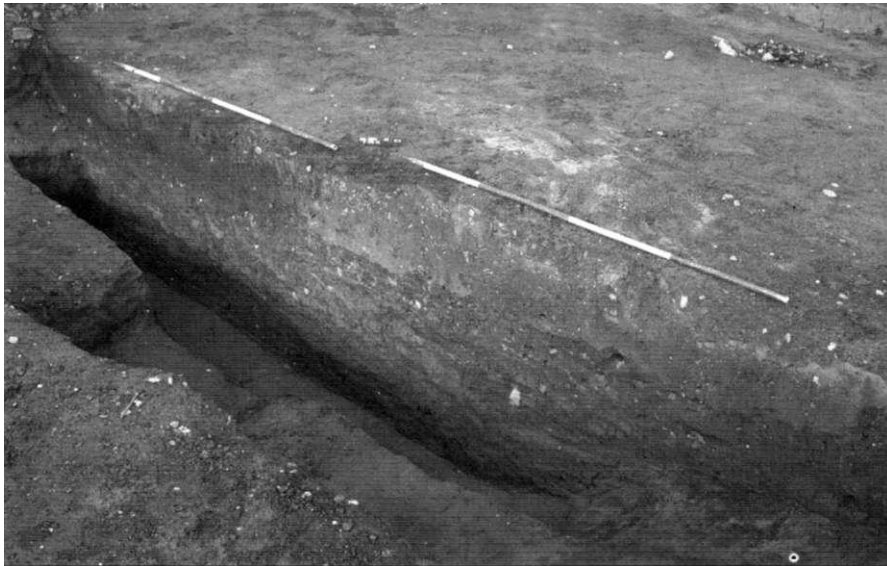


Plate 1 Town boundary ditch



Plate 2 Garderobe



Plate 3 Detail of stone lining of garderobe

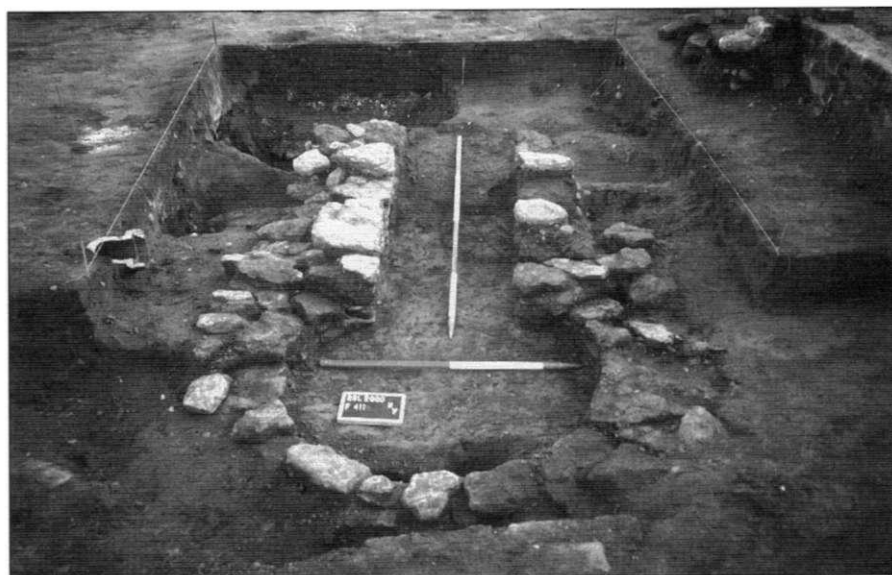


Plate 4 Kiln/oven

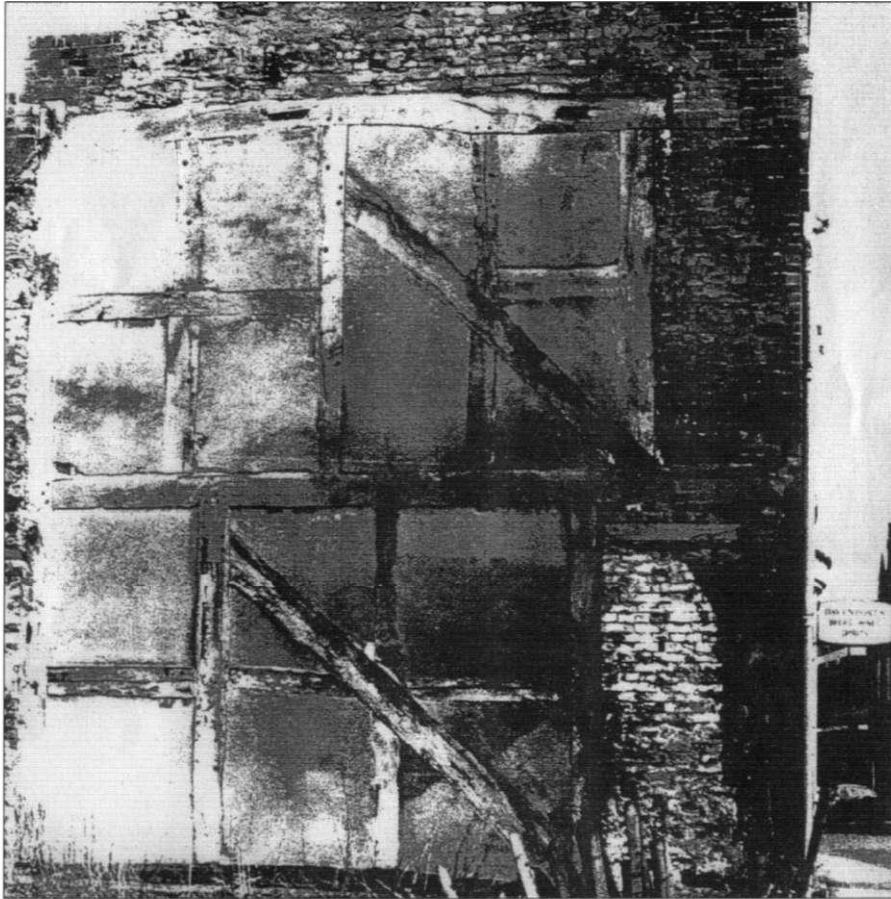


Plate 5 Detail of timber framing in the southern elevation of the adjacent building

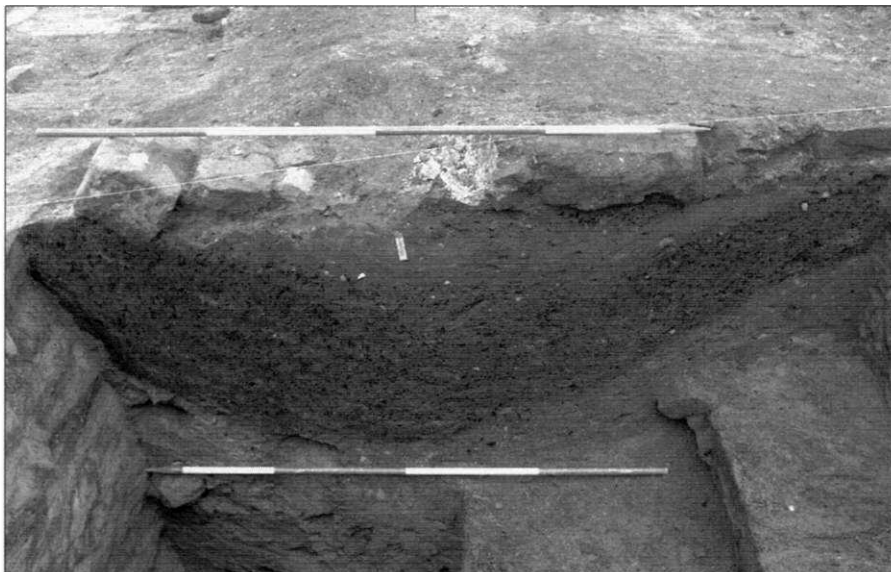


Plate 6 Large 15th-century pit dug into the top of the backfilled garderobe

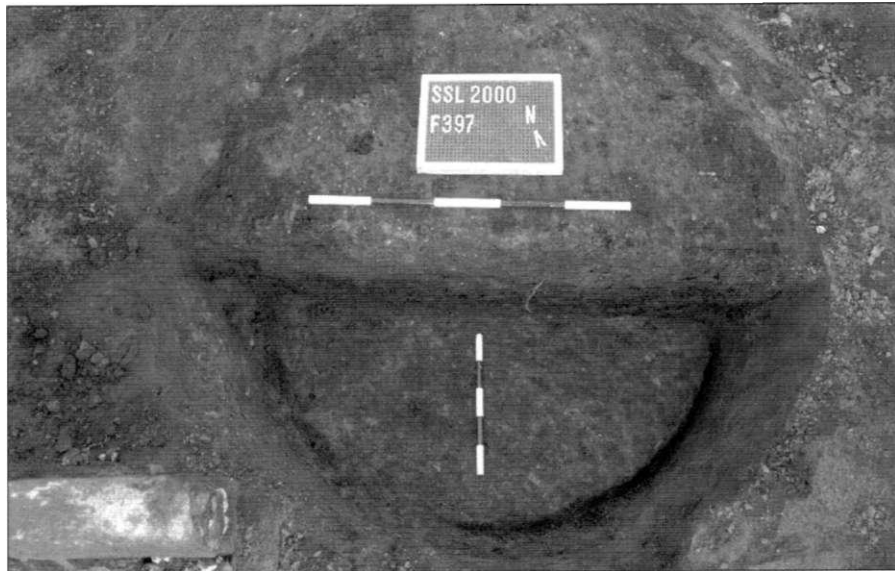


Plate 7 Tanning pit



Plate 8 Town ditch and 18th-century boundary wall

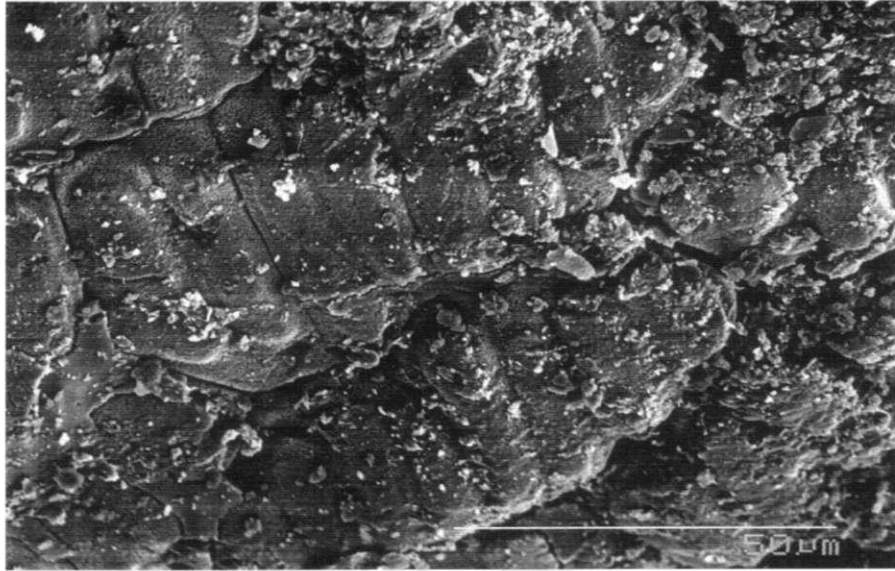


Plate 9 Cell pattern of mineralised fennel (*Foeniculum vulgare* L.) seed. SEM x 1K

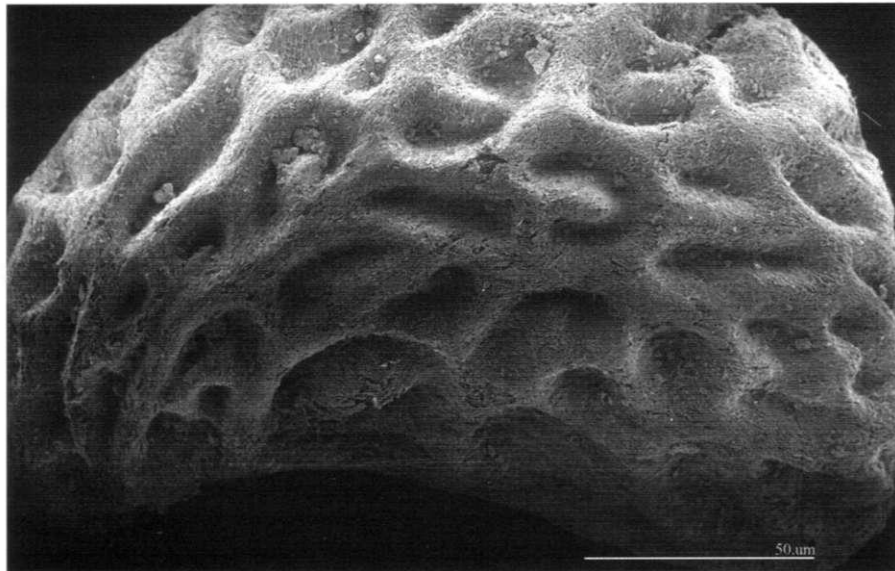


Plate 10 Partly mineralised seed of raspberry (*Rubus idaeus* L.). SEM x 60

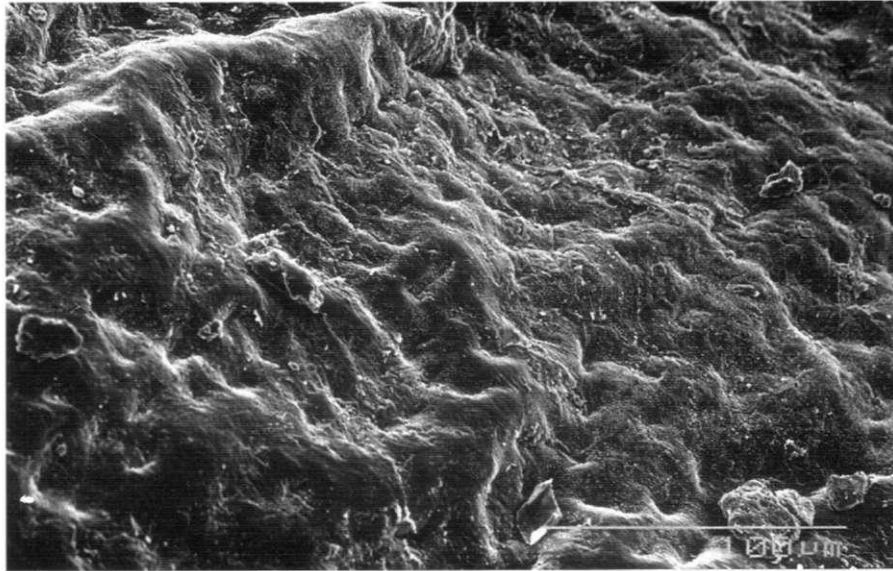


Plate 11 Modern skin surface of modern sloe (*Prunus spinosa* L.). SEM x 400

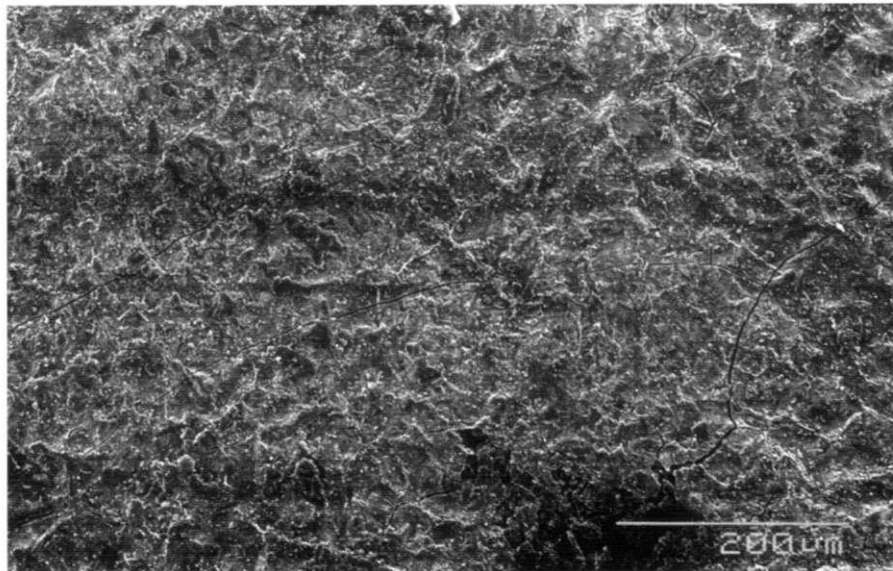


Plate 12 Mineralised specimen of *Prunus* sp. skin from the garderobe. SEM x 150



Plate 13 Partly mineralised fragment of fabric from the garderobe. SEM x 1.5K

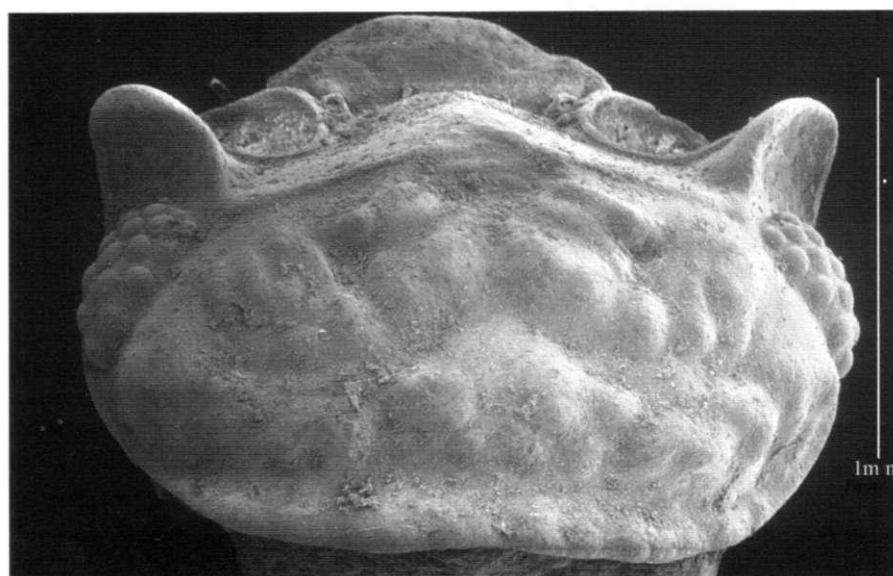


Plate 14 Mineralised head of woodlouse (*Porcellio scaber*). SEM x 50

'SOME SARDINE OIL': LICHFIELD CATHEDRAL'S UNFISHY RELIC

R. N. SWANSON

The Lichfield sacrist's account of 1345 is one of the most detailed and significant documents on the spiritual and artistic treasures of that cathedral before the Reformation. Tucked into the list of relics is an enigmatic entry: 'De oleo sardine'. The editors of the list not surprisingly found this perplexing. In their translation, the entry is rendered as 'Some sardine oil', with a plaintive comment in the annexed note that they did not know what to make of it.¹ No corresponding entry appears in the next surviving relic list for the cathedral, compiled in 1445.²

In fact, this 'sardine oil' has nothing whatsoever to do with sardines. The relic was a proper relic (although there is, of course, no guarantee that it was genuine); once accurately identified it sits along some of the other relics in the collection - such as the fragments from Calvary and Golgotha³ - as evidence of the emotional link between any church and the Holy Land, integrating a cathedral on the edge of Christendom into the totality of the catholic faith as a geographical and spiritual whole.

The oil - for it would have been oil - can actually be identified as a souvenir of a visit to one of the odder shrines of the Levant, at Saidnaya, a few miles north of Damascus. The icon of the Virgin in the convent there was famed for its effusions of oil. A regular western spelling of the place-name was 'Sardeney', and it is easy to see how this would transform into a Latin form which ended up as 'sardine'. The miraculous icon made Saidnaya a noted pilgrimage site for the local Orthodox population, and also for Moslems, particularly at the Virgin's Assumption (15 August) and Nativity (8 September). The place was also frequented by catholic pilgrims during the existence of the crusader states, and well into the 14th century.⁴

Lichfield's relic must therefore be considered a pilgrim's trophy, but exactly who brought it back, and when, is unrecorded. It may have been acquired before the fall of Acre in 1291; a romantic fiction might identify its donor as Edward I, who became king during his time as a crusader in the east, and who made other more prosaic gifts to Lichfield cathedral.⁵ Unfortunately, there is absolutely no evidence to substantiate such a reconstruction. All that is known of it is the single citation in the 1345 account, before it passed into the oblivion from which even the editing skills of J. C. Cox and W. H. St. John Hope were unable to rescue it.

1 J. C. Cox, 'Catalogue of the Muniments and Manuscript Books pertaining to the Dean and Chapter of Lichfield; Analysis of the Magnum Registrum Album; Catalogue of the Muniments of the Lichfield Vicars', *Collections for a History of Staffordshire*, vi (2) (1886), 200-207, 214 (n. 11).

2 Shrewsbury, Shropshire Records and Research Centre, 6001/2, f. 94v. (This has been calendared by the present writer in 'Extracts from a fifteenth-century Lichfield cathedral chapter act book', in *Staffordshire Historical Collections* (Staffs. Record Society), 4th series, xx (forthcoming)). The 1445 list includes some 'oil of St. Katherine', so the original identification (rather than the oil itself) may have been lost.

3 Cox, 'Catalogue', pp. 199, 207.

4 For the shrine and its history see B. Hamilton, 'Our Lady of Saidnaya: an Orthodox shrine revered by Muslims and Knights Templar at the time of the crusades', *Studies in Church History*, 26 (2000), 207-15.

5 Cox, 'Catalogue', pp. 200, 203-8, 210.

TOUCHING FOR THE KING'S EVIL: JAMES II AT LICHFIELD IN 1687

DAVID J. APPLEBY and NIGEL J. TRINGHAM

Scrofula, a tuberculous infection caused by mycobacteria, manifests itself in swollen lymphatic glands in the neck. Although the swelling is usually painless, if left untreated it can lead to ulceration and fever. The belief that it could be cured by the touch of a monarch, being the Lord's anointed, caused the condition to be known as 'the king's evil'.

The concept of curing the sick by royal touch appears to have originated in France, and it was possibly introduced to England after Edward the Confessor returned from the Continent to claim the English crown in 1042.¹ The disease was known as the 'royal sickness' and as the 'king's evil' towards the end of the 11th century,² and the custom of touching sufferers was regularised in the 13th century. The ceremony appears to have declined in popularity after the death of Edward III, but was revived by Henry VII soon after he won the throne in 1485. A quasi-religious service was introduced and the practice of touching the sufferer's sores with a gold coin popularly known as an 'angel' replaced the penny given by previous rulers.³ The 'angel' was pierced in order that the sufferer could wear it around the neck as a charm.⁴

After the Reformation, it is noticeable that periods of Calvinist ascendancy corresponded with a dearth of royal touching, and the practice appears to have fallen from favour during the reign of Edward VI. It scarcely needs to be said that no public ceremonies took place during the Commonwealth and Protectorate, although Cromwell was maliciously accused of trying to heal the afflicted with a royal touch, and William III also resolutely refused to indulge in a practice he considered popish mummery. In the 18th century James Boswell registered strong disapproval when he recorded that the young Samuel Johnson had been taken by his mother to London in 1712 to receive the healing touch of Queen Anne. Boswell 'ventured to say to him ... that his mother had not carried him far enough; she should have taken him to Rome'.⁵

In addition to religious nuances, the political subtext of the king's evil had become obvious during the reign of Charles I, when the 'angel' was replaced by a specially minted coin bearing the motto *Amor Populi Praesidium Regis* ('The love of the people is the king's stronghold').⁶ Between 1626 and 1638 seventeen proclamations had regulated the ceremony and, more importantly, the eligibility of sufferers to receive the royal touch: the proclamation of 18 June 1626 established the requirement that candidates first obtain a certificate from the minister and churchwardens of the parish confirming their affliction.⁷ In 1633 a form of service for the curing of the king's evil was incorporated into the Book of Common Prayer, and to his captors' irritation, Charles I continued to perform the ceremony even whilst held prisoner at Holdenby House after the first Civil War.⁸

After his father's execution, Charles II practiced the royal cure whilst in exile on the Continent,⁹ and the Restoration of 1660 brought with it a huge surge in the number of candidates to be cured by the royal touch. Between 1660 and his death in 1685 Charles touched more than 92,000 sufferers - including Germans, Dutch, and French.¹⁰ The spectacle was recorded by John Evelyn in a diary entry for 6 July 1660:

... his Majestie sitting under his State in the Banqueting House, the Chirurgeons cause the sick to be brought or led up to the throne, where they kneeling, the King strokes their faces or cheeks with both his hands at once, at which instant a Chaplaine in his formalities says 'He put his hands upon them and he healed them'.

1 For more discussion of the origins of the king's evil, see Marc Bloch, *The Royal Touch: Sacred Monarchy and Scrofula in England and France*, trans. J. E. Anderson (1973), 12-21, and Sir Raymond Crawford, *The King's Evil* (1911).

2 D. C. Douglas, *William the Conqueror* (1964), 254-5.

3 W. E. Tate, *The Parish Chest* (3rd edn., 1983), 157.

4 An example of a pierced angel can be seen at the Fitzwilliam Museum in Cambridge. At the time of writing (2003) this can be viewed on the museum's website: <http://www.cm.fitzmuseum.cam.ac.uk/coins/coinofthemoment/angel/angel.html>

5 James Boswell, *Life of Johnson* (Everyman edn.), i. 16-17 (cited in Tate, *Parish Chest*, 159-60).

6 Tate, *Parish Chest*, 157 (where the legend is translated as 'The love of the folk is the bulwark of the king').

7 Ibid. 158.

8 Bloch, *Royal Touch*, 208.

9 Report from Brussels to Secretary Thurloe in *Thurloe State Papers* (London, 1742), vii, p. 225.

10 Bloch, *Royal Touch*, 212. Tate records that 90,798 sufferers received the royal touch between 1660 and 1683: Tate, *Parish Chest*, 58. Also see also Ronald Hutton, *Charles II* (1989), 134, 403.

This is said to every one in particular. When they have all been touch'd, they come up againe in the same order, and the other Chaplaine kneeling, and having Angel gold strung on white ribbon on his arme, delivers them one by one to his Majestie, who puts them about the necks of the touched as they pass, whilst the first Chaplaine repeats: 'That is the true light who came into the world'. Then follows an Epistle (as at first a Gospel) with the Liturgy, prayers for the sick, with some alteration, lastly the blessing; and the Lo. Chamberlaine and Comptroller of the Household bring a basin, ewer and towel, for his Majestie to wash.¹¹

As the Lord Chamberlain, the Earl of Manchester, was a Presbyterian and a former parliamentarian general, his feelings at being forced to participate in such a ceremony must have been particularly mixed. For other Englishmen the ceremony quickly proved a popular spectator sport. Pepys recalled in his diary entry for 23 June 1660 that he had waited to see the king perform the royal touch in London:

But he did not come at all, it rayned so; and the poor people were forced to stand all the morning in the rain in the garden. Afterward he touched them in the Banqueting House.¹²

With over 600 sufferers present, the events of 23 June appear to have descended into confusion and chaos.¹³ Thereafter the ceremony of the royal cure was held every Friday, usually at the Banqueting House in Whitehall, with numbers restricted to 200 per session. A new gold medal, bearing the legend *Soli Deo Gloria* ('Glory be to God alone'), was introduced, and as the demand for the touch continued unabated new requirements were imposed for parish certificates and for the efficient recording of candidates.¹⁴

Such a high degree of organisation contrasted with the situation in France. French monarchs performed the ceremony of touching only on particular festival days such as Easter. If the king suffered an indisposition and the ceremony was cancelled, the crush of sufferers became all the greater on the next occasion. Both Louis XIII and Louis XIV consequently often found themselves asked to lay hands on thousands of sufferers at one sitting.¹⁵ The crowd, moreover, was inflated by sufferers from Spain and Italy, as the Habsburg rulers of southern Europe did not claim to possess the miraculous gift of healing the king's evil.¹⁶ A certain amount of political rivalry was discernible between France and England regarding the gift; French writers in particular repeatedly denied the English monarchy's ability to heal.¹⁷

Pepys at last observed Charles II performing the ceremony on 13 April 1661:

I went to the Banquet-house, and there saw the King heale, the first time that ever I saw him do it; which he did with great gravity, and it seemed to me to be an ugly office and a simple one.¹⁸

For those not fortunate enough to obtain a certificate to qualify for the official ceremony, there were apparently more rustic remedies. As late as 1900 an antiquary in Essex was recommended by an aged inhabitant to

... take a live toad by fore and hind legs; draw it over the sore (to meet the sun) nine times, for three mornings running, then miss three; hang the live toad up the chimney, and as it wastes the sore will heal.¹⁹

After Charles II's death the ceremony of touching continued to enjoy considerable prominence and political significance. Under the guise of returning to the form of service used under Henry VII, James II re-introduced many Romish elements into the ceremony, such as confession, absolution, and the invocation of the Virgin Mary.²⁰ His illegitimate nephew, the Duke of Monmouth, conducted rival ceremonies of his own - presumably more Protestant in flavour - an act which was such a significant challenge to the king's authority that it later featured in Monmouth's trial for high treason.²¹ The French kings proved rather more tolerant of competition, particularly as the common

11 John Evelyn, *The Diary of John Evelyn*, ed. E. S. de Beer (1955), iii. 230-1.

12 Samuel Pepys, *The Diary of Samuel Pepys*, ed. R. Latham and W. Matthews (1970), i. 182.

13 *Mercurius Publicus*, 28 June 1660, p. 407.

14 Tate, *Parish Chest*, 158.

15 Bloch, *Royal Touch*, 204.

16 Ibid. 205.

17 Ibid. 217-8.

18 Pepys, *Diary*, ii. 74.

19 'H.W.', 'To Cure King's Evil', *Essex Review* ix (1900), 45.

20 Tate, *Parish Chest*, 158, 160. James was, if anything, even more enthusiastic to perform the ceremony than his late brother:

Bloch, *Royal Touch*, 219.

21 Tate, *Parish Chest*, 159.

superstition that seventh sons possessed the gift resulted in many informal ceremonies outside Paris.²²

Except for an eclipse during the reign of William III, the ceremony of touching for the king's evil continued until the end of the reign of Queen Anne in 1714. Although spurned by George I, the king's evil retained its political significance for the exiled Stuarts: the Old Pretender was said to have been an enthusiastic and successful practitioner, as was Bonnie Prince Charlie, who carried out the ceremony during his campaigning in Scotland in 1745. Despite its disappearance from English public life, the form of service for the curing of the king's evil was retained in at least four subsequent editions of the Common Prayer Book and survived in its Latin form until 1759.²³ The last French king to perform the ceremony was Charles X in 1825.²⁴

Sufferers seeking a cure were not obliged to have recourse only to the royal touch. Springs of water attributed with healing powers were also sought out, as in the later 1670s at Willowbridge, in the Staffordshire parish of Ashley.²⁵ From the 18th century onwards, however, scrofula began to be treated by surgery. Ironically this often proved more harmful than the (medically) innocuous practice that preceded it. Many of those miraculously cured by the monarch's touch might have owed much of their recovery to the fact that their bodies and clothes were probably cleaned in preparation for the ceremony, allowing the benefits of hygiene to work on their ailment. Today, scrofula is routinely treated by a simple course of antibiotics.

* * *

Turning now to the touching at Lichfield cathedral in 1687, the evidence comes from a copy of certificated persons recorded in the parish register for the city church of St. Mary.²⁶ The text (a transcript of which is given as an appendix) records the names of those for whom a certificate had been issued in 1685 (no month), October 1685, March 1685/6, February 1686/7, and (by far the largest number of people) August 1687. The August certificates were evidently made in anticipation of James II's visit to Lichfield at the end of that month.

James's visit was part of a tour around England, intended to impress his authority following the Duke of Monmouth's rebellion and to test the loyalty of the newly constituted town corporations. Lichfield had been given a new charter of government reducing the numbers of its governing body in 1686; the new members, however, were drawn exclusively from the retiring brethren, and it is not sure to what extent they were supporters of the king. None the less they gave him 'a present' of £107 10s. when he visited the city in 1687.²⁷

Travelling from Newport in Shropshire, the king entered the city on Wednesday 31 August 1687 at about 6 o'clock, having been met at Pipehill on the western boundary by the mayor (Edward Wilson), the steward (Philip Pargeter), the sheriff (George Harding), the city's two justices (Sir John Floyer and Thomas Hammond), and its two constables (Francis Bayley and Samuel Mousley). The king stayed in a house in the cathedral close and touched for the king's evil in the cathedral on the Thursday morning. He left the same day for Coventry.²⁸

* * *

22 Bloch, *Royal Touch*, 208.

23 Ibid. 221-2; Tate, *Parish Chest*, 160.

24 Bloch, *Royal Touch*, 225.

25 *Pons Sanitatis: or the Healing Spring at Willowbridge in Stafford-shire* (1676; copy in William Salt Library, Stafford), pp. 20-24.

26 Lichfield Record Office, D. 20/1/2, reverse pages at end of volume.

27 *Victoria County History of Staffordshire*, xiv. 79.

28 T. Harwood, *The History and Antiquities of the Church and City of Lichfield* (Gloucester, 1806), 308.

TEXT

(reproduced with the kind permission of the incumbent
and churchwardens of St. Mary's, Lichfield)

Memorandum. The names of those persons that have a Certificate from the Minister and <with the>
Churchwardens <hands> to be Cured of the Disease] Commonly Called the Kings Evill as followeth.

William son of widdow Sutton in the yeare 1685

October 1685

Thomas son of John Lambe	26th
John son of Richard Basseno	
Mary daughter of widdow Baldwin	the 20th March 1685/6
Sarah daughter of Thomas Burton	"
Thomas son of Ralph Burst	"
Mary Ashford aged about 50 years	25th of February 1686/7

August 1687

Amey the wife of Thomas Wensley	the 20th of August 1687
Samuill Willington aged about 10 years	"
Ann Bennet aged about 20 years	"
Maradry Hall aged about 60 years	"
Sarah Gregory aged about 52 years	"
Mary Cobscrik aged about 45 years	"
Sarah Hill aged about 4 years	"
Priscilla & Rebecca daughters of Thomas Richards aged about 10 & 4 years	"
Margreat Cooper aged about 13 years	"
Elizabeth Barker aged about 60 years	"
Catherine Warwick aged about 60 years	"
Ellin Harris aged about 19 years	"
Mary Sadler aged about 50 years	"
Joseph Dillk aged about 15 years	"
Mary Pott aged about 23 years	"
Robert Blake aged about 14 years	"
Margery Simpson aged about 27 years	"
Mary Newton aged about 19 years	"
Samuill Birch aged about 15 years	"
Alice Evins aged about 50 years	"
Dorothy Banner aged about 38 years	"
Alice Thacker aged about 60 years	"
Mary Blakesley aged about 4 years	"
Sarah Baker aged about 22 years	"
Sarah Banke aged about 34 years	"
Elinor Williams aged about 24 years	"
Priscilla Cooke aged about 16 years	"
Jane Eld aged about 4 years	"

As followeth

[next page] anno domini 1687

Susanna Person aged about 20 years	29th of August
Deborah Morron aged about 30 years	"
Sarah Malchif aged about 43 years	"
Mary Chaplain aged about 28 years	"
Amey Wensley aged about 40 years	"
Samuill Willington aged about 10 years	"

The form that the Certificate was made when his Majesty Touch[e]d in the M[i]dle Quire of the Minster Church Lichfield Anno 1687

Wee the Ministers & Churchwardens of the parish of St. Maris in the city of Lichfield do hereby certifie that A.B. of the same City aged about *[blank]* years is afflicted as wee are credably inform[e]d with the Disease Commonly called the King's Evill and to the Best of our Knowledge hath not heretofore been Touch[e]d by his Majesty (or the Late King) for the said Disease in testimony whereof wee have hereunto sett our hands and seale this *[blank]* day of A[ugust] 1687

W.B. vie:
} Chur'

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