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Archaeological Services

Life and Death in Leicester's North-east Quarter:

Excavation of a Roman Town House and Medieval Parish Churchyard at Vine Street, Leicester (Highcross Leicester) 2004-2006

SK 583 049

Volume 2: The Specialist Reports

Edited by Mathew Morris, Nick Cooper and Richard Buckley

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Volume 2: The Specialist Reports

J Browning, R Buckley, J Carrott, H E M Cool, N J Cooper, J Crowther, J A Davies, A Forward, J Grieg, D A Higgins, A Hill, R Hopkings, E Johnson, R Macphail, P Mills, A Monckton, G Morgan, R A Nicholson, G Possnert, A RADini, S Ripper, D Sawday, D Smith, M Söderman, R S O Tomlin

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THE ROMAN POTTERY *Elizabeth Johnson*

(with Samian analysis by Robert Hopkins)

Introduction

The report begins with a methodological statement relating to the assemblage as a whole. This is followed by a detailed report on the samian ware by Robert Hopkins before returning to consideration of the assemblage as a whole by area and phase.

Assemblage Size and Condition

The stratified assemblage of Romano-British pottery comprises a total of 29,892 sherds weighing 643.269kg. The material is well preserved with an average sherd weight of 21.5g.

Methodology

The pottery from contexts associated with Roman phases of activity was separated from that found within later deposits, producing an assemblage of 21,507 sherds weighing 482.088kg, from which selected groups were chosen for detailed recording and analysis. The material was identified according to the Leicestershire Museums Fabric Series (Pollard 1994) by macroscopic and microscopic examination using a binocular microscope (x20), in conjunction with the Leicester and Leicestershire Roman pottery reference collection. Within the archive database specific fabrics were assigned to all sherds wherever possible, however in this report the generic ware groups summarised in the table below are used for clarity of quantified data presentation.

Table 1: The Roman Pottery: summary of Leicestershire Museums Fabric Series (Pollard 1994, 112-114).

Fabric Code:	Fabric Type:
Samian	Samian ware
C	Colour-coated wares
WW	White wares
OW	Oxidised wares
TN/TR	Terra Nigra/Terra Rubra
MD	Mica dusted wares
WS	White slipped wares
MG	Mixed gritted wares

Fabric Code:	Fabric Type:
AM	Amphora
MO	Mortaria
BB1/BB2	Black Burnished wares
CG	Calcite gritted (shelly)
SW	Sandy wares
GW	Grey wares
GT	Grog tempered wares

Quantification was by sherd count, weight (grams) and estimated vessel equivalents (EVEs) using rims only. Average sherd weights (ASW) have also been calculated to provide an indication of the condition of the material and levels of preservation within the assemblage. Samian ware has been included in the quantified data however, for a full discussion of the samian assemblage reference should be made to the separate report by Robert Hopkins (this volume). Vessel forms were assigned where diagnostic sherds allowed, using the Leicestershire Form Series and other published typologies (Howe *et al* 1980; Holbrook and Bidwell 1991; Pollard 1994; Tyers 1996; Clark 1999). The complete dataset was recorded and analysed within an Access database and Excel workbook, which comprise the archive records.

The Samian Ware *Robert Hopkins*

This report comprises a discussion of the samian assemblage as a whole followed by a catalogue of the decorated and stamped vessels.

Discussion

The samian assemblage from Vine Street is extremely large, comprising a total of 3116 sherds weighing a total of 34.97kg, and representing a maximum of 701 South Gaulish (27.42%), 1772 Central Gaulish (69.33%), and 83 East Gaulish samian (3.25%) vessels. The date of the assemblage ranges from the Neronian period through to the early to mid- 3rd century. Vessel loss begins during the reign of Nero, increases into the early Flavian period and declines in the late Flavian to Trajanic period. The shortage of Trajanic samian noted elsewhere in Britain may not be so significant at Vine Street, given the decline in overall samian loss in the previous decades. There is a slight increase during the Hadrianic period, and a large spike during the 140s AD. The second half of the 2nd century saw a reasonably stable vessel loss until the beginning of the 3rd century, when the volume of samian being discarded was very small indeed, probably due to the abrupt cessation of samian supply to Leicester *c.*AD 200.

Nearly all of the South Gaulish samian comes from La Graufesenque, the exceptions being two sherds of Montans fabric of early-mid 2nd century date. The earliest dated samian are a Dr 29, *c.*AD 40-60, and an Aquitanus Dr 15/17 *c.*AD 40-65. The Neronian potters are also represented by a Dr 30 in the style of Masclus, and a Dr 37 attributed to Sex. Iulius Iucundus. Several sherds have similarities with bowls from the Cluzel 15 deposit at La Graufesenque *c.*AD 60. Flavian and Trajanic bowls can be attributed to potters such as Severus iii, M.Crestio, Cingius Frontinus, Mercator i and Germanus.

The range of Neronian forms is limited and it is worth noting that forms exclusive to the pre-Flavian period are scarce. This could indicate that the occupation started closer to AD 70 than the histogram suggests, or that these forms, such as the Ritterling cups and small bowls were not reaching Leicester in great numbers. The Flavian–Trajanic assemblage is not remarkable; Dr's 15/17, 18, 18/31, 27, 33 and 37 are well represented, as is the enclosed jar Dech. 67, although only one example of the cup Knorr 78 was identified.

As stated above, the volume of Les Martres-de-Veyre samian is low, and corresponds approximately with the so-called 'Trajanic Gap' whereby the Potters at Les Martres could not produce sufficient samian to meet demand. However, given the decline of samian in the late 1st century, and the small increase during the Hadrianic period, this may be due to either a change in the function of the site, or a low level of occupation. There are a large number of post-AD 120 Les Martres products at Vine Street, and it could be argued that the plain ware sherds represent a small number of late Les Martres vessels spread throughout the assemblage. If we assume that the proportion of plain ware vessels to decorated vessels is a minimum of 6:1, and that there are nine or possibly ten bowls by the late Martres potter Cettus, *c.*AD 135-160, then the number of late Martres bowls at Vine Street during the Hadrianic and early Antonine periods is significant. The one Les Martres form worth noting is a Dr 37H (Context (4439)).

The assemblage contains a number of 'pre-export' Lezoux vessels and are probably late Flavian–Trajanic in date. The majority of the post-AD 120 Central Gaulish decorated samian are predominantly Lezoux, potters such as Attianus, Divixtus and members of the Quintilianus group are represented. The range of 2nd Century forms is generally conservative, primarily Dr's 18/31-31 range, 37, and cups Dr's 27 and 33, enclosed vessels such as flagons or jars are few, one exception has parallels with vessels from Les Martres (context (8439)). One form worth noting is a rim sherd most likely to come from a Dr 34 (Context (2235)), a double handled bowl.

East Gaulish samian represents only 3.25% of the total assemblage. The presence of Dr 18/31 demonstrate that importation began before AD 160, and continued into the early or mid 3rd century. Forms such as the Ludowici and Walters series are generally post AD 160, and continued to be manufactured into the 3rd century; one unusual form, a pedestal cup (context (4568)), and a small Dr 30R was noted. An East Gaulish Dr 30 must have been cracked prior to having the slip applied, as the coating had penetrated into it (context (1326)).

Seventeen vessels had been drilled to take lead staples or cleats mainly comprising dishes and bowls in the Dr18, 18/31 and 31 series but including some examples of decorated bowls Dr 29 and 37 as might be expected (Table in Archive). Thirty instance of cross context joins, or sherds likely to be from the same vessel were also recorded (Table in Archive). Four sherds had been trimmed to make counters from (1148), (2358), (4964) and (5255) and one 2nd century Central Gaulish sherd had been made into a mosaic tessera (5463).

The stamp report is only an interim statement due to the unavailability of Ms B. M. Dickinson, the samian stamp specialist. Identifications (or otherwise) have been made by comparison with stamps in published samian reports, including the first three volumes of the corpus of samian stamps (Hartley and Dickinson 2008). The assemblage contained 47 stamps and one signature, that of Acaunissa; two by Cinnamus ii, and two stamps of Borillus i of Lezoux, an associate of Cinnamus. A stamp of Hibernalis of Rheinzabern is the ninth example recorded away from the kiln site, and the second from Leicester.

Catalogue of the Decorated Samian vessels (Figure 1-Figure 11)

Abbreviations: O. = Oswald 1939-1937
R. = Rogers 1999 (Annexe B)

Phase 2.2

1) **G267 (1420)**
SG Dr 37. Part of a bifid or trifid basal wreath, not closely dateable. Flavian to Trajanic.

2) **G292 (2631)**
(a) SG Dr 29. Two joining sherds. Lower zone with a palisade of striated buds over a bifid leaf/chevron wreath. Pre-Flavian.
(b) Lezoux Dr 37. An ovolo frieze (Rogers 1974 B7) over a horizontal bead row. The main decoration appears to be a saltire with diagonal bead rows; in the left hand panel, part of a tendril. In the upper panel, a cross composed of astragali, topped with an acanthus leaf (*ibid* K2). A bird (similar, but smaller than O.2252) is perched on either side. Attianus II used the ovolo and the acanthus leaf (cf. Stanfield and Simpson 1958 Pl.85, 9 and Pl.86, 10 for similar saltires). *c.*AD 115-145.

Phase 2.3

3) **G359 (3751)**
Lezoux Dr 37. Signed below the decoration [A]CAUN[ISSA]. The decoration is divided into panels by vertical bead rows, one ending in a one rosette (Rogers 1974 C249). The panels from the left are as follows: (i) trifid leaf (*ibid* 1974 ?G73) and rosette (*ibid* C249); (ii) seated figure (not apparently in O. or R.); (iii) vertical row of rosettes (Rogers 1974 C249). *c.*AD 125-145.

4) **G1107 (6704)**
SG Dr 37. From a worn mould. The ovolo is fragmentary, enough to show a trident tongue. The panel decoration is bounded by wavy line borders; the poincons in the extant panel are an unidentified horse to the left, and a horizontally placed triangular leaf (Hermet 1979 Pl.7,41) in the upper right corner. The design would suit a late Flavian to Trajanic date.

Phase 2.5

5) **G110 (6914)**
(a) SG Dr 37. 10 sherds, with a non-joining sherd from (5319). A scene with Bacchus and leopard (O.564A) standing on stylised grass, with vines and bunches of grapes on either side. A pair of feet of a human figure could be a piper (O.609). Hermet shows a similar scene without the grass on a bowl from La Graufesenque (1979 Pl.100, 12); a Dr 37 from La Graufesenque has Bacchus standing on grass and next to a vine, as here (Samian Research No:2003498). The style is that of Germanus *c.*AD 75 – 100/110.
(b) Lezoux Dr 37. Very little decoration survives; the ovolo has been replaced by a series of small opposed dolphins (O.2407A) over a horizontal bead row. The dolphins were used by Drusus I at Les Martres and by Geminus at Lezoux (not identified by Rogers 1999), but Geminus did not use beaded borders. The slip and manufacture at Lezoux would suggest a Hadrianic to early Antonine date.
(c) CG Dr 37. Body sherd, the decoration has a vertical wreath of bifid leaves (Rogers 1974 G284). To the right, an unidentified poinçon. Hadrianic to early Antonine.

6) **G1212 (8217)**
SG Dr 37. Two joining sherds. A decorative scheme consisting of horizontal zones divided by wavy lines. An ovolo frieze over a leaf wreath (Nieto and Puig 2001 Ec.1a); the lower zone has a dog (O.1994) facing a bush (Hermet 1979 Pl.68, 13). All the poincons are known in various combinations with the ovolo on vessels from La Graufesenque, dog and ovolo (Samian Research No:2000584), bush and ovolo (*ibid* No:2000642), ovolo and wreath (*ibid* Nos:2001106 and 2001135). The ovolo was used by Albanus iii and a potter who used a large rosette below the decoration. Flavian to Trajanic.

Phase 2.6

7) **G1212 (6649)**
SG Dr 37. From a worn mould. An ovolo frieze, over a panelled decorative scheme, with wavy line borders and rosetted junctions. Enough of the ovolo survives to say that the tongue has a trident tip, but impossible to identify. The panels from the left are as follows: Upper left, a lion to the right, facing two wavy line verticals. Right, Diana and Hind (?O.103A); a tendril emanates from the junction rosette behind Diana, and terminates in a 'bottle bud'. Flavian to Trajanic.

Phase 3.1

8) G103 (6808)
Lexoux Dr 37. Bottom of the decorative scheme with a horizontal basal bead row; above, a parallel guideline with 2 unidentified rosettes places on it. The legs of an unidentified figure are just visible above the rosettes. The guideline and the basal bead row would suggest a mouldmaker working in the. Hadrianic period.

9) G155 (6719)
CG Dr 37. A rather clumsily made bowl. The scheme has a pair of striated columns (not in Rogers 1974 or 1999) dividing the scene into three panels. Below both columns, square boxes with outlined diagonals (Rogers 1974 U24); capping the right hand column, a similar, but smaller box (not in Rogers 1974 or 1999). Springing from the top of the box, what appear to be the beginnings of arcades into the centre and right hand panels. Nothing survives in the left hand panel; the centre panel contains Minerva (O.129A) on the same box as the columns (Rogers 1974 U24). In the right hand panel, the arm of an unidentified figure. The Minerva is recorded for Butrio, Iustus and Lucinus, and the box for Cettus; there is a similar but larger box (*ibid* U25) used by Priscinus as the base of a series of columns supporting arcades (Rogers 1999 Pl.86, 17). Identification uncertain. Antonine.

10) G161 (6398)
MdV Dr 37. Vestige of two poiņcons just above the basal ridge. The one on the left is probably the base of a column (Rogers 1974 P64), the one on the right may be a leaf spray (*ibid* G14). Both are recorded by Cettus. *c.*AD 135-160.
11) G385 (2751)
CG Dr 37. Fragmentary ovolo over a horizontal wavy line. Hadrianic to mid- Antonine.

12) G192 (5255)
(a) SG Dr 29. Poorly moulded bowl with zoned decoration divided by an indistinct horizontal line. The upper zone has the lower part of either a double-bordered medallion or tendrils of a winding scroll. The lower zone appears to be a wreath of festoons containing spirals, and 'tied' together by horizontal bars. Suspended between each festoon, an arrowhead or 'bottle bud' (cf. Nieto and Puig 2001 No:667). Flavian to Trajanic.
(b) MdV Dr 37. An ovolo frieze (Rogers 1974 B80) over a coarse horizontal wavy line. The decorative scheme has two leaf sprays (*ibid* G2 and G14) centre and on the right, with a rosette (*ibid* ?C176) and a horizontal bar on the left. A vertical bead row descends from the rosette. The ovolo and both leaves were used exclusively by Cettus, and the eclectic style is his (cf. Romeuf 2001 Pl.89, 128 for the paired leaves). *c.*AD 135 -160.

13) G784 (2633)
(a) MdV. Dr 37. 8 sherds, partly burnt; also join sherds from (2777) and (2877) (not decorated). Cettus' large ovolo (Rogers 1974 B263) over a horizontal bead row. The decoration appears to be a series of double bordered festoons 'tied' by a series of horizontal diamonds (cf. Romeuf 2001 Pl.132,8). Horizontal astragali (*ibid* Pl.132,7) are suspended on coarse wavy lines (Rogers 1974 A26) between the festoons; however one pair of festoons has a vertical bead row instead of a wavy line, and missing it's terminal. A hare (O.2061) sits in one of the festoons. Below the festoons, at least one of two poiņcons has been placed below the festoons, either a pygmi (small O.698/large O.698A) or a horizontal Venus (O.281). The arrangement of alternate vertical bead row and wavy lines are on a Cetus bowl from London (Stanfield and Simpson 1958 Pl.144, 49); the hare, festoon, ovolo and coarse vertical wavy line on a bowl from Les Martres-de-Veyre (Romeuf 2001 Pl.85, 57). *c.*AD 135-160.
(b) CG Dr 37. Winding scroll decoration with an ovolo frieze (Rogers 1974 B223) over a horizontal bead row. The only extant poiņcon is a bird to the right (O.2239B). Only Cinnamus uses the ovolo and the bird. *c.*AD 140-180.

14) G784 (2652)
SG Dr 37. An ovolo frieze over an indistinct horizontal border. The main decoration consists of a double bordered medallion with a serrated outer ring; within, an eagle (O.2167). At the top right, what may be the remnant of a rosette. The ovolo and eagle within a similar medallion is on a bowl from La Graufesenque (Samian Research No:2002481). The ovolo has been recorded for Crucuro i and M.Crestio. *c.*AD 75-110.

15) G784 (2900)
SG Dr 37. Trifid basal wreath. Flavian to Trajanic.

16) G910 (2836)
(a) SG Dr 37. Panel decoration bounded by wavy lines with a rosetted junction, partly offset. In the left hand panel, Diana and Hind; the upper panel on the right contains the legs of a figure. Late Flavian - Trajanic.
(b) CG Dr 37. Arm, torso and head of a dancer (O.363) used by Arcanus, Drusus II and X-11. *c.*AD 120-140/145.
(c) CG Dr 37. Panel decoration with vertical bead row borders, possibly ending in horizontal astragali. The only poiņcon is an unidentified (?)dancing human figure. Antonine.

17) G1115 (8442)
CG Dr 37.Ovolo frieze (Rogers 1974 B14) over a horizontal bead row. The ovolo was used by X-13 and Sacer. In view of the fabric, this sherd was made by Sacer. *c.*AD 120-140/145.

18) G1206 (6377)
MdV Dr 37. Partly burnt, joins (2979). cf. (2979) for a discussion. *c.*AD 100-120.

19) G1234 (6364)
CG Dr 37. Panel decoration demarcated by vertical bead row borders ending in rosette junction masks (Rogers 1974 C280). Within the extant panel, a festoon (*ibid* F37); below, a small ring, with trifid leaves (*ibid* G169 or G172) on either side. The design is similar to a bowl from Usk (Johns 1993 Pl.99, 169) attributed to 'Donnaucus'. *c.*AD 110-120/125.

Phase 3.2

20) G125 (6741)

(a) CG Dr 37. Two joining sherds. An ovolo frieze (Rogers 1974 B230) over a horizontal wavy line; the head of an unidentified figure extend upwards into the ovolo. The ovolo is attributed to X-6A. *c.*AD 125-150.
(b) CG Dr 37. A small rosette (Rogers 1974 ?C281) below a horizontal bead row. The rosette was used by a number of potters. Hadrianic to late Antonine.

21) **G136 (6620)**
(a) CG Dr 37. Two joining sherds. Part of a rosette (Rogers 1974 C34) over a vertial wavy line which meets a horizontal guide line. *c.*AD 100-120. Hadrianic
(b) CG Dr 37. An ovolo (Rogers 1974 ?B82) over a horizontal wavy line. Hadrianic – early Antonine.

22) **G162 (6222)**
(a) MdV Dr 37. The same vessel as (3573), with identical decoration, cf. (3573) for the discussion, and also (2) below. Cettus. *c.*AD 135-160.
(b) MdV Dr 37. Two joining sherds, showing a pair of small double bordered medallions (Romeuf 2001 Pl.132, 24) separated by a column (Rogers 1974 P64), which was used exclusively by Cettus. In the bottom left, part of a leaf spray (Rogers 1974 ?G16; cf. Romeuf 2001 Pl.85, 45). Although the design of this sherd differs from the other Cettus sherd from this context, (1), it is not inconceivable that they belong to the same vessel, a bowl from Les Martres-de-Veyre combines the leaf scrolls, columns and medallions (*ibid* Pl.81, 7). *c.*AD 135-160.

23) **G174 (4869)**
CG Dr 37. Small dolphin (O.2401) within a double-bordered medallion. A number of potters used the dolphin, the most likely are Cinnamus, Doeccus or Pugnus. *c.*AD 150-200.

24) **G790 (5319)**
(a) SG (?)Dr29, with a glossy slip. A pendant, fragmentary leaf between (?)scrolls. Neronian or early Flavian.
(b) SG Dr 37. Same vessel as (6914). cf. (6914) for a discussion. Flavian to Trajanic.
(c) SG Dr 37. 8 sherds , the decoration was 'blurred' slightly during manufacture. An ovolo frieze over a horizontal (?)wavy line. The main scheme has a pair of opposed stags (O.1699 and O.1745/6) on grass tufts, with a tree between each figure. In each tree a small bird, and appear to alternate direction within the scheme. The ovolo, stags and trees appear on bowls from La Graufesenque and Vindolanda (Samian Research Nos:2002034 and 2005278 respectively). The only name associated with the ovolo is that of Mercator i. *c.*AD 75-100.

25) **G1108 (6501)**
CG Dr 37. Panel decoration bounded by wavy lines with rosette junctions (Rogers 1974 C124) and lower terminals. The panels from the left are as follows: (i) festoon (*ibid* F24 or F33); below, a stag (sized between O.1732 and O.1732A) and a rosette to the right. On the vertical division, an astragal placed at an angle. (ii) a series of rings placed vertically. (iii) Nothing survives in either the upper or lower panels. Below the decoration a pair of horizontal ridges normally associated with Hadrianic to early Antonine mouldmakers. Three potters are recorded as using a large beaded festoon, of those, only Quintilianus used the stag, however he used different rosettes. The pair of horizontal ridges below the decoration would suggest Quintilianus or an associate. Hadrianic to early Antonine.

26) **G1103 (8275)**
CG Enclosed vessel, two non-joining sherds. *En barbotine* decoration, probably upright motifs. Antonine.

Phase 3.3

27) **G165 (6425)**
SG Dr 37. A fan-shaped bush made up of impressing a trifid leaf thrice above a solid horizontal bar (Hermet 1979 Pl 68, 18). The bush appears on bowls from the Cala Culip IV shipwreck (Nieto and Puig 2001 No:243) and on the work of later potters such as Senilis (Mees 1995 Taf 183,1). Flavian to Trajanic.

28) **G310 (2970)**
CG Dr 37. Possibly the same bowl as in contexts (2852), and (6743). The sherd has been badly smeared by the bowl finisher; the freestyle scheme has a small panther to the right (?O.1510), and the hind legs of an unidentified animal to the left, with a small trifid leaf 'in the field' (Rogers 1974 G158-185 range). Hadrianic to early Antonine.

29) **G311 (2979)**
MdV Dr 37, joins (6377), partly burnt. A pair of (?)diamond shaped leaves which have been smudged after removal from the mould; over a bifid wreath (Rogers 1974 G365), with bead row borders above and below. Below the decoration, a stroke which appears to be a signature rather than a mould crack. The wreath was used at Les Martres-de-Veyre by X-12, the diamond leaves are not recorded by Rogers (1974 and 1999). *c.*AD 100-120.

30) **G313 (2852)**
(a) CG Dr 37. Possibly the same bowl as (2970), and (6743). The bowl has been badly smeared by the finisher; the freestyle scheme has a panther to the right (large version of O.1501), and a trifid leaf 'in the field' (Rogers 1974 G158-185 range). The other poinçons are unidentifiable; below the decoration, a plain horizontal band. Unattributed. Hadrianic - early Antonine.
(b) CG Dr 37. Joins (2591). cf. (2591) for discussion of this sherd. *c.*AD 140-160+.

31) **G395 (2677)**
SG Dr 37. Part of the ovolo frieze, undateable beyond Flavian to Trajanic.

32) **G1328 (6622)**
CG Dr 37. Slightly abraded sherd. An ovolo frieze (Rogers 1974 ?B230) over a horizontal bead row; the ovolo is attributed to the potter X-6A (Rogers 1999 p.321), however these beads are closer together than his. Hadrianic – early Antonine.

Phase 3.4

33) **G380 (2824)**
(a) SG Dech. 67. The very bottom of the decoration, with a series of vertical wavy lines terminating on the basal ridge. Flavian.
(b) CG Dr 37. An ovolo frieze (Rogers 1974 ?B48), over a panelled decoration bounded by bead row borders with rosetted junctions. The extant panels contain an ornament (*ibid* Q42) and an astragal (*ibid* R12 or R14). The ovolo and column were used by Cinnamus. *c.*AD 135-180.
(c) CG Dr 37. Panel decoration divided by vertical bead rows ending in rosettes. The left hand panel contains a caryatid (O.1201), the right hand panel has the leg of a satyr or faun (O.627) with astragali 'in the field'. Both poiņcons and rosette terminals were used by Divixtus. *c.*AD 140-160.
(d) CG Dr 37. From a worn mould; an ovolo frieze (Rogers 1974 B143) over a horizontal bead row. Little survives of the main decoration, save for a horizontal astragali and the head of an unidentified figure. The ovolo was used by Cinnamus, Pugnus and Secundus I. *c.*AD 140-170.

34) **G389 (2747)**
(a) SG Dr 37. An ovolo with a double border which has been smoothed by the bowl finisher. The small beaded rim would suggest an early Flavian date.
(b) SG Dr 37, with a hole drilled for a repair. What remains of the ovolo appears to be a single borded type; the small beaded rim and glossy slip would suggest an early Flavian date.
(c) CG Dr 37 flake. The fabric is very similar to that of late Les Martres-de-Veyre, however, there are minute specs of mica, suggesting an origin at Lezoux. Pan (O.711) used by several potters, most notably Cinnamus and Servus II. Hadrianic to mid-Antonine.

35) **G395 (2677)**
SG Dr 37. Part of the ovolo frieze, undateable beyond Flavian to Trajanic.

36) **G450 (4584)**
SG Dr 29. The very bottom of the lower zone, with just the vestige of a bifid or trifid basal wreath interspersed with rosettes. No exact match has yet been found for this arrangement as a basal wreath, however in the Cluzel 15 deposit at La Graufesenque *c.*AD 55-60, there are examples of trifid wreaths with centred circles in this position (Dannell Cluzel 15 catalogue Nos: ACL 30 and ACL 215), and an Albus i bowl from La Graufesenque has the wreath and rosette arrangement in the upper zone (Dannell *et al* No:1447). It's worth noting that Hermet also illustrates 2 similar wreaths (1979 Pl.46, 38 and 42). *c.*AD 55-70.

37) **G786 (2891)**
CG Dr 37. Ovolo frieze (Rogers 1974 B24) over a horizontal bead row. The ovolo was used by the following exporting potters, Banvus (AD 160-200), Docilis (AD 125-145), Secundinus I (AD 130-150) and the 'Large S Potter' (AD 120-145). The design is neater than Banvus' usual output; the slip would suggest a Hadrianic to early Antonine date.

38) **G786 (2924)**
MdV Dr 37. Joins (2473) and the same vessel as (4879). cf. (2473) for a discussion of this sherd. *c.*AD 135-160.

Phase 3.5

39) **G189 (8717)**
CG Dr 37. Probably the same vessel as (2256). A panel scheme divided by vertical, 'squat' bead row borders, in the left hand panel, the vestige of an arrowhead motif (Rogers 1974 U293). The right hand panel contains a medallion or festoon over an acanthus leaf trophy (ibid K3). For a discussion of this sherd cf. (2256). Casurius or Doeccus. *c.*AD 160-195.

40) **G195 (5101)**
(a) SG Dr 67.Very bottom of the decoration, with a row of small leaf tips. Flavian.
(b) Lezoux Dr 37. An ovolo frieze (Rogers 1974 B12) over a horizontal bead row, below, the head and shoulder of an unidentified figure. The ovolo was used by Cinnamus, Criciro, Divixtus, Sacer and P-23. Hadrianic – mid-Antonine.

41) **G217 (6956)**
(a) CG Dr 37. Small abraded ovolo (Rogers 1974 ?B15 – Drusus II). Hadrianic-early Antonine.
(b) CG Dr 37. Two joining sherds. A panel decoration bounded by bead row borders with rosettes or circles masking the junctions and lower terminals. The panel scheme from the left is as follows: (i) lower, cockerel (O.2350). (ii) Pan (O.711), with upright astragali on either side (Rogers 1974 ?R21); below, a horizontal 'S' motif (*ibid* S71). (iii) Upper, festoon (*ibid* F13); lower, leaping panther to the left (a larger version of O.1542) with leaf tips (possibly part of Rogers 1974 K16) 'in the field'. (iv) Horizontal 'S' motif (*ibid* S71) at the bottom of the panel. The style is unmistakeably that of the 'Large S Potter', the Pan is new to his repertoire. *c.*AD 120-145.

42) **G382 (2777)**
CG Dr 37. An ovolo (Rogers 1974 B16) over a horizontal bead row; below, a'snake on rock' motif (O.2155). The ovolo was used by Attianus II, Sacer II and P-9, the motif by Attianus II, Criciro and X-13; to the list we can now add Birrantus I, a sherd from Brian Hartley's excavations from Lezoux with the motif has the tabular stamp of Birrantus below the decoration (AUD 67 II 1). The Attianus II, Criciro and Birrantus bowls need further study to see if they are the work of a single mouldmaker. Based on the ovolo, the sherd is attributed to Attianus II. *c.*AD 120-140/145.

43) **G391 (2745)**
(a) CG Dr 37. An ovolo frieze (Rogers 1974 B31) over a panel decoration bounded by wavy lines; just below the junction where the vertical meets the horizontal, an oval motif (Stanfield and Simpson 1958 fig.16, 1). The panels from the left are as follows: (i) upper, a hare to the left (O.2115) and an astragali in the top left corner. (ii) A double bordered medallion and a small ring in the top left hand corner. The ovolo was used exclusively by X-5, and the 'torpedo' junction mask is diagnostic of his bowls. *c.*AD 125-145.

(b) CG Dr 37. Panel decoration divided by vertical bead row borders with rosetted basal junctions. The panel on the left contains a horizontal row of at least 3 rosettes (Rogers 1974 C120); the right hand panel contains a 'ring'. Tetturo is recorded as using the rosettes, but not beaded borders. Hadrianic – mid-Antonine.
(c) CG Dr 37. Possibly the same vessel as (2810). An ovolo frieze (Rogers 1974 B145) over a horizontal border of astragali (*ibid* ?A10). The main decoration has the body of a lion to the right (?O.1387). The ovolo and border are recorded for Cinnamus and Illixo (Rogers' attribution of Carantinus II as using the ovolo and border rests on a single unstamped sherd (Pl.24, 14), and is doubtful). If the identification of the lion is correct, then the bowl is by Illixo. *c.*AD 155-180.

44) G422 (2735)
CG Dr 37. Five joining sherds from a worn mould. The ovolo could be one used by Sissus II (either Rogers 1974 B3 or B107), over a horizontal wavy line border There appears to be a panel arrangement separated by a wavy line vertical, at the top of which is a horizontal astragal. In the right hand panel, the head of a figure (possibly O.569 or R.3135). Attribution is not certain, however the fabric and finish would suggest an early Antonine date. *c.*AD 140-160.

45) G847 (2591)
CG Dr 37. Joins (2852). Ovolo frieze (Rogers 1974 B143) over a panel decoration demarcated by bead row borders. The panels from the left are as follows: (i) double bordered festoon tied to the vertical panel division by a horizontal astragali. (ii) Double bordered medallion containing a warrior (O.188) and a tabular stamp placed almost vertical, reading CINNAMIM (retrograde). Rings occupy the upper left and bottom right hand corners of the panel. (iii) The lower part of a toga and a leg belonging to Aesculapius (O.905). Rogers suggests that the ovolo and stamp belong to Cinnamus' 'Style B' *c.*AD 140-160+

46) G939 (6847)
CG, Lezoux Dr 37. Burnt. An overlapping ovolo (Rogers 1974 ?B108) over a horizontal bead row (*Ibid* A15). The identification of the ovolo is uncertain, however the exporting potters using the beads and similar ovolos span the dates *c.*AD 120-150.

47) G939 (6918)
CG Dr 37. Slightly abraded decoration. An ovolo frieze (Rogers 1974 ?B217), over a horizontal wavy line. At the far right, shoulders and the hair of a figure facing right. Hadrianic to Antonine.

48) G1200 (6535)
(a) SG Dr 29. Lower zone, with what a pair of feathered arcades supported on a column of astragali, with a horizontal astragal acting as a corbel; between the arcades, a trifid leaf. The column base is a horizontal astragali. In the left arcade, a gladiator to the right; the right arcade has the greave and foot of a gladiator to the left. The design is unusual and more in keeping with Dr 30's than Dr 29's (cf. Hermet 1979 Pl.74,10 and Pl.75,5). The gladiator on the left can be found on an Aquitanus bowl from Heerlen (Dannell *et al* No:0097), and the astragali column with a horizontal astragali base on an Dr 29 stamped by Aquitanus from Xanten (*ibid* No:0063). *c.*AD 40-65.
(b) CG Dr 37. Ovolo frieze (Rogers 1974 B24) over a horizontal bead row. The ovolo was used by the following exporting potters, Banvus (AD 160-200), Docilis (AD 125-145), Secundinus I (AD 130-150) and the 'Large S Potter' (AD 120-145). The slip would suggest a date of *c.*AD 120-150.

49) G1221 (6263)
CG Dr 37. 3 joining sherds. A panelled bowl with an unusual vertical division arrangement, terminating on a horizontal wavy line. The panels from the left are as follows: (i) erotic figures (O.K), the panel division to the right is a fluted column (not in Rogers 1974 or 1999); (ii) seated Mercury (O.547), the panel division to the right is a pair of vertical wavy lines; (iii) cupid (O.378), the panel division to the right are 2 (or more, as part of the bowl is missing) of vertical wavy lines terminating in a large rosette (Rogers 1974 C282); (iv) the figure is a warrior or gladiator with a disc or shield at his feet (not in O. or D.), the panel division to the right are three vertical wavy lines terminating in a rosette (*ibid* C282). (v) The vestige of an unidentified poinçon. The bowl has links with Libertus, Butrio, Quintilianus and Censorinus, but none used all the elements. An associate of Quintilianus, Sissus I did use multiple vertical wavy lines (Rogers 1999 Pl.113, 2), and a stamped example from the Oswald Plicque Collection has the verticals ending in a rosette as here (Stanfield and Simpson 1958 Pl.77, 3). *c.*AD 125-150.

50) G1249 (4649)
SG Dr 37. Burnt. A quatrefoil basal wreath, similar to ones found on bowls in the Cala Culip IV shipwreck (Nieto and Puig 2001 Ec.8a). Flavian to Trajanic.

51) G1310 (4831)
SG Dr 37. Only the egg of the ovolo frieze survives, over a horizontal roped or wavy line border. The decoration has the loop of a tendril. Flavian to Trajanic.

52) G1377 (6396)
SG Dr 37. Only a part of the ovolo frieze remains, insufficient for identification, over a horizontal wavy line. Below, a leaf, placed at an angle. Flavian to Trajanic.

Phase 3.6

53) G491 (3537)
MdV Dr 37. A frieze of rings over a horizontal bead row border; the main decoration has a double bordered medallion or arcade; at the top left, what may be a junction rosette. The rings used as an ovolo replacement was used by mould-makers supplying X-11 and X-13, the bead rows would suggest the latter. *c.*AD 100-120.

54) G947 (5236)
CG Dr 37. A freestyle scene below a horizontal bead row. The following poinçons are extant: horse to the left (O.1904); small unidentified dog to the left; panther to the left (O.1537) and leaf tips (Rogers 1974 J146). The Horse and panther were used by several potters, but the use of the leaf tips as here can be attributed to Albucius. *c.*AD 145-180.

55) **G947 (5284)**
CG Dr 37. Same vessel as (6652). cf. (6652) for a discussion of this sherd. Antonine.

Phase 3.7

56) **G370 (2473)**
MdV Dr 37, 4 joining sherds, and the same vessel as (4879) and (2924). A large ovolo (Rogers 1974 B263) over a panelled scheme; the panels are demarcated by bead row borders, with an 'S' motif (*ibid* S72) at, or just below the extant junctions. The panels of sherds from (2473) from the left contain the following: (i) upper, a stag to the right (O.1723); lower, panther (O.1570). (ii) Upper, unidentified; lower, a crane (O.2214A). The panels of sherd (4879) contain a lion (O.1404) in the upper, and a hare (O.2061) in the lower. In the style of Cettus; a similar scheme with the lion and panther is known on a sherd from Les Martres-de-Veyre (Romeuf 2001 Pl.90, 157). *c.*AD 135-160.

57) **G802 (5261)**
MdV Dr 37. An ovolo frieze (Rogers 1974 B38) over a horizontal wavy line, below, the head of an unidentified figure. The ovolo was used at Les Martres-de-Veyre by the anonymous potters X-8 and X-9; X-10 also used the ovolo, but the style is not his. *c.*AD 100-135.

58) **G926 (5346)**
SG Dr 37. Panel decoration bounded by wavy lines. In the left hand panel, a saltire based on wavy line diagonals, with a rosette on the extant junction. A tendril loop occupies the right hand triangle. In the right hand panel, a medallion containing a kneeling putto (O.501), who appears on Dr 29's from La Graufesenque stamped by Vitalis ii (Dannell *et al* No:995), and from Moulins, stamped by Passienus (*ibid* No:0811). Flavian.

59) **G950 (6337)**
CG Dr 37. Two joining sherds, with an ovolo frieze (Rogers 1974 B31) over a horizontal wavy line. The panelled scheme is divided by a vertical wavy line, with an oval terminal just below where it meets the horizontal border at the top. The left hand panel contains a human head to the right; in the right hand panel, part of a trophy (*ibid* T1). The ovolo was used exclusively by potter X-5, and the oval terminal, usually placed below the junction, as here, is characteristic of his work. *c.*AD 125-145.

60) **G955 (6652)**
CG Dr 37. From a worn mould; the same vessel as (5284). An indistinct unidentified ovolo frieze, over a panelled decoration demarcated by bead rows. The larger sherd has two panels containing double bordered festoons 'tied' by a horizontal astragal; within the right hand festoon, a small triple bordered medallion. Placed on the vertical bead row division, an astragal placed horizontally. The style is close to that of Criciro's, however the ovolo is not his. Antonine.

61) **G955 (6743)**
CG Dr 37. Possibly the same bowl as in context (2852), and (2970). The decoration has been smeared after removal from the mould. Freestyle scene, the following poiņcons have been identified: nude male (O.688) and Lion to the left (O.1425). Although a number of potters are recorded using the poiņcons, no potter has yet been identified using both. Hadrianic to early Antonine.

62) **G1063 (5352)**
(a) SG Dr 37. Bush motif on a horizontal bar (cf. Hermet 1979 Pl.68, 9). Flavian to Trajanic
(b) SG Dr 37. A pair of geese (O.2321 and O.2244) sitting on the basal ridge; although no identical parallel has been found. A Dr 29 from Vienna comes close (Weber-Hiden 1996 Taf.2, 2). Flavian.
(c) SG Dr 37. A wreath of lanceolate leaves (cf. Nieto and Puig 2001 Cd.5a – Cd.8a). Flavian to Trajanic.
(d) MdV Dr 37. Possibly from the same vessel as (4603). A single bordered medallion (or festoon) or winding scroll containing 'arrowheads' over a basal wreath of 'ram's horns' (Rogers 1974 G373), bounded by horizontal bead rows. The wreath is only recorded for Quintilianus, however, he didn't use bead rows above and below the wreath as here. A winding scroll with an infilling of arrowheads from Les Martres-de-Veyre has the stamp of Ioenalis (Terrisse 1968 Pl.XL, 1083). *c.*AD 100-120.
(e) Lezoux Dr 37. Fragment of a large inverted leaf. Antonine.

63) **G1161 (5010)**
SG Dr 37. A smudged trifid basal wreath. Flavian to Trajanic.

64) **G1308 (5628)**
CG Dr 37, partly burnt. Panel decoration divided by chunky vertical bead rows. The panels from the left are as follows: (i) arc of a double bordered medallion with the vestige of the central poiņcon; (ii) A of pair of opposed vertical trifid leaves (Rogers 1974 G74); (iii) small double bordered medallion containing a dove to the right (O.2317), below, a pair of opposed bifid leaves (Rogers 1974 G335) placed horizontally. The trifid motif was used by Iullinus, the bifid leaf by Sissus II and Secundinus III, the bird by a number of potters. There is a bowl, believed to be by Catussa II which used the opposed triffids with similar beads (J. Bird pers. comm.). *c.*AD 180-200.

65) **G1320 (6615)**
(a) SG Dr 37. Flaked sherd. A central panel with horizontal roped borders above and below; the panel consists of a trapezoid of striated triangular leaf tips, with a series of parallel beaded or roped diagonals in the top left. To the right, a tendril emanates from a rosette. Flavian.
(b) CG Dr 37. Two panels separated by a vertical bead row. In the left hand panel, Minerva (O.126A), with leaf tips (Rogers 1974 J178) ''in the field''. In the right hand panel, the arc of a single bordered festoon. The leaf tips are diagnostic of Cinnamus' bowls signed by Cerialis (Dickinson and Hartley 2000 p.39 No:391). *c.*AD 135-145/50.

Phase 3.8

66) **G408 (2967)**

SG Dr 37. Enough of the ovolo frieze survives to identify it as having a trident tongue; a vessel from Nettleton has the ovolo and tabular stamp of Severus iii (Samian Research No:2005299). *c.*AD 75-100.

67) G1114 (8378)
(a) SG Dr 37. The decoration appears to be divided into horizontal bands by wavy lines. At the top, an ovolo frieze over a bush (Hermet 1979 Pl.68, 13), to the left, the legs of a running animal (cf. Samian Research No:000016 for the ovolo and bush motif). The bush and ovolo are represented in the Cala Culip IV shipwreck (cf. Nieto and Puig 2001 No:548 for the bush; No:389 for the ovolo). Flavian.
(b) SG Dr 37. Partly burnt. Part of the decoration and basal wreath of chevrons, between, a horizontal wavy line. A hunting scene with a dog (O.1968) chasing a hare, an identical scene, but with different poincons occurs on a Dr 37 from the Pompeii Hoard (Dzwiza 2004 Abbildung 83). Flavian.
(c) SG Dr 37. Ovolo with enough of the tongue to identify it as being trident tipped. Flavian to Trajanic.
(d) Lezoux Dr 37. Joins with (8142). cf. (8142) for a discussion of this sherd. Attianus. *c.*AD 120-140/145.

68) G1120 (8439)

CG Enclosed vessel. *En barbotine* decoration, possibly a double bordered medallion or winding scroll; within, a double bordered scroll (cf. Romeuf 2001 Pl.134, 13). Antonine.

69) G1127 (6445)
CG Dr 37. An ovolo frieze (Rogers 1974 B85) used exclusively by Cinnamus, over a horizontal bead row. Below, a dolphin to the right (?R.4035). Rogers dates Cinnamus' use of the ovolo to *c.*AD 160-180.

70) G1131 (6415)
SG Dr 37. Tip of an unidentified trident ovolo, over a horizontal border. The extant figure is a satyr or faun holding a bunch of grapes (O.596 or 597). The figure is used by later South Gaulish potters such as L.Cosius and *c.*Cingius Senovir (Mees 1995 Taf.31, 1 and 186, 10). Late Flavian to Trajanic.

71) G1131 (8309)
SG Dech. 67. Only the ovolo frieze survives, two other vessels with this ovolo are known, one, a Dr 37 waster from Montans (Samian Research No:2003205), and a Dr 37 from La Graufesenque (*ibid* No: 2004369). Flavian.

Phase 3.9

72) G1098 (8142)
Lezoux Dr 37. Joins with (8378). The ovolo frieze (Rogers 1974 ?B185) over a horizontal bead row border. The freestyle scheme contains the following poiņcons: 'snake on rock' motif (O.2155), horseman (O.251) and bear (O.1627). The style is one that is shared by Attianus II, Birrantus and Criciro; all the details are recorded for Attianus. *c.*AD 120-140/145.

73) G1098 (8294)
(a) SG Dr 37. Drilled once for a lead cleat. There's a facet below the decoration suggesting a Dr 29, however the profile is of a Dr 37. A winding scroll design, the depressed lobe has tendrils ending in small palm leaves; in the bottom left hand corner of the raised lobe, a 'Nile goose' (O.2244). Similar designs appear in the Pompeii hoard (Dzwiza 2004 Nos: 27 and 34). Flavian.
(b) CG Dr 37, with an unusually thin wall. An ovolo frieze (Rogers 1974 B223) over a panel scheme, demarcated by bead row borders. In the left hand panel, part of a roped medallion (*ibid* E25); the right hand panel has the head of a lioness (O.1569). All the poiņcons were used by Casurius, *c.*AD 160-195.

Phase 4.1

74) G476 (3458)
(a) SG Dr 29, An upper zone containing a pair of festoons tied by a horizontal bar, the festoons contain opposed spirals ending in rosettes. *c.*AD 70-85.
(b) EG Dr 37. An abraded sherd, probably the same vessel as (2235). An ovolo frieze over a double bordered medallion containing a Putto (?O.469); to the right of the medallion, part of an acanthus leaf. The style is that of Comitalis VI of Rheinzabern, the scheme appears on a bowl from Rheinzabern (Ricken and Thomas 2005 Taf.107, 14). *c.*AD 200-250.

75) G508 (1113)
(a) SG Dr 37. Chevron basal wreath, similar examples are found on a Dr 37 from the Cala Culip IV shipwreck (Nieto and Puig No:404) and on a Dr 37 stamped by T. Iulius Aplastus from Nijmegen-Rembrandtstraat (Mees 1995 Taf.9, 1). Flavian to Trajanic.
(b) CG Dr 37. A pair of single bordered festoons tied by a solid horizontal bar. In the left hand festoon, an acanthus leaf. Between the festoons, an upright leaf (close to Rogers 1974 J36). The leaf was used by Marcus, a late Lezoux potter, however the design is somewhat neater than Marcus'. Late 2nd-early 3rd century.

76) G508 (1114)
(a) SG Dr 37. A trifid basal wreath (cf. Nieto and Puig 2001 Eb.49a), used by a number of potters, including Patricius and Masculus (Mees 1995 Taf.163, 2 and Taf.121, 1 respectively). Flavian to Trajanic.
(b) MdV Dr 37. An ovolo frieze (Rogers 1974 B97) over a horizontal bead row. A vertical bead row descends from a horizontal astragal. The ovolo was used exclusively by Cettus (cf. Stanfield and Simpson 1958 Pl.143, 41 for a similar arrangement) *c.*AD 135-160.

77) G526 (3488)
(a) Lezoux Dr 37. Three conjoining flakes and one sherd. An ovolo frieze (Rogers 1974 B223) over a horizontal bead row. The decorative scheme, probably a winding scroll, has 2 leaves (*ibid* H120 and H21). With the exception of the small leaf, all the poiņcons were used by Cinnamus. *c.*AD 140-180.

(b) CG Dr 37. A badly moulded bowl, with a deep rim. An unidentified ovolo frieze over a horizontal astragali border. Below, part of a scarf from a female dancer, (O.355). Of the potters using the dancer, only Censorinus, Laxtucissa and Paternus II used astragali borders. *c.*AD 145-180.

78) G929 (4558)
CG Dr 37. From a worn mould. Cupid (?O.432A) below a horizontal, elongated bead row. The Cupid appears on a Dr 30 from St Magnus House, London, stamped by Doeccus (Bird 1986 No:2.48), although the beads are not his. Antonine.

79) G978 (6127)
CG Dr 37. An ovolo frieze (Rogers 1974 B143) over a horizontal bead row border. Cinnamus, Pugnus and Secundus I all used the ovolo and beads. *c.*AD 140-170.

Phase 4.6

80) G448 (3573)
(a) CG Dr 37. The same vessel as (2207), see (2207) for a discussion of this sherd. *c.*AD 100-120/125.
(b) MdV Dr 37. The same vessel as (6222) (ii) (and possibly (iii)), with identical decoration. Ovolo frieze (Rogers 1974 B97) directly over the main decorative scheme, which consists of a large leaf (*ibid* H59) to the left, from which emanates a tendril ending in a scroll (cf. Romeuf 2001 Pl.132, 30). Below the scroll, a trifid leaf (not in Rogers 1974 and 1999), and at the very top right, a rosette (not in Rogers 1974 and 1999). The ovolo was used exclusively by Cettus, similar leaf-scroll arrangements are known from Les Martres-de-Veyre (Romeuf 2001 Pl.90,173; Terrisse 1968 Pl.XXI, 10052, and Stanfield and Simpson 1958 Pl.143,36). *c.*AD 135-160.

81) G514 (2396)
SG Dr 29. Upper zone with a winding scroll design. Little useful decoration survives, a bifid tendril binding and a scroll ending in a rosette. Late Neronian to early Flavian.

82) G514 (2810)
CG Dr 37. Possibly the same bowl as (2745). An ovolo frieze (Rogers 1974 B145) over a horizontal border of astragali (*ibid* ?A10). The main decoration has the (?)head of an unidentified figure on the left, and an inverted trifid leaf on the right. The ovolo and border are recorded for Cinnamus and Illixo. The inverted trifid leaf is unusual for both potters; possibly Illixo. *c.*AD. 155-180.

83) G515 (2544)
SG Dr 37. Partly burnt. The hind quarters of a lying stag to the right (O.1699). The figure type was used by a number of potters; it appears on bowls in the Cala Culip IV shipwreck *c.*AD 82 (Nieto and Puig 2001 Bb.15 and Bb.16), through to the early 2nd century potters, e.g. Candidus (Mees 1995 Taf 19,10). Flavian to Trajanic.

84) G522 (2207)
CG Dr 37. Same vessel as (3573). A beaded circle (Rogers 1974 C293) used as an ovolo replacement, which was employed by the mouldmaker X-12 (Stanfield and Simpson 1958 Pl.40, 461, 168 and 471). The fabric is not the standard Trajanic period Martres, and its manufacture at Lezoux is not improbable, indeed there is a suggestion that some moulds may have been exported from Lezoux to Les Martres-de-Veyre. *c.*AD 100-120/125.

85) G744 (5201)
SG Dr 30. Winding scroll design with part of a frilly heart-shaped leaf (cf. Knorr 1919 Textbild 9 41, L). Neronian.

86) G812 (5108)
(a) SG Dr 29. Upper zone with a winding scroll design; a tendril ends in a leaf (cf. Hermet 1979 Pl.36, 33). Pre-Flavian
(b) SG Dr 29. A flaked sherd, with a winding scroll design in the upper zone; the lower zone has a horizontal wavy line, presumably below a wreath which does not survive. Early Flavian.
(c) SG Dr 37. Large bowl with panel decoration demarcated by wavy lines and rosetted junctions. The panels from the left are as follows: (i) Upper, a saltire composed of wavy line diagonals with a rosette at the centre; single tendrils enter the right and left hand sections and end in 'bottle buds'. The bottom triangle has an infilling of 'arrowheads'. Lower, a dog (?O.2014) to the left. (ii) Upper, Bacchus and leopard (O.564 or 564A) and a tendril loop; lower, a panel of 'arrowheads'. The Bacchus and tendril in association with panels infilled with arrowheads occur on bowl from La Graufesenque (Hermet 1979 Pl.85, 3) and on a bowl by Cingius Frontinus from Vindonissa (Mees 1995 Taf.66, 2) as does the panel infill of arrowheads. *c.*AD 80-100.

87) G1270 (4648)
SG Dr 29. Upper part of the lower zone decoration, which may be a winding scroll scheme; one tendril has a bifid leaf 'binding' placed over it. Within the depressed lobe, an elongated leaf. The leaf was used by Firmo i in the Fosse Cirratus deposit at La Graufesenque *c.*AD 30-45 (Dannell *et al* Nos:2993 and 3268); Firmo also used bifid tendril bindings (*ibid* No:3278), however the bead row is smaller than the examples cited, and therefore later than the Cirratus deposit. *c.*AD 40-60.

88) G1313 (5050)
MdV Dr 37. Panel arrangement bounded by very fine, elongated beaded borders. In the left hand panel, a double bordered medallion or arcade, to its right, a tiered cup (Rogers 1974 U64) on an astragal stem. In the right hand panel, a loop, part of an unidentified poiņcon, or perhaps the stem of a tendril. The fine beads would suggest the 'Potter of the Rosette', X-11 or X-13; all three used the tiered cup and small rosettes; X-11 and X-13 used arcades (Stanfield and Simpson 1958 Pl.38, 443 and Pl.48, 562 respectively). A sherd from Les Martres-de-Veyre, attributed to Ioenalis/X-11/X-12 has an arcade adjacent to a stemmed tiered cup (Terrisse 1968 Pl.XXXVIII, 357). *c.*AD 100-120.

Phase 4.7

89) G511 (2235)

EG Dr 37. Two joining sherds, abraded, and possibly from the same vessel as (3458). A pair of double bordered medallions separated by a vertical (?)bead row, capped by an acanthus leaf. In the right hand medallion, a Putto (?O.469). The style is that of Comitalis VI of Rheinzabern, the scheme appears on a bowl from Rheinzabern (Ricken and Thomas 2005 Taf.106, 20); two bows from Wels, one with a simiar Putto (Karnitsch 1959 Taf.139, 3 and Taf.144, 6); and a stamped bowl from Vienna (Weber-Hiden 1996 Taf.106, 4). *c.*AD 200-250.

90) **G511 (2256)**
(a) SG Dr 29. An abraded sherd. A tip of an unidentified poinçon is just visible in the upper zone. The lower zone contains a tulip wreath. Neronian to early Flavian
(b) CG Dr 37. Probably the same vessel as (8717). A panel scheme divided by vertical, squat bead row borders. From the left, a narrow panel with an arrowhead motif (Rogers 1974 U293); centre, a medallion or festoon over an acanthus leaf trophy (*ibid* K3); right, a repeat of the arrowhead motif. Rogers lists Casurius as only using the acanthus trophy, while Doeccus used both motifs (Rogers 1999 p.87 and 118), however, Casurius did use the arrowhead motif on a stamped bowl from Naples (Stanfield and Simpson 1958 Pl.133, 19). Both used similar bead rows. Casurius or Doeccus *c.*AD 160-195.

91) **G525 (2202)**
(a) SG Dr 37. The ovolo may be the same as that on a Dr 37 from La Graufesenque (Samian Research No:2003844), which is so far unattributed, over a horizontal wavy line. Below, a stag to the right (O.1699), facing a dotted leaf ((?)Hermet 1979 Pl.13, A32). For a discussion of dating the stag cf. (2544). Flavian to Trajanic.
(b) CG Dr 37. A horizontal bead row, over a large beaded medallion, with a plain inner concentric band with a damaged rim (Rogers 1974 E2). Within, a scarf dancer (a much smaller version of O.361 and O.361A). It's worth noting that a very faint arc of small beads runs concentric to the outer rim of the medallion. Of the potters using the medallion, 3 used a similar dancer, X-13 on a bowl from London (Stanfield and Simpson 1958 Pl.44, 504); Austrus on a bowl from Besançon (Knorr and Sprater 1927 Textbild 35); and Sacer II (Rogers 1999 pl.101, 2). The Austrus bowl was brobably from the Blickweiler workshop; the figure has not been recorded on bowls stamped by Austrus from Brian Hartley's excavations at Lezoux (pers. obs.). Sacer II and potter X-13 may be the same individual (Pengelly, Hartley and Dickinson 2001 p.190, 76 U/S). In view of the fabric a Hadrianic to early Antonine date would be appropriate. *c.*AD 125-145.

92) **G1265 (4145)**
SG Dr 29. Lower zone, with a winding scroll; the narrow, raised lobe possibly caused by an error in the design, contains a plant motif (Hermet 1979 Pl.10,46), from the base, a tendril emanates on either side, ending in small leaves (*ibid* Pl.12,59). In the depressed lobe on the left, a small goose (O.2244). The plant motif within a winding scroll, appears on a Dr 29 stamped by Sex. Iulius Iucundus from the Cala Culip IV shipwreck (Nieto and Puig 2001 No:152). *c.*AD 65-85.

93) **G1276 (4879)**
(a) MdV Dr 37. Same vessel as (2473) and (2924). cf. (2473) for the text. Cettus *c.*AD 135-160.
(b)Lezoux Dr 37. Very micaceous fabric with a matt orange slip. A winding scroll decoration, with a large leaf (not in Rogers 1974 or 1999). Trajanic – Hadrianic.
(c) Lezoux Dr 37. Winding scroll decoration; a segmented motif (Rogers 1974 U262) sits in the raised lobe. The motif has only been recorded for potter P-23, a bowl in the museum at Brugg has the motif in a winding scroll (Rogers 1999 Pl.130, 5d). *c.*AD 140-170.
(d) CG Dr 37. Panel decoration bounded by bead rows with small rings at the junctions. The centre panel has a seated Bacchus (reduced O.571) with a small ring in the top left. The reduced figure, small junction rings and 'rings' in the field were used by Divixtus. *c.*AD 140-160.

Phase 7

94) **G589 (1816)**
SG Dr 30. Body sherd with scroll decoration; three sets of tendrils with an astragal on each. A similar scheme, but in reverse, occurs on a signed Masclus Dr 30 from London (Mees 1995 Taf.107, 3). *c.*AD 50-70.

95) **G1482 (4603)**
MdV Dr 37. Possibly from the same vessel as (5352). A basal wreath of 'ram's horns' (Rogers 1974 G373) bounded by horizontal bead rows. The wreath is only recorded for Quintilianus, however, he didn't use bead rows above and below the wreath as here. Made by one of the anonymous mouldmakers supplying the Les Martres-de-Veyre potters (cf. Terrisse 1968 Pl.XLII, 290). *c.*AD 100-120.

Phase 8.1

96) **G239 (4373)**
(a) SG Dr 30. Two pairs of grass tufts (Knorr 1919 Textbild 12, 12). Not closely dateable. Flavian to Trajanic.
(b) CG Dr 37. An apparent freestyle scene; in the centre right, two pairs of hind legs, belonging to a wild animals, possibly lions, panther or bears. At the far left, part of a tail and hind legs of a third animal. Too little survives of any of the figures to identify with certainty, although the centre figure could be a lion (O.1450) or a bear. Hadrianic to Antonine.

97) **G240 (4189)**
CG Dr 37. Hind legs of a (?)dog running to the right. Hadrianic – Antonine.

98) **G249 (8724)**
CG Dr 37. Portion of a small ovolo, not enough for identification. Hadrianic-early Antonine.

99) **G558 (2198)**
(a) MdV Dr 30. Two joining sherds. Two zones of decoration divided by a horizontal wavy line. The upper zone contains a double bordered medallion, within which are the forelegs of a panther (O.1518 or O.1519). The lower zone consists of

a wreath of 'ram's horns' (Rogers 1974 G377). The wreath and panther were used by X-11; X-13 also used the panther, and a sherd with animals in double bordered medallions is attributed to him (Stanfield and Simpson 1958 Pl.47, 556). At Les Martres-de-Veyre, a frieze of medallions containing animal heads occurs on a bowl attributed to Sacer (Terrisse Pl.XLVI, 369), who we now believe to be potter X-13 (Pengelly, Hartley and Dickinson 2001 p.190, 76 U/S). *c.*AD 100-120.
(b) MdV Dr 30. Body sherd, with an upright striated spindle, to the left, 2 horizontal wavy lines divide the section into 3 panels. In the centre panel, a small trifid leaf (Rogers 1974 ?G109) placed vertically against the striated spindle. *c.*AD 100-120.

100) G558 (2486)
SG Dr 37. Part of a small palm leaf at the bottom of the decoration. The glossy slip would suggest an early Flavian date.

101) G742 (5810)
CG Dr 37. Panel scheme divided by a vertical bead row; the only identifiable poinçon is that of a small human figure (R.3075) used by the 'Large S Potter' (Stanfield and Simpson 1958 Pl.76, 32). *c.*AD 120-145.
102) G743 (4829)
SG Dr 29. Bottom of the lower zone, consisting of a series of upright gadroons. Early Flavian.

103) G745 (4942)
SG Dr 37. A winding scroll decoration. The depressed lobe contains a large leaf and a
'Nile goose' (O.2244); the leaf appears on 2 Dr 37's from the Cala Culip IV shipwreck (Nieto and Puig 2001 Ca.99) and on a Dr 37 from Richborough, stamped by M.Crestio (Mees 1995 Taf.40, 2). The raised lobe has been divided by a horizontal wavy line with a rosette terminal. The upper panel has a scroll ending in a rosette, the lower panel has a diagonal wavy line emanating from the rosette terminal. Flavian.

104) G843 (2420)
SG Dr 29. Upper zone with a row of 5 striated club motifs. Neronian.

105) G843 (2421)
SG Dr 37. An ovolo frieze over a horizontal (?)wavy line. The main decoration appears to be a saltire; a leaf spray design in the upper panel consists of a quadrefoil fan of leaves (Nieto and Puig 2001, Ec.12; Dzwiza 2004 Abb.110, P4.11) flanked by a pair of lanceolate leaves (Hermet 1979 Pl.10, 42). The design is similar to one from Richborough (Samian Research No: 2001655). The leaf Spray is found on a Dr 37 stamped by M.Crestio (Mees 1995 Taf.40, 4) Flavian to Trajanic.

106) G867 (8705)
Lezoux Dr 37 from a worn mould. An ovolo frieze (Rogers 1974 B143 or B144), over a coarse horizontal wavy line; the decorative scheme has a pair of tendrils, probably from a winding scroll. Cinnamus is a possible candidate (cf. Rogers 1999 Pl.34, 77). Early to mid- Antonine.

107) G1045 (5818)
SG Dr 29. Winding scroll from the upper zone, with indistinct tendril bindings. Neronian – early Flavian.

108) G1130 (6464)
Lezoux Dr 37. Horizontal basal ridge. Hadrianic to Antonine.

Phase 8.2

109) G254 (4605)
SG Dr 37. A series of striated buds over a horizontal (?)roped border. cf. (6615) for similar buds. Flavian to Trajanic.

110) G260 (4218)
SG Dr 37, possibly from the same vessel as (5106). A double bordered, serrated festoon over a horizontal wavy line; below, a wreath of upright lanceolate leaves. The wreath design appears on a Dr 37 from the Pompeii Hoard (Dzwiza 2004 No:38), the festoon and wreath appears on a Dr 37 from the Cala Culip IV shipwreck (Nieto and Puig 2001 No:502). A similar scheme appears on a Sulpicius Dr 37, but the leaf is not identical (Mees 1995 Taf.194, 1); the wreath and leaves were used on 2 different bowls by PAS_ (*ibid* Taf.161, 1 and 2). Flavian to Trajanic.

111) G260 (5745)
CG Dr 37. Panel decoration divided by roped borders with a small circular junction mask. The panels from the left are as follows: (i) upper, nothing survives; lower, vestige of an unidentified poinçon. (ii) A tripod (Rogers 1974 Q16); (iii) double bordered medallion, with a vestige of the decoration within. The tripod and roped borders were used both by Banvus and Laxtucissa, and the 'style' could belong to either; the junction mask would favour Laxtucissa. *c.*AD 150-170

112) G260 (5883)
SG Dr 30. A row of horizontal beads at the bottom of the decorative scheme. Pre-Flavian

113) G545 (1283)
(a) SG Dr 29 Upper Zone, large horizontal beads over a hare and a dog running to the right. Neronian – early Flavian.
(b) Lezoux Dr 37. Zonal decoration divided by a horizontal bead row; the upper zone has opposed dolphins (Rogers 1974 U257) as an ovolo replacement. Below, a double bordered medallion or festoon on the right, and a beaded circle (Rogers 1974 C294) on the left. In the style of Drusus I/X-3 who worked at Les Martres de-Veyre, however the fabric is that of Lezoux. We now believe that some of the Les Martres moulds were imported from Lezoux; it's also possible that Drusus I moved to Lezoux at the end of his career. *c.*AD 100-120/125.

114) G577 (3226)
SG Dr 29. Lower zone divided into 2 horizontal bands divided by a wavy line. Above, a wreath (Nieto and Puig 2001 Ef.13a); below, a pair of festoons 'tied' by a horizontal bar; between the festoons a pendant 'bottle bud'. In the festoon on the left, a spiral ending in a heart shaped leaf; in the right, the tail of a bird facing right. The wreath appears on a Dr

29 from the Cala Culip IV shipwreck (*ibid* No:105), and on Dr 29's by Crestus (Dannell et al No:2029) and Castus i (*ibid* No:0287). The festoon arrangement can also be seen on a Dr 29 from Cala Culip IV shipwreck (Nieto and Puig 2001 No:212). *c.*AD 65-85.

115) G599 (2408)
SG Dr 29. Upper zone with a winding scroll design. The raised lobe is filled with rows of large arrowheads, similar, but slightly smaller to ones used by Iucundus (Nieto and Puig 2001 No:267). Early Flavian.

116) G662 (4271)
SG Dr 37. The bottom corner of a saltire, a wavy line diagonal ends in a large rosette. The bottom triangle is infilled with small leaves. Below, a horizontal wavy line and a basal trifid wreath (cf. Knorr 1919 Textbild 12, 7). Flavian.

117) G664 (5137)
EG Dr 37. An abraded sherd. The arc of a single bordered medallion with the leg of an unidentified human figure within. Mid- 2nd to early 3rd Century.

118) G664 (5138)
(a) CG Dr 37. An abraded sherd, showing a panelled scheme divided by a vertical bead row. In the left hand panel, what may be the arc of a medallion; in the right hand panel, Pan O.711. Of the potters using the figure and bead rows, only Cinnamus, and the 'Large S Potter' exported to Britain on any scale. *c.*AD 120-180
(b) Lezoux Dr 37 with a worn footring. No decoration survives, save the horizontal basal ridge, and below, the stamp of Borillus die 10b BORILLIM (retro.). His decorated bowls, which are associated with the Cinnamus workshops are extremely rare outside Lezoux (Hartley and Dickinson 2008 p.104). *c.*AD 145-175.

119) G664 (5675)
CG 37. Vestige of decoration above the horizontal basal ridge. Hadrianic to early Antonine.

120) G666 (3161)
CG Dr 37. From a worn mould. Only the bottom edge of the ovolo survives, the tongue ends in a rosette. The panel scheme is bounded by bead row borders, with a beaded ring placed over the extant junction. The left hand panel contains a double bordered medallion 'tied' to the vertical panel division by a horizontal astragali. The right hand panel contains a double bordered medallion, within, the head of the erotic pair (O.I). Without a clear ovolo, identification of this piece is difficult, ringed junction masks appear on bowls by Cinnamus, Criciro and Divixtus, although Cinnamus' rings are somewhat smaller (inf. B.R. Hartley - Dickinson Collection). Rogers did not record either Criciro or Divixtus as using the erotic figure-type (1999). *c.*AD 140-170.

121) G668 (6271)
MdV Dr 37. Panel decoration divided by a vertical bead row; at the top, a single bordered medallion or festoon containing a (?)cockerel, below a small cross of bead rows, with an unidentified rosettes at the centre, and at the junction with the vertical (not in Rogers 1974 or 1999, but cf. Romeuf 2001 Pl.87, 93). The style is that of Cettus, a bowl from Les Martres-de-Veyre has the cross and single bordered medallion (*ibid* Pl.86, 86). *c.*AD 135-160.

122) G821 (5106)
SG Dr 37, possibly from the same vessel as (4218). A double bordered serrated festoon, over a horizontal wavy line; below, a wreath of upright lanceolate leaves. The wreath design appears on a Dr 37 from the Pompeii Hoard (Dzwiza 2004 No:38), the festoon and wreath appears on a Dr 37 from the Cala Culip IV shipwreck (Nieto and Puig 2001 No:502). A similar scheme appears on a Sulpicius Dr 37 (Mees 1995 Taf.194, 1), but the leaf is not identical; The potter PAS_ used a similar wreath and leaves on 2 separate bowls (*ibid* Taf.161, 1 and 2). Flavian to Trajanic.

123) G1026 (1326)
EG Dr 37. A crack had occurred on the surface of the vessel, allowing the slip to run in before firing. To the left, a double bordered medallion or tendrils of a vine scroll; to the right, part of a leaf. Late second - early third Century.

124) G1043 (4719)
CG Dr 30. Panel decoration bounded by 'squat' bead row borders. Only Perseus (O.234) remains; probably by Cinnamus or an associate. *c.*AD 135-180.

125) G1043 (4874)
CG Dr 37. The decoration has some accidental *pre-cocturum* scoring. A panelled bowl, divided by a vertical wavy line ending in a large ring; in the right hand panel, a dog to the left, over a basal wreath (Rogers 1974 G159 or G172). The style is that of members of the 'Quintilianus group' (cf. Stanfield and Simpson 1958 Pl.70, 21). *c.*AD 125-150.

126) G1043 (5026)
CG Dr 37. The same vessel as (4568). An ovolo frieze (Rogers 1974 B28) directly over the decorative scheme, which has a cupid playing a lyre (O.461), and a rosette (Rogers 1974 C282). The ovolo and rosette were used by Quintilianus and two of his associates, Ianvaris I and Sissus I; the figure is new to the Quintilianus group, and the absence of a horizontal border between the ovolo and main decoration is unusual for them. Hadrianic – early Antonine.

Phase 8.3

127) G675 (5208)
SG Dech. 67. An ovolo frieze over a pair of torch bearers (O.975). The ovolo appears on a Knorr 78 from La Graufesenque (Samian Research No:5000019), and has only been recorded on 5 other vessels, all from there, (4) Dech 67 and (1) Hermet 15. Decorated ware associated with this ovolo suggests a Flavian date.

128) G759 (4255)
SG Dr 29. Part of the upper zone, and appears to be a hare running to the right, underneath a rosette. Neronian to early Flavian.

Phase 9.1

129) G543 (1159)
CG Dr 37. Blurred decoration, possibly the legs of a large bear to the left (?O.1606); Rogers (1999) identifies Sissus I and the potter Me….. using the figure. Trajanic to early Antonine.

130) G563 (2236)
CG Dr 37. An ovolo frieze (Rogers 1974 B164) over a roped horizontal border (*ibid* A34). All that remains of the decorative scheme is a portion of a double bordered arcade or medallion. Iullinus is the only potter recorded using the ovolo, he also used roped borders, double bordered medallions and arcades (cf. Stanfield and Simpson 1958 Pl.126, 11 and 18). *c.*AD 160-190.

131) G585 (1246)
SG Dr 37. A horizontal chevron wreath bounded by wavy lines; what could be the leg of a running animal in the panel above. A similar scheme appears in the Pompeii Hoard (Dzwiza 2004 No:43). Flavian.

132) G596 (2219)
(a) SG Dr 30. 2 sherds possibly from the same bowl. The ovolo is worn and unidentifiable. The panel decoration is divided by a vertical wavy line topped by a rosette terminal; to the right a saltire, to the left a tendril ending in a small tulip leaf. Neronian
(b) CG Dr 37. Abraded decoration. Panel decoration divided by vertical bead rows. The centre panel contains the lower half of Aesculapius (O.905) over one half of an inverted leaf motif (Rogers 1974 L11). The use of the leaf in this position is confined to the Cinnamus workshop. *c.*AD 135-180.

133) G596 (2333)
MdV Dr 30. The ovolo (Rogers 1974 B56) over a horizontal wavy line. The decorative scheme has the arms of a nude figure (O.677) within a double bordered arcade or medallion, and a cupid (R.3013). The ovolo was used by X-11, as were double bordered arcades and wavy lines; the nude is recorded for P-10, and the cupid for X-2. *c.*AD 100-120.

134) G680 (4455)
MdV Dr 37. Part of a male left leg. The fabric and surface colour would suggest a date post AD 120; if it is a product of the Cettus workshop, then the figure could be Bacchus (O.566). Hadrianic to early Antonine.

135) G681 (4597)
(a) SG Dr 29. Palm leaf wreath in the upper part of the lower zone. Neronian – early Flavian.
(b) CG Dr 37. Winding scroll decoration, with a large leaf (Rogers 1974 H21) in the raised lobe. The leaf was used by Attianus II, Cinnamus and Paternus II. All 3 used winding scrolls. Antonine.

136) G688 (4102)
SG Dr 37. From a worn mould. The ovolo could be the same as that on a vessel from La Graufesenque (Dannell No:200273), over an indistinct horizontal border. Flavian toTrajanic.

137) G771 (4159)
Lezoux Dr 30 or 37. The extant poiņcons are fragmentary, making identification impossible. An ovolo frieze over a horizontal bead row. The panels are demarcated by vertical bead rows and a small rosette at the extant junction. The left hand panel contains a Caryatid (O.1199, O.1199B or O.1201A); in the right hand panel, a double bordered medallion. Mid- to late Antonine.

138) G772 (4934)
CG Dr 37. An ovolo frieze (Rogers 1974 B206) over a horizontal bead row; Censorinus, Laxtucissa, Paternus II and Paullus are likely candidates for making this bowl. *c.*AD 150-190.

139) G831 (5731)
(a) SG 37. The only extant decoration is the very top of the ovolo Frieze. Flavian to Trajanic. Not ill.
(b) CG 37. Vestige of decoration above the horizontal basal ridge. Hadrianic to Antonine.

140) G1048 (4444)
SG Dr 29. Slightly overfired. An upper zone with a pair of double bordered festoons 'tied' by an astragal; between, a pendant roped column terminating in a pair of horizontal bars. In the right hand festoon, the tail of a bird. Neronian.

141) G1050 (2245)
SG Dr 30. Most of the decoration has flaked off, but the head of a bird to the left is visible. Neronian.

142) G1050 (2370)
CG Dr 37. Panel decoration divided by bead row borders, with a rosette placed on the vertical just below the junction. The left hand panel contains a Hercules (O.783); in the upper right hand corner, a small ring, and a horizontal astragali in the lower right hand section. The Hercules was used primarily by X-13, Criciro, Divixtus and Doeccus. Criciro or Divixtus are the most likely, they both used rosetted junction masks, small rings and astragali 'in the field'. *c.*AD 140-165.

143) G1050 (4392)
(a) SG Dr 37. Part of a panel design with an indistinct vertical division. The left hand panel contains a saltire, with a tendril in the right hand section. In the right hand panel, a column supporting a 'chevron' arcade (cf. Hermet 1979 Pl.34, 40). Flavian to Trajanic.
(b) CG Dr 37. An ovolo (Rogers 1974 B143) used by Cinnamus, Pugnus and Secundus I. *c.*AD 140-170.

144) G1086 (4114)
(a) SG Dr 37. Ovolo frieze over a horizontal wavy line; below, the tip of a 'bottle bud'. Only part of a single ovolo tongue survives, enough to suggest that it has a trident tip. Flavian.

(b) CG Dr 30. Panel decoration divided by a vertical bead row. The left hand panel contains a Caryatid (?O.1201A), the right hand panel has an erotic figure-type (O.H), although reduced. No two potters are recorded as using both figures. Mid - late Antonine.

145) G1050 (4873)
(?)MdV Dr 37. Panel decoration divided by a vertical bead row, with a small astragali placed horizontally over the extant division (Rogers 1974 ?R64; Romeuf 2001 Pl.132, 6). The right hand panel contains a nude figure (O.660) over a cupid (?O.419). Cettus of Les Martres-de-Veyre is the only potter recorded as using both figures, a bowl of his from Les Martres has the figure, beads and astragal (Romeuf 2001 Pl.91,176). The fabric may be Les Martres, however the slip is reddish brown rather than the orange-salmon pink which one would expect of Cettus' bowls. Hadrianic to early Antonine.

146) G1050 (4969)
SG Dr 37. An ovolo frieze over a panelled scheme bounded by wavy line borders with a rosette at the extant junction. The only panel probably contains a saltire with wavy line diagonals; the upper triangular panel contains a frilly lanceolate leaf (cf. Hermet 1979 Pl.10, 46). The ovolo is found on a bowl from La Graufesenque stamped by M.Crestio (Samian Research No:29002560). *c.*AD 80-110.

Phase 9.2

147) G590 (1122)
(a) SG Dr 30 or 37. Rim with portions of a smeared ovolo (not illustrated). Flavian to Trajanic. Not ill.
(b) CG Dr 30 or 37 flake, with very little decoration. A horizontal bead row over an unidentified poiņcon with a serrated edge. Antonine.

148) G734 (4568)
CG Dr 37. Same vessel as (5026). Ovolo frieze only (Rogers 1974 B28). cf. (5026) for a discussion of this vessel. *c.*AD 125-150.

149) G736 (4575)
SG Dr 37. A decorative scheme comprised of two horizontal zones separated by a wavy line. In the upper zone, a tree with a semi-circular base with grass tufts (cf. Hermet 1979 Pl.14, 87) on either side. To the right, what may be the fore or hind leg of an animal. The Lower zone appears to be a winding scroll. The tree and grass tufts appear on bowls by Sabinus II and III (Mees 1995 Pl.178, 4 and Pl.179, 2), and Crucuro (Dannell 1999 Fig.2.21, 290); a Dr 37 from Caerwent has similar scheme to ours (''Pit Ho. XV 1910 19 to 20ft''). *c.*AD 80-100.

150) G835 (4269)
(a) SG Dr 29. Lower zone with a (?)hunting scene, a hare or doe running to the left; the forelegs of a the chasing animal are just visible. Late Neronian – early Flavian.
(b) SG Dech 67.Part of a panelled scheme, with a vertical border ending in a rosette terminal; to the right, a small goose (O.2244). Flavian.

151) G1483 (4137)
(a) SG Dr 30. Body sherd with a winding scroll design with a butterfly tendril binding; a stirrup leaf sits in the depressed lobe. Late Neronian-early Flavian.
(b) SG Dr 30. The very bottom of a panelled scheme, bounded by (?)straight borders, with a junction mask of either a blob or rosette, where the vertical meets the horizontal bottom line. The tip of an unidentified poiņcon is visible in the right hand panel. Flavian to Trajanic.

Phase 10

152) G1053 (4224)
SG Dr 37. Panelled decoration above a basal wreath of 'S' motifs. The left hand panel contains a series of diagonal wavy lines; the right hand panel has a lion running to the right (O.1400), over a grass tuft (Knorr 1919 Textbild 12, 12). The general scheme can be seen on a bowl in the Pompeii Hoard (Dzwiza 2004 No:75) and a bowl from the Cala Culip IV shipwreck (Nieto and Puig 2001 No:522). Flavian.

153) G1293 (4586)
SG Dr 29. The upper zone has a wreath of trifid motifs interspersed with centered circles, the design appears on numerous vessels in the Cluzel 15 deposit at La Graufesenque (e.g. Dannell Cluzel 15 catalogue No:ACL 167. The lower zone has a winding scroll; the depressed lobe contains tendrils ending in serrated heart-shaped leaves and a small 5-pointed leaf. An exact arrangement with almost identical poincons can be found on a Dr 29 from the Cluzel 15 deposit (Dannell Cluzel 15 catalogue No: CL 124). *c.*AD 55-70.

Phase 13

154) G632 (1007)
SG Dr 37. Lower part of a winding scroll bowl; the raised lobe contains a tendril ending in a palm leaf. Flavian

155) G633 (1156)
SG Dr 37. A series of 'S' motifs over a horizontal wavy line; below, a chevron wreath, each leaf separated by a dot. Similar schemes appear in the Pompeii Hoard and Cala Culip IV shipwreck (Dzwiza 2004 No:37; Nieto and Puig 2001 No:106). Flavian.

156) G634 (2213)
CG Dr 37. An ovolo frieze (Rogers 1974 B185) over a horizontal bead row border; below, a bird (O.2250A) within a festoon. Criciro used both the ovolo and the bird. *c.*AD 135-165.

157) **G634 (2215)**
CG Dr 37. Abraded sherd. The ovolo frieze has been partly obliterated by the bowl finisher, over a coarse horizontal wavy line. The panel scheme is demarcated by (?)bead row borders. The left hand panel contains the vestige of decoration; centre, the head of an unidentified figure. In the right hand panel, a chevron festoon tied to the panel border by a horizontal astragal. Hadrianic to early Antonine.

158) **G693 (4235)**
SG Dr 30. An ovolo frieze directly over the main decoration, which is divided into 2 panels by a vertical wavy line, terminating at the top in a large rosette. A tendril emanates from the rosette into the left hand panel. Into the right hand panel, a diagonal wavy line from the rosette forms part of a saltire; in the upper triangle, a spray of 3 wavy lines, only 2 of which have extant terminals, a 'bottle-bud' and a trifid leaf with a hollow centre. The ovolo and bottle bud occurs on a Dr 30 from Lyon (Samian Research No:1001943), which is associated with Iustus i, Calvus i, and possibly Passienus. The lack of a horizontal division between the ovolo and the main decoration would point towards Calvus i being the likely mouldmaker. *c.*AD 60-80/85.

159) **G782 (4569)**
SG Dr 37. A pendant fan-shaped bud over the horizontal basal ridge. The bud has been noted on bowls in the Cala Culip IV shipwreck (Nieto and Puig 2001 Ef.19). Flavian.

Phase 14

160) **G645 (2409)**
Lezoux Dr 37. The fabric is very micaceous, with a slight orange slip. The sherd has been abraded, and shows the vestige of decoration above the basal ridge. Trajanic to Hadrianic.

Unphased

161) **Unstratified (4029)**
CG Dr 37. An ovolo frieze (Rogers 1974 B143) over a horizontal bead row. All that remains of the main decoration is a large leaf (*ibid* H21). Only Cinnamus used both poinçons. *c.*AD 140-160+.

162) **Unstratified (5423)**
SG Dr 37. Thin walled vessel with a glossy slip. An indistinct vertical panel division, a vestige of a small double bordered ?medallion. Flavian.

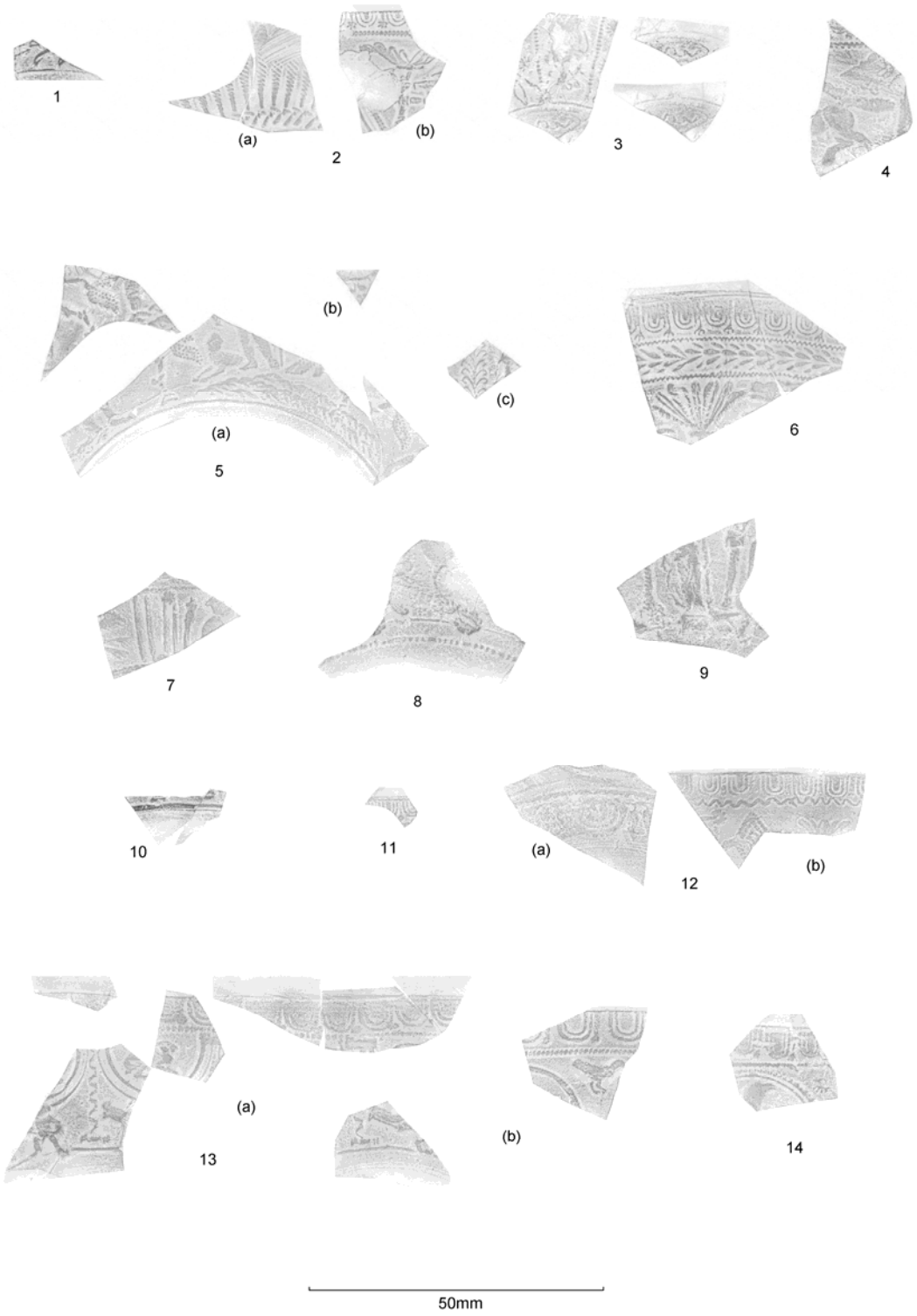


Figure 1: The Roman Pottery: the decorated samian, 1-14

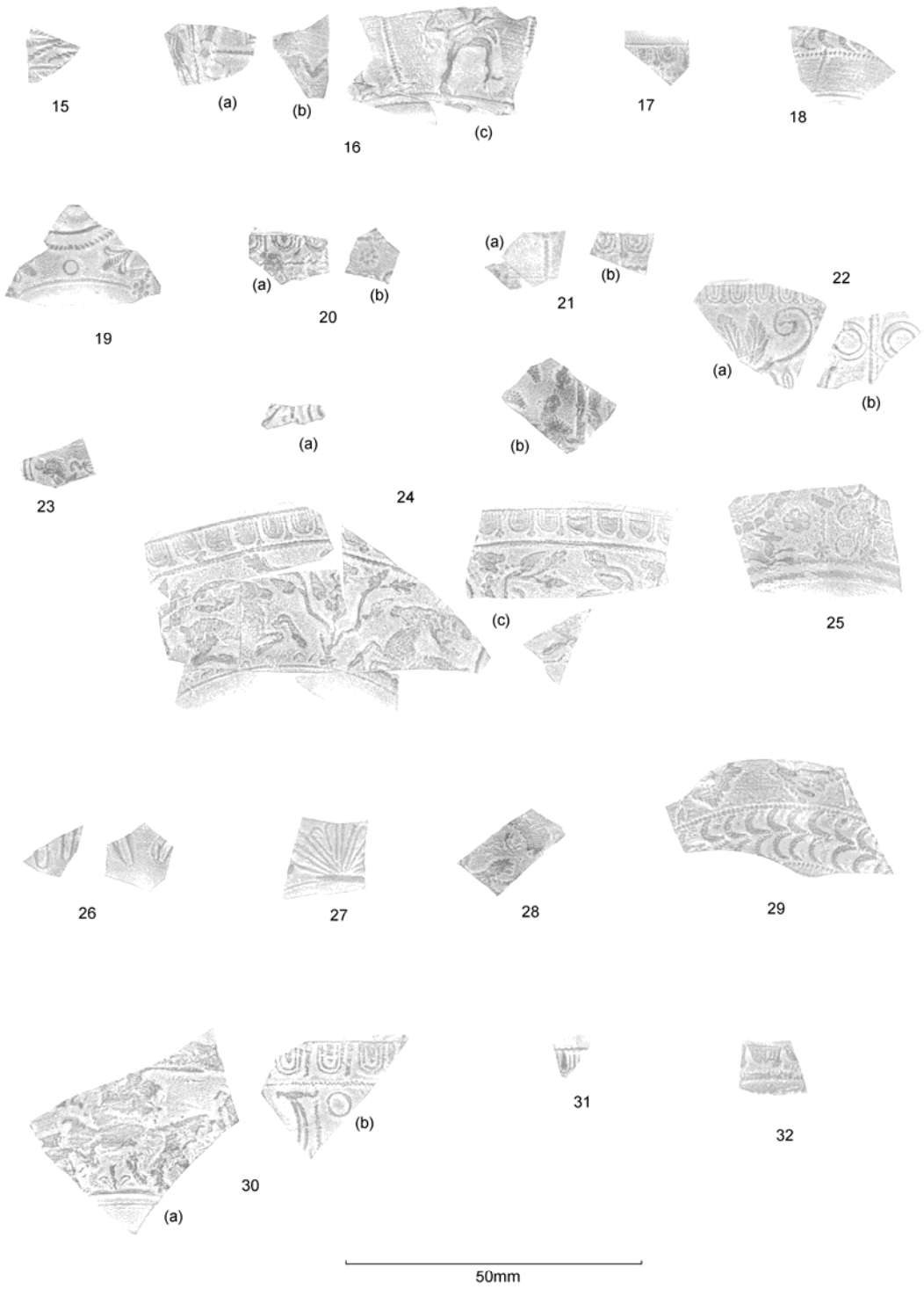


Figure 2: The Roman Pottery: the decorated samian, 15-32

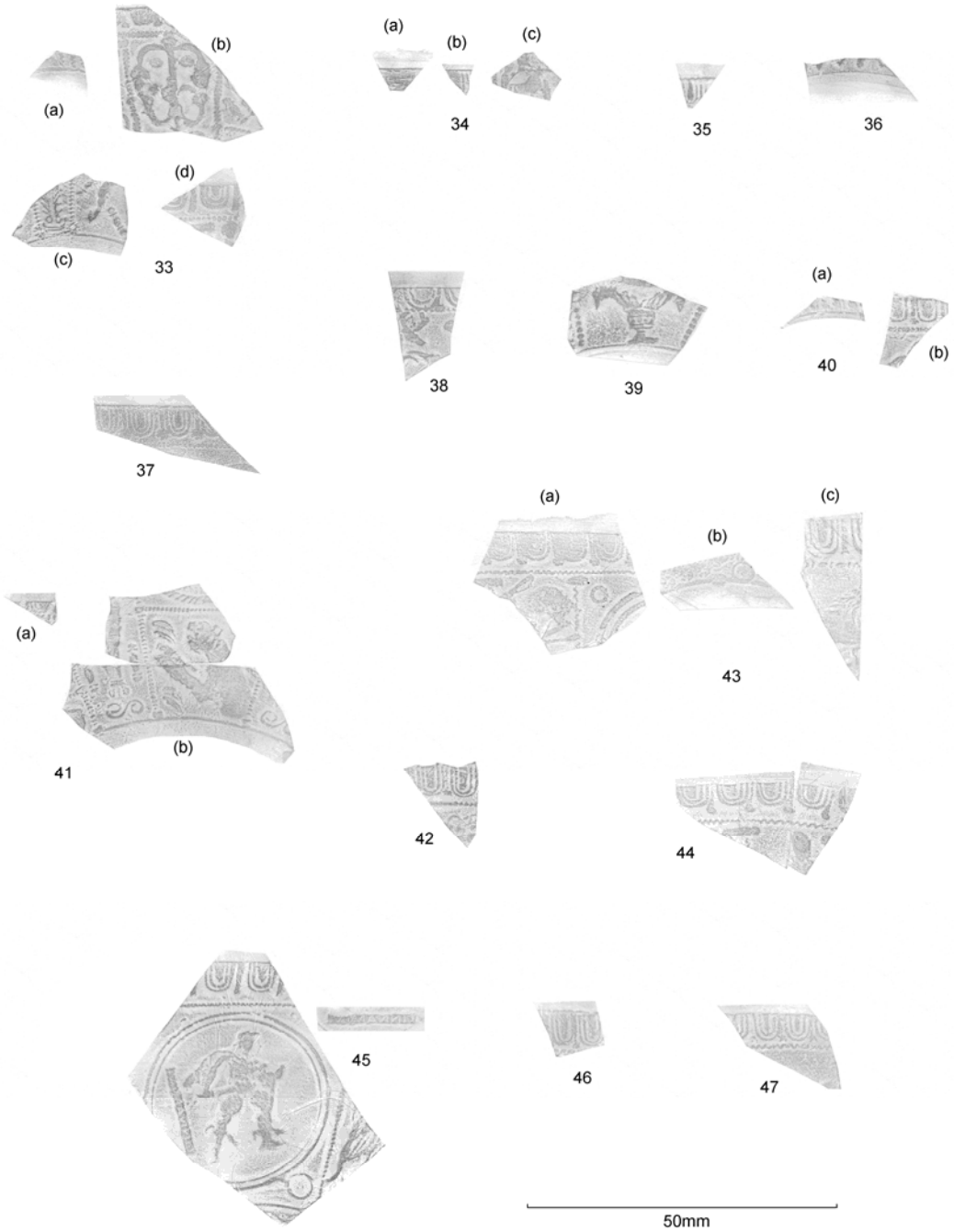


Figure 3: The Roman Pottery: the decorated samian 33-47

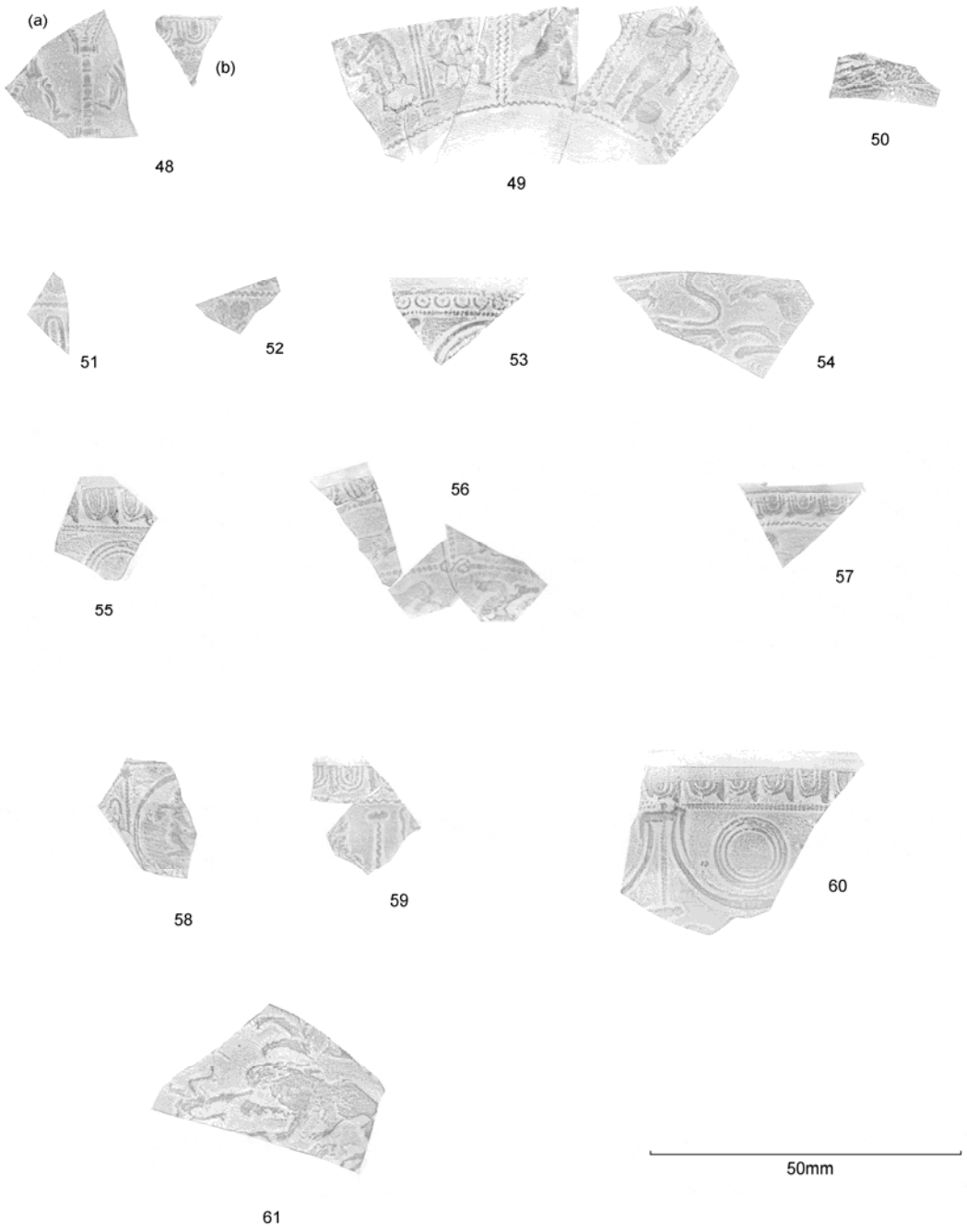


Figure 4: The Roman Pottery: the decorated samian, 48-61

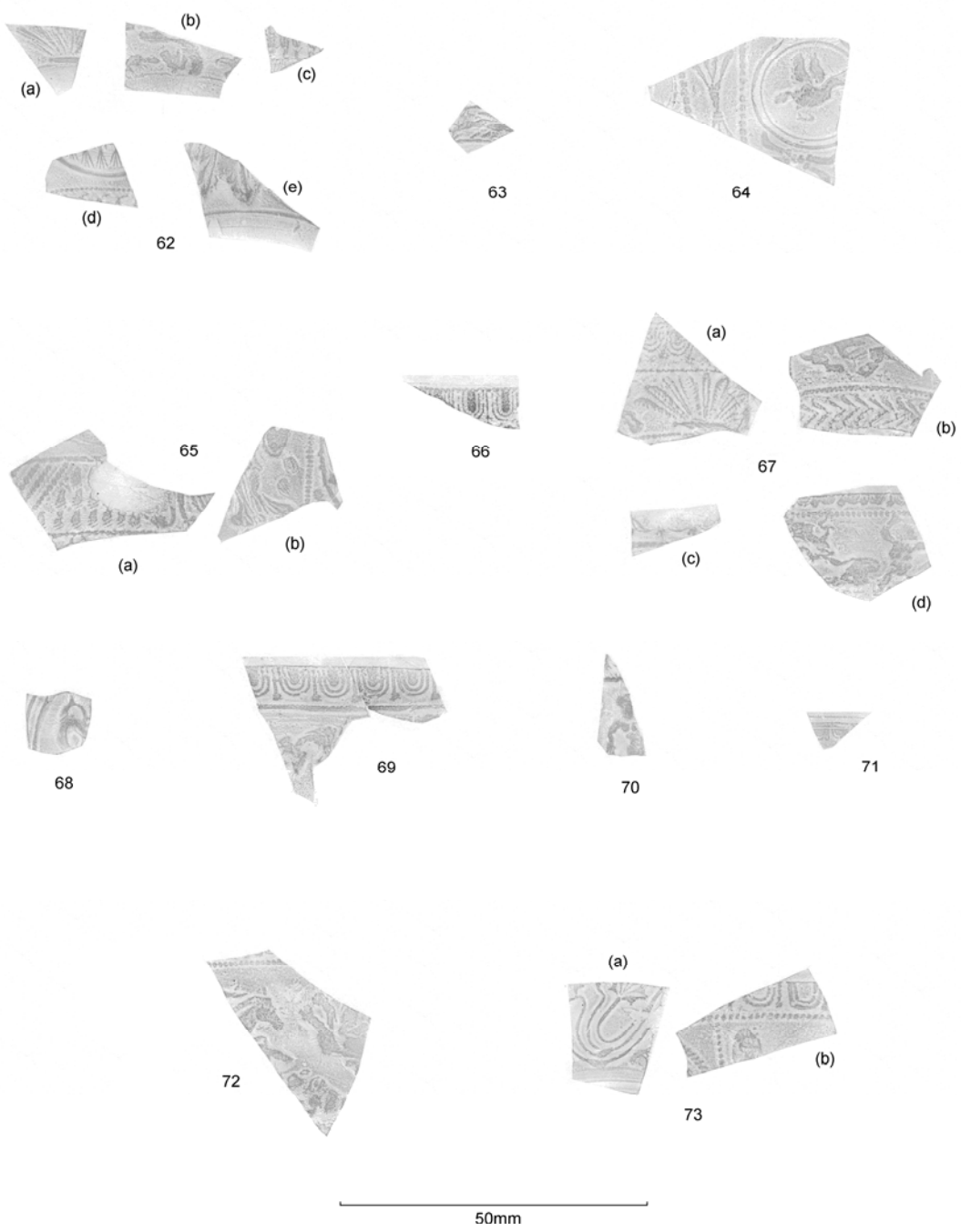


Figure 5: The Roman Pottery: the decorated samian, 62-73

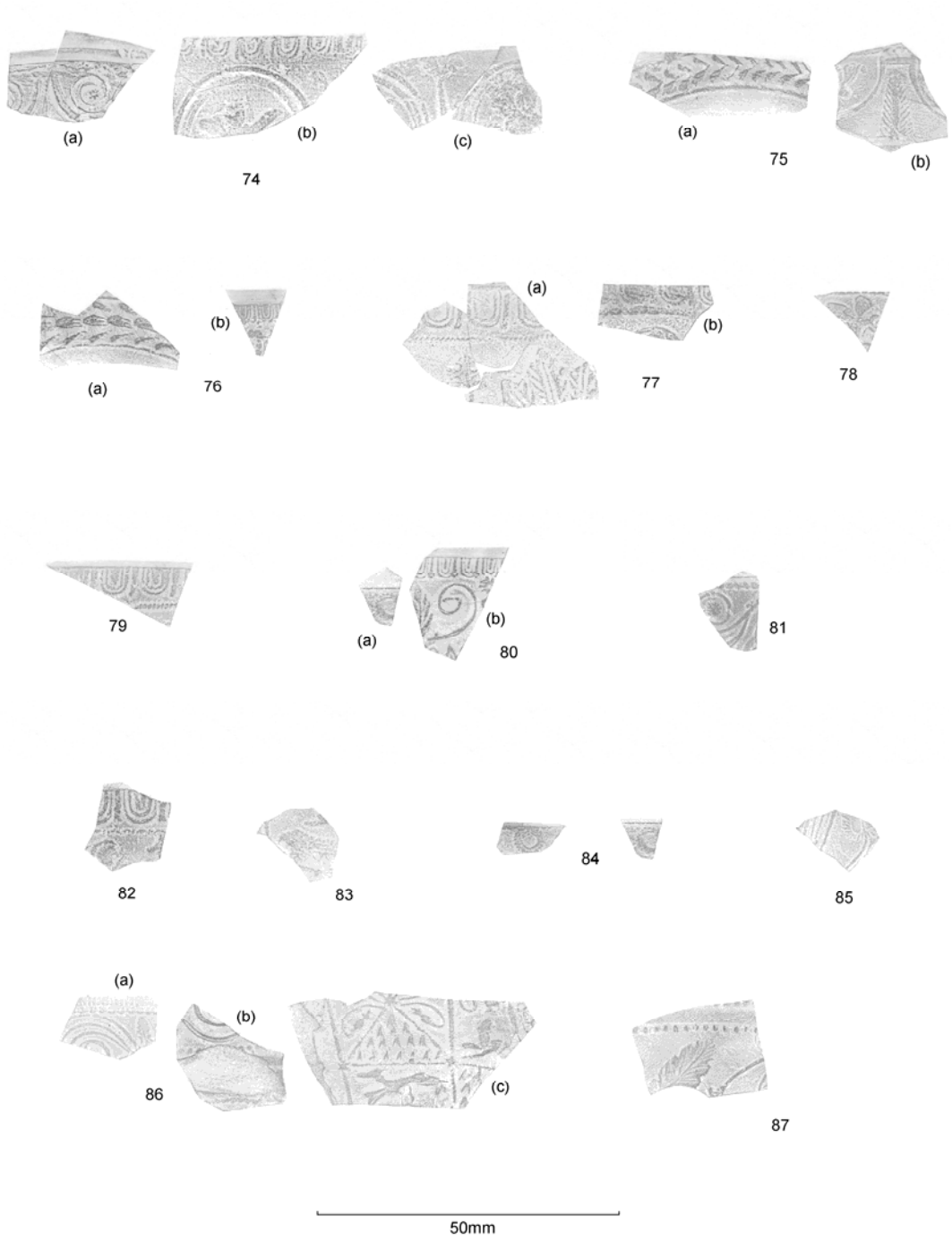


Figure 6: The Roman Pottery: the decorated samian, 74-87

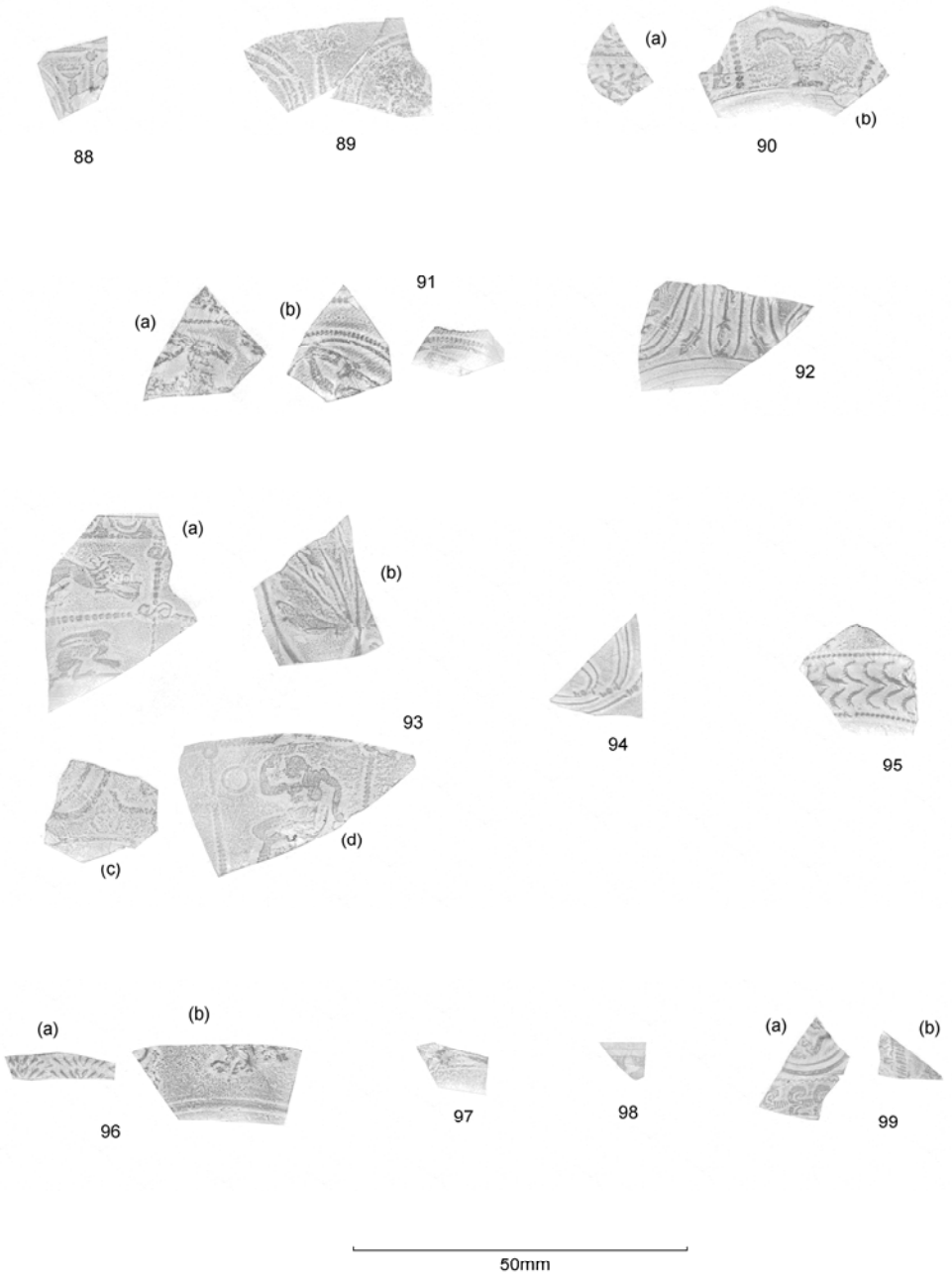


Figure 7: The Roman Pottery: the decorated samian, 88-99

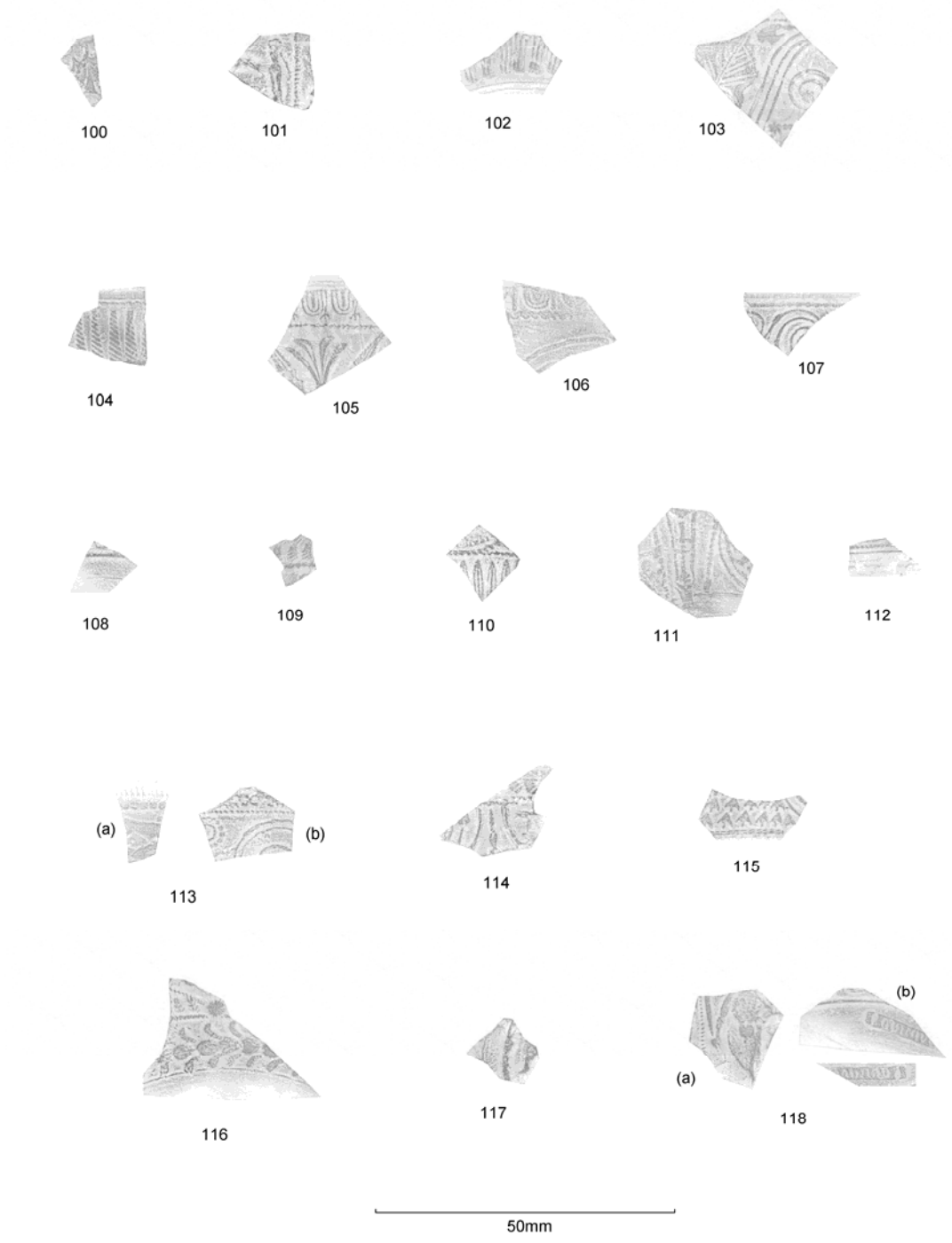


Figure 8: The Roman Pottery: the decorated samian, 100-118

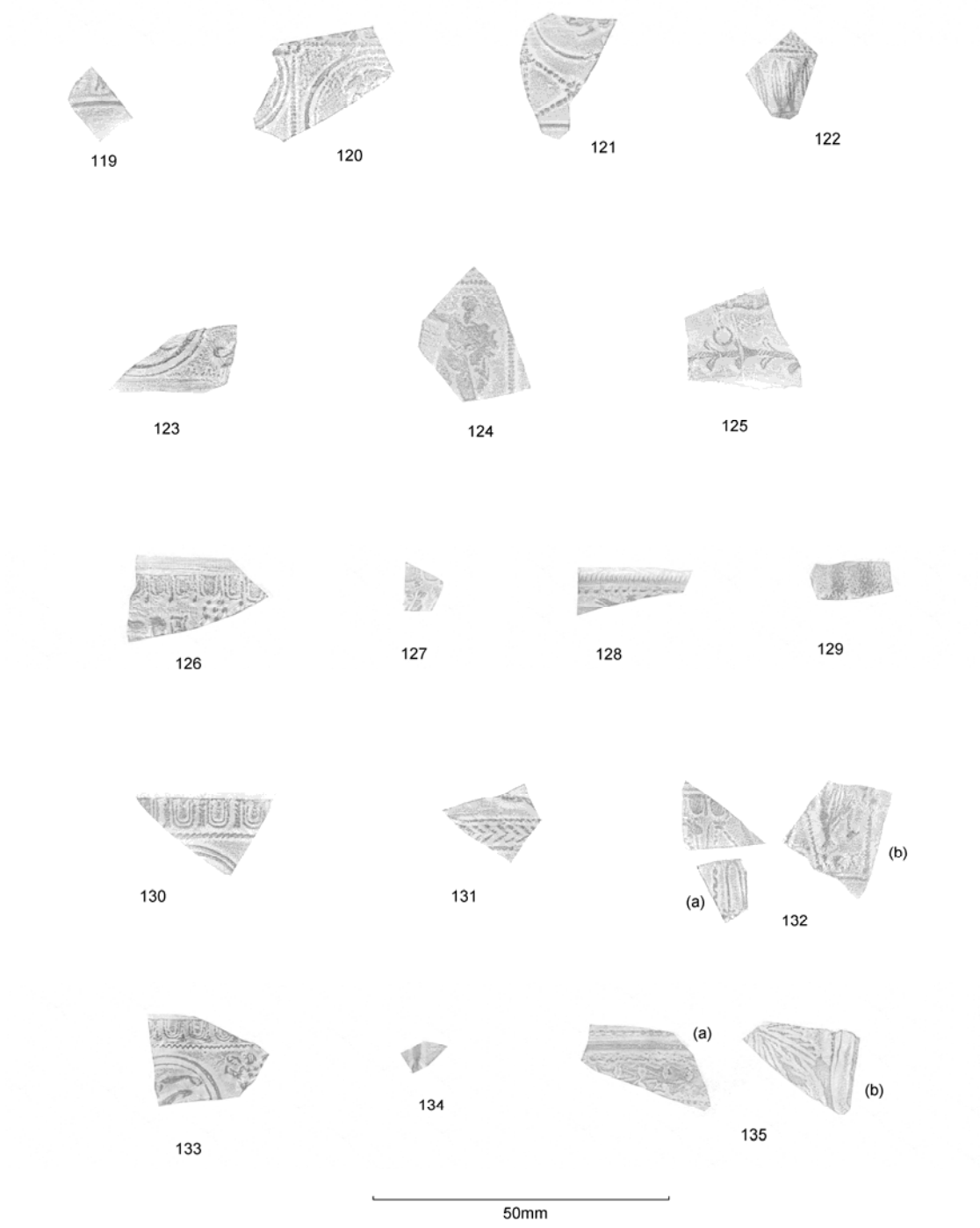


Figure 9: The Roman Pottery: the decorated samian, 119-135

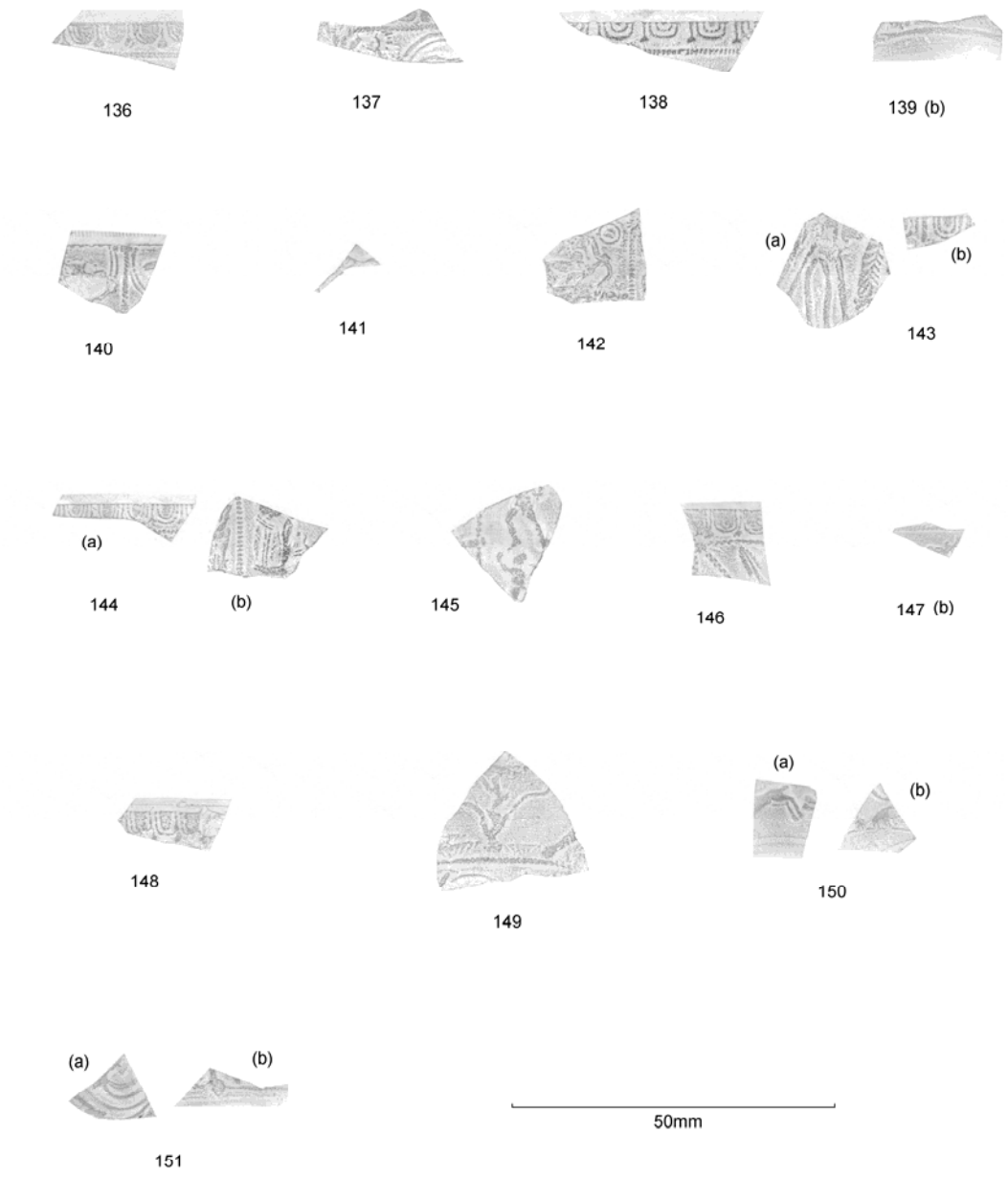


Figure 10: The Roman Pottery: the decorated samian, 136-151

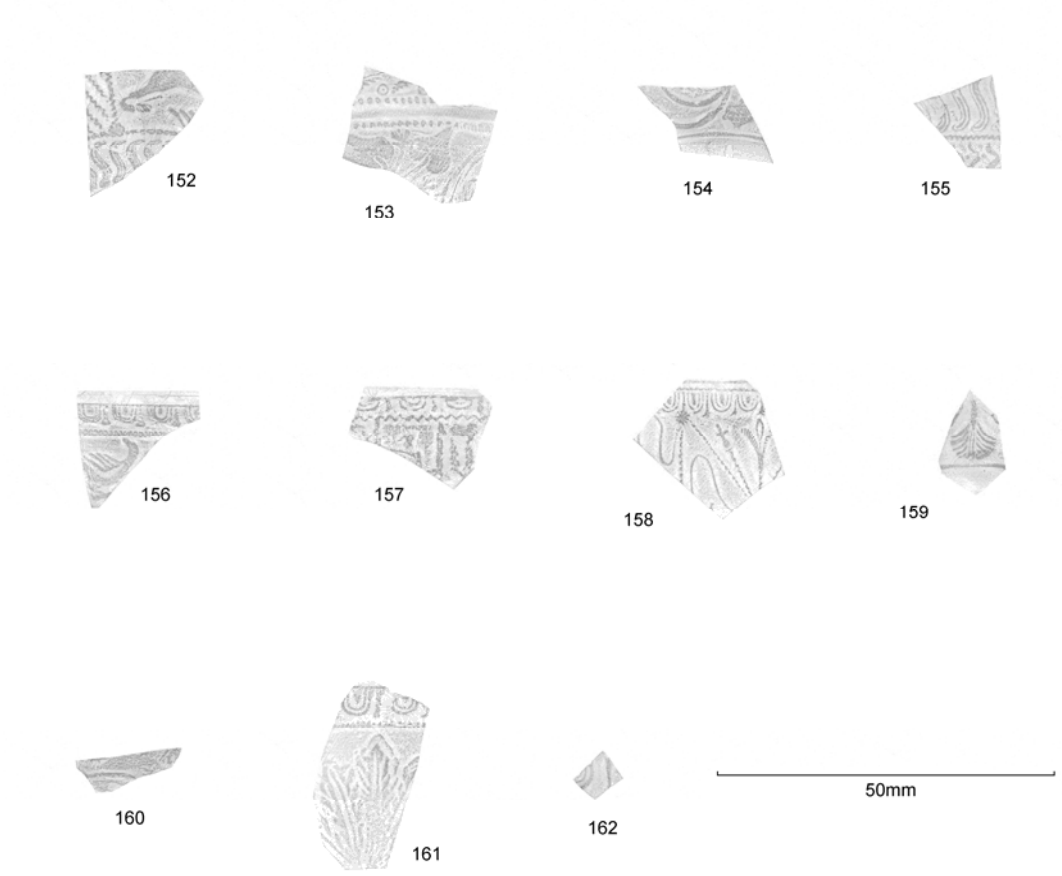


Figure 11: The Roman Pottery: the decorated samian, 152-162

Catalogue of Samian Stamps and Signatures

Phase 2.2

1) **G292 (2631)**
(a) SG 15/17 Aquitanus die 1a OF·AQVITANI (A and N ligatured). The die has previously been recorded on a Dr 18 from Leicester (624/1962) (Hartley and Dickinson 2008a p.229). *c.*AD 40-65
(b) SG Dr 27g. Unidentified partial stamp. Pre-Flavian
(c) Lezoux Dr 33. Unidentified NIIIV·II/\ Hadrianic or early Antonine.

Phase 2.3

2) **G359 (3751)**
(a) SG Dish or platter. Unidentified O[ ] or [ ]O. Neronian - Flavian.
(b) Lezoux Dr 37. Signed below the decoration *pre-cocturum* [A]CAUN[ISSA] retrograde. *c.*AD 125-145.

Phase 2.5

3) **G110 (6914)**
SG Dr 33. Unworn footring. Unidentified OFII[ ] Flavian to Trajanic.

4) **G1212 (8217)**
Lezoux Dr 18/31. Albinus iv die 7b AL[BI]NV[S·F] Another example of this die, and on a Dr 18/31 has been found at Leicester (215.96) (Hartley and Dickinson 2008a p.130-132). *c.*AD 135-165.

Phase 3.1

5) **G784 (2633)**
CG Dr 18/31. Unidentified [ ]CI·M Hadrianic to early Antonine.

6) **G910 (2836)**
Lezoux Dr 33. Osbimanus OSBIM Wear on the internal base on the outer edge. *c.*AD 150-180 (Dickinson 1999 p.134 S717).

7) **G1206 (6377)**
MdV Dr 37, partly burnt and joins (2979). Below the decoration, a *pre-cocturum* stroke which appears to be a signature rather than a mould crack. *c.*AD 100-120.

Phase 3.2

8) **G126 (6725)**
CG Dr 18/31 or 31. Unidentified MARC[ ]. Antonine.

9) **G790 (5319)**
(a) SG Dr 27g. Unidentified ITS[ ] Flavian.
(b)EG Dr 31R. Unidentified, possibly Sacrillus. SAC[ ]M Late Antonine to early 3rd Century.

Phase 3.3

10) **G163 (6543)**
Dr 33 Too heavily bunt to identify origin of manufacture, and the slip has melted into the spaces between the letters, possibly VI[ ] or [ ]IA. A graffito, 'VII' has been scratched on the underside of the base *post-cocturum* and before being burnt. 1st-3rd century.

11) **G1328 (6622)**
SG Platter. Unidentified OF[ ]. 1st Century.

Phase 3.4

12) **G450 (4584)**
(a) SG Dr 27g Unidentified, possibly Rogatus. /\OC/\II The slip would suggest a pre-Flavian date
(b) MdV Dish or platter base. Unidentified, possibly reading [ ]ISM[ ] *c.*AD 100-120.

13) **G786 (2924)**
CG Dr 18/31R or 31R. Unidentified, possibly Uxopillus [ ]OPILLI·M or [M]APILLI·M. Mid- Antonine.

Phase 3.5

14) **G156 (6276)**
CG Dr 27. Unidentified, retrograde F[ ]. Hadrianic – early Antonine.

15) **G189 (8717)**
CG Dr 33 Borillus i of Lezoux, die 5b BORI[LLIOF] The die has previously been recorded on 4 vessels from Leicester, 2 Dr 31s (302.1971 IV 68; and 295.1973 I 132) and 2 Dr 33s (302.1971 IV; and 295.1973.1) (Hartley and Dickinson 2008b p.100-104). *c.*AD 145-175.

16) **G218 (6907)**
MdV Dr 18/31 or 31. Reginus ii REGINI·M[ ]. Romeuf illustrates 2 examples from her excavations at Les Martres de Veyre (2001 Pl.36,140 and 141; p.46). Dickinson dates a Reginus ii 1a stamp with our reading to *c.*AD 130-150 (1997 p.964 No:3624).

17) **G382 (2777)**
(a) CG Dr 33. Unidentified ILIIO[ ] Wear to the outer edge of the internal base, and slight wear to the footring. 2nd century.
(b) CG Dr 31. IVLL[ ]I/\[ ] Late Antonine.

18) **G413 (2051)**
CG Dr 33 Unidentified, possibly Geminus [ ]MINIF 2nd century.

19) **G847 (2591)**
CG Dr 37. Joins (2852). Cinnamus ii die 4b CINNAMIM (retrograde). The die has previously been recorded on a Dr 37 from Leicester (3216.87; Hartley and Dickinson 2008c p.22-31). Rogers suggests that the ovolo and stamp belong to Cinnamus' 'Style B' *c.*AD 140-160+ (Rogers 1999 p.99-100).

20) **G928 (4888)**
CG Dr 33. Aeternus of Lezoux die 2a AETERNIM retrograde. The die occurs on the following sherds from Leicester Dr 18/31(?) (M1304); Dr 33 (3182.87); and a Walters 80 (316.1953) (Hartley and Dickinson 2008a p.92-93). *c.*AD 160-180.

21) **G1388 (4821)**
EG Bowl. Unidentified rosette stamp, of a 5 beaded ring with a centre dot. Mid- 2nd to mid- 3rd century.

Phase 3.6

22) **G399 (2619)**
CG Dr 33. Unidentified [ ]NI or IN[ ] Antonine.

23) **G945 (6107)**
CG Dr 33 (?)Patricius ii PATRICIVSF The 'T', 'R' and 'C' look 'clogged'. Patricius ii stamps from Wanborough, Wiltshire and Castleford are dated *c.*AD 140-170 (Dickinson 2001 p.203 No:207; Dickinson and Hartley 2000 p.82, No:112).

24) **G947 (5284)**
CG Dr 18/31 or Dr 31. Unidentified, possibly Suobnedo [ ]OBNEDOE with ligatured N and E. Antonine.

25) **G1345 (2488)**
CG Dr 33. Illixo ILLIXXONIM At Verulamium, Illixo is dated *c.*AD 155-180 (Hartley 1972 p.250 S118).

Phase 3.7

26) **G802 (5755)**
CG Dr 18/31. Unidentified [ ]VIIDIA[ ]. Hadrianic to early Antonine.

27) **G1063 (5352)**
CG Dr 18/31, Suobnus SVOBNM M Between the two M's, a small leaf. Early Antonine.

28) **G1408 (5567)**
SG Platter. Unidentified [ ]NV First Century.

Phase 3.8

29) **G415 (2053)**
CG Bowl. Unidentified [ ]M Antonine.

30) **G1127 (6875)**
CG Dr 33. Unidentified [ ]IO or [ ]TO. Wear to the foot. Antonine.

31) **G1131 (6416)**
(a) Unident
(b) CG Dr 31 Cinnamus ii die 5e CI[NNAMI]. Hartley and Dickinson only record 10 examples of this die, with one exception, all from England (2008c p.22-31). Later Antonine.

Phase 3.9

32) **G1098 (8142)**
Lezoux Dr 18/31R or Dr 31R. Unidentified [ ]M. 2nd Century

Phase 4.1

33) **G508 (1194)**
(?)CG Dr 18/31 Unidentified VI[ ] or IV[ ] The slip had 'crazed' on the upper and lower surfaces before or during firing. Hadrianic to early Antonine

34) **G521 (2209)**

CG Dr 33. Cintusmus i die 5a CINTVSM. Six other examples of Cintusmus' stamps are known from Leicester (Hartley and Dickinson 2008c p.38-43). *c.*AD 140-180.

35) G526 (3488)
CG Dr 31 Unidentified [ ]EVS. Late Antonine.

Phase 4.6

36) G744 (5152)
SG Dr 27g. Vitalis ii .VITA. Polak dates Vitalis' main output to *c.*AD 65-100 (2000 p.354-8).

Phase 4.7

37) G253 (4221)
CG Dr 18/31 or Dr 31 base. Unidentified, SACIIRI[ ] Mid - late Antonine.

38) G511 (2235)
EG Dr 31R. Hibernalis of Rheinzabern HIB[IIRNALIZF] (Hofmann Pl.XII,119). If the identification is correct, then this is the second stamp of his from Leicester (116.196226). Outside of Rheinzabern, only eight other vessels are known, seven of those from Britain (Hartley and Dickinson forthcoming). Late 2nd or early 3rd Century.

39) G1276 (4879)
CG Bowl or dish. (?)Privatus iii PRIVATIM. *c.*AD 160-190.

40) G1476 (5062)
CG Dr 18/31R. (?)Maternus iii M·ATER[ ] Early Antonine.

Phase 7

41) G559 (2753)
CG Dr 18/31 Unidentified, possibly Mainacnus of Lezoux. MA[ ]CN[ ] or MA[ ]CM[ ] Clogged die, and possibly a crack running through the 'C'. Early Antonine.

Phase 8.1

42) G701 (4707)
SG (?)Dr 18/31 Unidentified, possibly OF Patrc (Patric). OF P/\TRO Clogged die. Flavian to Trajanic.

43) G743 (4829)
SG Dr 18. Cosius Rufinus die 5a COSIRVFI Five other stamped vessels of his are known at Leicester (Hartley and Dickinson 2008c p.132-137). *c.*AD 70-90.

44) G1290 (4894)
CG Dr 33. Unidentified *c.*L[ ]. 2nd century.

Phase 8.2

45) G562 (2642)
SG Cup. Unidentified [ ]TI. Slight internal wear. 1st or early 2nd century.

46) G577 (3226)
SG Dish. Unidentified PR[ ] Neronian to Flavian.

47) G664 (5138)
(a) Unidentified
(b) CG Dr 27. Unidentified [ ]IX·F The stamps of the most likely potter, Divixtus i do not match this one. 2nd Century.

48) G664 (5178)
CG Dr 33. (?)Patricius ii PATRICIVS Patricius ii stamps from Wanborough, Wiltshire, and Castleford are dated *c.*AD 140-170 (Dickinson 2001 p.203 No:207; Dickinson and Hartley 2000 p.82, No:112).

Phase 9.1

49) G680 (4455)
SG Platter or dish. Crestus i die 2a [OF.]CREST. Three examples of this die are known from Leicester, all Dr 18's (233.96; 592.1951; 116.1962/211; Hartley and Dickinson 2008c p.184-189). *c.*AD 65-90

50) G685 (4516)
CG Dr 18/31. Unidentified [ ]OF *c.*AD 120-150/60.

51) G765 (4955)
SG Dr 18/31. Unidentified. Late Flavian to Trajanic.

52) G1050 (4390)
(?)MdV Dr 33. Unidentified [ ]/\II[ ] *c.*AD 100-140.

53) G1050 (4873)
CG Dr 18/31. Hole drilled for a repair. Unidentified [ ]M Hadrianic to mid- Antonine.

Phase 9.2

54) **G1296 (4917)**
EG Dr 33. Unidentified, abraded. Mid- 2nd to early 3rd century.

55) **G1483 (4137)**
SG Small bowl or cup, the centre has been worn smooth. Unidentified [ ]OF 1st or early 2nd century.

Phase 10

56) **G774 (5120)**
CG Dr 33. (?)Maximinus i MAXMIN. Late Antonine.

57) **G1053 (4224)**
CG Dr 33. Ianvaris, IANVARIS ligatured VA. The stamp occurs at Fishbourne (Dannell 1971 p.308, no:48). *c.*AD 140-170.

Unphased

58) **G837 (2386)**
CG Dr (?)33. Tituro or Titurus TITVR[Both potters worked in the late Antonine period.

Additional stamps recorded by G.B. Dannell (not illustrated)

Phase 3.3

G203 (6262)
MdV Dr 33. Unidentified BV[ ] Trajanic.

Phase 3.6

G947 (4982)
CG Dr 18/31R Unidentified SPUTI.MA[ ] Antonine.

G1380 (5904)
MdV Dr 27. Donnaucus DONNAVC.M This must be a mis-reading as Donnaucus ended his stamps either in 'I' or 'F' REF. *c.*AD 100-120.

G947 (6180)
(?)CG Dr 33. Unidentified [ ]IRATI (reading uncertain). Antonine.

Phase 3.7

G1244 (5785)
CG Dr 33 Unidentified INIT[ ]. 2nd century.

Phase 4.6

G223 (8458)
CG Dr 37 Cinnamus [CIN]NA[MI] (?)retrograde. Antonine

Acknowledgements

I would like to thank Mrs J. Bird for reading and commenting on the reports for the stamps and decorated samian; Mr G.B. Dannell for his work in identifying a large number of sherds, and to Dr P. Webster for commenting on various sherds.

Figure 12: The Roman Pottery: the illustrated samian stamps, 1-21

Figure 13: The Roman Pottery: the illustrated samian stamps, 22-48

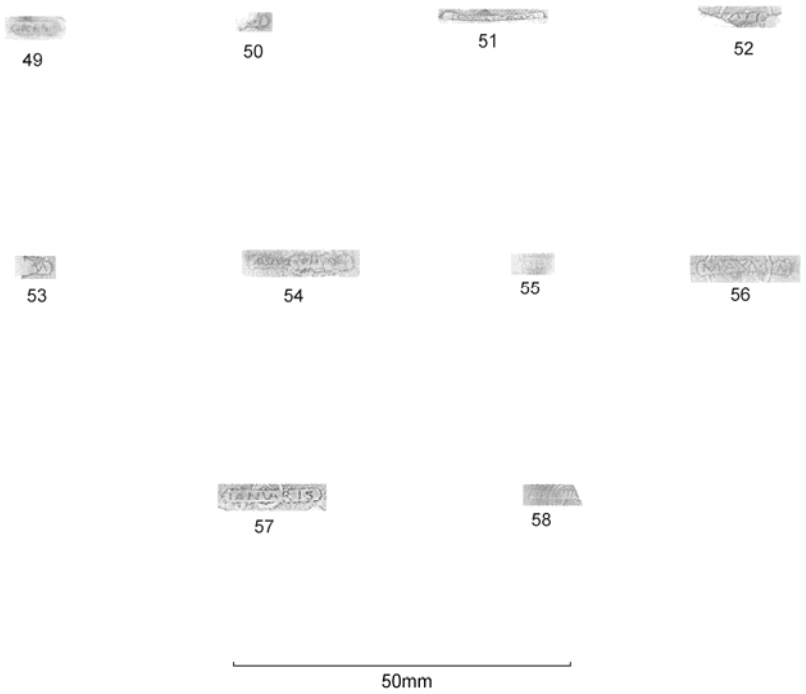


Figure 14: The Roman Pottery: the illustrated samian stamps, 49-58

Selected Groups from Phase 2 (Early Roman: mid- 1st to early 2nd century AD)

Phase 2.2 (Late 1st-early 2nd century AD)

Insula V: Pits G115: (8284); G292: (2631), (2794), (2793), (2837); G326: (2153), (2155), (2974), (2975); G346: (3607), (3667); G347: (3651); G787: (5885), (8158).

The assemblage is formed from a series of pits spread across Insula V comprising 930 sherds weighing 48.258kg, with an EVEs value of 15.27 and average sherd weight (ASW) of 51.9g as detailed in Table 2 below. The variety of forms present is given in Table 3.

Table 2: The Roman Pottery: quantification of Roman pottery from Phase 2.2.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	34	3.7%	0.00	0.0%	11535	23.9%	339.3
BB1	4	0.4%	0.23	1.5%	68	0.1%	17.0
C	4	0.4%	0.11	0.7%	39	0.1%	9.8
CG	172	18.5%	0.92	6.0%	6667	13.8%	38.8
GT	167	18.0%	1.42	9.3%	16189	33.5%	96.9
GW	254	27.3%	5.65	37.0%	5845	12.1%	23.0
MD	1	0.1%	0.00	0.0%	3	0.0%	3.0
MG	72	7.7%	1.00	6.5%	3829	7.9%	53.2
MO	3	0.3%	0.00	0.0%	278	0.6%	92.7
OW	30	3.2%	0.70	4.6%	624	1.3%	20.8
Samian	39	4.2%	0.73	4.7%	462	1.0%	11.8
SW	116	12.5%	4.09	26.8%	2366	4.9%	20.4
WW	34	3.7%	0.43	2.8%	352	0.7%	10.4
Total	**930**	**100.0%**	**15.27**	**100.0%**	**48257**	**100.0%**	**51.9**

Table 3: The Roman Pottery: vessel forms present in Phase 2.2.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	34	3.7%	0.00	0.0%	11535	23.9%
Beaker	15	1.6%	0.50	3.2%	104	0.2%
Bowl	35	3.8%	2.69	17.6%	1124	2.3%
Cup	13	1.4%	0.53	3.4%	110	0.2%
Dish	6	0.6%	0.18	1.2%	52	0.1%
Flagon	12	1.3%	0.20	1.3%	218	0.5%
Flask	4	0.4%	0.00	0.0%	104	0.2%
Jar	653	70.2%	9.93	65.0%	32622	67.6%
Lid	2	0.2%	0.26	1.7%	52	0.1%
Mortarium	3	0.3%	0.00	0.0%	278	0.6%
Platter	17	1.8%	0.67	4.4%	518	1.1%
Strainer	2	0.2%	0.00	0.0%	66	0.1%
Total classified	**796**	**85.6%**	**14.95**	**97.9%**	**46783**	**96.9%**
Misc	134	14.4%	0.33	2.1%	1474	3.1%
Total	**930**	**100.0%**	**15.27**	**100.0%**	**48257**	**100.0%**

Pit G292 dominates the assemblage with 579 sherds (30.679kg) and 10.06 EVEs accounting for approximately two-thirds of the total material present as illustrated by the tables below.

Table 4: The Roman Pottery: quantification of Roman pottery from G292.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	8	1.4%	0.00	0.0%	378	1.2%	47.3
BB1	3	0.5%	0.15	1.5%	37	0.1%	12.3
C	3	0.5%	0.11	1.1%	33	0.1%	11.0
CG	88	15.2%	0.48	4.7%	4856	15.8%	55.2
GT	144	24.9%	0.85	8.4%	15340	50.0%	106.5
GW	145	25.0%	3.60	35.7%	3749	12.2%	25.9
MG	67	11.6%	1.00	9.9%	3731	12.2%	55.7
MO	1	0.2%	0.00	0.0%	101	0.3%	101.0
OW	12	2.1%	0.60	6.0%	325	1.1%	27.1
Samian	24	4.1%	0.44	4.4%	378	1.2%	15.8
SW	71	12.3%	2.65	26.3%	1608	5.2%	22.6
WW	13	2.2%	0.20	2.0%	143	0.5%	11.0
Total	**579**	**100.0%**	**10.06**	**100.0%**	**30679**	**100.0%**	**53.0**

Table 5: The Roman Pottery: vessel forms present in G292.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	8	1.4%	0.00	0.0%	378	1.2%
Beaker	14	2.4%	0.50	4.9%	98	0.3%
Bowl	32	5.5%	2.56	25.4%	1081	3.5%
Cup	11	1.9%	0.48	4.7%	103	0.3%
Dish	3	0.5%	0.05	0.5%	27	0.1%
Flagon	5	0.9%	0.20	2.0%	97	0.3%
Flask	4	0.7%	0.00	0.0%	104	0.3%
Jar	444	76.7%	5.99	59.5%	27845	90.8%
Lid	1	0.2%	0.06	0.6%	12	0.0%
Mortarium	1	0.2%	0.00	0.0%	101	0.3%
Platter	6	1.0%	0.04	0.3%	239	0.8%
Total classified	**529**	**91.4%**	**9.86**	**98.0%**	**30085**	**98.1%**
Misc	50	8.6%	0.20	2.0%	594	1.9%
Total	**579**	**100.0%**	**10.06**	**100.0%**	**30679**	**100.0%**

Grog-tempered, mixed-gritted and sandy wares account for almost 40% of the EVEs and are often referred to as 'transitional' fabrics, broadly dating to the mid- to late 1st century, although some grog-tempered wares may have continued into the early 2nd century (Pollard 1994, 75). The large storage jars generally have rolled-rims and impressed or scored decoration. One particularly substantial grog-tempered jar (13) is comparable to a vessel found at Bath Lane, Leicester dating to the 1st century (Clamp 1985, fig 35.131, 57-58), with the fabric suggesting the Great Holme Street kilns in Leicester as a likely source (R. Pollard *pers. comm*). The sandy wares comprise smaller jars including lid-seated or ledge-rim forms, 'Belgic style' cylindrical, carinated and s-shaped bowls and a butt beaker, all dating within the 1st century and comparable to other early assemblages from Leicester such as those at Bath Lane and Causeway Lane (Clamp 1985; Clark 1999, fig 61, 139-140). Although shell-tempered storage jars are well known to continue into the 2nd century, the forms present here are consistent with a mid- to late 1st-century date, comprising rolled-rims with combed and impressed decoration in the same style as the grog-tempered and mixed-gritted wares.

The grey, oxidised and white wares provide evidence of a "Roman" assemblage inspite of the quantities of 'transitional' wares. The small amounts of oxidised and white wares include a collared flagon, beakers, carinated bowls and lid-seated jars. The grey wares are mostly jars and bowls including cylindrical and s-shaped forms similar to some of the sandy wares. There is also a jar with a distorted rim (14) suggesting local manufacture. The rims are rounded, beaded and everted, indicating a date towards

the last quarter of the 1st century. Decorative styles present include rustication, barbotine dots and combing. Beakers, a cup (3) a lid and a flask or bottle complete the range of grey wares. The cup resembles Gallo-Belgic Terra Nigra styles though no positive match could be found. Interestingly, a similar situation occurred at Verulamium, where at the King Harry Lane site locally made cups clearly of Belgic style were discovered though none could be directly associated with known Gallo-Belgic forms (Rigby 1989, 153-155).

The fine wares comprise an imported colour-coated beaker (1) and samian wares. Apart from two sherds of 2nd century Lezoux samian, the rest is all South Gaulish, much of which is pre-Flavian. The vessels present include pre-Flavian Drag. 29 bowls and Drag. 24/25 and 27 cups, a Neronian-early Flavian form 67 jar, Drag. 18 and 18/31 dishes and Drag. 15/17 platters including one with a stamp dating to AD 40-65 (Hopkins 2008, in archive). Two types of amphora complete the imported wares in the group. One fabric is associated with the Cam 186 (Cadiz fabric), believed to have contained fish sauces. The other is associated with the Baetican Dressel 20 olive oil amphora, which is the most common type found in Leicester and indeed one of the most common in Britain as a whole (Peacock and Williams, 1986, 121; 136-140).

This feature is cut by a later pit in G784 (phase 3.1) and is the most likely explanation for the presence of a few sherds best described as intrusive. Included in this are the two sherds of Lezoux samian and the single sherd of Mancetter-Hartshill mortarium. Three sherds of Black Burnished ware are also present and these would usually be dated to the early 2nd century from about AD 120 onwards (Tyres 1996, 185). However, although two of the sherds are not particularly datable, one vessel (15) is comparable to bead-rimmed jars that do date to the Flavian period (Holbrook and Bidwell 1991, 100-101). This form is not commonly found in Leicester and may suggest some small quantities of Black Burnished ware arriving in Leicester earlier than previously thought. It is also possible that the Black Burnished ware is intrusive and the bead-rimmed jar is somehow residual in a later group, but the idea of later 1st-century Black Burnished ware finding its way to Leicester is most interesting, particularly given the military connections with this type of pottery from the conquest until well into the 2nd century.

G115 (23 sherds) contained 'transitional' material of the same date as G292 above, though no fine wares were present. As with G292, a deposition date of *c.*AD 70-100 is most likely.

The next significant group in this phase is G326 as illustrated by the table below. Most of the material (149 sherds, 2.409kg) was recovered from pit (2155).

Table 6: The Roman Pottery: quantification of Roman pottery from G326.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
CG	61	38.4%	0.20	7.4%	1464	51.4%	24.0
GT	2	1.3%	0.18	6.9%	35	1.2%	17.5
GW	54	34.0%	1.00	38.0%	776	27.2%	14.4
MG	3	1.9%	0.00	0.0%	63	2.2%	21.0
OW	5	3.1%	0.00	0.0%	90	3.2%	18.0
Samian	3	1.9%	0.13	5.0%	25	0.9%	8.3
SW	19	11.9%	0.90	34.2%	302	10.6%	15.9
WW	12	7.5%	0.23	8.6%	96	3.4%	8.0
Total	**159**	**100.0%**	**2.62**	**100.0%**	**2851**	**100.0%**	**17.9**

Whilst much of the material is comparable to G292 and G115, more of the large storage jars are shell-tempered rather than grog-tempered or mixed-gritted. The grey and oxidised wares include everted rim jars and rusticated decoration and a grey ware "face" was probably applied to either a jug or flagon (27). A white ware everted rimmed jar with barbotine ring and dot decoration is most likely from a Northamptonshire source dating to the later 1st or early 2nd century. The only fine ware is a samian Drag. 36 dish dating to the 2nd century (Hopkins 2008, in archive).

The remaining pit groups G346, G347 and G787 are comparable with G326 insofar as much of the pottery is comparable with G292 including 'transitional' wares, but there are more shell-tempered and grey wares. In addition, the presence of a mica dusted ware vessel, Verulamium mortarium and a Gaulish

colour-coated beaker with roughcast decoration, indicates a late 1st-early 2nd century date of deposition rather than the *c.*AD 70-100 assigned to G292 and G115. On the whole, the samian ware is still 1st century South Gaulish, including pre-Flavian wares, the exception being the Drag. 36 mentioned above. Large sherds of Dressel 20 amphora were recovered from G347, and a handle, probably from a Gauloise type amphora was found in G787.

Table 7: The Roman Pottery: vessel forms present in G326.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Dish	3	1.9%	0.13	5.0%	25	0.9%
Flagon	3	1.9%	0.00	0.0%	54	1.9%
Jar	126	79.2%	2.19	83.6%	2524	88.5%
Platter	2	1.3%	0.18	6.7%	48	1.7%
Total classified	**134**	**84.3%**	**2.50**	**95.2%**	**2651**	**93.0%**
Misc	25	15.7%	0.13	4.8%	200	7.0%
Total	**159**	**100.0%**	**2.63**	**100.0%**	**2851**	**100.0%**

A date of *c.*AD 70-100 is most likely for G292 and G115. Although much of the material in the remaining pits could also date to the last quarter of the 1st century, there is a subtle movement towards the late 1st-early 2nd century, though nothing need date beyond *c.*AD 120. The presence of Black Burnished ware does provide an interesting twist, as in addition to the three sherds from G292 already discussed, a sherd was recovered from G347. Whether or not this material is intrusive or an example of early Black Burnished ware reaching Leicester is open to debate.

Phase 2.2 catalogue of illustrations (Figure 15-Figure 17)

Group 292 (2631)

1. C3 beaker, (LAU form 9B2). Pre-Flavian form, brown colour-coat, pale grey sandwich, very fine. Fsn49, Rec816.
2. SW2 flagon, (LAU form 1A3) with burnished black surfaces. cf Silchester Defences fig.49, 324 for comparable form. Neronian/Flavian to *c.*AD120 date range given (Fulford 1984). Fsn36, Rec574.
3. GW5 cup, (LAU class 8). Belgic style derived from Gallo-Belgic Terra Nigra campanulate type cups, though no clear parallel can be found. Fsn31, Rec545.
4. MG1 storage jar, (LAU class 3). Burnished with incised wavy decoration. Rec668.
5. MG1 necked storage jar (LAU form 3M1). Burnished rim with impressed decoration. Rec666.
6. MG1 necked storage jar (LAU form 3M1) with impressed decoration. Rec665.
7. MG1 necked storage jar (LAU form 3M1) with impressed decoration. Rec662.
8. MG2 jar (LAU class 3). Rec656.
9. GT1 necked storage jar (LAU form 3M1) with impressed decoration. Rec664.
10. MG1 jar (LAU class 3) with incised decoration. Rec669.
11. SW2 jar with slight ledge rim (LAU form 3E2). Fsn32, Rec546.
12. OW3 jar with slight ledge rim (LAU form 3E2). Sooted exterior surface. Rec539.
13. GT5/6 necked storage jar (LAU form 3M2). Burnished rim with incised zone of decoration on shoulder. Fsn41, Rec627.
14. GW2 necked jar (LAU form 3M2). Fsn33, Rec549.
15. BB1 bead rim jar (LAU form 3B4). cf Holbrook & Bidwell 1991, fig.27, 3.3. Rec568.
16. SW2 cylindrical bowl (LAU form 5D2). Fsn30, Rec544.
17. SW2 cordoned cylindrical bowl (LAU form 5D2). cf Clamp 1985, fig.31, 14. Fsn28, Rec541.
18. SW2 bowl (LAU class 5). Fsn35, Rec570.
19. SW2 bowl with low carination (LAU form 5D2). Fsn40, Rec613.
20. SW2 necked bowl (LAU form 5A2). Fsn27, Rec540.
21. OW2 carinated bowl (LAU form 5E2). Fsn34, Rec558.
22. GW5 cordoned cylindrical bowl (LAU form 5D2). Fns29, Rec542.

23. GW2 carinated bowl with fine incised chevron decoration (LAU form 5D/E). Fsn37, Rec575.
24. GW3 necked bowl (LAU form 5A2). Fsn26, Rec539.
25. GW5 bowl (LAU form 5F3), Fsn39, Rec585.
26. GT2 platter (LAU form 7D), highly burnished black surfaces. Fsn38, Rec571.

Other vessels from phase 2.2

27. GW3 "face" from jug or flagon. G326, Fsn42, Rec697, (2155).
28. SW3 neckless ledge-rim jar (LAU form 3D1). G787, Fsn52, Rec848, (5885).
29. SW4 bowl (LAU form 5E). G787, Fsn51, Rec845, (5885).

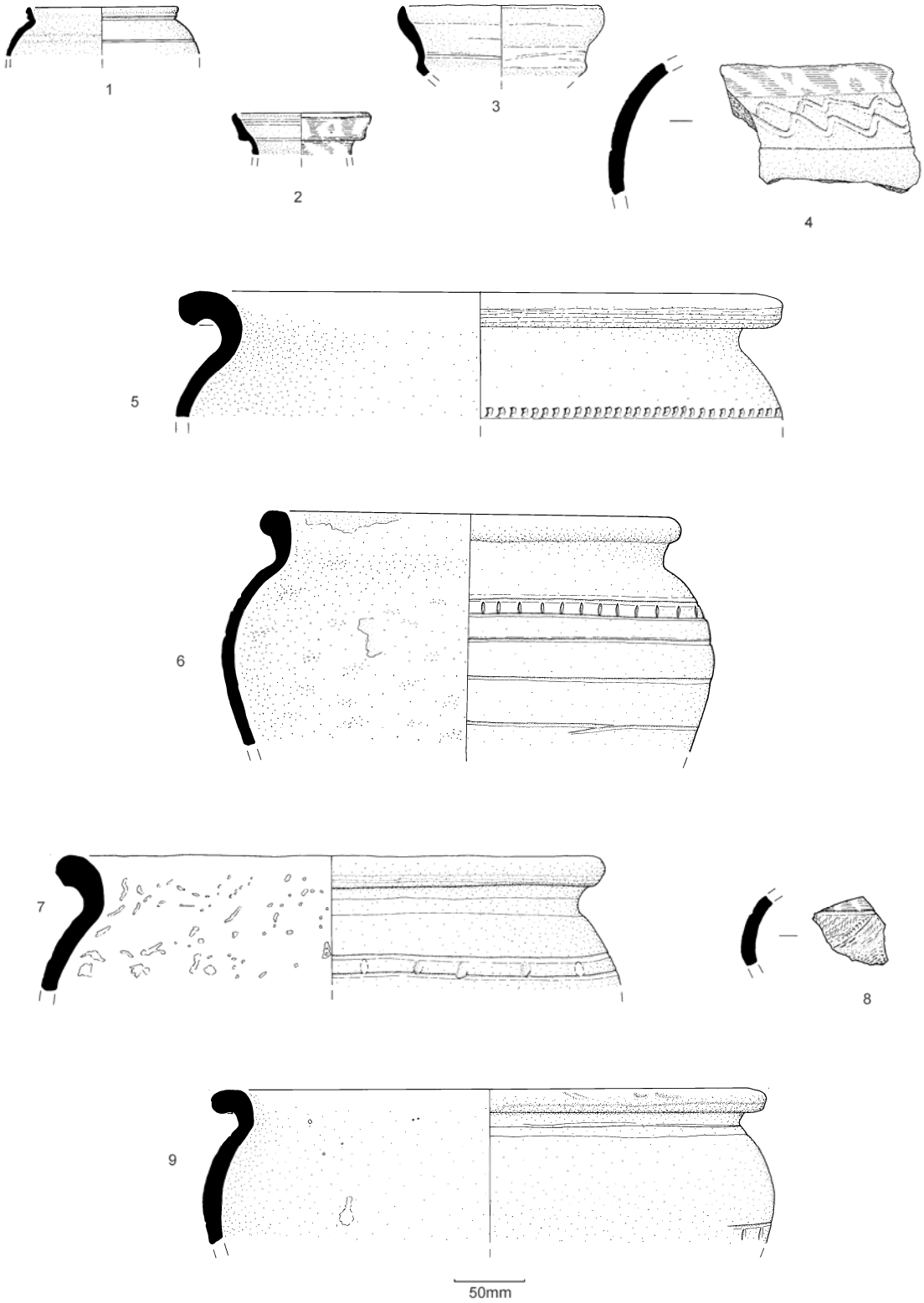


Figure 15: The Roman Pottery: the illustrated pottery from Phase 2.2, 1-9

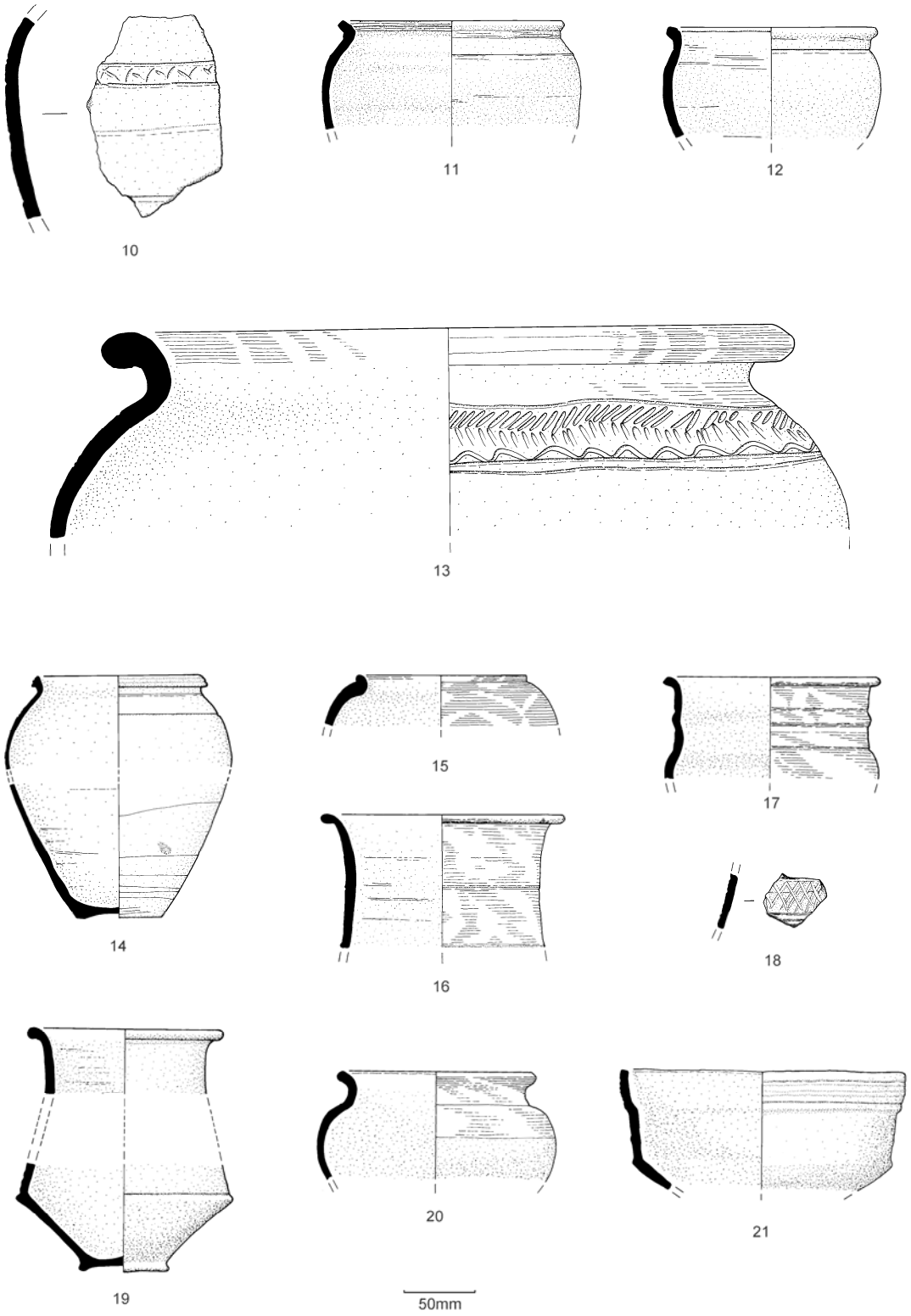


Figure 16: The Roman Pottery: the illustrated pottery from Phase 2.2, 10-21

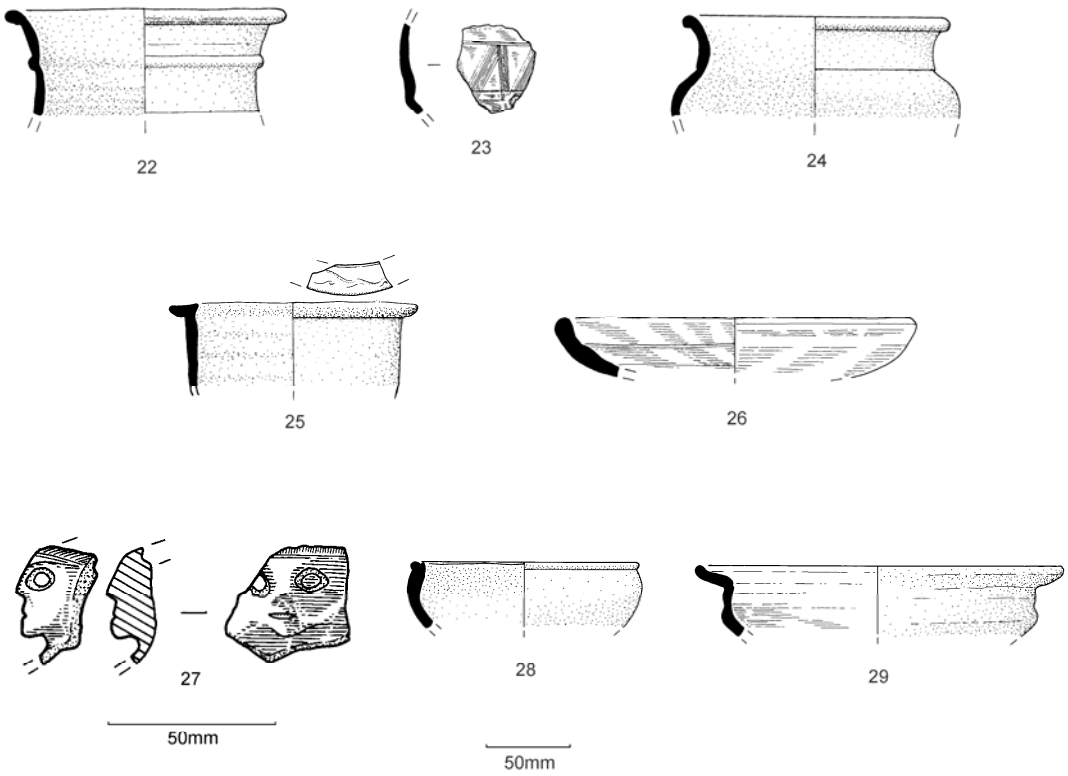


Figure 17: The Roman Pottery: the illustrated pottery from Phase 2.2, 22-29

Phase 2.4 (early to mid- 2nd century AD)

Insula IV: hearth G921: (5105); Insula V: postholes G293: (2881), (2882);
Timber Structure 2 G100: (6902), (6967); G709: (8276); G710: (5188), (5549), (8121); G112: (6787).

The assemblage comprises 379 sherds weighing 15.434kg, with an EVEs value of 7.87 and average sherd weight of 40.7g. The variety of fabrics and forms present are detailed in the tables below. Almost all the pottery recovered relates to the groups associated with Timber Structure 2.

Table 8: The Roman Pottery: quantification of Roman pottery from Phase 2.4

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	83	21.9%	0.00	0.0%	9254	60.0%	111.5
BB1	3	0.8%	0.10	1.3%	16	0.1%	5.3
C	1	0.3%	0.00	0.0%	5	0.0%	5.0
CG	90	23.7%	2.16	27.4%	2091	13.5%	23.2
GT	9	2.4%	0.40	5.0%	263	1.7%	29.2
GW	111	29.3%	2.60	33.0%	2106	13.6%	19.0
MG	1	0.3%	0.00	0.0%	3	0.0%	3.0
MO	3	0.8%	0.29	3.7%	707	4.6%	235.7
OW	9	2.4%	0.10	1.3%	82	0.5%	9.1
Samian	29	7.7%	0.71	9.0%	279	1.8%	9.6
SW	3	0.8%	0.08	1.0%	24	0.2%	8.0

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
WS	3	0.8%	0.00	0.0%	112	0.7%	37.3
WW	34	9.0%	1.45	18.4%	492	3.2%	14.5
Total	**379**	**100.0%**	**7.87**	**100.0%**	**15434**	**100.0%**	**40.7**

Table 9: The Roman Pottery: vessel forms present in Phase 2.4.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	83	21.9%	0.00	0.0%	9254	60.0%
Beaker	3	0.8%	0.13	1.6%	16	0.1%
Bowl	15	4.0%	0.41	5.2%	137	0.9%
Cup	3	0.8%	0.45	5.7%	79	0.5%
Dish	7	1.8%	0.05	0.6%	51	0.3%
Flagon	25	6.6%	1.45	18.4%	542	3.5%
Jar	158	41.7%	4.34	55.2%	3709	24.0%
Lid	2	0.5%	0.20	2.5%	112	0.7%
Mortarium	3	0.8%	0.29	3.7%	707	4.6%
Platter	16	4.2%	0.30	3.8%	180	1.2%
Total classified	**315**	**83.1%**	**7.62**	**96.8%**	**14787**	**95.8%**
Misc	64	16.9%	0.25	3.2%	647	4.2%
Total	**379**	**100.0%**	**7.87**	**100.0%**	**15434**	**100.0%**

G100 (117 sherds, 3.3 EVEs, 2.561kg) and G709 (27 sherds, 0.49 EVEs, 0.417kg), relate to occupational trample and made-up ground outside Timber Structure 2. Most of the pottery is grey ware including a Flavian to Trajanic reeded-rimmed bowl and jars with everted rims and rusticated or lattice decoration. There are also shell-tempered jars including large storage jars and ledge-rimmed forms with combed decoration. No sandy or mixed-gritted 'transitional' wares were found, however three grog-tempered jars, including one comparable to the large jar from G292 and probably also from the Great Holme Street kilns, were present. The white and oxidised wares include a ring-necked flagon dating to the first half of the 2nd century and a 1st-century butt beaker which is residual. The fine wares comprise a colour-coated ware beaker with roughcast decoration, possibly from Colchester, dating to *c.*AD 120-150/60 and five samian vessels. The samian ware is 1st century, apart from one Hadrianic Drag. 18/31R dish. A Gauloise wine amphora handle and two abraded sherds probably from a Dressel 20 olive oil amphora complete the imported wares. The latest datable sherd is one Black Burnished ware jar rim, which although too small to date closely, could date to *c.*AD 120-150.

Pit G112 in the external yard associated with Timber Structure 2 contained 81 sherds, 74 of which were fragmentary sherds of Dressel 20 amphora, most likely one vessel. The remaining pottery comprised a Flavian samian Drag. 27g cup, a shell-tempered jar and two grey ware jars.

G710 relates to an interior surface within Timber Structure 2, from which 142 sherds (3.387kg) with an EVEs value of 3.79 were recovered. The pottery is comparable to G100 and G709, with grey ware jars and bowls of similar form and decoration forming the largest part of the assemblage. There is a small quantity of earlier sandy and mixed-gritted wares, a grog-tempered jar comparable with that described above, and shell-tempered large storage jars. The oxidised and white wares comprise jars and a ring-necked flagon. In addition, three mortaria are present, two from the Verulamium region and one from Mancetter-Hartshill, dating from the later 1st to the mid-2nd century. The imported wares comprise samian fine wares and amphora. One sherd from a Gauloise wine amphora and four sherds from a Dressel 20 olive oil amphora were recovered. One thinner sherd in fabric AM9A may be from a Haltern 70 (Peacock and Williams 1986, 115-116). As with the groups above, apart from one Drag. 18/31 dish from Lezoux, the samian ware is 1st century. A Black Burnished ware jar or bowl is the latest datable sherd, most likely dating to *c.*AD 120-150.

There is little to note about the other two feature groups in this phase. Four sherds were recovered from G921, a hearth in Insula IV, the samian and grey ware suggesting a date from the late 1st to the early 2nd century. In Insula V, G293 comprises a series of postholes, two of which revealed small amounts of pottery dating to the later 1st and 2nd centuries. The pottery is comparable to that from the groups in phase 2.2 and may well represent disturbance of earlier layers when the postholes were created.

Phase 2.5 (mid- 2nd century AD)

Insula V: external yard features associated with Timber Structures 1 and 2 G1212: (6436), (6437), (6443), (6506), (6649), (6647), (6637), (6650), (6832), (8217), (8072), (6040);
G117: (8151), (8163), (8220); G1173: (4660), (4675).

The assemblage comprises 452 sherds weighing 7.633kg, with an EVEs value of 9.31 and average sherd weight of 16.9g. Quantification of the fabrics and forms present are detailed in the tables below.

Table 10: The Roman Pottery: quantification of Roman pottery from Phase 2.5

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	7	1.5%	0.00	0.0%	109	1.4%	15.6
BB1	22	4.9%	0.46	4.9%	223	2.9%	10.1
CG	52	11.5%	0.53	5.7%	1131	14.8%	21.8
DS	1	0.2%	0.00	0.0%	2	0.0%	2.0
GT	28	6.2%	0.13	1.4%	919	12.0%	32.8
GW	210	46.5%	5.53	59.4%	3038	39.8%	14.5
MG	11	2.4%	0.17	1.8%	523	6.9%	47.5
MO	2	0.4%	0.00	0.0%	102	1.3%	51.0
OW	33	7.3%	1.24	13.3%	393	5.1%	11.9
Samian	14	3.1%	0.20	2.1%	87	1.1%	6.2
SW	11	2.4%	0.04	0.4%	278	3.6%	25.3
WS	3	0.7%	0.53	5.6%	34	0.4%	11.3
WW	58	12.8%	0.50	5.4%	794	10.4%	13.7
Total	**452**	**100.0%**	**9.31**	**100.0%**	**7633**	**100.0%**	**16.9**

Table 11: The Roman Pottery: vessel forms present in Phase 2.5.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	7	1.5%	0.00	0.0%	109	1.4%
Beaker	10	2.2%	0.90	9.7%	90	1.2%
Bowl	12	2.6%	0.79	8.5%	261	3.4%
Cup	5	1.1%	0.13	1.3%	19	0.2%
Dish	3	0.7%	0.08	0.9%	24	0.3%
Flagon	41	9.1%	0.85	9.1%	699	9.1%
Flask	1	0.2%	0.23	2.4%	14	0.2%
Jar	266	58.7%	5.19	55.7%	5384	70.5%
Lid	5	1.1%	0.69	7.4%	222	2.9%
Mortarium	2	0.4%	0.00	0.0%	102	1.3%
Platter	8	1.8%	0.24	2.5%	118	1.5%
Strainer	1	0.2%	0.00	0.0%	11	0.1%
Total classified	**361**	**79.7%**	**9.08**	**97.6%**	**7053**	**92.3%**
Misc	92	20.3%	0.23	2.4%	587	7.7%
Total	**453**	**100.0%**	**9.31**	**100.0%**	**7640**	**100.0%**

G117 is a possible yard surface and G1173 is a series of layers associated with Timber Structures 1 and 2. The material from both groups is very similar, comprising coarse wares essentially dating to the first half of the 2nd century, with a few earlier 'transitional' grog-tempered and sandy wares. The forms comprise everted and ledge-rim jars, some with combed, rusticated and barbotine dot decoration. One sherd of South Gaulish samian ware from (8163) is the only fine ware. Of interest, is a grey ware 'London Type' bowl with incised 'compass' decoration and a grey ware body sherd with an incised 'bird' graffito (30). 'London Type' wares are quite distinctive and date from the Flavian to the Hadrianic period (Pollard 1994, 55), with likely sources for those found in Leicester including the Nene Valley (Perrin 1980, 10-11). The absence of regional wares such as Black Burnished ware suggests a date no later than the middle of the 2nd century, probably around *c.*AD 140-150 at the latest and possibly a little earlier.

Feature G1212 is a series of intercutting pits truncating G1173. The majority of the coarse wares could easily date to the first half of the 2nd century, including everted rimmed jars, a ring-necked flagon and reeded rimmed bowl. There are some residual 'transitional' grog-tempered, mixed-gritted and sandy wares, such as a fine grog-tempered biconical beaker dating to the 1st century. Most of the samian ware is South Gaulish, however there are vessels clearly dating into the 2nd century including a Drag. 18/31 dish dating to *c.*AD 135-165 and an Antonine Form 42 cup (Hopkins 2008, in archive).

All the Black Burnished ware was recovered from this feature group in contexts (8217) and (8072). Most of the sherds are fairly undiagnostic jar body sherds, some with acute lattice. A flat-rimmed bowl and a bead-rimmed dish are also present. The bowl could date as early as *c.*AD 140 (Holbrook and Bidwell 1991, 97). The dish is a bead-rimmed form with acute lattice which is usually dated to between *c.*AD 160-200 (Gillam 1968, 71). However, given that chronology relating to the development of the bead-rimmed form is not precise and more than one production centre is now known, this vessel could be an early example dating to around AD 160 rather than later in the 2nd century (Holbrook and Bidwell 1991, 99).

Finally, single sherds of Derbyshire ware and Nene Valley colour-coated ware were recovered from (8217) and (6436). These would both usually be expected in Leicester from the later 2nd century onwards, with most occurring from the 3rd century. Both sherds are small and there is the possibility that they are intrusive as a result of surface disturbance over a period of time, including the formation of G1265 which dates to the early 3rd century.

Some of the pottery in surface G117 and layer G1173 is probably residual, perhaps as a result of the disturbance of earlier layers. However much is most likely associated with early occupation of the timber structures during the first part of the 2nd century. The pits in G1212 show a wider range of fabrics and forms, including more fine wares, white wares and regional fabrics such as Black Burnished ware, indicating occupation of the timber structures probably extended towards *c.*AD 160/170.

Phase 2.5 catalogue of illustrations (Figure 18)

1. GW5 jar or bowl body sherd with 'bird graffito'? G1173, Fsn68, Rec.1220, (4675).
2. GW5 necked jar, (LAU form 3L2). G117, Rec1085, (8220).
3. CG1 necked jar (LAU form 3M). G1173, Fsn67, Rec1219, (4675).
4. OW2 bowl (LAU form 5G3). G1173, Fsn65, Rec1191, (4660).
5. OW2 bead rim bowl (LAU form 5P). G1212, Fsn59, Rec1019, (8072).

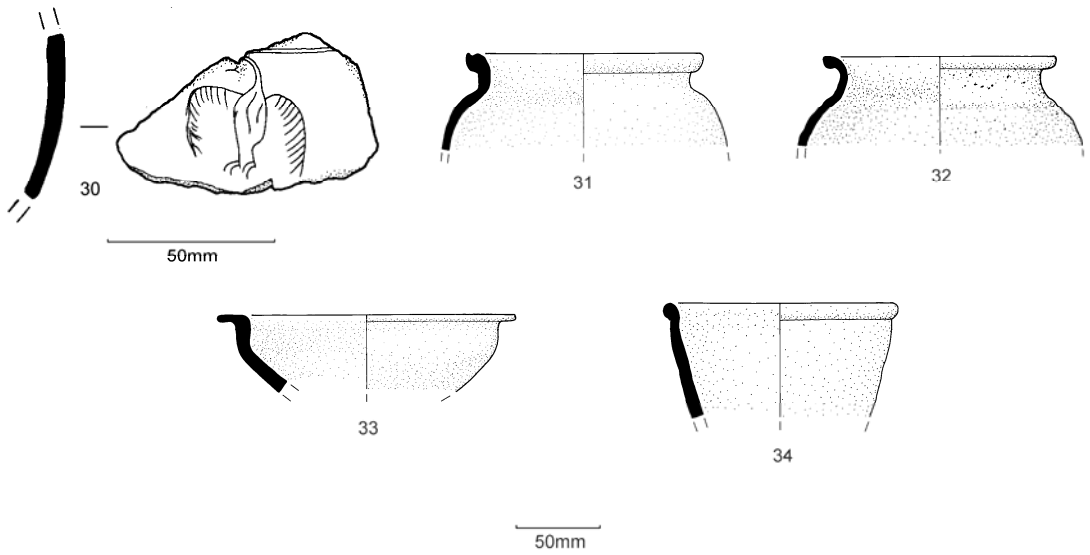


Figure 18: The Roman Pottery: the illustrated pottery from Phase 2.5, 30-34

Selected Groups from Phase 3 (mid- Roman: mid- 2nd to 3rd century AD)

Phase 3.1 (mid- to late 2nd century AD)

Insula V: capping Timber Structure 1 G1234: (5994), (5995), (6210), (6286), (6364), (6365), (6420); Pit and layers G784: (2633), (2652), (2900), (2933).

The assemblage comprises 455 sherds weighing 9.476kg, with an EVEs value of 9.65 and average sherd weight of 20.8g as detailed in Table 12 below. The variety of forms present is given in Table 13.

Table 12: The Roman Pottery: quantification of Roman pottery from Phase 3.1.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	4	0.9%	0.00	0.0%	1268	13.4%	317.0
BB1	36	7.9%	1.62	16.8%	833	8.8%	23.1
BB2	1	0.2%	0.08	0.8%	16	0.2%	16.0
C	4	0.9%	0.05	0.5%	26	0.3%	6.5
CG	39	8.6%	0.89	9.2%	716	7.6%	18.4
GT	4	0.9%	0.00	0.0%	187	2.0%	46.8
GW	155	34.1%	3.29	34.1%	2453	25.9%	15.8
MO	14	3.1%	0.27	2.8%	1259	13.3%	89.9
OW	26	5.7%	0.58	6.0%	573	6.0%	22.0
Samian	64	14.1%	1.08	11.2%	635	6.7%	9.9
SW	8	1.8%	0.00	0.0%	54	0.6%	6.8
WS	2	0.4%	0.00	0.0%	8	0.1%	4.0
WW	98	21.5%	1.80	18.7%	1448	15.3%	14.8
Total	**455**	**100.0%**	**9.65**	**100.0%**	**9476**	**100.0%**	**20.8**

Table 13: The Roman Pottery: vessel forms present in Phase 3.1.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	4	0.9%	0.00	0.0%	1268	13.4%
Beaker	8	1.8%	0.31	3.2%	176	1.9%
Bowl	51	11.2%	1.77	18.4%	1009	10.6%
Cup	11	2.4%	0.43	4.5%	114	1.2%
Dish	18	4.0%	0.75	7.8%	188	2.0%
Flagon	99	21.8%	1.80	18.7%	1465	15.5%
Jar	211	46.4%	4.05	41.9%	3503	37.0%
Lid	2	0.4%	0.00	0.0%	115	1.2%
Mortarium	14	3.1%	0.27	2.8%	1259	13.3%
Platter	2	0.4%	0.00	0.0%	56	0.6%
Total classified	**420**	**92.3%**	**9.38**	**97.2%**	**9153**	**96.6%**
Misc	35	7.7%	0.27	2.8%	323	3.4%
Total	**455**	**100.0%**	**9.65**	**100.0%**	**9476**	**100.0%**

Feature G1234 is a series of layers overlying Timber Structure 1. One hundred sherds (1.06 EVEs, 2.058kg) were recovered from the layers, accounting for approximately 20% of the total assemblage (11% of the EVEs). The grey wares include jars, a platter and a flagon or jug handle. Rims are everted and roll-necked and decoration present includes burnishing and incised grooves. There are no examples of rusticated or barbotine dot decoration associated with earlier phases. Three shell-tempered jars include a ledge-rim form. The oxidised, white-slipped and white wares are not particularly closely datable, but

would fall within the 2nd century, possibly the first half. Mortaria from the Verulamium and Mancetter-Hartshill regions are present, all dating no later than the middle of the 2nd century. The latest datable coarse wares are a Black Burnished ware bowl and jars, most likely dating from the mid- 2nd century onwards.

Apart from one colour-coated ware beaker, all the fine wares are imported samian wares. The beaker has roughcast decoration and is possibly from Colchester, probably dating from the middle of the 2nd century onwards (Tyres 1996, 167). At least 14 samian ware vessels were recovered, including dishes, cups and bowls ranging in date from the 1st century to the middle of the 2nd century. The latest vessel is an East Gaulish Drag. 30R bowl which dates from *c.*AD 160 onwards (Hopkins 2008, in archive). Joining sherds from this vessel were found in (6364) and (6365).

G784 consists of layers overlying the postholes in G293 (phase 2.4) and a large pit which overlies and cuts pit G292 (phase 2.2). Grey wares form the majority of the assemblage, accounting for just over a third. Jars are the most common form including the usual suite of everted and necked jars with lattice, roulette and burnished decoration, alongside reeded rimmed and hemispherical bowls. There are also two bowls in fabric GW1, which closely imitates Black Burnished ware forms. A small amount of the pottery is probably residual, including rusticated jars and a cup derived from a Gallo-Belgic Cam 56c form. Small quantities of sandy and grog-tempered wares are also most likely residual, probably as a result of pit (2633) cutting the earlier pit group G292. Within the small amount of shell-tempered wares is a Bourne-Greetham shelly ware jar dating to the later 2nd century.

The oxidised wares include jars and beakers with clay roughcast, roulette and roller-stamped decoration, which became popular from *c.*AD130 and throughout the 2nd century (Pollard 1994, 79). The white-slipped and white wares are flagons including ring-necked forms. One vessel has been re-used as the body has a series of holes drilled through it (36) The purpose of this is not entirely clear but perhaps it was used as some form of colander or strainer. Mortaria from Mancetter-Hartshill date to the first half of the 2nd century, however there is also a Nene Valley mortarium which is unlikely to date before the middle of the 2nd century (Howe *et al* 1980, 10).

There is more Black Burnished ware in this group than in previous phases, with at least 12 separate vessels. The forms present are jars with acute lattice decoration and flat-rimmed bowls with both lattice and intersecting arc decoration. The appearance of intersecting arc decoration indicates a later Antonine date (Holbrook and Bidwell 1991, 109), perhaps from *c.*AD 170 onwards. In addition to the familiar handmade Black Burnished ware, there is a wheel-made Black Burnished ware 2 bowl with acute lattice decoration. This type of vessel is not particularly common in Leicester and also dates to the second half of the 2nd century (Tyres 1996, 186-187).

Most of the imported pottery is samian table ware comprising a similar range of dishes, cups and bowls to that seen in other phases but with the addition of Drag. 38 and Drag. 31R bowls which are most commonly found after *c.*AD160 (Webster 1996, 35; 51). Two and possibly three East Gaulish vessels were also identified, again indicating a date after *c.*AD160 (Hopkins 2008, in archive). A Dressel 20 amphora and possibly a Catalan Dressel 1 wine amphora handle (Peacock and Williams 1986, 93-94), along with two Gaulish colour-coated ware beakers with roughcast decoration complete the range of continental imports.

The earliest pottery has probably found its way into these groups as a result of the disturbance of earlier layers, and much of the material most likely relates to occupation of the timber structures during the first half of the 2nd century. However, the presence of Bourne-Greetham shelly ware along with some of the Black Burnished ware and samian forms mentioned above indicates a date after *c.*AD 160/170 for the formation of these capping layers, whilst the absence of any Romano-British colour-coated wares such as those from the Nene Valley, suggests a date still within the 2nd century. Taken together, a date somewhere between *c.*AD 160-180 could be suggested for the final levelling of the ground ready for a new phase of activity.

Phase 3.1 catalogue of illustrations (Figure 19)

Group 784

6. WW2 ring-necked flagon (LAU form 1C6). Fsn45, Rec765, (2633).

7. WW2 flagon (LAU class 1). Body perforated with holes for secondary use. Sfno777, Fsn43, Rec763, (2633).

8. C2 beaker (LAU form 9B1) with clay roughcast decoration and pale yellow-brown colour-coat. Most likely Gaulish. Fsn64, Rec1162, (2652).

9. BB1 everted rim jar (cf Holbrook & Bidwell 1991, fig.27 12.2). Fsn46, Rec775, (2633).

10. GW3 plain rim bowl (LAU form 5M). Fsn62, Rec1144, (2652).

11. GW6 shallow dish (LAU class 6) with missing flange or bead; heavily sooted. Fsn47, Rec787, (2633).

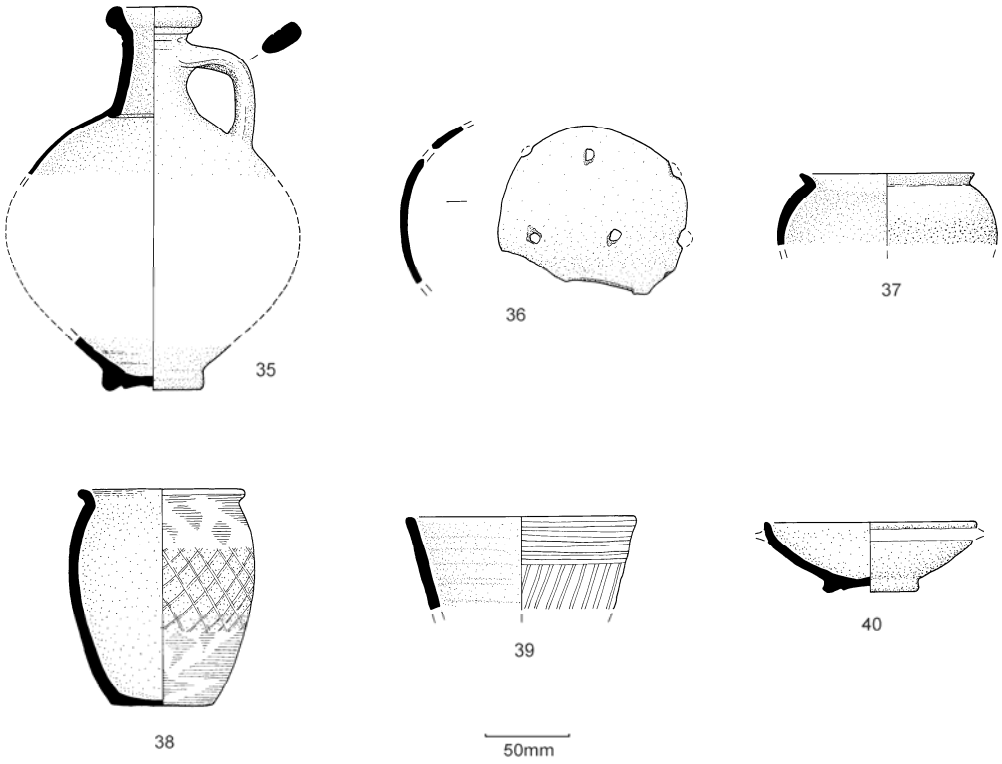


Figure 19: The Roman Pottery: the illustrated pottery from Phase 3.1, 35-40

Phase 3.2 (mid- to late 2nd century AD)

Insula V: Ditch G790: (5269), (5319).

The assemblage comprises 283 sherds weighing 5.788kg, with an EVEs value of 7.82 and average sherd weight of 20.5g. Quantification of the fabrics and forms present are given in the tables below. The pottery is from a single group, G790, a ditch located to the north of Buildings A, B and D.

Table 14: The Roman Pottery: quantification of pottery from G790, Phase 3.2

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	9	3.2%	0.00	0.0%	496	8.6%	55.1
BB1	20	7.1%	0.43	5.5%	208	3.6%	10.4
C	2	0.7%	0.13	1.6%	9	0.2%	4.5
CG	22	7.8%	1.16	14.8%	485	8.4%	22.0
GW	152	53.7%	2.58	32.9%	2436	42.1%	16.0

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
MO	4	1.4%	0.44	5.6%	712	12.3%	178.0
OW	21	7.4%	0.24	3.0%	261	4.5%	12.4
Samian	35	12.4%	1.41	18.0%	699	12.1%	20.0
WS	1	0.4%	0.00	0.0%	3	0.1%	3.0
WW	17	6.0%	1.45	18.5%	479	8.3%	28.2
Total	**283**	**100.0%**	**7.82**	**100.0%**	**5788**	**100.0%**	**20.5**

Table 15: The Roman Pottery: vessel forms present in G790, Phase 3.2.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	9	3.2%	0.00	0.0%	496	8.6%
Beaker	7	2.5%	0.48	6.1%	53	0.9%
Bowl	16	5.7%	0.18	2.3%	485	8.4%
Cup	7	2.5%	0.66	8.4%	69	1.2%
Dish	5	1.8%	0.28	3.6%	163	2.8%
Flagon	16	5.7%	1.45	18.5%	475	8.2%
Jar	187	66.1%	3.58	45.7%	2984	51.6%
Lid	5	1.8%	0.40	5.1%	145	2.5%
Mortarium	4	1.4%	0.44	5.6%	712	12.3%
Platter	10	3.5%	0.37	4.7%	50	0.9%
Total classified	**266**	**94.0%**	**7.82**	**100.0%**	**5632**	**97.3%**
Misc	17	6.0%	0.00	0.0%	156	2.7%
Total	**283**	**100.0%**	**7.82**	**100.0%**	**5788**	**100.0%**

A good deal of the material is very similar in character to that in phases 2.5 and 3.1. Grey, shell-tempered and oxidised ware jars form the majority of the assemblage, with traces of rusticated and barbotine dot decoration still present alongside lattice, burnished and roulette decorated vessels. The white wares are flagons including a good example of a pinched neck form (41). Three mortaria are present, two from the Verulamium region and one from Mancetter-Hartshill, the latter demonstrating how the spout was luted onto the flange (42). Nine Black Burnished ware vessels were recovered including a lid, flat rimmed bowls, a plain rimmed dish and jars, some with acute lattice. Although residual in this group, another example of a 1st century bead-rimmed jar was also present.

The imported wares comprise amphorae, a colour-coated ware beaker and samian table wares. The amphora types represented are the Cam 186, Dressel 20 and Gauloise 4 from Spain and Gaul respectively. The North Gaulish bag shaped beaker with a cornice rim and clay roughcast decoration is the only colour-coated ware in the group. Most of the 25 samian ware vessels are South Gaulish dating to the 1st and early 2nd centuries. The latest datable vessel is a Drag. 31R bowl, possibly from an East Gaulish source (Hopkins 2008, in archive). This form is usually dated after *c.*AD 160 and East Gaulish vessels were imported into the 3rd century (Webster 1996, 35).

The quantity of pottery dating to the early or mid- 2nd century may be the result of material from earlier occupation layers being used to backfill the ditch. There is also a vessel join between a samian sherd found in G790 and one from G110 in phase 2.5 (Hopkins 2008, in archive) which suggests the use of some re-deposited material as infill for the ditch. However, some of the grey and oxidised wares could be later 2nd century and the presence of Black Burnished ware (particularly the plain rimmed dish), and the samian Drag. 31R does suggest a later 2nd century date for the final infilling of this ditch before it was capped by a stone, mortar and tile mix. In this respect, perhaps this suggests the ditch was backfilled during the late 2nd century in one deliberate episode rather than material accumulating over a period of time, with the use of 'old' occupation debris as infill in preparation for future changes to the buildings in the insula.

Phase 3.2 catalogue of illustrations (Figure 20)

Group 790

12. WW2 pinch-necked jug (LAU form 1H2). Fsn72, Rec1347.

13. MO12 Mancetter-Hartshill mortarium (Gillam 237), sooted rim with evidence of how spout was luted onto flange. Fsn75, Rec1413.

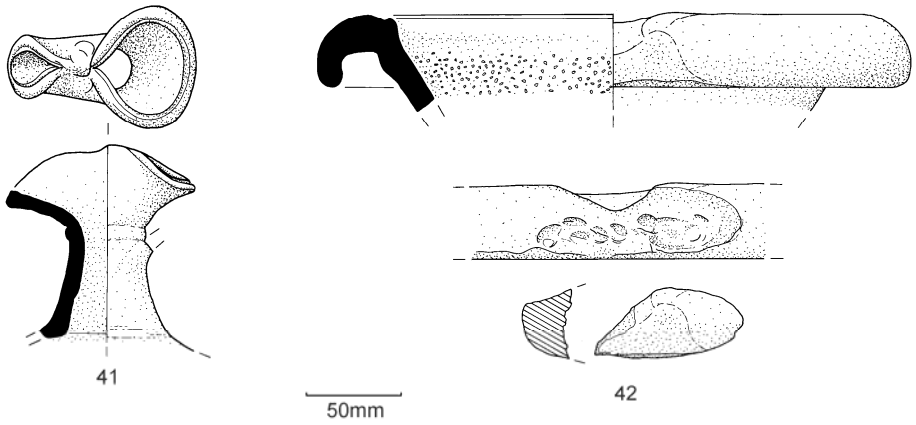


Figure 20: The Roman Pottery: the illustrated pottery from Phase 3.2, 41-42

Phase 3.3 (Late 2nd century AD)

Layer G1187 (4611); Made-ground layers G163: (6543); G165: (6425).

The assemblage comprises 454 sherds weighing 5.305kg, with an EVEs value of 7.33 and average sherd weight of 11.7g. Quantification of the fabrics and forms present are given in the tables below.

Table 16: The Roman Pottery: quantification of Roman pottery from Phase 3.3

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	5	1.1%	0.25	3.4%	422	8.0%	84.4
BB1	34	7.5%	0.41	5.5%	300	5.7%	8.8
C	7	1.5%	0.25	3.4%	21	0.4%	3.0
CG	50	11.0%	0.82	11.1%	871	16.4%	17.4
DS	9	2.0%	0.22	3.0%	58	1.1%	6.4
GT	3	0.7%	0.13	1.7%	66	1.2%	22.0
GW	185	40.7%	2.42	33.0%	1938	36.5%	10.5
MD	3	0.7%	0.05	0.7%	20	0.4%	6.7
MO	3	0.7%	0.00	0.0%	112	2.1%	37.3
OW	17	3.7%	0.10	1.4%	158	3.0%	9.3
Samian	48	10.6%	1.31	17.8%	436	8.2%	9.1
SW	3	0.7%	0.23	3.1%	22	0.4%	7.3
WS	6	1.3%	0.28	3.8%	28	0.5%	4.7
WW	81	17.8%	0.89	12.1%	853	16.1%	10.5

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
Total	**454**	**100.0%**	**7.33**	**100.0%**	**5305**	**100.0%**	**11.7**

Table 17: The Roman Pottery: vessel forms present in Phase 3.3.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	5	1.1%	0.25	3.4%	422	8.0%
Beaker	11	2.4%	0.55	7.5%	54	1.0%
Bowl	28	6.2%	0.56	7.6%	361	6.8%
Cup	17	3.7%	0.75	10.2%	108	2.0%
Dish	19	4.2%	0.64	8.7%	185	3.5%
Flagon	68	15.0%	0.53	7.2%	604	11.4%
Jar	267	58.8%	3.68	50.2%	3177	59.9%
Lid	4	0.9%	0.21	2.9%	48	0.9%
Mortarium	3	0.7%	0.00	0.0%	112	2.1%
Platter	5	1.1%	0.05	0.7%	85	1.6%
Total classified	**427**	**94.1%**	**7.21**	**98.4%**	**5156**	**97.2%**
Misc	27	5.9%	0.12	1.6%	149	2.8%
Total	**454**	**100.0%**	**7.33**	**100.0%**	**5305**	**100.0%**

To the south and east of Building D, layer G1187 comprises 163 sherds of pottery (3.13 EVEs, 2.891kg). As with G790 from Phase 3.2 above, grey, oxidised and white wares account for most of the assemblage, with much of the material dating to the early or mid-2nd century. The same amphora and mortarium types as those in G790 are represented here. The samian ware ranges from 1st century South Gaulish pottery to a Central Gaulish Drag. 38 bowl, dating between AD160-200 (Webster 1996, 51). In contrast to G790, a domed lid is the only Black Burnished ware in this group. The most interesting vessel is a Derbyshire ware jar (46) with a rolled-rim rather than the more usual cupped-rim type found in Leicester (Kay 1962, fig.11, 35). The fabric is also finer than the majority of Derbyshire ware usually found in Leicester and is comparable to the single sherd found in G1212 (phase 2.5). Production of this type of jar was underway at the Holbrook kilns in Derbyshire by the middle of the 2nd century, though the example here is unlikely to date before *c.*AD 160/170 (Ibid, 29; 42).

North-east of Building A are two layers that may be part of an alleyway or yard. G163 (150 sherds, 2.87 EVEs, 1.353kg) and G165 (141 sherds, 1.33 EVEs, 1.061kg) are adjacent to each other and, as with the other group in this phase, comprise a mixture of early to mid-2nd century material with a few vessels suggesting a later 2nd century date. There is also a small fragment of pottery covered in highly vitrified residue. In this instance, a Black Burnished ware bowl with arcaded decoration, a grey ware dish closely imitating a Black Burnished ware plain rimmed dish and a samian ware Ludowici Tf cup provide the evidence for an AD 160-200 date (Holbrook and Bidwell 1991, 107-109; Webster 1996, 68).

The bulk of the pottery in these groups is very similar to that associated with the occupation of the timber structures, with a few specific vessels suggesting a later 2nd-century date.

Phase 3.3 catalogue of illustrations (Figure 21)

43. C2 everted rim beaker (LAU form 9B), indented with clay roughcast decoration. G163, Fsn81, Rec1492, (6543).

44. GW3 everted rim beaker (LAU form 9B). G1328, Fsn80, Rec1483, (6789).

45. GW3 necked jar (cf LAU form 3M2(13)). G1328, Fsn78, Rec1463, (6621).

46. DS necked jar (LAU form 3M). G1187, Fsn77, Rec1419, (4611).

47. GW3/5 bead rim bowl (LAU form 5P) with hole drilled into the body. G165, Fsn84, Rec1558, (6425).

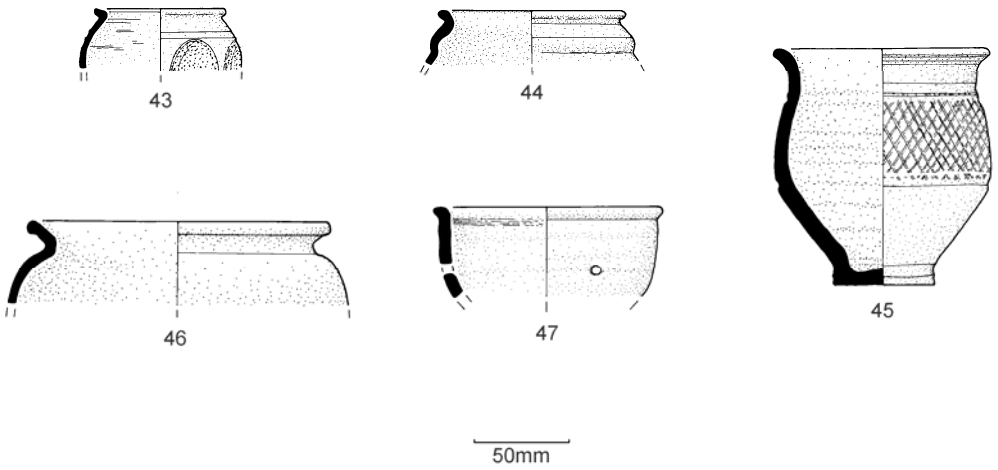


Figure 21: The Roman Pottery: the illustrated pottery from Phase 3.3, 43-47

Phase 3.5 (Late 2nd-early 3rd century AD)

Insula V: Drain G936: (5479); Metal working waste G1266: (5589);
Building A cess pit G928: (4888), (5742); Building B trample G1221: (6263);
Building D pits G1388: (4805), (4806), (4817), (4821), (4832), (4850);
Pit G217: (6956), (6957); Pit G1225: (5712), (6042), (6044), (6056), (6439); Alleyway G422: (2735).

The assemblage comprises 732 sherds weighing 15.024kg, with an EVEs value of 24.62 and average sherd weight of 20.5g. Quantification of the fabrics and forms present are given in the tables below.

Table 18: The Roman Pottery: quantification of Roman pottery from Phase 3.5

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	8	1.1%	0.00	0.0%	1140	7.6%	142.5
BB1	102	13.9%	4.39	17.8%	1714	11.4%	16.8
C	14	1.9%	0.28	1.1%	126	0.8%	9.0
CG	54	7.4%	1.66	6.7%	1260	8.4%	23.3
DS	2	0.3%	0.08	0.3%	66	0.4%	33.0
GT	9	1.2%	0.25	1.0%	179	1.2%	19.9
GW	290	39.6%	7.35	29.9%	5082	33.8%	17.5
MG	2	0.3%	0.13	0.5%	61	0.4%	30.5
MO	16	2.2%	0.31	1.2%	1155	7.7%	72.2
OW	21	2.9%	0.96	3.9%	185	1.2%	8.8
Samian	99	13.5%	4.35	17.7%	1592	10.6%	16.1
SW	8	1.1%	0.21	0.9%	99	0.7%	12.4
WS	23	3.1%	1.28	5.2%	946	6.3%	41.1
WW	84	11.5%	3.40	13.8%	1419	9.4%	16.9
Total	**732**	**100.0%**	**24.62**	**100.0%**	**15024**	**100.0%**	**20.5**

Table 19: The Roman Pottery: vessel forms present in Phase 3.5

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	8	1.1%	0.00	0.0%	1140	7.6%
Beaker	21	2.9%	1.30	5.3%	207	1.4%
Bowl	71	9.7%	2.80	11.4%	1513	10.1%
Cup	24	3.3%	1.99	8.1%	376	2.5%
Dish	45	6.1%	2.15	8.7%	1086	7.2%
Flagon	85	11.6%	1.43	5.8%	1456	9.7%
Flask	13	1.8%	1.78	7.2%	630	4.2%
Jar	415	56.7%	12.15	49.3%	7169	47.7%
Lid	3	0.4%	0.17	0.7%	44	0.3%
Mortarium	16	2.2%	0.31	1.2%	1155	7.7%
Platter	8	1.1%	0.16	0.6%	91	0.6%
Unguentarium	1	0.1%	0.33	1.3%	32	0.2%
Total classified	**710**	**97.0%**	**24.54**	**99.7%**	**14899**	**99.2%**
Misc	22	3.0%	0.08	0.3%	125	0.8%
Total	**732**	**100.0%**	**24.62**	**100%**	**15024**	**100.0%**

A drain (G936) was found to the north of Building B, from which 118 sherds of pottery (3.25 EVEs, 1.608kg) were recovered. Grey, white and Black Burnished wares account for 67.8% of the EVEs, as illustrated by Table 20 below.

Table 20: The Roman Pottery: quantification of Roman pottery from G936.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	3	2.5%	0.00	0.0%	193	12.0%	64.3
BB1	19	16.1%	0.61	18.8%	282	17.5%	14.8
C	4	3.4%	0.28	8.5%	24	1.5%	6.0
CG	6	5.1%	0.28	8.5%	81	5.0%	13.5
DS	1	0.8%	0.08	2.3%	13	0.8%	13.0
GT	3	2.5%	0.10	3.1%	79	4.9%	26.3
GW	50	42.4%	0.57	17.5%	564	35.1%	11.3
MO	1	0.8%	0.00	0.0%	18	1.1%	18.0
Samian	5	4.2%	0.21	6.5%	75	4.7%	15.0
SW	6	5.1%	0.11	3.4%	60	3.7%	10.0
WW	20	16.9%	1.03	31.5%	219	13.6%	11.0
Total	**118**	**100.0%**	**3.25**	**100.0%**	**1608**	**100.0%**	**13.6**

The Black Burnished wares are mostly conical bowls with flat rims, chamfered and flat bases. Both acute lattice and arcaded decoration is present. These types span the second half of the 2nd century, with the arcaded and flat based types going into the 3rd. The slightly later grooved rim type dating from the later 2nd century onwards makes its first appearance in this group. The remaining vessels comprise plain and bead rim dishes and jars including one heavily sooted jar (Holbrook and Bidwell 1991, 108-110).

Apart from one lid, the grey wares are all jars including some imitating Black Burnished ware forms. Other forms include everted and rounded rims, with lattice and burnished decoration. One example of barbotine dot panels is probably residual. One jar is covered with a red pigment residue, possibly red ochre, on both surfaces (G. Morgan *pers. comm*.).

Amongst the grey ware jars is a group of small vessels associated with an industrial process, including one crucible base and one mould fragment. There are also five other small jars (60-64) heavily vitrified with glassy or copper-like residues. Although some appear to have been exposed to high temperatures in the way a crucible would be, they are unusually thin walled for this type of vessel. Instead, it has been suggested that these are examples of small jars used secondarily to transport molten material from a crucible to a mould (G. Morgan *pers. comm*.).

The white wares include ring necked flagons and a residual butt beaker. The most interesting vessels are two small jars or flasks (53-54), with sooting inside and out, but no residues present. Although these have clearly been used to heat something, their use is probably domestic rather than industrial and they have not been exposed to particularly high temperatures (G. Morgan *pers. comm*.).

The remaining pottery includes a Dressel 20 and Gauloise 4 amphora, a Mancetter-Hartshill mortarium and residual sandy, grog-tempered and shelly ware jars. The samian ware is from South and Central Gaul, including a Drag. 31 bowl dating to the middle of the 2nd century. Two Bourne-Greetham shelly ware jars, a Derbyshire ware cupped-rim jar and a Nene Valley colour-coated beaker support a late 2nd-early 3rd century date for the group overall.

At the eastern end of the drain, metal working waste was found in a depression either under or within G936, (G1266). Only 14 sherds of pottery were recovered, including a Nene Valley colour-coated ware beaker and a vitrified jar with residue comparable to those found in G936. It is particularly interesting to find actual metal working waste in association with the group of small jars covered in vitrified residues.

Thirty sherds (3.31 EVEs, 1.628kg) were recovered from G928, a cess pit located inside Building A towards the south west corner of the southern room. The notable vessels are an almost complete Black Burnished ware jar (56), most likely dating to the later 2nd or early 3rd century, and a complete white-slipped ware flask (50) comparable to Gillam's type 36 dating to *c.*AD 90-160 (Gillam 1968, 8, 46). The slip on the flask has been damaged as a result of exposure to the acidic fill of the pit but, unusually, it has survived completely intact. Substantial portions of two samian ware vessels from Central Gaul were also present, including an almost complete stamped Drag. 33 cup (Hopkins 2008, in archive).

Inside the northern central room of Building B, a demolition or trample layer (G1221) revealed 119 sherds (2.33 EVEs, 1.903kg) of pottery. Most of the pottery could date within the second half of the 2nd century, with some a little earlier. The latest vessels are two Nene Valley colour-coated ware beakers with barbotine decoration, which date to the later 2nd or early 3rd century (Howe *et al* 1980, 7-8). Black Burnished ware flat rim bowls, bead rim dishes and jars with acute lattice are augmented by grey ware jars, some of which are burnished with lattice decoration in a similar style to the Black Burnished wares. Most of the white wares are flagons, however a flanged bowl with red painted decoration (57), probably from Northamptonshire or Mancetter, is also present. An abraded white ware vessel (sf1969) could be part of a ring lamp or a small unguentarium (48). The vessel is quite abraded and is heavily sooted. Abrasion at the base in particular makes it difficult to determine whether or not it was part of a ring lamp or a single unguentarium. A reasonable amount of Central Gaulish samian ware equating to approximately 12 vessels, comprises dishes, cups and bowls dating to the first half of the 2nd century up to *c.*AD 160.

Inside the southern room of Building D, two intercutting pits (G1388) revealed 86 sherds (1.72 EVEs, 2.471kg) of pottery. As with G1221 above, most of the pottery could date within the second half of the 2nd century. Grey wares comprise the bulk of the material, including a dish based on a Black Burnished ware form (58) and jars with burnishing and lattice decoration. There is no trace of earlier forms of decoration such as barbotine dot, suggesting a date after the middle of the 2nd century. Three mortaria are present, including one from the Nene Valley which is unlikely to date before the middle of the 2nd century. Samian wares are still present, including Drag. 31, 31R and 38 bowls indicating a date after *c.*AD 160. Three of these vessels are East Gaulish and may date into the early 3rd century (Hopkins 2008, in archive). The latest datable vessels are a Derbyshire ware jar and two colour-coated ware beakers dating to the late 2nd to early 3rd century.

Features G217 and G1225 are two of a series of pits located to the west of Building D. The assemblages comprise 153 sherds (8.42 EVEs, 4.177kg) from G217 and 114 sherds (1.78 EVEs, 1.443kg) from G1225. Most of the pottery is comparable to groups G1221 and G1388 above, with grey, oxidised and

Black Burnished wares dating within the second half of the 2nd century. Some, such as the flat-rimmed bowls with arcaded decoration, could date into the early 3rd century (Holbrook and Bidwell 1991, 109-110). However, there is some earlier material too, including a few rusticated sherds, a reeded rimmed bowl and a platter along with small amounts of grog-tempered and mixed-gritted wares. Samian ware is still present in significant quantities accounting for approximately 15.6% by EVEs. Dishes, cups and bowls from South and Central Gaul range in date from the late 1st to the middle of the 2nd century, with none of the later types found in G1388 above present here. Two Nene Valley colour-coated ware beakers are the latest datable wares, dating to the late 2nd-early 3rd century.

Finally in this phase, a made-ground layer (G422) forming part of an alleyway to the west of Building F, revealed 98 sherds (3.47 EVEs, 1.644kg) of pottery. The pottery is comparable overall with the other groups in this phase comprising grey and Black Burnished wares dating to the second half of the 2nd century, with smaller amounts of white, oxidised and shelly wares. A Bourne-Greetham shelly ware jar, colour-coated ware beaker and East Gaulish samian ware cup provide the evidence for a late 2nd to early 3rd century date.

Phase 3.5 catalogue of illustrations (Figure 22)

48. WW4 unguentarium(?) (LAU form 11D). G1221, Sfno1969, Fsn96, Rec1820, (6263).

49. C2NV folded scale beaker with curved rim (LAU form 9E). G936, Fsn113, Rec2133, (5479).

50. WS2 pulley rim flask (LAU class 2) (Gillam type 36). Fsn111, Rec2107, (4888).

51. WW4 flagon rim (LAU form 1F). G217, Fsn87, Rec1607, (6957).

52. WW2 double-handled flagon (LAU 1B). G217, Fsn86, Rec1606, (6957).

53. WW2 small bead rimmed flask/jar with internal and external sooting. G936, Fsn120, Rec2140, (5479).

54. WW2 small bead rimmed flask/jar with internal and external sooting. G936, Fsn121, Rec2141, (5479).

55. BB1 bead rim jar (cf Holbrook & Bidwell 1991 Type 3). G422, Fsn89, Rec1727, (2735).

56. BB1 everted rim jar (LAU form 3H). cf Holbrook and Bidwell 1991, fig.28, 16.1. G928, Fsn112, Rec2117, (4888).

57. WW2 flanged hemispherical bowl (LAU form 5H) with red painted decoration. G1221, Fsn97, Rec1821, (6263).

58. GW5 bead rim dish (LAU form 6A) with intersecting arc decoration and burnished swirls on the base. G1388, Fsn100, Rec1958, (4821).

59. GW9 dish (LAU class 6) with slightly beaded and in-turned rim. Heavily sooted. G217, Fsn88, Rec1615, (6957).

Vessels associated with metal working

60. GW5 small jar/beaker with slight bead rim. Vitrified metallic residue on internal and external surfaces. G936, Fsn115, Rec2135, (5479).

61. GW3 small jar/beaker with bead rim. Vitrified residue on internal and external surfaces. G936, Fsn116, Rec2136, (5479).

62. GW5/6 small jar/beaker with plain rim. Vitrified metallic residue on internal and external surfaces. G936, Fsn114, Rec2134, (5479).

63. GW6 crucible base. Vitrified residue on internal and external surfaces, including copper-like residue. G936, Fsn117, Rec2137, (5479).

64. GW5 small jar/beaker with bead rim. Vitrified metallic residue on internal and external surfaces. G1266, Fsn127, Rec2195, (5589).

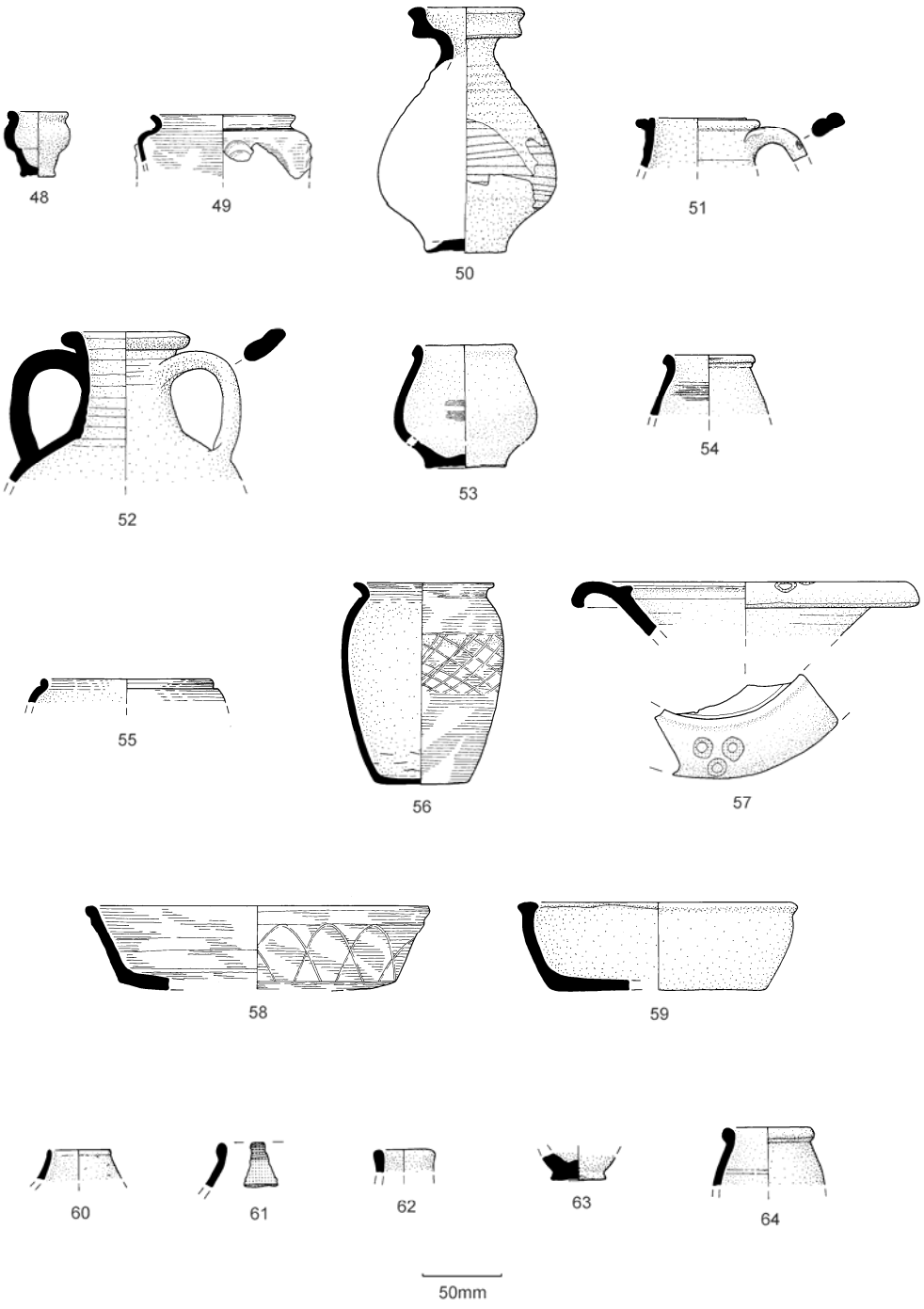


Figure 22: The Roman Pottery: the illustrated pottery from Phase 3.5, 48-64

Phase 3.6 (early 3rd century AD)

Insula V: Building F Room 5 G399: (2619), (2657), (2660), (2661), (2744);
Room 6 G453: (3256), (3262).
Made-ground G947: (4982), (5069), (5145), (5236), (5284), (5518), (6180), (6736), (6922);
G1250: (5432), (6012).
Pits G447: (3602), (3603); G448: (3536), (3567), (3573); G451: (3355), (3356), (3357).

The assemblage comprises 1632 sherds weighing 32.921kg, with an EVEs value of 40.59 and average sherd weight of 20.2g. Quantification of the fabrics and forms present are given in the tables below.

Table 21: The Roman Pottery: quantification of Roman pottery from Phase 3.6

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	22	1.3%	0.43	1.0%	2287	6.9%	104.0
BB1	218	13.4%	6.33	15.6%	3376	10.3%	15.5
C	81	5.0%	0.89	2.2%	625	1.9%	7.7
CG	74	4.5%	1.87	4.6%	1444	4.4%	19.5
DS	10	0.6%	0.00	0.0%	261	0.8%	26.1
GT	31	1.9%	0.15	0.4%	3228	9.8%	104.1
GW	763	46.8%	17.30	42.6%	13676	41.5%	17.9
MD	3	0.2%	0.00	0.0%	29	0.1%	9.7
MG	4	0.2%	0.08	0.2%	180	0.5%	45.0
MO	36	2.2%	0.70	1.7%	2082	6.3%	57.8
OW	44	2.7%	3.10	7.6%	1061	3.2%	24.1
Samian	224	13.7%	7.31	18.0%	3032	9.2%	13.5
SW	11	0.7%	0.35	0.9%	97	0.3%	8.8
WS	6	0.4%	0.00	0.0%	55	0.2%	9.2
WW	105	6.4%	2.10	5.2%	1488	4.5%	14.2
Total	**1632**	**100.0%**	**40.59**	**100.0%**	**32921**	**100.0%**	**20.2**

Table 22: The Roman Pottery: vessel forms present in Phase 3.6.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	22	1.3%	0.43	1.0%	2287	6.9%
Beaker	79	4.8%	2.08	5.1%	653	2.0%
Bowl	131	8.0%	5.13	12.6%	2571	7.8%
Cup	64	3.9%	3.62	8.9%	686	2.1%
Dish	127	7.8%	5.54	13.6%	2569	7.8%
Flagon	103	6.3%	1.98	4.9%	1560	4.7%
Flask	8	0.5%	1.15	2.8%	241	0.7%
Jar	894	54.8%	17.46	43.0%	18559	56.4%
Lid	3	0.2%	0.38	0.9%	61	0.2%
Mortarium	36	2.2%	0.70	1.7%	2082	6.3%
Platter	7	0.4%	0.70	1.7%	264	0.8%
Total classified	**1474**	**90.3%**	**39.16**	**96.5%**	**31533**	**95.8%**
Misc	158	9.7%	1.43	3.5%	1388	4.2%
Total	**1632**	**100.0%**	**40.59**	**100.0%**	**32921**	**100.0%**

G399 (185 sherds, 2.93 EVEs, 2.534kg) and G453 (82 sherds, 4.17 EVEs, 2.493kg) represent the dismantling and backfilling of a hypocaust and possible plunge pool within Building F. The pottery from

these groups demonstrates a move into the first part of the 3rd century, with the presence of Nene Valley colour-coated ware beakers and possibly a flagon. The beakers include folded forms and types with barbotine scroll decoration. The rims are plain or funnel necked, suggesting a date within the first quarter of the 3rd century (Howe *et al* 1980, 16-19). A 'Rhenish'ware beaker from Lezoux in Gaul is also present.

Table 23: The Roman Pottery: quantification of Roman pottery from G339 and G453

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	1	0.4%	0.00	0.0%	346	6.9%	346.0
BB1	38	14.2%	0.72	10.1%	485	9.6%	12.8
C	25	9.4%	0.37	5.2%	81	1.6%	3.2
CG	16	6.0%	0.50	7.0%	259	5.2%	16.2
DS	1	0.4%	0.00	0.0%	155	3.1%	155.0
GT	3	1.1%	0.00	0.0%	132	2.6%	44.0
GW	147	55.1%	3.32	46.7%	2613	52.0%	17.8
MD	2	0.7%	0.00	0.0%	18	0.4%	9.0
MO	2	0.7%	0.17	2.4%	359	7.1%	179.5
OW	3	1.1%	0.16	2.3%	84	1.7%	28.0
Samian	16	6.0%	0.71	10.0%	256	5.1%	16.0
SW	2	0.7%	0.15	2.1%	13	0.3%	6.5
WW	11	4.1%	1.00	14.1%	226	4.5%	20.5
Total	**267**	**100.0%**	**7.10**	**100.0%**	**5027**	**100.0%**	**18.8**

Black Burnished ware jars with obtuse lattice, Derbyshire ware and Bourne-Greetham shelly wares also suggest an early 3rd-century date. Many of the grey wares are clearly derived from Black Burnished ware forms including plain rimmed dishes, jars with obtuse lattice decoration and bead rimmed bowls. Nene Valley grey ware jars are also present for the first time. Four sandy and grog-tempered ware jars are clearly residual, whilst the oxidised, mica-dusted and white wares date within the 2nd century. Samian ware cups and dishes are still present, including a Ludowici Tg dish dating to the late 2nd century and an East Gaulish Drag.33 cup dating to the late 2nd or early-mid 3rd century (Hopkins 2008, in archive).

The possible colour-coated ware flagon is worth highlighting as although these are traditionally dated to the 4th century (Howe *et al* 1980, 22-23), there is nothing to suggest this group dates after *c.*AD 225. Similar circumstances have been found at the Vaughan Way site in Leicester (A2.2003) and at excavations at Catterick in North Yorkshire, where flagons were found in association with material dating to the early to mid- 3rd century (Evans 2002, 276-280; Johnson forthcoming) suggesting that colour-coated ware flagons were being produced in the Nene Valley before the 4th century.

These two groups show a real change from the previous phases, with more Nene Valley colour-coated wares alongside other regional fabrics such as Black Burnished ware, Derbyshire ware and Bourne-Greetham shelly wares. Nene Valley grey wares and imported Rhenish wares are also present for the first time. Samian ware is still present, including a few examples of the latest forms imported to Britain. The grey wares are imitating or derived from Black Burnished ware forms, with no sign of earlier styles of decoration or rim forms such as everted or ledge rims present. There are some residual vessels, but not many. Vessel joins between the layers in each room could suggest they were backfilled in one episode.

G947 (807 sherds, 18.72 EVEs, 13.455kg) is a large spread of made-ground capping parts of Buildings A and B as well as a large external area. G1250 (217 sherds, 3.97 EVEs, 2.563kg) is also a spread of made-ground to the west of Building D. During the stratigraphic analysis, some contexts from G947 and G1250 were considered to be the same therefore the two groups are discussed together here as they probably represent a single spread of material. The table below details the quantified pottery from G947 and G1250 which accounts for 55.9% of the EVEs from Phase 3.6 (62.8% by sherd count, 48.7% by weight).

Table 24: The Roman Pottery: quantification of Roman pottery from G947 and G1250.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	14	1.4%	0.25	1.1%	1463	9.1%	104.5
BB1	140	13.7%	3.22	14.2%	1846	11.5%	13.2
C	47	4.6%	0.37	1.6%	459	2.9%	9.8
CG	39	3.8%	1.15	5.0%	612	3.8%	15.7
DS	6	0.6%	0.00	0.0%	53	0.3%	8.8
GT	3	0.3%	0.00	0.0%	51	0.3%	17.0
GW	476	46.5%	11.03	48.6%	6828	42.6%	14.3
MD	1	0.1%	0.00	0.0%	11	0.1%	11.0
MO	22	2.1%	0.38	1.7%	1071	6.7%	48.7
OW	28	2.7%	1.19	5.2%	653	4.1%	23.3
Samian	159	15.5%	3.96	17.5%	1890	11.8%	11.9
SW	7	0.7%	0.20	0.9%	73	0.5%	10.4
WS	5	0.5%	0.00	0.0%	44	0.3%	8.8
WW	77	7.5%	0.95	4.2%	964	6.0%	12.5
Total	**1024**	**100.0%**	**22.68**	**100.0%**	**16018**	**100.0%**	**15.6**

Unlike the backfilled rooms in Building F, there is a much larger proportion of 2nd-century pottery within the made-ground layers. Most of the amphorae are probably residual, though Dressel 20 and Gauloise 4 types were imported until the 3rd century. The few sandy, grog-tempered and mica-dusted wares are residual. The oxidised wares comprise beakers, bowls and jars including cornice rim types with roulette decoration and flanged hemispherical bowls dating to the 2nd century. Apart from one jar, the white wares are flagons including ring-necked forms, also dating within the 2nd century. The white ware jar and some of the oxidised wares show sooting round the rims and outer surfaces, typical of jars used as general household items.

Most of the shelly wares are Bourne-Greetham jars, though a few ledge rimmed jars are still present. The Derbyshire ware jars have cupped rims typical of the later 2nd and 3rd centuries. A variety of mortaria from Mancetter-Hartshill and the Nene Valley, date from the early 2nd century through to the 3rd, with most falling within a mid- 2nd to early 3rd-century range. The latest vessel is a Mancetter hammerhead form dating to the 3rd century (Clark 1999, 152-154).

Black Burnished wares account for 14.2% of the EVEs, most of which are flat rimmed bowls with lattice or arcaded decoration. Dishes with plain and beaded rims, jars with lattice decoration and a flagon handle complete the range of forms. Though some date within the 2nd century, the bowls and dishes with arcaded decoration can date into the 3rd (Holbrook and Bidwell 1991, 109-112). The grey wares include jars, bowls and dishes imitating or derived from Black Burnished ware forms dating from the middle of the 2nd century to the early 3rd century. A bowl in Nene Valley grey ware is unlikely to date before the middle of the 2nd century and could date to the 3rd (Howe *et al* 1981, 14-15), whilst a flask probably from either Mancetter or the Nene Valley is comparable to one previously found in Leicester dating to the mid-late 2nd century (Pollard 1994, 96-99). Most of the jar rims are rounded with burnished and lattice decoration. Two jars with ledge rims comparable with Gillam's form 150 date from the middle of the 2nd century to the early 3rd (Gillam 1968, 17). There are also a few vessels dating to the first half of the 2nd century which are most likely residual.

There is also one crucible fragment and four other fragments of vessels used in a secondary manner as previously discussed (see Phase 3.5, G936 and G1266). Two fragments have copper residues on both surfaces (G. Morgan *pers. comm*.).

The fine wares comprise colour-coated and samian wares. Apart from one Trajanic Gaulish beaker, the colour-coated wares are from the Nene Valley industries. Most are beakers including bag shaped and folded forms with barbotine scroll and scale decoration. Rims present include cornice and curved forms suggesting a date from the later 2nd century to the first quarter of the 3rd. A castor box lid has an angular

profile with well defined decoration, suggesting an early 3rd century date rather than later (Howe *et al* 1981, 16-19; 22-23). Three flagons are also present, the dating of which is discussed above. The samian ware comprises the suite of dishes, cups and bowls typical of the 2nd century. Most is Central Gaulish, including Drag. 31, 31R and 38 bowls dating to the mid- to late 2nd century. An East Gaulish Drag. 31 and Drag. 33 cup could date into the 3rd century (Hopkins 2008, in archive).

G447 (102 sherds, 3.98 EVEs, 2.383kg), G448 (200 sherds, 5.77 EVEs, 8.764 kg) and G451 (39 sherds, 1.08 EVEs, 0.729kg) constitute three groups of pits located to the north of Building F. The material is very similar in nature to the made-ground layers G947 and G1250, with quantities of mid-late 2nd century pottery and smaller amounts dating to the 3rd century. In G447, two Derbyshire ware jars provide the latest datable pottery. The samian ware, though largely residual, includes an almost complete Drag. 27 cup, a Drag. 15/17 platter with a graffito, and a dish with a rivet hole indicating repair in antiquity (Ibid). It is possible that some of these vessels were used for a long time before being discarded.

G448 also contains Derbyshire ware and a Black Burnished ware bead rimmed dish that joins sherds from G447. Other Black Burnished ware dishes and bowls date to the late 2nd-early 3rd century. An unusual oxidised ware flask is illustrated (65), the source and date of which vessel is uncertain. Mortaria from the Verulamium region, Mancetter-Hartshill and the Nene Valley were recovered. The Nene Valley vessels date to the late 2nd and 3rd centuries and are comparable to forms found at Brancaster in East Anglia, Piddington in Northamptonshire and Causeway Lane in Leicester (Hartley 1985, 116-118; Rollo 1994, 17-18; Clark 1999, 152-154). Nene Valley colour-coated ware beakers, including a plain or funnel neck rim and folded forms with and without barbotine scale decoration, place the group firmly into the 3rd century.

Only 39 sherds were recovered from G451 which truncates G453 within Building F. The pottery includes colour-coated ware beakers, probably from the Nene Valley, and a grey ware jar with obtuse lattice decoration. There is also an East Gaulish Drag. 30R bowl and a Central Gaulish Drag. 31 bowl with a repair hole (Hopkins 2008, in archive). These vessels suggest a later 2nd or early 3rd century date, whereas the rest could date within the 2nd century. As the pit truncates the backfilled plunge pool room of Building F, it is difficult to be certain where the pottery actually comes from, as the small quantity found in G451 is not dissimilar to some of that found in G453.

Phase 3.6 catalogue of illustrations (Figure 23 and Figure 24)

65. OW2 flask (LAU class 2). G448, Fsn110, Rec2060, (3573).
66. GW flagon or jug (LAU form 1E2). G447, Fsn105, Rec1992, (3603).
67. GW3 Belgic-style beaker (LAU class 9) with low carination and groove, G453, Fsn92, Rec1764, (3256).
68. BB1 bead rim jar (cf Holbrook and Bidwell 1991, fig.27 type 3). G947, Fsn5, Rec79, (4982).
69. GW7 necked jar (LAU form 3M3), burnished with pale silver/grey surfaces. G947, Fsn9, Rec93, (4982).
70. GW6 ledge rim jar (LAU form 3E2(3)). G947, Fsn16, Rec224, (5069).
71. GW6 ledge rim jar (LAU form 3E2). G947, Fsn10, Rec95, (4982).
72. GW3 necked jar (LAU form 3M4(1)). Comparable to Causeway Lane example dating to the mid-late 2nd century (Clark 1999, fig. 64, 82). Date range of *c*.AD120-190 given in the Leicestershire Form Series (Pollard unpublished). G947, Fsn6, Rec86, (4982).
73. GW6 jar imitating a BB1 form (LAU form 3H1) with black burnished surfaces and obtuse lattice decoration. G453, Fsn94, Rec1782, (3256).
74. GW necked jar (LAU form 3J), burnished. G448, Fsn108, Rec2052, (3567).
75. GW5 necked jar (LAU form 3M2). G448, Fsn109, Rec2060, (3573).
76. GW6 bowl (LAU form 5P) with slight bead rim and highly burnished surfaces. G947, Fsn11, Rec101, (4982).
77. GW5 hemispherical bowl (LAU form 5H). G1250, Fsn20, Rec325, (5432).
78. GW5 bowl (LAU form 6D). The rim and silvery grey burnished finish appear to be derived from BB2 bowl forms, however the chamfered base and intersecting arc decoration are features associated with BB1 vessels; an interesting derivative mixing characteristics. G453, FSN91, Rec.1757, (3262).
79. BB1 bead rimmed dish (cf Gillam 316 but plain, no lattice). Two sections of rim aligned opposite to each other appear to have been deliberately removed. G447, joining sherds from three contexts: Fsn103, Rec1987, (3603), Fsn104, Rec1971, (3602), Fsn106, Rec2020, (3536).
80. MO4 Mancetter-Hartshill mortarium. G947, Rec370, (6736).

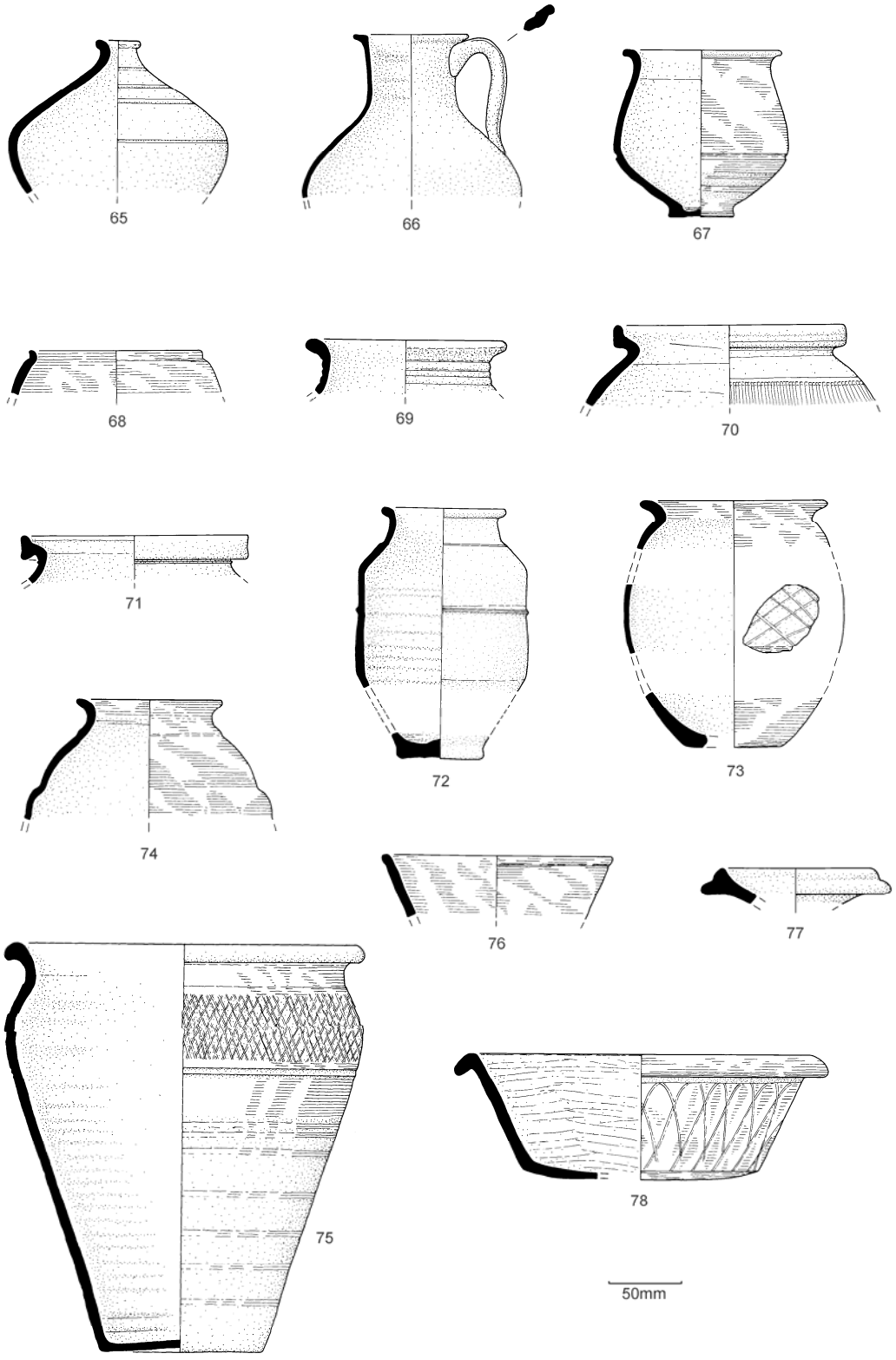


Figure 23: The Roman Pottery: the illustrated pottery from Phase 3.6, 65-78

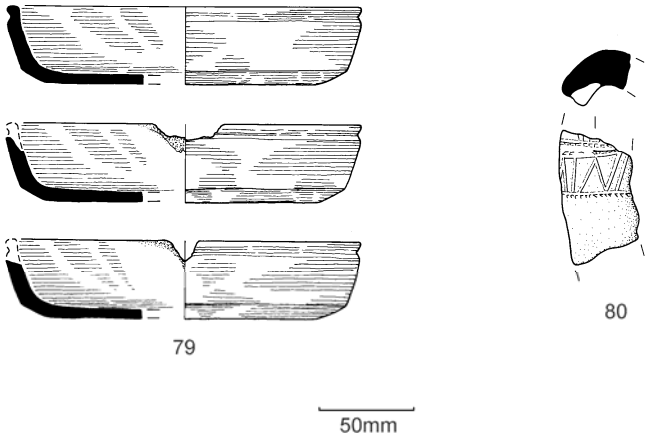


Figure 24: The Roman Pottery: the illustrated pottery from Phase 3.6, 79-80

Phase 3.7 (Early 3rd century AD)

Insula V: Building G G1383: (4738), (4802), (6783).
Building G Room 6 G951: (6664), (6686); G954: (6712).
Building G courtyard G1277: (5240), (5313), (5892), (5928), (6255).

The assemblage comprises 176 sherds weighing 3.008kg, with an EVEs value of 2.75 and average sherd weight of 17.1g. Quantification of the fabrics and forms present are given in the tables below.

Table 25: The Roman Pottery: quantification of Roman pottery from Phase 3.7

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	3	1.7%	0.00	0.0%	857	28.5%	285.7
BB1	80	45.5%	0.65	23.5%	754	25.1%	9.4
C	6	3.4%	0.00	0.0%	47	1.6%	7.8
CG	2	1.1%	0.00	0.0%	39	1.3%	19.5
DS	2	1.1%	0.00	0.0%	33	1.1%	16.5
GW	45	25.6%	1.32	48.1%	608	20.2%	13.5
MO	1	0.6%	0.05	1.8%	31	1.0%	31.0
OW	2	1.1%	0.00	0.0%	16	0.5%	8.0
Samian	22	12.5%	0.73	26.6%	374	12.4%	17.0
TN	1	0.6%	0.00	0.0%	111	3.7%	111.0
WW	12	6.8%	0.00	0.0%	138	4.6%	11.5
Total	**176**	**100.0%**	**2.75**	**100.0%**	**3008**	**100.0%**	**17.1**

Table 26: The Roman Pottery: vessel forms present in Phase 3.7

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	3	1.7%	0.00	0.0%	857	28.5%
Beaker	5	2.8%	0.00	0.0%	44	1.5%
Bowl	30	17.0%	0.37	13.5%	486	16.2%
Cup	4	2.3%	0.23	8.4%	27	0.9%
Dish	9	5.1%	0.41	14.9%	104	3.5%

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Flagon	9	5.1%	0.00	0.0%	113	3.8%
Jar	100	56.8%	1.50	54.6%	1146	38.1%
Mortarium	1	0.6%	0.05	1.8%	31	1.0%
Platter	4	2.3%	0.08	2.7%	152	5.1%
Total classified	**165**	**93.8%**	**2.64**	**96.0%**	**2960**	**98.4%**
Misc	11	6.3%	0.11	4.0%	48	1.6%
Total	**176**	**100.0%**	**2.75**	**100.0%**	**3008**	**100.0%**

G951 (31 sherds, 0.3 EVEs, 0.300kg) is a sunken stone-lined feature within Room 6 of Building G (previously the southern room of Building A). The latest datable material comprises a Derbyshire ware jar and Black Burnished ware with obtuse lattice, suggesting an early 3rd-century date. A heavily vitrified small grey ware jar covered with copper residue (81) is another example of the use of such vessels as 'secondary crucibles' as discussed in Phase 3.5 relating to features G936 and G1266. There is also a grey ware jar covered in the same red pigment residue as the vessel in G936 and these could, in fact, be the same vessel. As G951 cuts G936, it is possible that the pottery recovered from the backfill of the stone-lined feature originally came from G936, as the pottery overall is very similar to that found in G936 and G1266.

G954 (16 sherds, 0.26 EVEs, 0.442kg) is a possible pit also located within Room 6 of Building G. In this case, the latest datable material is a Nene Valley colour-coated ware beaker with barbotine scale decoration indicating a 3rd century date, perhaps within the first quarter of the 3rd century. Again, a heavily vitrified small jar is present. A substantial part of a Terra Nigra platter base, with a roulette band and stamp is residual, dating sometime between 10 BC and AD 40/50 (83). Apart from this and the colour-coated ware, the rest of the pottery could date within the second half of the 2nd century. This feature cuts the made-ground layer G947 and again it is possible the pottery originally came from this layer.

Within the courtyard of Building G, G1277 (100 sherds, 1.82 EVEs, 2.009kg) comprises a series of five post-pads, probably associated with scaffolding or equipment used in the remodelling of the first masonry buildings into the new courtyard house. Much of the pottery is undiagnostic and could date from the middle of the 2nd century onwards, however a few colour-coated wares including a folded scale beaker, indicate a date within the first half of the 3rd century and possibly the first quarter. As with the other features in this phase, the post-pads cut through earlier layers and some of the pottery recovered could be the result of upcast as the ground was disturbed.

G1383 (29 sherds, 0.37 EVEs, 0.257kg) comprises a mortar spread overlying granite stones within the east range of Building G. Black Burnished ware with obtuse lattice decoration suggests an early 3rd-century date, with the remaining vessels probably dating to the late 2nd or early 3rd century. These include colour-coated ware beakers, a Mancetter mortarium and a Late Antonine Walters 79 samian ware dish (Hopkins 2008, in archive).

The quantity of pottery from the groups in this phase is small, but provides a date within the first quarter of the 3rd century for construction of Building G. During this time Buildings A, B and D are remodelled and incorporated into Building G. The ceramic evidence is very similar to that in Phase 3.6, by which time the first masonry buildings have significantly declined and may be semi-derelict.

Phase 3.7 catalogue of illustrations (Figure 25)

81. GW9 small jar/beaker with plain rim, vitrified with residues including copper-like residue on internal and external surfaces. G951, Fsn123, Rec2182, (6664).

82. GW5/6 jar (LAU form 3E) with warped rim. G1277), Fsn128, Rec2210, (5240).

83. Terra Nigra platter base (residual) with stamp. G954, Sfno1958, Fsn124, Rec2184, (6712).

84. Mortarium (Mancetter?) with stamp, G1063, Sfno1785, (5352), not catalogued.

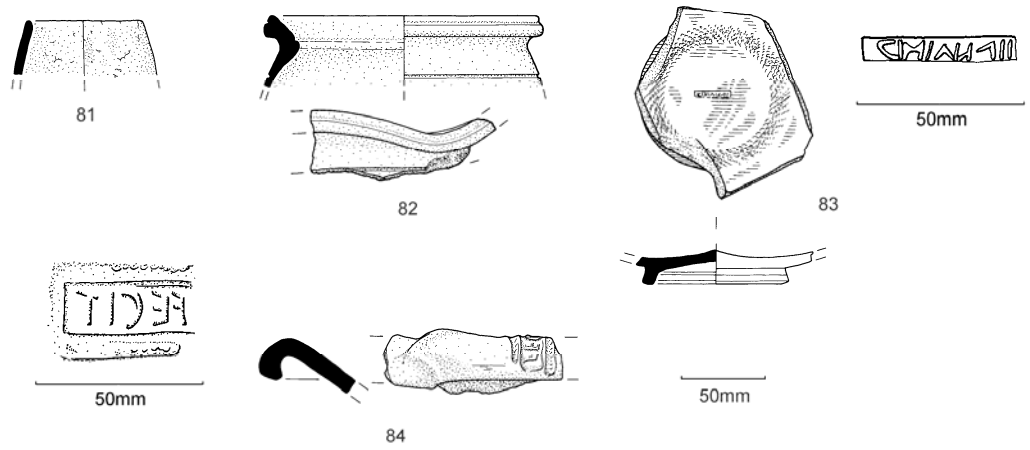


Figure 25: The Roman Pottery: the illustrated pottery from Phase 3.7, 81-84

Phase 3.8 (Early to mid- 3rd century AD)

Insula V Building G Room 6:
G965: (5068), (6340); G966: (6230); G967: (6089), (6565); G972: (6381); G1323: (6339).

The assemblage comprises 134 sherds weighing 1.026kg, with an EVEs value of 2.03 and average sherd weight of 7.7g as detailed in Table 27 below. The variety of forms present is given in Table 28. All of the groups considered in this phase were located in Room 6 of Building G, where a sequence of activity surrounding the use of a hearth was found.

Table 27: The Roman Pottery: quantification of Roman pottery from Phase 3.8

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	5	3.7%	0.00	0.0%	67	6.5%	13.4
BB1	47	35.1%	0.43	20.9%	280	27.3%	5.96
C	19	14.2%	0.35	17.2%	105	10.2%	5.53
GW	50	37.3%	1.13	55.7%	451	44.0%	9.02
MG	2	1.5%	0.10	4.9%	62	6.0%	31.0
MO	1	0.7%	0.00	0.0%	19	1.9%	19.0
OW	1	0.7%	0.00	0.0%	3	0.3%	3.0
Samian	8	6.0%	0.03	1.2%	37	3.6%	4.6
WW	1	0.7%	0.00	0.0%	2	0.2%	2.0
Total	**134**	**100.0%**	**2.03**	**100.0%**	**1026**	**100.0%**	**7.7**

Table 28: The Roman Pottery: vessel forms present in Phase 3.8

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	5	3.7%	0.00	0.0%	67	6.5%
Beaker	14	10.4%	0.48	23.4%	64	6.2%
Bowl	10	7.5%	0.08	3.7%	62	6.0%
Cup	1	0.7%	0.00	0.0%	17	1.7%
Dish	4	3.0%	0.00	0.0%	8	0.8%
Flagon	7	5.2%	0.00	0.0%	52	5.1%

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Jar	89	66.4%	1.46	71.7%	727	70.9%
Mortarium	1	0.7%	0.00	0.0%	19	1.9%
Total classified	**131**	**97.8%**	**2.01**	**98.8%**	**1016**	**99.0%**
Misc	3	2.2%	0.03	1.2%	10	1.0%
Total	**134**	**100.0%**	**2.03**	**100.0%**	**1026**	**100.0%**

G965 (58 sherds, 0.85 EVEs, 0.389kg) is a sandy layer overlying G954 in Phase 3.7 above. A small assemblage comprising Black Burnished ware, Nene Valley colour-coated ware and grey ware along with a little oxidised, white and samian ware was recovered. Black Burnished ware jars with obtuse lattice and the colour-coated ware provide an early to mid-3rd century date. In addition, one of the grey ware jars has a cupped rim similar to that associated with East Midlands Burnished wares of the 3rd century onwards (Todd 1968). Two Black Burnished ware bowl or dish bases and a grey ware jar with obtuse lattice was the only pottery recovered from G966, a hearth constructed over G965. Eleven sherds (0.13 EVEs, 0.118kg) were recovered from G1323, a continuation of G965 discoloured by the heat from the hearth G966. Apart from one amphora sherd, the pottery comprised grey ware jars including an East Midlands Burnished type ware.

A layer of sand and charcoal, G967 capped G965. Fifty-five sherds (1.04 EVEs, 0.416kg) of pottery were recovered, comparable to that found in the groups above. The latest datable vessels are a colour-coated ware beaker and a grey ware bowl imitating a Black Burnished ware form dating to the late 2nd or early 3rd century. Many of the grey ware sherds have pitted surfaces and are covered in a mortar-like residue. A probable pit, G972 cuts G965. The pottery retrieved comprises two sherds of 2nd century samian ware, a Black Burnished ware jar with obtuse lattice and a Nene Valley colour-coated ware flagon, suggesting a date within the first half of the 3rd century. This pit also contained ash and charcoal and has been interpreted as a possible fire-pit.

Layer G965 also contained a mix of granite stones and charcoal, and appears to be a new surface for Room 6 to accommodate the activities associated with using the hearth. The pottery in this phase is largely comparable to that in Phase 3.6 and 3.7, with the addition of East Midlands Burnished type grey wares. The absence of any of the small jars associated with metal working activity found in this area in earlier phases could suggest a change of use for Room 6 with the creation of the new surface G965.

Phase 3.9 (Early to mid- 3rd century AD)

> Insula V: Building G Room 6 G974: (6128), (6165). NE of Building G: G454: (3655); G495: (3511); G504: (3595), (3608), (3609), (3646), (3665); G505: (3652).

The assemblage comprises 428 sherds weighing 5.115kg, with an EVEs value of 5.52 and average sherd weight of 12.0g. Quantification of the fabrics and forms present are given in the tables below.

Table 29: The Roman Pottery: quantification of Roman pottery from Phase 3.9

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	7	1.6%	0.00	0.0%	440	8.6%	62.9
BB1	86	20.1%	1.24	22.5%	849	16.6%	9.9
BB2	1	0.2%	0.00	0.0%	4	0.1%	4.0
C	26	6.1%	0.15	2.7%	177	3.5%	6.8
CG	6	1.4%	0.00	0.0%	96	1.9%	16.0
GT	3	0.7%	0.00	0.0%	92	1.8%	30.7
GW	234	54.7%	3.19	57.8%	2400	46.9%	10.3
MG	2	0.5%	0.00	0.0%	25	0.5%	12.5
MO	7	1.6%	0.16	2.8%	442	8.6%	63.1
OW	8	1.9%	0.00	0.0%	122	2.4%	15.3
Samian	29	6.8%	0.61	11.1%	258	5.0%	8.9

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
SW	2	0.5%	0.00	0.0%	17	0.3%	8.5
WS	1	0.2%	0.00	0.0%	11	0.2%	11.0
WW	16	3.7%	0.18	3.2%	182	3.6%	11.4
Total	**428**	**100.0%**	**5.52**	**100.0%**	**5115**	**100.0%**	**12.0**

Table 30: The Roman Pottery: vessel forms present in Phase 3.9

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	7	1.6%	0.00	0.0%	440	8.6%
Beaker	27	6.3%	0.23	4.1%	179	3.5%
Bowl	44	10.3%	0.50	9.1%	532	10.4%
Cup	9	2.1%	0.35	6.3%	76	1.5%
Dish	28	6.5%	0.82	14.9%	379	7.4%
Flagon	12	2.8%	0.18	3.2%	143	2.8%
Flask	1	0.2%	0.25	4.5%	4	0.1%
Jar	261	61.0%	2.93	53.1%	2712	53.0%
Lid	1	0.2%	0.06	1.1%	3	0.1%
Mortarium	7	1.6%	0.16	2.8%	442	8.6%
Platter	4	0.9%	0.05	0.9%	12	0.2%
Total classified	**401**	**93.7%**	**5.52**	**100.0%**	**4922**	**96.2%**
Misc	27	6.3%	0.00	0.0%	193	3.8%
Total	**428**	**100.0%**	**5.52**	**100.0%**	**5115**	**100.0%**

Fifty sherds (1.07 EVEs, 0.523kg) were recovered from G974, a stone culvert cut through the floor levels of Room 6 within Building G. As a result of truncation of earlier layers, a small amount of late 1st to early 2nd-century material is present along with some later 2nd-century grey and Black Burnished wares. The latest datable vessels are two colour-coated ware beakers, including a folded form suggesting an early 3rd or early to mid- 3rd-century date for construction of the culvert.

G495 revealed 83 sherds (1.42 EVEs, 1.891kg) of pottery, most of which comprises grey and Black Burnished wares dating to the later 2nd or early 3rd century, as does a cornice rimmed Nene Valley colour-coated beaker. A small amount of earlier 2nd century material is also present. This layer is a demolition layer associated with renovations to Building F or G and a quantity of large pieces of granite, sandstone, slate and painted wall plaster was also found. The layer overlies a timber structure situated to the north-east of Building G, indicating this had been abandoned and demolished by the early to mid- 3rd century.

G505 (260 sherds, 2.67 EVEs, 2.215kg), which accounts for almost half the total material recorded in this phase, constitutes a large soil accumulation to the north-east of Building G. Grey and Black Burnished wares form the largest proportion of vessels (72.5% and 18.5% of the EVEs respectively). The Black Burnished wares comprise jars with obtuse and acute lattice, plain rimmed dishes and bowls including a grooved rim form dating from the later 2nd century onwards (Holbrook and Bidwell 1991, 109-110). The grey wares are mostly jars and bowls, including those imitating Black Burnished ware dating from the later 2nd century onwards. A Nene Valley grey ware dish is unlikely to date before the middle of the 2nd century and could date into the 3rd (Howe *et al* 1980, 14-15), whilst a Black Burnished ware 2 bowl dates to the second half of the 2nd century. There are traces of residual material including a few of the grey wares and a small quantity (five sherds) of later 1st century 'transitional' material. Very few white, white slipped and oxidised wares are present (13 sherds, 0 EVEs), including jars with roulette decoration and flagons. Likewise, only three shelly ware jars are present, one of which is may be a Bourne-Greetham type dating to the later 2nd and 3rd centuries.

Samian wares account for 10.3% of the EVEs, although none date beyond the middle of the 2nd century. The remaining fine wares are all colour-coated ware beakers, including the first appearance of so-called

'Rhenish' wares from Trier dating from *c.*AD 180-250 (Tyres 1996, 138-139). Most, but not all of the Romano-British colour-coated wares are from the Nene Valley, including folded forms with barbotine scales dating to the first half of the 3rd century. Three Mancetter-Hartshill mortaria were recovered including a reeded and hammerhead form indicating a date at least into the 3rd century. The latter has a red painted flange and is comparable to one found at Causeway Lane in Leicester given a date range of *c.*AD 230-330 (Clark 1999, 157-158). This range is quite broad and in this group, a range from *c.*230-250/60 is more likely, as no other material suggests a date after the middle of the 3rd century.

Two other groups (G454 and G504) were identified as soil accumulations in the same area as G505. The very small quantity of pottery recovered from these layers (18 sherds and 17 sherds respectively) is comparable with G505 above. In both groups, a colour-coated ware beaker from the Nene Valley dating to the first half of the 3rd century proved to be the latest datable vessel.

Phase 3.9 Catalogue of illustrations (Figure 26)

85. GW3 flask or bottle (LAU form 2A1). G505, Fsn69, Rec1303, (3652).

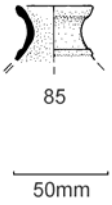


Figure 26: The Roman Pottery: the illustrated pottery from Phase 3.9, 85

Selected Groups from Phase 4 (late Roman: late 3rd to 4th century AD)

Phase 4.1 (Late 3rd to early 4th century AD)

Insula V: North of Building F G526: (3487), (3488), (3489), (3490), (3509), (3512).
Building H Room 1 G496: (3478), (3480), (3482), (3506); G498: (3449), (3451), (3452).
Insula XI: Demolition layer G508: (1113), (1114), (1194), (1251).

The assemblage comprises 910 sherds weighing 27.996kg, with an EVEs value of 26.07 and average sherd weight of 30.8g. Quantification of the fabrics and forms present are given in the tables below.

Table 31: The Roman Pottery: quantification of Roman pottery from Phase 4.1

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	15	1.6%	0.00	0.0%	1139	4.1%	75.9
BB1	260	28.6%	10.92	41.9%	8302	29.7%	31.9
C	129	14.2%	5.02	19.3%	2795	10.0%	21.7
CG	17	1.9%	0.20	0.8%	603	2.2%	35.5
DS	3	0.3%	0.10	0.4%	48	0.2%	16.0
GT	1	0.1%	0.00	0.0%	31	0.1%	31.0
GW	309	34.0%	4.53	17.4%	7364	26.3%	23.8
MD	2	0.2%	0.00	0.0%	3	0.0%	1.5
MG	4	0.4%	0.00	0.0%	29	0.1%	7.3
MO	24	2.6%	0.28	1.1%	5360	19.1%	223.3
OW	20	2.2%	0.41	1.6%	300	1.1%	15.0
Samian	77	8.5%	2.22	8.5%	1179	4.2%	15.3
TR	1	0.1%	0.00	0.0%	5	0.0%	5.0
WS	10	1.1%	0.08	0.3%	184	0.7%	18.4
WW	38	4.2%	2.33	8.9%	654	2.3%	17.2
Total	**910**	**100.0%**	**26.07**	**100.0%**	**27996**	**100.0%**	**30.8**

Table 32: The Roman Pottery: vessel forms present in Phase 4.1

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	15	1.6%	0.00	0.0%	1139	4.1%
Beaker	53	5.8%	2.43	9.3%	705	2.5%
Bowl	84	9.2%	3.68	14.1%	2526	9.0%
Cup	14	1.5%	0.50	1.9%	101	0.4%
Dish	74	8.1%	4.30	16.5%	3383	12.1%
Flagon	117	12.9%	4.58	17.5%	2813	10.0%
Jar	491	54.0%	9.95	38.2%	11353	40.6%
Mortarium	28	3.1%	0.63	2.4%	5743	20.5%
Platter	3	0.3%	0.02	0.1%	30	0.1%
Total classified	**879**	**96.6%**	**26.07**	**100.0%**	**27793**	**99.3%**
Misc	31	3.4%	0.00	0.0%	203	0.7%
Total	**910**	**100.0%**	**26.07**	**100.0%**	**27996**	**100.0%**

G526 accounts for 78.6% of the total EVEs (55.7% sherds, 80.7% weight) from the recorded pottery in Phase 4.1, constituting two pits located to the north of Building F and east of Building G. The assemblage comprises 507 sherds, weighing 22.589kg, with an EVEs value of 20.49 and average sherd weight of 44.9g as shown in the table below.

Table 33: The Roman Pottery: quantification of Roman pottery from G526.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	9	1.8%	0.00	0.0%	901	4.0%	100.1
BB1	208	41.0%	9.47	46.2%	7540	33.4%	36.3
C	102	20.1%	4.65	22.7%	2457	10.9%	24.1
CG	9	1.8%	0.10	0.5%	457	2.0%	50.8
DS	1	0.2%	0.10	0.5%	23	0.1%	23.0
GT	1	0.2%	0.00	0.0%	31	0.1%	31.0
GW	113	22.3%	2.28	11.1%	4802	21.3%	42.5
MO	18	3.6%	0.20	1.0%	5153	22.8%	286.3
OW	2	0.4%	0.08	0.4%	89	0.4%	44.5
Samian	26	5.1%	1.31	6.4%	697	3.1%	26.8
WS	4	0.8%	0.28	1.3%	58	0.3%	14.5
WW	14	2.8%	2.05	10.0%	381	1.7%	27.2
Total	**507**	**100.0%**	**20.49**	**100.0%**	**22589**	**100.0%**	**44.6**

An interesting feature of this group is the quantity of Black Burnished ware, which forms the largest single fabric group by some margin (46.2% EVEs, 41% sherds, 33.4% weight). The forms present include a variety of conical bowls including grooved rims, but also a bead and flange form dating from *c.*AD 270 onwards (Holbrook and Bidwell 1991, 98-99; 109-110). A group of at least nine plain-rimmed dishes with arcaded decoration is also present, including three profiles and one almost complete vessel. Although this form is long-lived and first appears towards the end of the 2nd century, it has been noted that dishes with sagging bases and particularly large diameters in excess of 300mm tend to date from the later 3rd century onwards (*ibid,* 100). There is evidence of slightly sagging bases on six of the vessels present in this group and, although none match a diameter over 300mm, they are still large with diameters ranging between 260mm and 280mm and are likely to date well into the 3rd century, even if they are not examples of the very latest form. At least 12 jars are also present, most with obtuse lattice zones and flaring rims suggesting a mid- to late 3rd-century date, with one example possibly dating to the late 3rd to early 4th century (*ibid*, 103-104). Four of these vessels clearly show sooting on the exterior surfaces and traces of limescale on the interior, suggesting they were used as cooking pots, or at least for boiling water.

The grey wares include dishes, bowls and jars in the same style as the Black Burnished wares, along with a flagon, dish and bowl from the Nene Valley and some East Midlands Burnished type jars, indicating a 3rd-century date overall, as does the Derbyshire ware jar with a cupped rim. The remaining coarse wares comprise small quantities of oxidised, shelly, grog-tempered, white and white-slipped wares, some of which are residual.

The quantity of colour-coated wares is also notable in this group, accounting for 22.7% of the EVEs (20.1% sherds, 10.9% weight). Most of the vessels are products of the Nene Valley industries, including beakers, flagons, castor boxes and a jar. The beakers range from late 2nd- to early 3rd-century forms with barbotine scroll and roulette bands, through to 3rd-century folded forms and an almost complete pentice-moulded beaker (91) dating to at least the later 3rd and probably the early 4th century (Howe *et al* 1980, 16-21). At least three flagons are present, including a pinch-necked rim and a disc rim (88 and 89). The latter is probably from the Nene Valley based on the fabric and colour of the slip, however, the form is more comparable to an Oxfordshire red-brown colour-coated type dating between the mid-3rd and mid-4th century (Young 1977, 148-149). Two castor boxes and an unusual lid-seated jar complete the range of Romano-British colour-coated wares. In addition, there are two imported Rhenish ware beakers including a tall, folded form from Trier dating to the 3rd century (Symonds 1992, 49-51; fig.27).

Imported samian fine wares are still present, though now only accounting for 6.4% of the EVEs. Most of the vessels are Central Gaulish, including later forms such as Drag. 31 and 31R bowls. There is also a form 43 mortarium from Rheinzabern which is relatively uncommon in Leicester (Hopkins 2008, in archive). A Gauloise 4 and Cam 186 are the two types of amphora represented. The latter is most likely residual and whilst the Gauloise 4 could also be much earlier, it was still imported to Britain during the first part of the 3rd century (Tyres 1994, 94-95). The mortaria are a mixture of Mancetter-Hartshill and

Nene Valley fabrics as is usual for Leicester sites. Somewhat surprisingly, the identifiable forms are of the bead and flange type commonly found from the middle of the 2nd to the early 3rd century, rather than the reeded or hammerhead types common from the middle of the 3rd century onwards. Although one of the rims is severely abraded, another vessel shows some ware but not a huge amount, perhaps indicating that such specialist wares could be used for long periods of time even in a household of some status.

These two pits provide a snapshot of the types of pottery in use during the second half of the 3rd century and potentially into the early 4th, with the dominance of Black Burnished wares as the utilitarian coarse ware of choice, along with Romano-British colour-coated fine wares clearly apparent. The good level of preservation suggests these pits are primary refuse deposits and although there are a few residual sherds, these were located in the basal fills of both pits. The dating of this group coincides with the height of Building G's occupation as a substantial courtyard house and, taken together with environmental evidence indicating the presence of exotic fruit and fish (see Monckton this report), gives an insight into the culinary habits of those occupying a high status house at the beginning of the later Roman period.

G496 (177 sherds, 3.31 EVEs, 2.283kg) and G498 (27 sherds, 0.7 EVEs, 0.467kg) both relate to Room 1 within Building H situated to the north-east of Building G. The former constitutes a made-ground layer underneath the building, whilst the latter is a clay sub-surface underneath the mortar floor of Room 1.

Considering G496 first, over half the material (50.6% EVEs) comprises grey ware jars, dishes and bowls including forms in the same style as Black Burnished wares and a small quantity of Nene Valley grey ware. The rims and decorated sherds present include rolled and cupped forms with zones of burnishing or lattice decoration suggesting a 3rd century date overall, with no traces of earlier decorative styles such as rustication, roulette or barbotine dots. Black Burnished wares comprise 25% of the EVEs including conical bowls with grooved rims and jars with obtuse lattice. The colour-coated wares form a comparatively small proportion of the group (only 12 sherds, 0.1 EVEs). Beakers from the Nene Valley include folded forms either plain or with barbotine scale decoration dating to the 3rd century. In addition, a shouldered form is comparable to the pentice-moulded types of the later 3rd and 4th centuries (Howe *et al* 1980, 18-21), though only a small fragment is present. Some of the body sherds with no inner slip may be from flagons. A small amount of residual amphora, mortaria, oxidised, shelly and white wares date within the 2nd century, as does most of the samian ware.

Although only a small amount of pottery was recovered from G498, it includes a Black Burnished ware bead and flange conical bowl dating from *c.*AD 270 onwards (Holbrook and Bidwell 1991, 98-99; 109-110) and a grey ware imitation of the same form. There is also a Nene Valley colour-coated ware jar base, likely to date from the later 3rd century onwards, along with a 3rd century folded beaker and two earlier beaker forms.

The layer G496 covers and cuts G495 in Phase 3.9. There are vessel joins between the contexts in G496 and a fragment of a jar matching a vessel in G495, suggesting the ground was being levelled and prepared for a new phase of activity. Though most of the pottery is only datable to sometime during the 3rd century, with a little residual, the shouldered beaker suggests a late 3rd or possibly 4th-century date. More importantly, the key elements found in G498, indicate the mortar floor within Room 1 of Building H dates to sometime after *c.*AD 270 and possibly into the early 4th century, suggesting the later 3rd century as an earliest date of construction for Building H.

The final group considered in Phase 4.1 is G508 which is located in Insula XI to the south of Insula V and all the activity associated with Buildings G and H. The group comprises 199 sherds (1.57 EVEs, 2.657kg) and forms a demolition layer sealing other deposits within the insula. The presence of colour-coated ware flagons, beakers and a jar, along with a Black Burnished ware bead and flanged bowl, place the group towards the end of the 3rd century and possibly into the early 4th. However, the majority of the material dates to the 2nd and 3rd centuries. The grey wares are mostly jars with decoration including earlier styles such as rustication and roulette alongside 3rd century burnished wares, whilst the oxidised ware jars, white-slipped and white ware flagons and bowls most likely date within 2nd century. Apart from the bead and flanged bowl, the remaining Black Burnished wares are not closely datable, dating from the later 2nd century onwards. A Derbyshire ware jar and Nene Valley hammerhead mortarium date to the 3rd century (Clark 1999, 152-154). There is also a small quantity of clearly residual pottery such as a mica dusted ware bowl, Terra Rubra platter and mixed-gritted and shelly ware jars. Samian wares comprise 25.8% of the EVEs and 16.1% of the sherds. Samian from South and Central Gaul is present

ranging from Flavian cups and dishes to Late Antonine Drag. 31 and 31R bowls. There is also a form 43 or 45 mortarium which would date from *c.*AD 170-200 (Webster 1996, 53-56; Hopkins archive).

Although it could be said that most of this assemblage is residual, it is worth noting that the pottery was discovered along with substantial quantities of mortar, stone fragments, tile and good-quality painted wall plaster. This, along with the variety of pottery types and quantity of fine wares, suggests the presence of a fairly well-appointed building dating to the 2nd and possibly 3rd centuries.

Phase 4.1 Catalogue of illustrations (Figure 27 and Figure 28)

Group 526

86. WW2 ring-neck flagon (LAU form 1C). Fsn144, Rec2610, (3489).
87. WW2 pulley-rim flagon (LAU class 1). Fsn153, Rec2688, (3488).
88. C3 disc rim flagon (LAU form 1B), probably from the Nene Valley. The form is comparable to an Oxfordshire colour-coated ware (Young form C4). Fsn141, Rec2600, (3487).
89. C2NV pinch-neck flagon cf Howe *et al* form 64-65. Fsn152, Rec2679, (3488).
90. C2NV plain rim beaker cf Howe *et al* form 44. Fsn149, Rec2670, (3488).
91. C3NV pentice moulded beaker cf Howe *et al* form 55 though without roulette decoration. Fsn143, Rec2606, (3487).
92. C2NV lid-seated jar rim (LAU form 3E). Fsn142, Rec2601, (3487).
93. BB1 cooking pot/jar (LAU form 3H3), cf Holbrook & Bidwell 1991, fig.28, 20.1b, late 3rd-4th century. Sooting on exterior surfaces and scale deposits on interior. Fsn161, Rec2718, (3488).
94. BB1 cooking pot/jar (LAU form 3H3), cf Holbrook & Bidwell 1991, fig.28, 20.1c, late 3rd-4th century. Sooting on exterior surfaces and scale deposits on interior. Fsn158, Rec2713, (3488).
95. BB1 cooking pot/jar (LAU form 3H3). cf Holbrook & Bidwell 1991, fig.28, 20.1b, late 3rd-4th century. Fsn156, Rec2711, (3488).
96. BB1 cooking pot/jar (LAU form 3H3). cf Holbrook & Bidwell 1991, fig.28, 20.1b, late 3rd-4th century. Fsn157, Rec2712, (3488).
97. BB1 cooking pot/jar (LAU form 3H3), cf Holbrook & Bidwell 1991, fig.28, 20.1b, late 3rd-4th century. Exterior sooting and scale deposits on interior. Fsn159, Rec2714, (3488).
98. BB1 cooking pot/jar (LAU form 3H3), cf Holbrook & Bidwell 1991, fig.28, 20.1e, late 3rd-earlier 4th century. Sooted exterior surfaces. Fsn160, Rec2715, (3488).
99. GW5 narrow-mouthed jar (LAU form 3M2). Fsn146, Rec2645, (3509).
100. BB1 plain rimmed dish (LAU form 6A). cf Holbrook & Bidwell 1991, fig.32, type 59. Fsn147, Rec2647, (3509).
101. BB1 plain rimmed dish, (LAU form 6A). cf Holbrook & Bidwell 1991, fig.32, type 59. Fsn145, Rec2646, (3509).
102. MO4 Mancetter-Hartshill mortarium (Gillam 253). Orange painted bead and flange with chevron pattern. Fsn148, Rec2665, (3488).

Other vessels from phase 4.1

103. C2NV folded beaker with curved rim and barbotine scale decoration. G496, Fsn133, Rec2438, (3506).
104. C12T flaring necked beaker from Trier, Symonds form 18 (cf Symonds1992, fig.45, 772). G498, Fsn136, Rec2479, (3452).
105. GW7 flanged bowl (LAU form 5K1). G496, Fsn131, Rec2393, (3480).

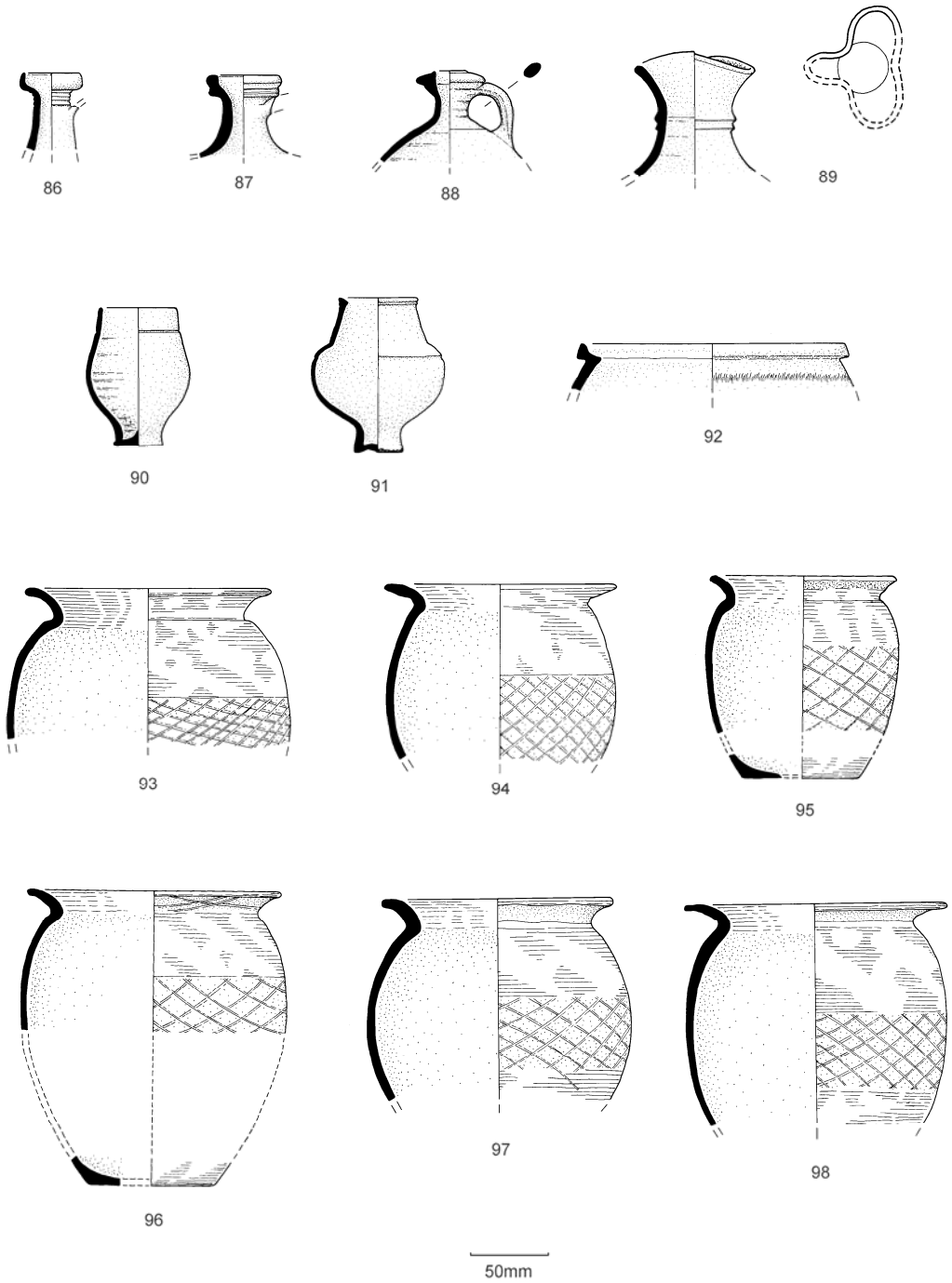


Figure 27: The Roman Pottery: the illustrated pottery from Phase 4.1, 86-98

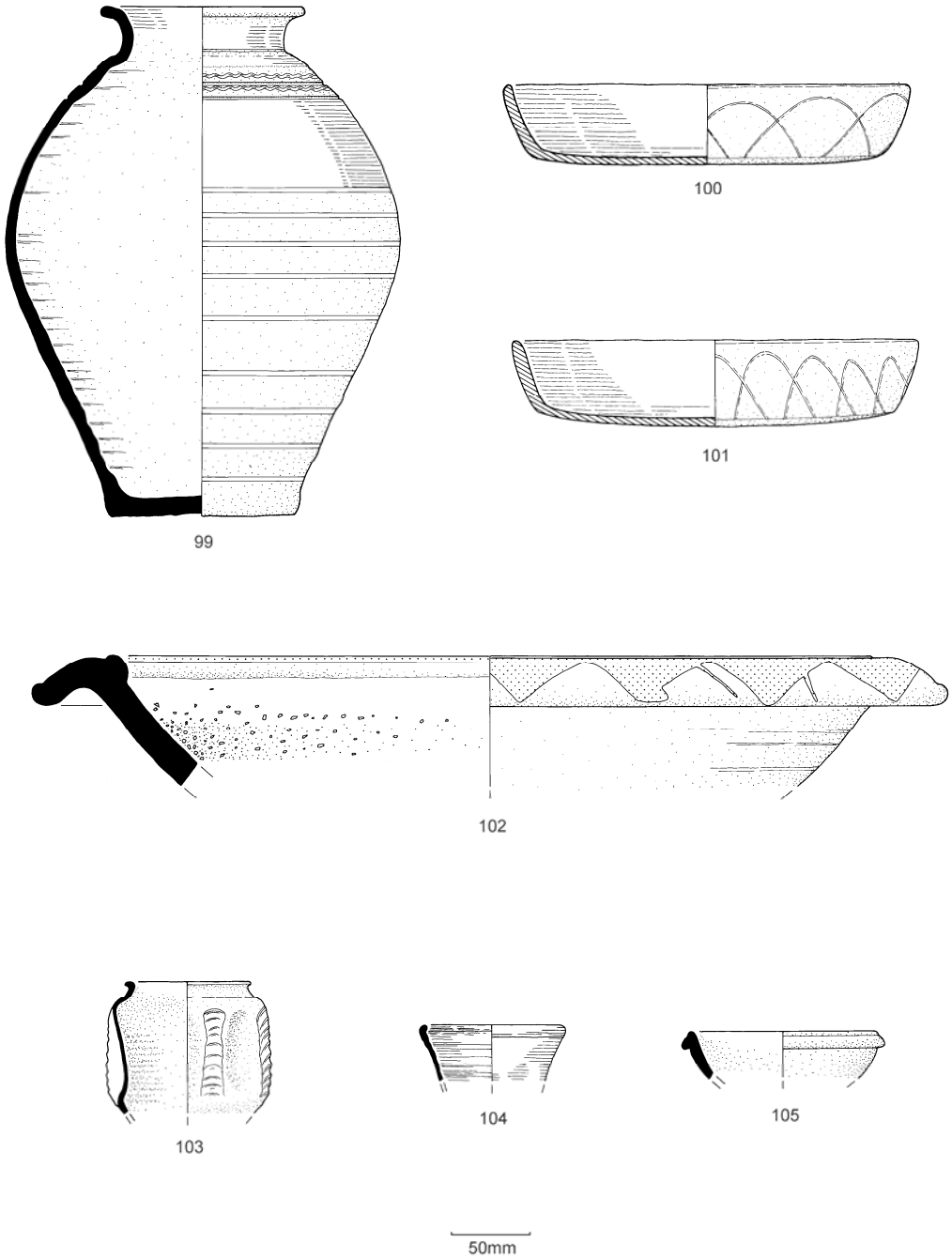


Figure 28: The Roman Pottery: the illustrated pottery from Phase 4.1, 99-105

Phase 4.4 (early to mid- 4th century AD)

Building G Courtyard G227: (5096), (5530), 5568).

The assemblage comprises 90 sherds weighing 1.869kg, with an EVEs value of 2.11 and average sherd weight of 20.8g. Quantification of the fabrics and forms present are given in the tables below.

Table 34: The Roman Pottery: quantification of Roman pottery from G227, Phase 4.4

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	2	2.2%	0.00	0.0%	285	15.2%	142.5
BB1	11	12.2%	0.17	7.8%	135	7.2%	12.3
C	8	8.9%	0.25	11.9%	153	8.2%	19.1
CG	18	20.0%	0.95	45.1%	429	23.0%	23.8
GW	39	43.3%	0.48	22.8%	622	33.3%	15.9
MO	2	2.2%	0.08	3.6%	167	8.9%	83.5
OW	3	3.3%	0.00	0.0%	16	0.9%	5.3
Samian	5	5.6%	0.19	8.8%	43	2.3%	8.6
WW	2	2.2%	0.00	0.0%	19	1.0%	9.5
Total	**90**	**100.0%**	**2.11**	**100.0%**	**1869**	**100.0%**	**20.8**

Table 35: The Roman Pottery: vessel forms present in G227, Phase 4.4.

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	2	2.2%	0.00	0.0%	285	15.2%
Beaker	4	4.4%	0.25	11.9%	14	0.7%
Bowl	9	10.0%	0.15	7.1%	216	11.6%
Cup	2	2.2%	0.13	5.9%	20	1.1%
Dish	1	1.1%	0.09	4.3%	44	2.4%
Flagon	2	2.2%	0.00	0.0%	19	1.0%
Jar	64	71.1%	1.36	64.4%	1058	56.6%
Mortarium	4	4.4%	0.14	6.4%	184	9.8%
Total classified	**88**	**97.8%**	**2.11**	**100.0%**	**285**	**98.4%**
Misc	2	2.2%	0.00	0.0%	29	1.6%
Total	**90**	**100.0%**	**2.11**	**100.0%**	**1869**	**100.0%**

The material in group G227 is from a pit located in the courtyard of Building G, close to the west range of the building. The grey ware jars and bowls broadly date to the 3rd century including East Midlands Burnished type wares, with no trace of earlier decorative styles from the 2nd century. Likewise, the Black Burnished wares include jars with obtuse lattice dating to the 3rd century. A collared lid-seated jar probably dates to the later 3rd or possibly 4th century (108).

Apart from one residual necked storage jar, the shelly wares are all South Midlands shelly wares including those from the Harrold industry in Bedfordshire. Four rims were identifiable to Brown's type series dating to the later 3rd century (Brown 1994, 62-64). This dating is from direct kiln evidence in Bedfordshire, and it should be noted that the major expansion of the industry took place in the early 4th century, when their products became more widespread through the East Midlands (Tyres 1996, 192-193). It is notable that the first appearance of later Roman shelly wares at Vine Street is in this early to mid-4th-century phase.

Similarly, apart from one late 2nd to early 3rd century cornice rimmed beaker, the colour-coated wares are examples of later forms, comprising a jar, flagon with white painted decoration and lustrous flanged bowl. There is also an Oxfordshire red-brown colour-coated ware bowl base. Unfortunately without

more of the body or rim, it cannot be positively identified to type, but is likely to be a bowl form derived from the samian form Drag. 31 or 38 (Young type C44/45 or C51). These types were produced from the mid-late 3rd century, but, like the Harrold industry, became more widely distributed from the 4th century and are likely to be early to mid- 4th century in Leicester (Young 1977, 133-134; 158-161).

A Nene Valley reeded hammerhead mortarium (111) is comparable to ones found at Causeway Lane in Leicester and Piddington Roman villa in Northamptonshire. The form is typologically dated to the later 3rd and 4th centuries (Rollo 1994, 21-22; Clark 1999, 160-161). The other mortarium is an Oxfordshire white-slipped ware, unlikely to date before the 4th century in Leicester (Young 1977, 122).

The small quantity of samian, amphora, white and oxidised wares are residual, probably as a result of this pit cutting through G113 in Phase 3.2, dating to the mid- to late 2nd century. The rest of the assemblage is at least 3rd century, whilst the shelly, colour-coated wares and mortaria place the group within the first half of the 4th century.

Phase 4.4 Catalogue of illustrations (Figure 29)

Group 227

106. C2NV beaker or flagon with white painted decoration. Fsn184, Rec2966, (5096).

107. GW5 small jar (LAU form 3M). Fsn186, Rec2983, (5096).

108. GW5/6 jar (LAU form 3N). Fsn187, Rec2984, (5096).

109. CG1B necked jar (LAU form 3M2). cf Brown 1994, fig. 29.170, late 3rd to early 4th century. Rec2970, (5096).

110. CG1B necked jar (LAU form 3M2). cf Brown 1994, fig. 29.174, late 3rd to early 4th century. Rec2948, (5530).

111. MO6 Nene Valley mortarium with reeded hammerhead rim. Typologically dated to the late 3rd-4th century, cf Piddington villa, Northants. and Causeway Lane, Leicester (Rollo 1994, fig. 13.40; Clark 1999, fig.78.306). Fsn183, Rec2946, (5530).

Other vessels from Phase 4.4

112. C12T flaring necked beaker from Trier, Symonds form 18 (cf Symonds1992, fig.45, 772). G1413, Fsn134, Rec2473, (3429).

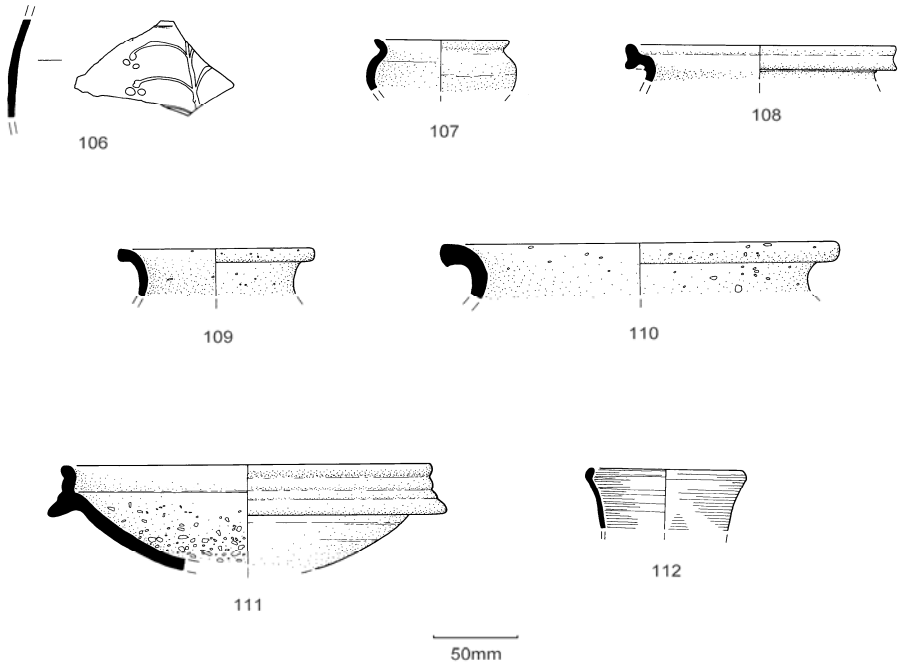


Figure 29: The Roman Pottery: the illustrated pottery from Phase 4.4, 106-112

Phase 4.6 (mid- 4th century AD)

North of Building F G522: (2207).
Building G Room 6 G1004: (5366), 5743), (5795), (5801), (5835), (5850), (5949), (5973), (5976), (5985), (6163), (6164), (6209).
Building G Courtyard G997: (5559), (5586), (5669), (5777). Building G Room 12 G1073: (5529).
Building G Room 17 G225: (4505), (5952). Building G Room 16 G224: (5428).
Building G Courtyard G996: (4938), (4939), (5135). Building G Courtyard G1313: (5050).
Building G Courtyard G999 (5588), (6031).

The catalogued assemblage comprises 732 sherds weighing 18.205kg, with an EVEs value of 16.53 and average sherd weight of 24.9g. Quantification of the fabrics and forms present are given in the tables below. Group G224 is not included in the statistical table, as once recorded it became apparent that most of the material was residual dating to the 2nd century. In addition, groups G996, G999 and G1313 were scanned for the presence of notable material but not quantified in detail, as most of the pottery significantly pre-dates the stratigraphic phase.

Table 36: The Roman Pottery: quantification of Roman pottery from Phase 4.6

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	26	3.6%	0.00	0.0%	931	5.1%	35.8
BB1	175	23.9%	3.47	21.0%	3074	16.9%	17.6
C	172	23.5%	3.79	22.9%	3561	19.6%	20.7
CG	34	4.6%	1.11	6.7%	1162	6.4%	34.2
DS	1	0.1%	0.06	0.4%	6	0.0%	6.0
GT	1	0.1%	0.00	0.0%	6	0.0%	6.0
GW	216	29.5%	4.80	29.0%	5235	28.8%	24.2
MG	2	0.3%	0.00	0.0%	80	0.4%	40.0
MO	27	3.7%	1.44	8.7%	3221	17.7%	119.3
OW	15	2.0%	0.36	2.2%	175	1.0%	11.7
Samian	39	5.3%	0.77	4.6%	481	2.6%	12.3
SW	6	0.8%	0.00	0.0%	10	0.1%	1.7
WS	1	0.1%	0.00	0.0%	1	0.0%	1.0
WW	17	2.3%	0.75	4.5%	262	1.4%	15.4
Total	**732**	**100.0%**	**16.53**	**100.0%**	**18205**	**100.0%**	**24.9**

Table 37: The Roman Pottery: vessel forms present in Phase 4.6

Form	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight
Amphora	26	3.6%	0.00	0.0%	931	5.1%
Beaker	99	13.5%	1.35	8.2%	1329	7.3%
Bowl	113	15.4%	3.65	22.1%	3223	17.7%
Cup	3	0.4%	0.13	0.8%	12	0.1%
Dish	48	6.6%	2.15	13.0%	1123	6.2%
Flagon	38	5.2%	0.00	0.0%	668	3.7%
Jar	360	49.2%	7.76	47.0%	7619	41.9%
Mortarium	27	3.7%	1.44	8.7%	3221	17.7%
Platter	6	0.8%	0.06	0.4%	21	0.1%
Total classified	**720**	**98.4%**	**16.53**	**100.0%**	**18147**	**99.7%**
Misc	12	1.6%	0.00	0.0%	58	0.3%
Total	**732**	**100.0%**	**16.53**	**100.0%**	**18205**	**100.0%**

The most significant group in this phase is G1004 which represents re-use of the stone culvert in Room 6 of Building G as a drain. The assemblage comprises 271 sherds weighing 8.936kg, with an EVEs value of 8.27 as illustrated by the table below. This accounts for 50% of the total EVEs recorded in Phase 4.6 (37% of the total sherd count and 49.1% by weight).

Table 38: The Roman Pottery: quantification of Roman pottery from G1004.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	1	0.4%	0.00	0.0%	27	0.3%	27.0
BB1	101	37.3%	1.80	21.7%	1941	21.7%	19.2
C	74	27.3%	1.78	21.5%	1482	16.6%	20.0
CG	6	2.2%	0.50	6.0%	370	4.1%	61.7
GW	48	17.7%	1.82	22.0%	1834	20.5%	38.2
MO	18	6.6%	1.22	14.8%	2844	31.8%	158.0
OW	1	0.4%	0.00	0.0%	3	0.0%	3.0
Samian	13	4.8%	0.52	6.2%	225	2.5%	17.3
WW	9	3.3%	0.65	7.8%	210	2.4%	23.3
Total	**271**	**100.0%**	**8.27**	**100.0%**	**8936**	**100.0%**	**33.0**

The Black Burnished wares comprise the usual suite of bowls, dishes and jars, including two jars with obtuse lattice zones dating to the later 3rd-4th century (118 and 119) with evidence of external sooting and scale residue on the interior surfaces. A large portion of a grooved rim conical bowl was recovered from (5366) including evidence of a rivet hole suggesting repair at some point in antiquity. Joining sherds belonging to this vessel were recovered from three other contexts in this group, indicating dispersal of material throughout the drain after deposition. Most of the grey wares are jars, including East Midlands Burnished type wares. A complete profile of a jar comparable to Black Burnished ware forms but in GW5 fabric, is illustrated at (121), and a further example of a rivet hole was found on another vessel. Two bowls were found, one of which is comparable to the Black Burnished ware grooved rim form, though again not in the GW1 fabric. The other is an incurved flanged bowl of the Swanpool type dating to the later 3rd and 4th centuries (Webster and Booth 1947, 72-73, 79; Darling 1977, 27-28), and is the first occurrence of this type on the site. Apart from one Bourne-Greetham jar, the shelly wares are from the South Midlands including two flanged bowls and two jars. The jars and one of the bowls are comparable to forms dating to the later 3rd to early 4th century, however the bowl illustrated (122) is probably slightly later, most likely dating to the middle of the 4th century at the earliest (Brown 1994, 66, 73). It is also worth noting that a Black Burnished ware dish, shelly ware jar and quite a few of the grey ware sherds show mortar concretions on breaks and surfaces, suggesting some were perhaps re-used to patch up the sides of the drain rather than just deposited as rubbish.

The colour-coated wares are all at least 3rd century. Nene Valley colour-coated wares form the majority of vessels present, comprising two castor boxes, at least one flagon and a range of beakers. A particularly large and tall folded scale beaker was found crushed, but complete (116) (sfno 1783). Other forms present include a slit-folded beaker and pedestal base dating to the 4th century, and a plain rimmed grooved beaker and bead rim beaker with roulette bands dating to the 3rd century (Howe *et al* 1980, 18-23). There is also a 3rd century Rhenish ware imported beaker. In addition, two beakers clearly inspired by imported Rhenish wares were found, but a source has yet to be identified. In any event, a date sometime after the 3rd century would be expected as they are presumably at least contemporary with imports from Trier.

Three mortaria were recovered from Mancetter-Hartshill and Nene Valley sources. The two Mancetter-Hartshill reeded hammerhead forms date typologically from the mid- 3rd to mid- 4th century (Hartley 1996, 196-197; Clark 1999, 157-158), whilst the Nene Valley vessel dates to the later 3rd and 4th centuries (Rollo 1994, 22-23). As with some of the coarse wares, joining sherds were dispersed through different contexts and substantial vessel fragments had quite thick mortar concretions on some surfaces and breaks suggesting secondary use. Mortaria are robust vessels and would provide good material for patching up or stabilising a surface such as the sandstone lining of the drain.

The rest of the assemblage comprises very small amounts of amphora, white, oxidised and samian ware, most of which is clearly residual, however a white ware jar with sooting round the rim may be later based on its preservation. The obviously residual pottery sherds are small and abraded, but a substantial part of the rim and shoulder of this jar have survived. The fabric is fairly granular and the source is uncertain at present.

Overall, this group is interesting as it shows vessel types previously associated with the high point of Building G's occupation discarded in a drain or re-used to patch it up, suggesting a change in occupation or use of the building by the middle of the 4th century. The appearance of late forms of mortaria, shelly wares and grey wares such as the Swanpool type bowl, along with some 4th-century colour-coated wares provide examples of the latest pottery types reaching Leicester during the 4th century.

Further evidence of the decline of Building G as a courtyard house is found in G1073 which constitutes robbed wall footings relating to the north range of rooms. An assemblage of 157 sherds (2.46 EVEs, 3.135kg) was recovered, again dominated by grey, colour-coated and Black Burnished wares. Most of the grey wares are undiagnostic, but there are East Midlands Burnished types indicating at least a 3rd century date. Most of the Black Burnished ware jars and bowls are not closely datable. The identifiable forms present include a late 2nd-3rd century grooved rim bowl and a bead and flanged bowl dating from *c.*AD 270 onwards. A Harrold shelly ware jar dates to the late 3rd to early 4th century, though the remaining shelly ware jars are earlier forms. There are also small quantities of residual amphora, grog-tempered, white, oxidised and samian wares.

Three mortaria from Mancetter-Hartshill and the Nene Valley are present. A hammerhead type with red painted decoration from Mancetter-Hartshill dates to the later 3rd and 4th centuries (Rollo 1994, 19-20), whilst the other two vessels are represented by undiagnostic body sherds.

The colour-coated wares are largely from the Nene Valley including bowls, beakers and flagons. As well as a castor box (123), there are two bead and flanged bowls dating to the 4th century. These bowls are possibly a slight variant on the typical bead and flange form, as the bead is less pronounced than usually seen. The rims also show signs of sooting. The earliest beaker has white barbotine scroll decoration dating to the 3rd century, whilst the rest are pentice moulded, shouldered and with pedestal bases dating to the 4th century (Howe *et al* 1980, 20-25). In addition, there is one 3rd century beaker from Trier and another vessel with a highly lustrous/metallic brown colour-coat of uncertain origin, possibly another import.

Although there is a small quantity of residual material, this is perhaps the result of initial construction of the walls cutting through earlier layers. The walls appear intact during Phase 4.4 (early to mid- 4th century), but have disappeared by the middle of the 4th century, therefore a date perhaps from the second quarter to the middle of the 4th century could be suggested for the abandonment of this range of rooms.

Along the western range of Building G, Rooms 16 and 17 appear to be still in use in some way at this time. G225 revealed the remains of a burnt wooden and metal box that had been buried in the floor. A small quantity of pottery was recovered (33 sherds, 1.0 EVE, 1.106kg) comprising grey, shelly and Black Burnished coarse wares along with a Nene Valley colour-coated ware bowl. The bowl is a flanged type dating to the later 3rd and 4th centuries and is derived from the samian Drag.38, in a similar way to those produced at the Oxfordshire kilns (Howe *et al* 1980, 24-25). Although almost the whole vessel is present, it is fragmentary (accounting for 21 sherds, 0.690kg) and in poor condition, perhaps as a result of the episode that destroyed the wooden box, though no direct sooting is apparent on the pottery.

Within Room 16, groups of coins along with a range of other metal, glass and bone objects were discovered within pits dug into the floor. A substantial amount of pottery (490 sherds, 6.93 EVEs, 4.182kg) was recovered, however the vast majority dates within the 2nd century, with a small amount of 1st century pottery. There is later material as well, including some 3rd century grey, shelly, Black Burnished and colour-coated wares. The latest datable vessels comprise a bead and flanged Black Burnished ware bowl and Hadham oxidised ware flanged bowl dating to the later 3rd-4th century, and an Oxfordshire mortarium dating to the 4th century (Young 1977, 76-77). The coins suggest a mid- 4th-century date for the deposit, so possibly some re-deposited material was used to backfill and seal the contents of the pits which would explain the quantity of residual pottery from this group.

During this phase, pits and accumulations of soil layers also appear in the courtyard area of Building G. A large pit, G997, revealed 149 sherds of pottery (2.94 EVEs, 3.722kg). In common with the other groups in this phase, grey and Black Burnished coarse wares form the bulk of the assemblage. The Black Burnished wares are comparable to those from G1073 above, with plain rimmed dishes, jars with obtuse lattice and two bead and flanged bowls. The grey wares include bowls in Black Burnished ware forms and a Nene Valley grey ware bowl and jar. The remainder are jars and although some are not closely datable, there are East Midlands Burnished types including a jar with a frilled rim probably dating to the early 4th century (Clark 1999, 155). A Hadham oxidised ware jar or bowl dates to the later 3rd or 4th century (Tyres 1996, 168-169). The remaining coarse wares comprise small amounts of sandy, mixed-gritted, white, oxidised and shelly wares probably dating within the 2nd century, as does the samian ware. In addition, a Dressel 20 olive oil amphora, Gauloise 4 wine amphora and Cam 186 are probably residual, though amphorae can be kept and re-used over periods of time.

Three mortaria from Oxfordshire, Mancetter-Hartshill and the Nene Valley were recovered. The Mancetter and Nene Valley vessels are hammerhead and reeded forms dating from the mid- 3rd to the mid- 4th century (124-126). The Oxfordshire white ware has no rim, but is most likely at least mid- 3rd century in Leicester (Young 1977, 63-64). The colour-coated wares comprise flagons from the Nene Valley and a 3rd-century imported beaker from Trier. The pottery was recovered along with a substantial quantity of building material including stone, tile, painted wall plaster, mortar and tesserae, indicating an episode of remodelling or demolition associated with Building G sometime during the later 3rd or early 4th century.

Pit G997 cut through G999, a spread of soil, demolition and charcoal in the south west corner of the courtyard. Most of the pottery dates within the 3rd century including a variety of Nene Valley colour-coated ware beakers, Derbyshire ware, Bourne-Greetham shelly ware, Black Burnished wares and a range of grey wares. There is also a quantity of 2nd-century samian ware (up to 22 vessels) (Hopkins 2008, in archive). The latest datable vessel is a Nene Valley colour-coated ware bowl base dating to the later 3rd or possibly 4th century. In addition, one fragment of crucible or mould was recovered along with a further grey ware sherd with vitrified residue on the surfaces. This is of note as several fragments of copper alloy were also recovered from this layer along with tile, granite, mortar and charcoal.

A further shallow pit, G1313, revealed 98 sherds (2.109kg) of pottery. Most of the material dates within the 2nd century, with a few coarse wares such as Derbyshire ware, Bourne-Greetham shelly ware and some Black Burnished ware, probably dating into the 3rd century. Two Nene Valley colour-coated ware beakers date to the late 2nd-early 3rd century. The latest datable vessel is an Oxfordshire white slipped mortarium which dates to the 4th century (Young 1977, 121-122). In addition, there is a grey ware sherd with vitrified residue on the outer surface and a heavily burnt crucible fragment with copper residue on the inside (sfno 1070). However, as this group cuts G936 in Phase 3.5, it is highly probable the earlier drain is the source of these two vessels as other evidence relating to industrial processes was recovered from there.

G996 (86 sherds, 1.353kg), represents robbing of a drain which also truncates the pit G1313. Apart from the colour-coated wares, the pottery dates within the 2nd century. Most of the colour-coated wares are from the Nene Valley comprising plain and scale decorated beakers dating to the mid-late 3rd century and a pedestal based beaker likely to date to the later 3rd or 4th century, along with some flagons. The latest datable vessel is an Oxfordshire red-brown colour-coated ware bowl derived from the samian Drag.31 form. This is produced from *c.*AD 270, but in Leicester is more likely to be 4th century (Young 1977, 133). The material from this episode of robbing is re-deposited, which explains the quantity of residual 2nd-century pottery.

Finally in this phase, to the North of Building F, a layer of made-ground sealed an earlier yard surface. This layer, G522, comprises 122 sherds weighing 1.306kg, with an EVEs value of 1.87. Grey and Black Burnished wares form the largest component of coarse wares, comprising a range of jars, dishes and bowls dating from the later 2nd century to the end of the 3rd. A Black Burnished ware bead and flanged bowl is the latest vessel dating to the later 3rd or possibly 4th century. The grey wares include a Nene Valley grey ware dish with chamfered base dating to the later 2nd or 3rd century (Howe *et al* 1980, 14-15). An oxidised ware jar or bowl from Much Hadham dates to the later 3rd or 4th century, whilst a Derbyshire ware jar with cupped rim and Bourne-Greetham shelly ware jar probably date to the 3rd century. Small amounts of white, white-slipped, oxidised and shelly wares mostly date within the 2nd

century, as does the samian ware. The colour-coated wares also largely date within the 3rd century, including two Rhenish ware beakers. The remaining colour-coated wares are from the Nene Valley comprising beakers, a dish, flagon base and bowl. The bowl has a flat rim rather than a flange and may be a colour-coated version of an earlier grey ware form. The dish is abraded and shows signs of sooting. A folded lustrous beaker with a roulette band may also date to into the 4th century. The formation of this layer probably includes some re-deposited material from elsewhere on the site, as a vessel join was noted between this group and pit G448 from Phase 3.6, located close by.

Phase 4.6 Catalogue of illustrations (Figure 30 and Figure 31)

Group 1004

113. C2NV slit-folded beaker (LAU form 9E). cf Howe *et al* 1980, fig. 5.53, 4th century. Fsn169, Rec.2880, (5973) and Fsn181, Rec2922, (5366).

114. C3 folded beaker with bead rim (LAU form 9G). The source is unknown, however the lustrous green coat and form is similar to Trier 'Rhenish'wares, from which this vessel is clearly derived. Fsn182, Rec2925, (5366).

115. C3NV plain rimmed beaker (LAU form 9F). cf Howe *et al* 1980, fig. 5.45. The example here has roulette bands rather than grooves. Fsn170, Rec2881, (5973).

116. C3NV funnel-necked folded beaker with barbotine scale decoration (LAU form 9F2). cf Howe *et al* 1980, fig. 4.39. Fsn168, Rec2859, sfno1783, (5976).

117. C3 folded beaker with bead rim and roulette bands (LAU form 9G1). The form is Trier 'Rhenish'ware inspired, however the dark brown matt slip and fabric suggest a Romano-British product from an as yet unidentified source. Fsn164, Rec2850, (6163).

118. BB1 cooking pot/jar (LAU form 3H3), cf Holbrook & Bidwell 1991, fig.28, 20.1e, late 3rd-earlier 4th century. Sooted exterior surfaces and scale on interior surfaces. Fsn167, Rec2858, sfno1782, (5976).

119. BB1 cooking pot/jar (LAU form 3H3), cf Holbrook & Bidwell 1991, fig.28, 20.1e, late 3rd-earlier 4th century. Sooted exterior surfaces and scale on interior surfaces. Fsn163, Rec2847, (6163).

120. WW5 necked jar (LAU form 3M2) with sooting round the rim. The fabric is granular similar to that from the Verulamium region, which would suggest the vessel is residual in this group, however another source is possible. Fsn177, Rec2912, (5366) and FSN172, Rec2896, (6164).

121. GW5 jar (LAU form 3H) with burnished lattice zone. Form derived from BB1 jars. Fsn166, Rec2857, sfno1777, (5949).

122. CG1B flanged bowl (LAU form 6F). cf Brown 1994, fig. 38, mid-4th century onwards. Fsn178, Rec2916, (5366).

123. C2NV castor box, (LAU form 5Q). cf Howe et al fig. 7.89, late 3rd-4th century. Fsn179, Rec2919, (5366) and Fsn180, Rec2920, (6164).

124. MO4 Mancetter-Hartshill reeded hammerhead mortarium. cf Hartley 1996, fig. 116.M128, mid-3rd to mid-4th century. Fsn176, Rec2911, (5366).

125. MO6 Nene Valley mortarium, (Howe *et al* 1980, fig. 8.102). cf Piddington villa, Northants and Causeway Lane, Leicester (Rollo 1994, fig. 13.45; Clark 1999, fig. 76.273). Typologically dated mid-3rd to 4th century. Fsn174, Rec2903, (5366) and Fsn165, Rec2851, (6163).

126. MO4 Mancetter-Hartshill mortarium (Gillam form 282). Typologically dated mid-3rd to mid-4th century. Fsn173, Rec2898, (5985) and Fsn175, Rec2904, (5366).

Other vessels from Phase 4.6

127. C2NV flagon with unusual white painted decoration (LAU class 1). G997, Fsn188, Rec2988, (5559) and Fsn189, Rec2994, (5586).

128. GW5 necked jar with frilled decoration (LAU form 3N3). G997, Fsn190, Rec3032, (5669).

129. GW9 jar, (Gillam form 157, *c.*AD280-340), dark grey, very coarse, heavily sooted. G997, Fsn191, Rec3033 (5669).

130. GW small jar with traces of copper-like residue on internal and external surfaces. G1313, Sfno1070, (5050), not catalogued.

131. SW4 bowl (LAU form 5F), burnished with vertical scored/incised decoration (residual). G224, Fsn25, Rec527, (5428).

Phase 4.7 (Mid- to late 4th century) (Figure 31)

132. GW5 crucible base. G1038, (4356), not catalogued.

Unphased vessels (Figure 31)

133. C2NV lid with steam hole (Howe *et al* form 73), 4th century. Sfno278, (3289).

134. MO19 Mancetter mortarium with stamp, Sfno524, unstratified.

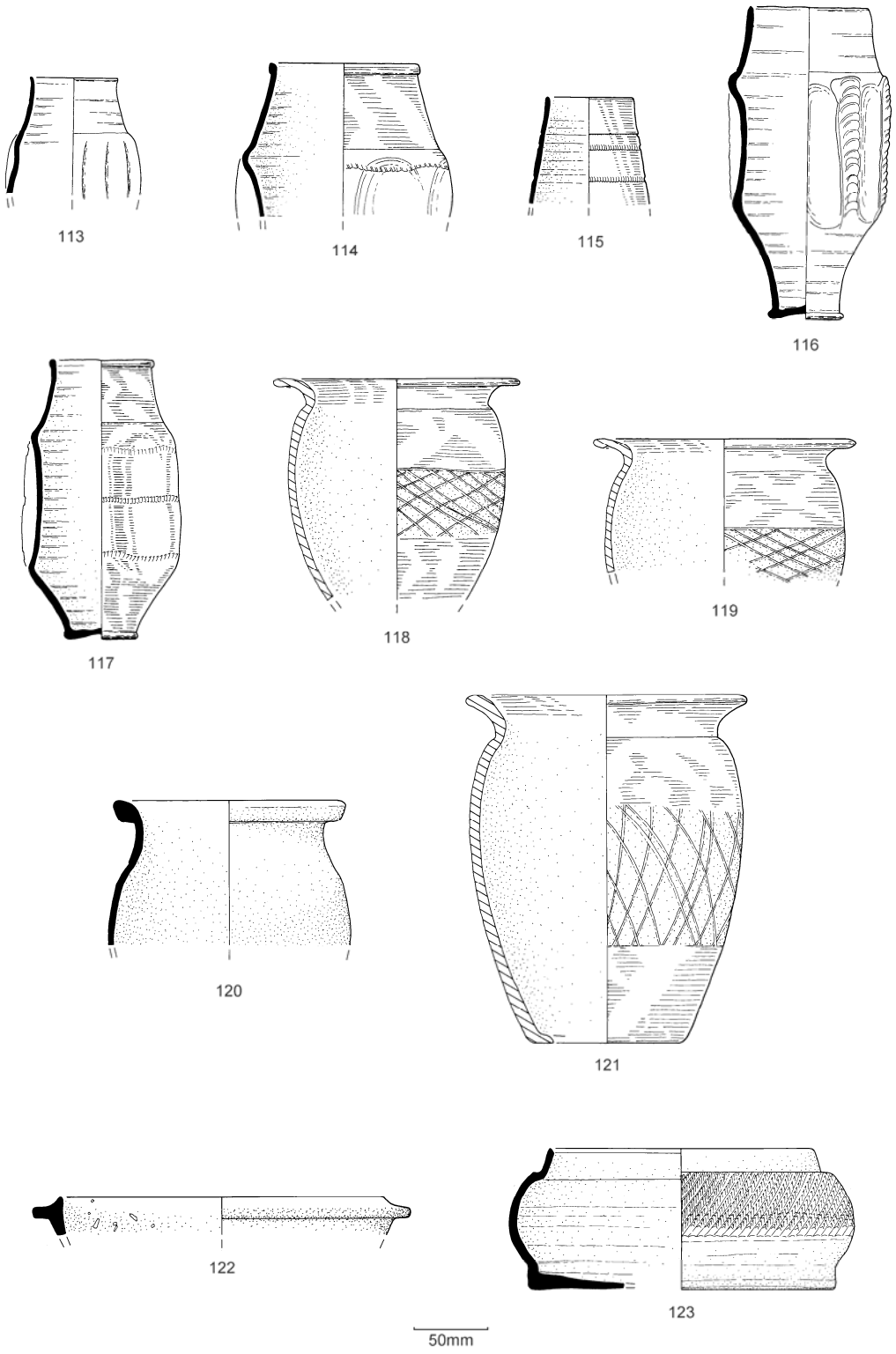


Figure 30: The Roman Pottery: the illustrated pottery from Phase 4.6, 113-123

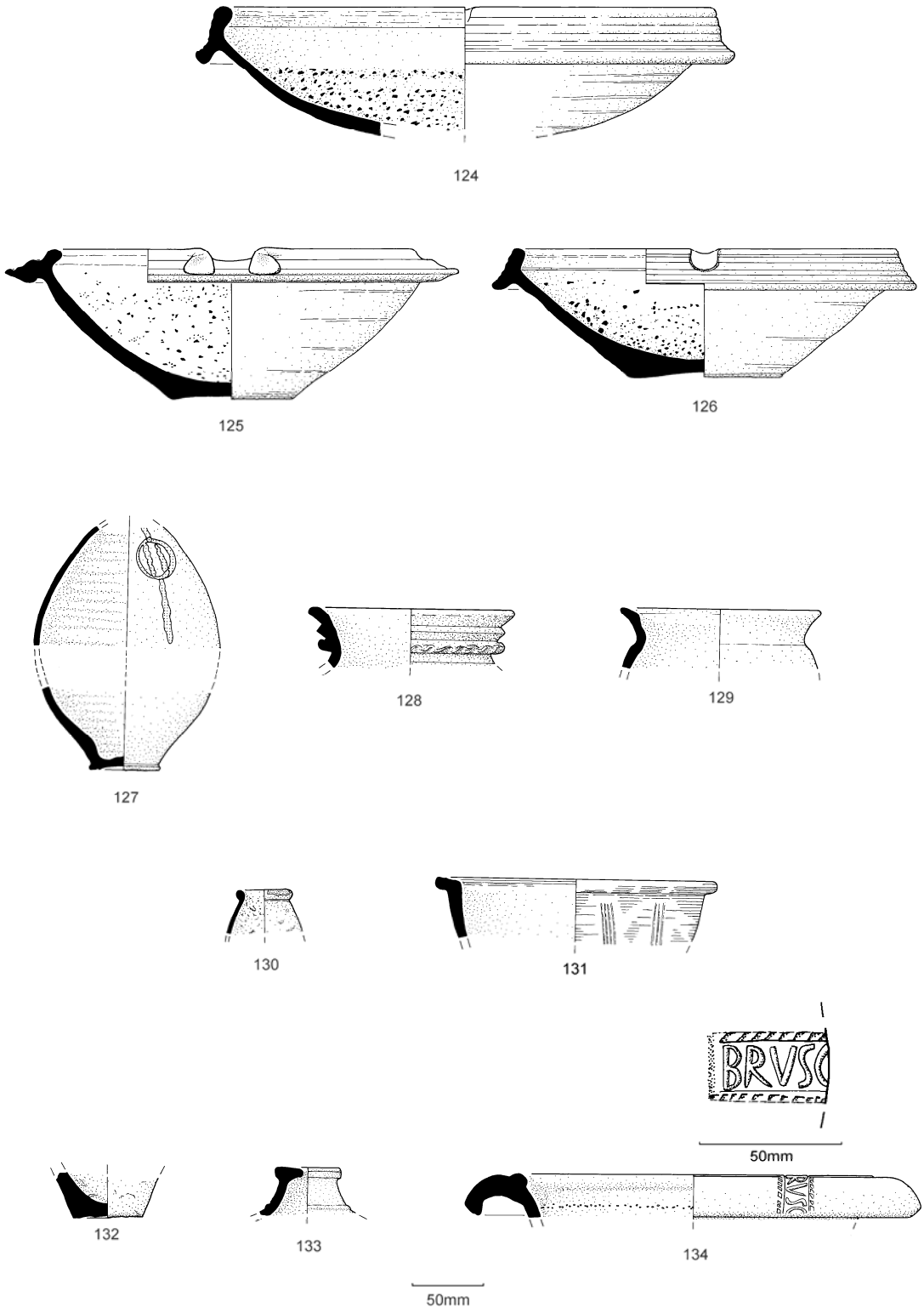


Figure 31: The Roman Pottery: the illustrated pottery from Phase 4.6, Phase 4.7 and Unphased, 124-134

Discussion

The features in Phase 2.2 appear to represent early Roman activity in Insula V before significant occupation and the construction of buildings took place. The pits seem to represent refuse deposits, with G292 in particular providing an excellent snapshot of the types of pottery in use during the last quarter of the 1st century. Whether these pits were associated with any type of building in the insula at this time is not clear, however G326 was capped with stone and elsewhere a red clay was used to cap other pits, suggesting preparation and stabilisation of the ground to provide a surface suitable for future activity early on in the 2nd century.

The appearance of timber structures by Phase 2.4 marks the beginning of more permanent occupation in Insula V. Although there are still traces of earlier material, the pottery relating to Timber Structure 2 and the surrounding external area shows a move into the first part of the 2nd century, with a marked decrease in the amount of 'transitional' wares and far more grey coarse wares. The appearance of ring-necked flagons and mortaria securely place the groups in the first half of the 2nd century, whilst the paucity of Black Burnished ware suggests a date no later than *c.*AD 150 and perhaps slightly earlier. The evidence from phase 2.5 indicates continued occupation of the timber structures throughout the first half of the 2nd century, including a new yard surface (G117). At the same time, the build up of layer G1173 over an existing metalled surface, followed by its truncation by a series of pits, suggests an element of re-modelling or even decline in the occupation of some areas within the insula. In many respects the pottery is comparable with that in phase 2.4, which is to be expected given the short and overlapping time span between the two. However, there are one or two samian vessels unlikely to date before *c.*AD 135 and the more definite presence of Black Burnished ware suggests continued occupation up to *c.*AD 160/170.

The features in Phases 3.1 to 3.3 represent structural changes taking place in Insula V during the second half of the 2nd century. Phase 3.1 sees the timber structures demolished and capped by layers of made ground in preparation for the arrival of the first masonry buildings. Although earlier 2nd-century material is present, the increase in Black Burnished ware along with the presence of Black Burnished ware 2, Bourne-Greetham shelly ware and East Gaulish samian, indicates a date after *c.*AD 160 for this activity, whilst the lack of Romano-British colour-coated wares suggests a date still within the 2nd century. The masonry buildings A to E appear during Phase 3.2 and also at this time the ditch to the north of Buildings A, B and D is backfilled and sealed by a mix of building material. Again, the pottery from the ditch fill suggests a date after *c.*AD 160 but within the 2nd century for the final backfilling of this feature. The pottery from Phase 3.3 is comparable with that from Phases 3.1 and 3.2, with early to mid- 2nd century material alongside a few later vessels indicating a date within the second half of the 2nd century. The evidence from Phase 2.5 suggests the timber buildings could have remained in use until *c.*AD 160/170, therefore the redevelopment of the insula resulting in the construction of the masonry buildings most likely took place *c.*AD 170/180, with continued occupation of Buildings A to E until the end of the 2nd century.

Redevelopment and alterations to the buildings seems to have been almost continuous, as by the late 2nd-early 3rd century (Phase 3.5), Buildings A, B and D had started to go into decline with evidence of pitting found inside rooms. Additional pits to the west of Building D contained discarded building material, as well as pottery comparable to those found inside the buildings, suggesting further remodelling of the masonry structures. The discovery of a group of small jars or beaker-like vessels with industrial residues in the drain (G936) and metal working waste deposit (G1266) is most interesting, as it suggests the use of "ordinary" pottery alongside crucibles as part of the metal working process. It may be evidence of craft or workshop type activity during this stage of occupation within the insula, or perhaps it is associated with the changes taking place to the buildings themselves. In any event, the deposits appear associated with Buildings A and B during the second half of the 2nd century.

Phase 3.6 (early 3rd century), sees further structural changes with alterations made to Building F, first constructed during the late 2nd century (Phase 3.4). Two rooms comprising a heated room with hypocaust and a possible plunge pool were dismantled and backfilled. There is a change in the pottery recovered from these rooms compared with Phase 3.5, with more examples of Nene Valley colour-coated wares and Nene Valley grey ware, alongside Black Burnished ware, Bourne-Greetham shelly ware and Derbyshire ware. An imported 'Rhenish'ware beaker from Gaul is also present, marking the first appearance of later imported colour-coated wares. Buildings A, B and D also continued to decline at this time, with large parts of Buildings A and B covered by a substantial spread of made ground. Here too,

the pottery clearly shows a move into the 3rd century, with barbotine scale decorated beakers and mortaria forms dating to the 3rd century. Preparation of a new ground level paved the way for construction of Building G, the courtyard house, which most likely started at the beginning of the 3rd century (Phase 3.7).

Phases 3.8 and 3.9 (early to mid- 3rd century) represent initial occupation of Building G during the first half of the 3rd century, during which time further building work continued with the construction of new floor layers and a hearth in Room 6. The pottery from Phase 3.8 is very similar to that in Phases 3.6 and 3.7, though the presence of East Midlands Burnished type grey wares for the first time places the assemblage firmly within the first half of the 3rd century. The location of Room 6 covers the same area where evidence for metal working activity was found in earlier phases, however, no vessels with metal working residue were recovered from the new floor layers, suggesting a domestic use for the hearth at this stage. Finally, a stone culvert was created cutting through all the earlier floor layers in Room 6. Elsewhere in the insula, a demolition layer (G495) and accumulations of soil provide evidence for continued changes to and occupation of Buildings F and G during the first half of the 3rd century.

Phase 4.1 (late 3rd to early 4th century), sees the height of Building G's occupation as a substantial courtyard house. This is highlighted by the material evidence from the pits G526, from which a coherent group of late 3rd-century pottery was recovered along with environmental evidence indicating the consumption of exotic fruit and fish. The other key event during this phase is the construction of another large building, Building H, at the end of the 3rd century. Although it has not been possible to discover a precise function for this building, it is thought most likely to be a public or commercial building based on the available evidence (see Morris's discussion of Phase 4.1, p149-150). The appearance of Building H at the highpoint of Building G's most prosperous period of occupation may be an indication of commercial success for the occupants of Building G at the start of the later Roman period. Phase 4.4 (early to mid-4th century), sees the first appearance of later Roman shelly wares such as those from the Harrold industry in Bedfordshire, as occupation of Building G as a courtyard house continues during the first half of the 4th century. This is accompanied by colour-coated wares and mortaria from Oxfordshire and the Nene Valley, illustrating the suite of later regional imports arriving in Leicester.

The most interesting group of pottery from Phase 4.6 (mid- 4th century) was recovered from G1004, the open drain constructed within Room 6. There are a few examples of the latest wares found in Leicester such as a Harrold shelly ware bowl most likely dating after *c.*AD 360 however, a substantial element of the pottery dates to the later 3rd and 4th centuries, coinciding with the height of Building G's occupation. Many of the more robust and larger fragments had mortar concretions on broken edges, some of which were quite thick, suggesting they were used to stabilise or repair the stone lining of the drain. The apparent discard of coarse and fine ware pottery comparable to that found in Phase 4.1, including some almost complete vessels, suggests an end to the grand occupation of Building G as a courtyard house. The pottery recovered from the robbed wall footings of the northern range of rooms indicates this wing of the building had been demolished by the middle of the 4th century, most likely during the second quarter of the century. In addition, pits and soil layers accumulated within the courtyard itself, suggesting it was no longer a pristine enclosed area, and fragments of crucible or mould were discovered in a soil layer to the south west of the courtyard. Within the eastern range of rooms, the floors in Rooms 16 and 17 had been used to conceal deliberately buried items including a 4th-century coin hoard. Cumulatively, this suggests the nature of occupation within Insula V appears to have changed by the middle of the 4th century, with the decline of Building G as a courtyard house and occupation continuing along the southern range of rooms on the street frontage, perhaps including workshop or craft production activities.

Comparison of Phase Assemblages

The following discussion is an attempt to illustrate how the types of pottery used throughout the Roman period changed over time, both in terms of supply and vessel type. The measurement used for this analysis is estimated vessel equivalents (EVEs), in order to provide quantified data in a format comparable with other published sites from Leicester and beyond. As with any form of quantification, there are difficulties with issues such as residual material and, in the case of EVEs, under-representation of fabrics where vessel rims are not present. In the charts that follow, all fabrics and forms present have been included, with those not represented by any rims labelled as less than 0.1% to show some presence. No attempt to remove potentially residual or intrusive material has been made, as accurate identification of residual material in particular can be very difficult, and could easily result in misleading information.

Instead, where material is thought to be residual or possibly intrusive, a mention of this will be made in the relevant section of text. The site phasing overall is broad with individual episodes of activity denoted by numerous sub-phases. The date ranges used in this discussion combine sub-phases where the dating is the same or so similar no change relating to the pottery can be detected. The table below outlines these groupings to allow cross-referencing to the first part of this report and the site narrative.

Table 39: The Roman Pottery: ceramic and site phasing concordance

Ceramic Phase	Site sub-phase
Late 1st to early 2nd century	2.2
Early to mid- 2nd century	2.4, 2.5
Mid- to late 2nd century	3.1, 3.2, 3.3
Late 2nd to early 3rd century	3.5
Early to mid- 3rd century	3.6, 3.7, 3.8, 3.9
Late 3rd to early 4th century	4.1
Early to mid- 4th century	4.4, 4.6

Pottery Supply

Romano-British pottery can be broadly divided into local, regional and imported supply. Local supply is generally accepted as within a 15-25km (15 mile) radius of manufacture (Peacock 1982, 156-158), whilst regional or 'non-local British' (Cooper 2000, 79) describes products from large industries such as Oxfordshire or the Nene Valley. Comparison of the phase assemblages, as illustrated below, highlights the changes in pottery supply through time.

Late 1st to early 2nd century AD

During the earliest phase of activity, the pottery is overwhelmingly locally made comprising 81.8% of the assemblage. Sandy, mixed-gritted and grog-tempered 'transitional' wares account for 42.6% of this, with grey and shelly wares completing the range.

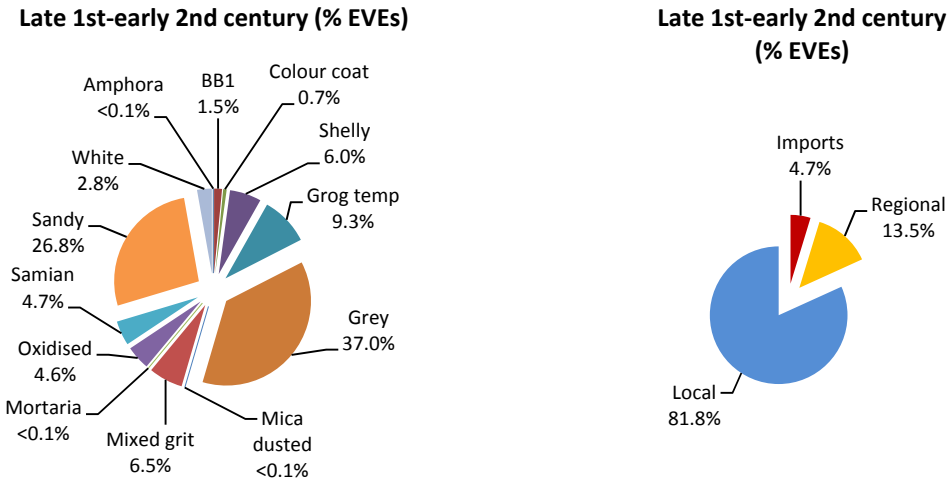


Figure 32: The Roman Pottery: sources of pottery during the late 1st-early 2nd century

The imported wares are predominantly samian fine wares, most of which are from Southern Gaul. In addition there is a pre-Flavian Gaulish colour-coated ware beaker and a small amount of amphorae from Gaul and Southern Spain. The regional Romano-British wares comprise a mixture of white, oxidised, mica dusted and a few of the grey wares. The mortaria are from the Verulamium region and Mancetter-Hartshill industries. There is also a small quantity of Black Burnished ware which, as discussed previously (see Phase 2.2) may or may not be intrusive.

Early to mid- 2nd century AD

Locally made pottery is still dominant accounting for just over two thirds of the assemblage. However, there is a substantial drop in the quantity of 'transitional' wares from 42.6% to 4.7% with a particularly noticeable lack of sandy wares. Grey wares now comprise the largest fabric group at 47.3%, followed by shelly wares. Most of these are local however, there is a small amount of 'London type' grey ware.

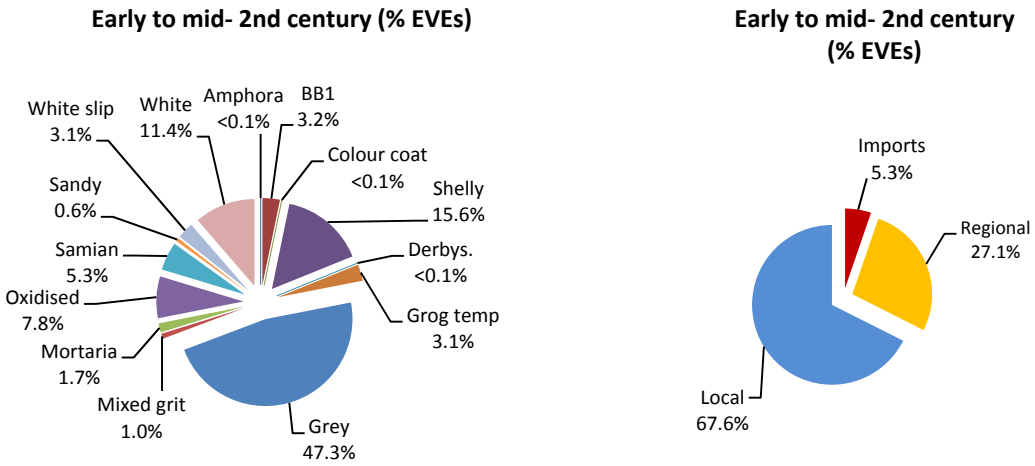


Figure 33: The Roman Pottery: sources of pottery during the early to mid- 2nd century.

The imported wares have increased slightly to 5.3%, nearly all of which is samian fine ware. Almost all the samian is from Southern Gaul, though a few examples from Central Gaul are also present. Regional wares have increased to 27.1%, most of which are white wares. There is an increase in oxidised ware and white-slipped wares are now present. The mortaria are from the Verulamium region and Mancetter-Hartshill industries as before and there is a small quantity of Black Burnished ware. The colour-coated and Derbyshire ware may be early examples, or may be intrusive as mentioned previously when discussing G1212 in Phase 2.5.

Mid- to late 2nd century AD

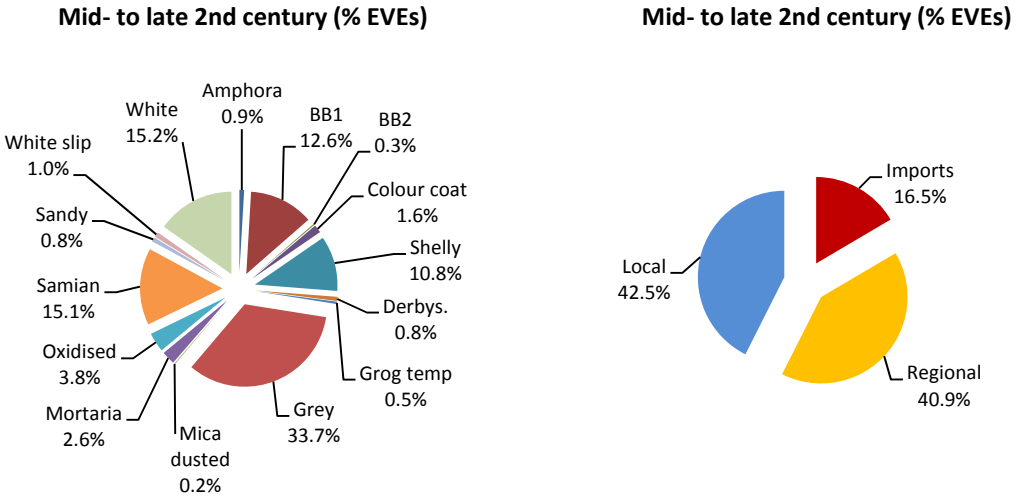


Figure 34: The Roman Pottery: sources of pottery during the mid-late 2nd century.

By the second half of the 2nd century, proportions of local and regional wares are almost equal and imports have increased to 16.5%. The increase in imports is a result of a substantial increase in the amount of samian ware. Although South Gaulish vessels are still present, much is from Central Gaul

with some from Les Martres-de-Veyre as well as Lezoux. There is also a little East Gaulish samian. Gaulish colour-coated wares and amphorae comprise the remaining imported wares.

Grey ware is still the largest fabric group, most of which is local, however a small amount of Nene Valley grey ware is present (0.5% sherds, 0.0% EVEs). Most of the shelly ware is also local, apart from one jar from the Bourne-Greetham area. The overall increase in regional wares stems from an increase in white wares to just over 15% and a substantial increase in the amount of Black Burnished wares to 12.6%. As found previously, the mortaria are from the Verulamium region and Mancetter-Hartshill industries. The Romano-British colour-coated ware is most likely from Colchester.

Late 2nd to early 3rd century AD

Imports have increased again slightly to 17.7% and regional wares outweigh local wares for the first time. The sources of samian wares are similar to those during the mid-late 2nd century, with most from Central Gaul and a little from East Gaul. A Gaulish colour-coated ware beaker and a small amount of amphorae complete the range of imported wares. Most of the local wares are grey and shelly wares. The small quantities of grog-tempered, sandy and mixed-gritted wares are likely to be residual by this stage.

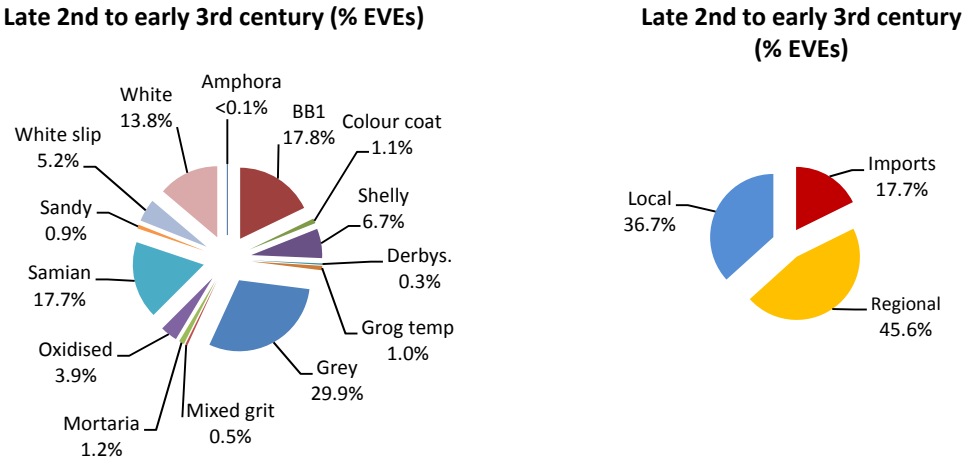


Figure 35: The Roman Pottery: sources of pottery during the late 2nd-early 3rd century.

A further increase in Black Burnished ware to 17.8% boosts the quantity of regional wares, with white, white-slipped and oxidised wares forming a further 22.9%. Bourne-Greetham shelly ware comprises 2.3%. Most of the mortaria are from Mancetter-Hartshill, with two residual vessels from the Verulamium region. There is also a Nene Valley mortarium and a small quantity of Nene Valley colour-coated ware beakers.

Early to mid- 3rd century AD

Imports reach a high point of 18.1% during the first half of the 3rd century, with samian ware forming the majority at 17%. The remaining imports comprise a small quantity of amphorae and colour-coated wares including Rhenish wares from Central Gaul and Trier.

The 10% decrease in regional wares is the result of the significant drop in the quantity of white wares from 13.8% to 4.5%. Black Burnished ware accounts for 17% and is the dominant regional coarse ware, whilst Romano-British colour-coated wares are still fairly scarce. The mortaria are from Mancetter-Hartshill and the Nene Valley, with a residual vessel from the Verulamium region. The majority of grey and shelly wares are local, with 0.8% grey ware from the Nene Valley and 1.8% shelly ware from the Bourne-Greetham area. The small amounts of sandy, mixed-gritted, grog-tempered and mica dusted wares are residual.

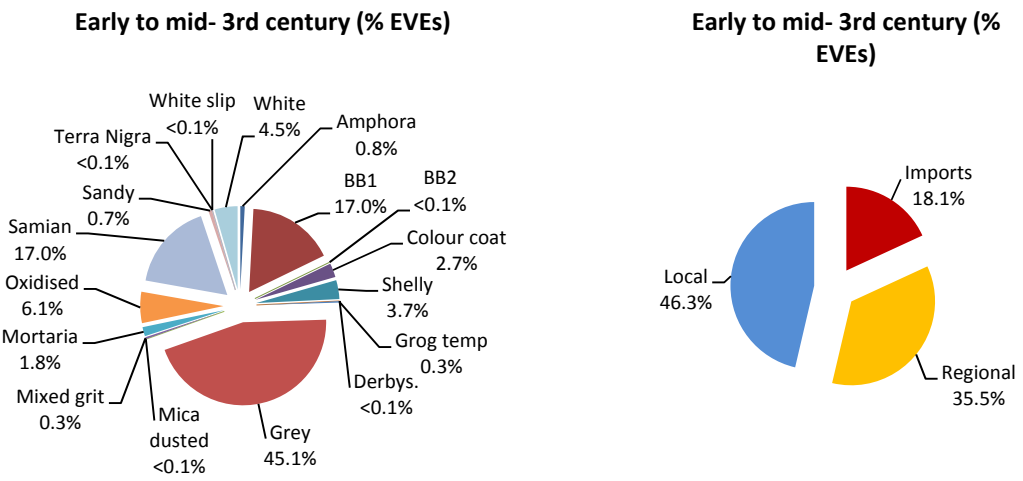


Figure 36: The Roman Pottery: sources of pottery during the early-mid 3rd century.

Late 3rd to early 4th century AD

By the later 3rd century, imports have dropped substantially and regional wares are clearly dominant. The drop in imports is due to the significant reduction in samian ware to 8.8%.

The notable change is the dramatic increase in Black Burnished and colour-coated wares rising to 41.4% and 18.8% respectively. Almost all the colour-coated wares are Romano-British, with continental Rhenish wares comprising only 0.8%. Apart from one Oxfordshire red-brown colour-coated ware bowl, the remaining vessels are all from the Nene Valley. Most of the shelly and grey wares are local, with 2.2% grey ware from the Nene Valley. The mortaria are from Mancetter-Hartshill and the Nene Valley with no residual Verulamium wares. There is a smattering of residual material as shown by the presence of Terra Rubra, grog-tempered, mixed-gritted and mica dusted wares. Some of the samian could also be residual, though these vessels can be used for long periods of time and there are a few examples of the latest East Gaulish forms which could have been imported up to the middle of the 3rd century.

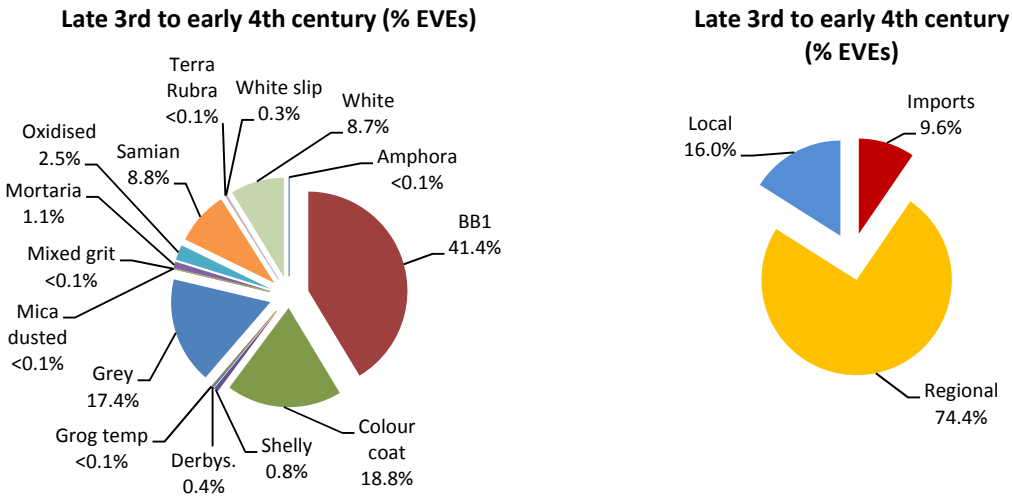


Figure 37: The Roman Pottery: sources of pottery during the late 3rd to early 4th century.

Early to mid- 4th century AD

The final phase of Roman occupation during the first half of the 4th century sees regional wares continuing to dominate at 61.5%, even though this is a reduction from the highpoint of 74.4% seen during the late 3rd to early 4th century. The main reason for this is the substantial decrease in the quantity of Black Burnished wares from 41.4% to 19.3%. This coincides with the decline of Black Burnished ware distribution to the north and midlands towards the middle of the 4th century (Holbrook & Bidwell 1991, 94; Tyres 1996, 183-185).

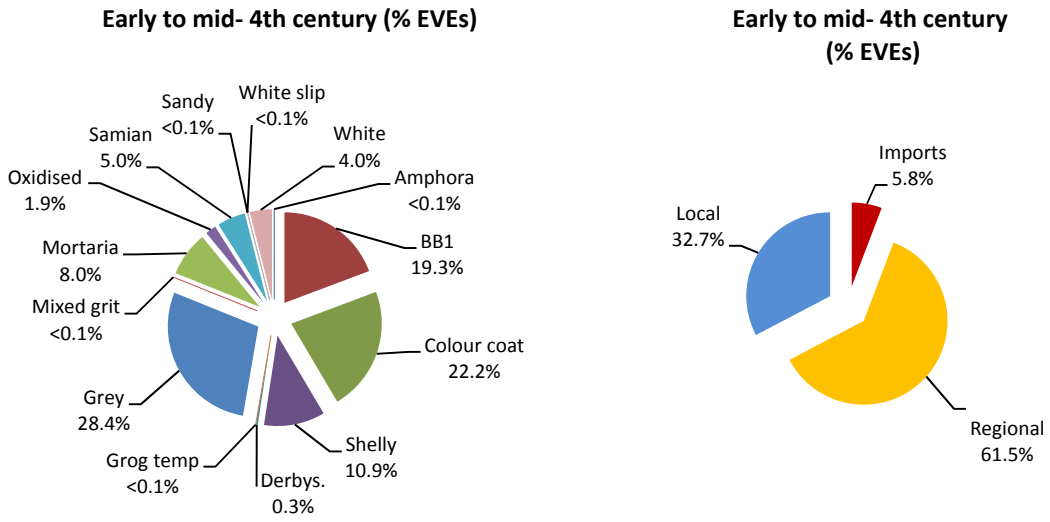


Figure 38: The Roman Pottery: sources of pottery during the early to mid- 4th century.

Colour-coated wares reach a peak of 22.2%. As in the previous phase, 0.8% is Rhenish ware, with one Oxfordshire red-brown colour-coated ware bowl and the remainder from the Nene Valley. Later shelly wares from the South Midlands appear for the first time during the first half of the 4th century and account for 5.4% of the shelly wares. In addition to mortaria from Mancetter-Hartshill and the Nene Valley, Oxfordshire white and white-slipped mortaria are also present.

The grey wares are mostly local apart from 0.4% from the Nene Valley. Imports have decreased again slightly to 5.8%, most of which is samian ware which, by this time, is probably residual.

Summary

The overall trend shows a decrease in local supply matched with increases in regional and imported wares from the late 1st-early 2nd century through to the mid- 4th century, as illustrated in the chart below. The earliest phase is clearly dominated by local wares with a gradual decrease until the middle of the 2nd century. Between the middle of the 2nd century and the middle of the 3rd, the levels are similar with imports ranging between 16.5% and 18.1%, regional wares between 35.5% and 45.6% and local wares between 36.7% and 46.3%. From the later 3rd century until the middle of the 4th, the pattern changes again with regional wares becoming dominant at 74.4% and 61.5%. Imports fall to 9.6% and 5.8% and local wares account for 16% and 32.7%.

Samian ware from Gaul accounts for most of the imports throughout the Roman period at Vine Street. The table below summarises the proportion of samian found from each of the three major Gaulish sources, along with figures from the Shires excavations in the late 1980s and Causeway Lane for comparison (Dickinson 1999, 104). The figures for Central Gaul include vessels specifically identified as from Les Martres-de-Veyre and Lezoux. It should be noted that the Vine Street figures are based on all samian vessels found within the stratified groups examined in detail, whilst Dickinson's figures are based on stamped vessels only, however, the three sites do appear reasonably comparable.

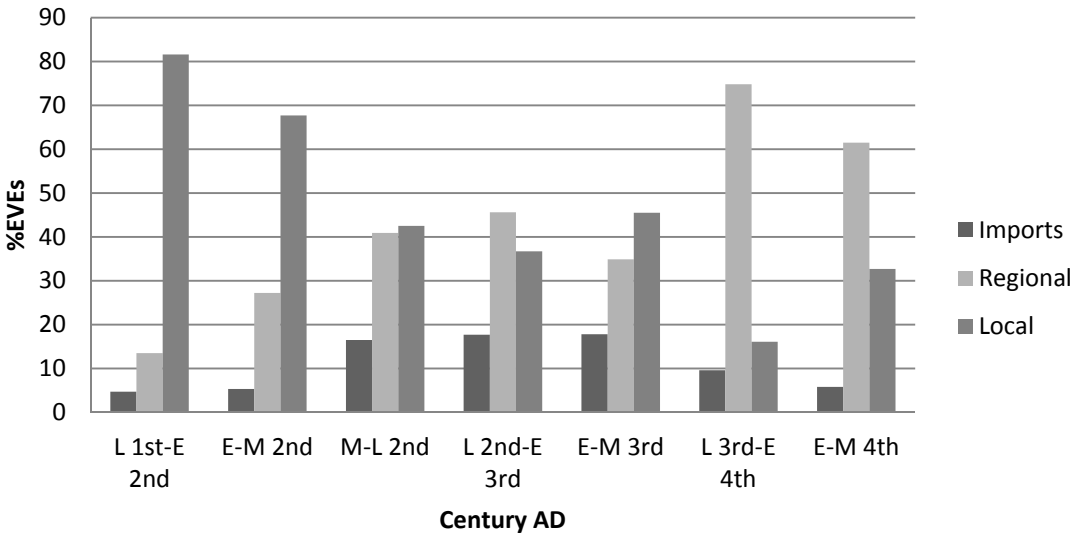


Figure 39: The Roman Pottery: changes in pottery supply over time.

Table 40: The Roman Pottery: sources of samian ware

	Vine Street	The Shires	Causeway Lane
South Gaul	30.2%	34%	37%
Central Gaul	65.4%	63%	56%
East Gaul	4.4%	3%	7%

The dominance of Central Gaulish samian at Vine Street goes some way to explaining the peak of imports from the middle of the 2nd century through to the middle of the 3rd, as these industries reached their height during the 2nd century (Webster 1996, 3). The sharp decline in samian ware coincides with the substantial increase in Romano-British colour-coated wares from the later 3rd century onwards, as they replace samian fine wares once importation of the latter ceases to Britain around the middle of the 3rd century.

With the exception of 'transitional' wares found in the earliest phase, grey wares form the largest component of local coarse wares. Local wares decrease as regional wares increase, and although Derbyshire ware and Nene Valley grey ware is present in small quantities, the most significant correlation is the increase in Black Burnished ware as grey ware decreases. This is most obvious during the late 3rd to early 4th century where Black Burnished ware outweighs grey ware by some margin, and reflects the industry's distribution to non-military sites which peaks from the middle of the 3rd century to the middle of the 4th (Holbrook and Bidwell 1991, 94).

Imports during the second and third centuries of between 16-18%, is typical of large urban sites, as is the increase in regional wares during the third and fourth centuries. This trend is in keeping with other sites from Leicester such as Causeway Lane (Clark 1999), *civitas* capitals such as Cirencester (Cooper 1998), and urban sites such as Gloucester (Ireland 1983) and Chelmsford (Going 1987).

Vessel Forms

Proportions and variety of vessel types can fluctuate through time, and there has also been work to suggest that proportions of particular vessel forms such as jars, drinking vessels, dishes and bowls can be used as an indicator of site status (Evans 2001). The charts below illustrate the vessel types present in each phase as well as highlighting the forms used as status indicators.

Late 1st-early 2nd century AD

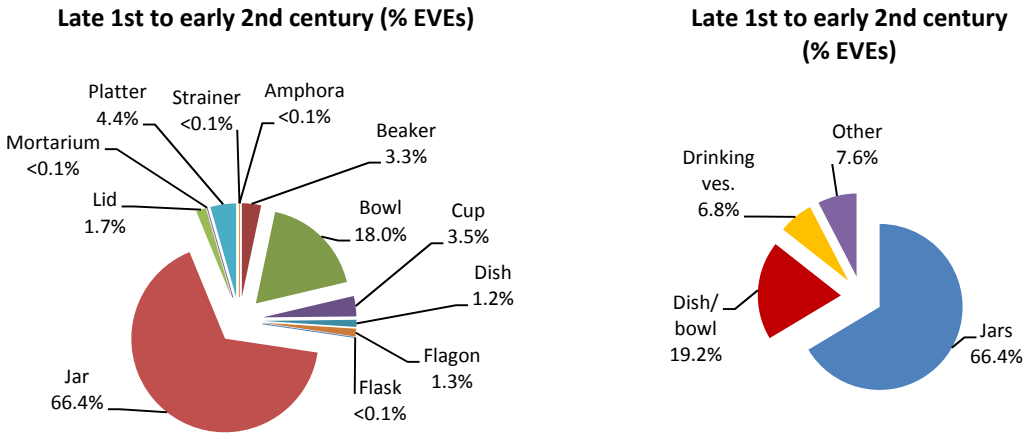


Figure 40: The Roman Pottery: vessel forms present during the late 1st-early 2nd century.

During the earliest phase, jars account for two thirds of vessels, with bowls forming a further 18%. Most of the jars are 'transitional' wares, with approximately 29% grey wares. The grog-tempered, mixed-gritted and shelly ware jars are mostly large storage jars with rolled rims, the grey wares tending to be smaller forms. A good range of table wares are present including dishes, platters, flagons and drinking vessels. Platters and plates were more popular than dishes during the second half of the 1st century, as Gallo-Belgic wares were both imported and copied, and samian Drag. 15/17 and 18 forms were in production. The dishes are early examples of the samian Drag. 18/31. This is reflected here with dishes only comprising 1.2% of the assemblage and platters 4.4%. The beakers include a sandy ware butt beaker, imported Gaulish wares and some fine grey ware vessels, whilst the cups are the earlier samian forms 24/25 and 27.

Early to mid- 2nd century AD

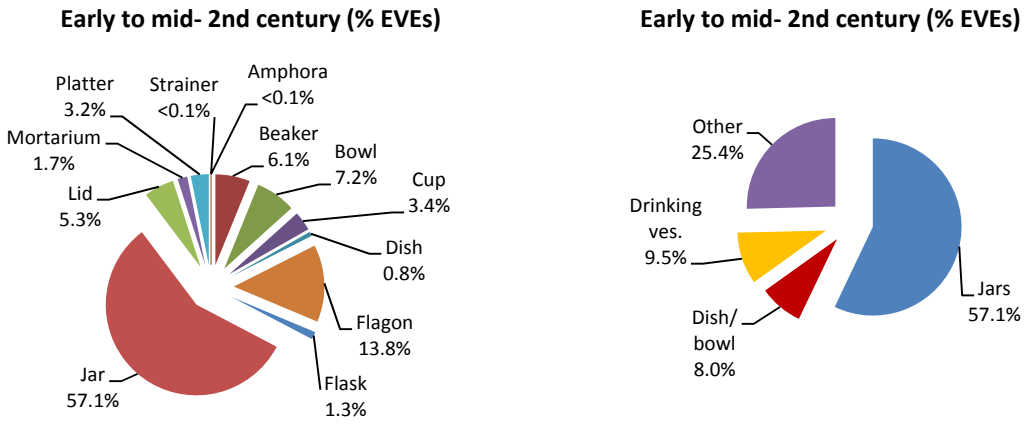


Figure 41: The Roman Pottery: vessel forms present during the earlyto mid- 2nd century.

The proportion of jars in this phase has decreased to just over 57%, most of which are now grey wares with some shelly ware. The same types of platter and dish as before are present, with the addition of one Black Burnished ware dish indicating a move towards the middle of the 2nd century. Similarly, the cups are mostly samian ware Drag. 27s with the addition of a slightly later form 42 suggesting a mid- 2nd-century date. The most notable change is the increase in flagons to 13.8%, the vast majority of which are white and white-slipped wares. Most of the mortaria are from the Verulamium region, which is one of the earlier types of mortarium to reach Leicester.

Mid- to late 2nd century AD

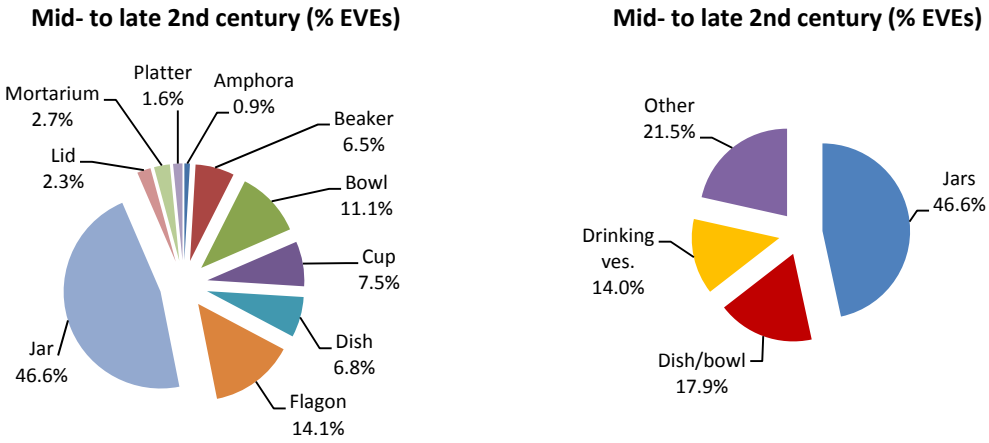


Figure 42: The Roman Pottery: vessel forms present during the mid-late 2nd century.

The proportion of jars has decreased again to 46.6%, with increases in flagons, dishes, mortaria and drinking vessels. Almost all the dishes are samian Drag. 18/31 and 18/31Rs, with 32 out of a total of 38 vessels identified as such. The remainder include three plain rimmed coarse ware dishes, including one in Black Burnished ware.

The style of samian cups has also changed, as Drag. 33s now make up the majority with only a few Drag. 27s present. The beakers divide approximately equally into colour-coated wares with roughcast decoration from Gaul and Colchester, and fine oxidised and grey wares.

Late 2nd to early 3rd century AD

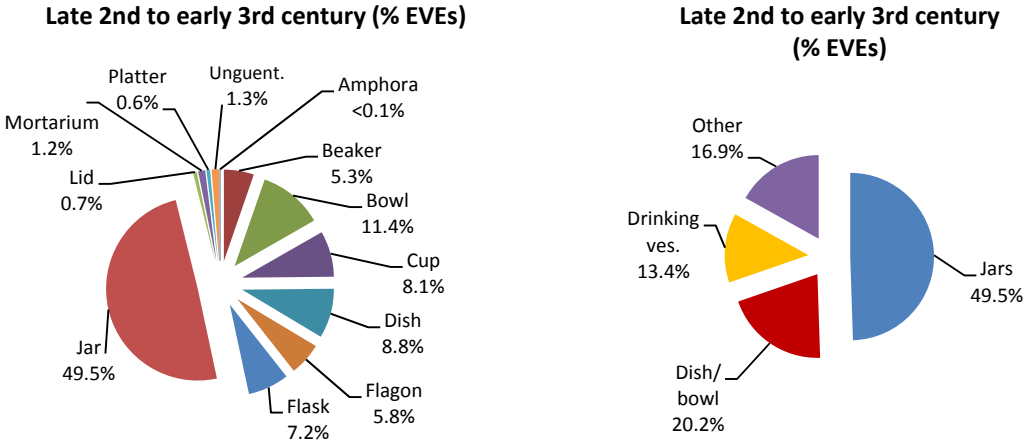


Figure 43: The Roman Pottery: vessel forms present during the late 2nd-early 3rd century.

In the late 2nd-early 3rd century, jars comprise 49.5% of the assemblage. There is also an increase in the number of dishes and bowls, but a slight decrease in drinking vessels. The majority of dishes are samian table wares, with a few plain and bead-rimmed Black Burnished and grey coarse wares. In contrast, most of the bowls are Black Burnished ware conical bowls, with a smaller quantity of samian decorated wares. The cups are all samian wares and, as with the previous phase, most of these are the Drag. 33 form. The beakers show a mixture of Gaulish and Colchester types found in the previous phase, but there are also some Nene Valley colour-coated wares suggesting a move into the 3rd century.

Early to mid- 3rd century AD

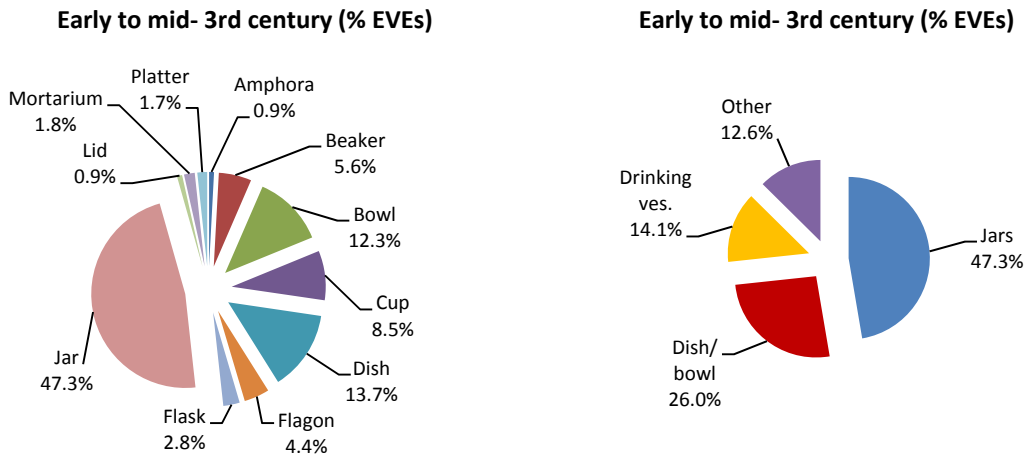


Figure 44: The Roman Pottery: vessel forms present during the early-mid 3rd century.

By the first half of the 3rd century, a further increase in dishes, bowls and drinking vessels can be seen. Again, most of the dishes are samian table wares (58%), perhaps suggesting the Drag. 18/31 and 18/31R forms remained in use for some time after production ceased around the middle of the 2nd century (Webster 1996, 35). The notable increase is the quantity of Black Burnished ware plain and bead rim dishes which account for 31.5%. Similarly, Black Burnished wares comprise half of all bowls, along with grey ware derivations. Samian decorated bowls account for 26.5%. As with the previous phase, all the cups are samian wares, almost all of which are Drag. 33s. Although the proportion of beakers has only increased slightly from 5.3% to 5.6%, approximately two thirds are Nene Valley colour-coated wares. Jars remain at a similar level of 47.3%, approximately 70% of which are grey wares with a further 18% Black Burnished wares.

Late 3rd to early 4th century AD

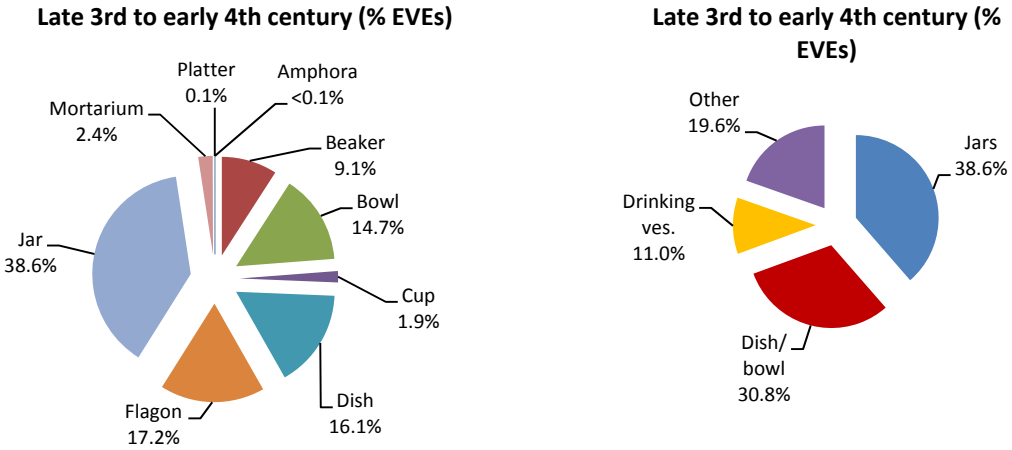


Figure 45: The Roman Pottery: vessel forms present during the late 3rd to early 4th century.

The number of dishes and bowls continues to rise towards the end of the 3rd century and there appears to be a resurgence in the use of flagons, which suddenly increase to 17.2% after a decline from the late 2nd-early 3rd century. Most of the flagons are Nene Valley colour-coated wares (57%), with 27.5% white wares. Black Burnished ware plain rimmed dishes comprise 67.6% of dishes, with similar styles of grey ware forming a further 14.8%. Samian table wares comprise the remaining 17.6%. Black Burnished and grey ware bowls, including the bead and flanged form dating from the later 3rd century onwards, comprise approximately one third each of bowls present. In addition two Nene Valley colour-coated

ware castor boxes and an oxidised ware flanged bowl derived from the samian Drag. 38 are present. The samian ware decorated and plain forms may be residual.

The quantity of cups has decreased significantly to 1.9%, indicating that samian ware drinking vessels are finally being replaced by Romano-British colour-coated ware beakers. The most frequent forms present are folded and funnel necked beakers typical of the 3rd century, along with a 4th century pentice moulded vessel. This phase is the only one where jars fall below 40% of the assemblage. Just over half are grey wares, with a further 37% Black Burnished ware.

Early to mid- 4th century AD

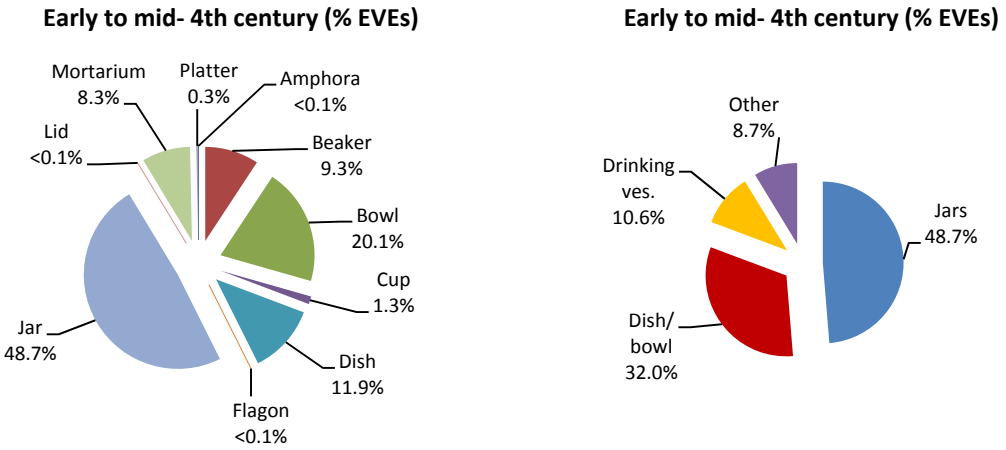


Figure 46: The Roman Pottery: vessel forms present during the early to mid- 4th century.

During the final phase of activity, dishes and bowls reach their highest level at 32%. Most of the dishes are plain rimmed Black Burnished and grey wares, though there is also a Nene Valley colour-coated ware plain rimmed dish. The samian ware dishes and bowls are residual. There is a change in the types of bowl present, with colour-coated wares accounting for almost two thirds. The form types include bead and flanged conical bowls typical of the 4th century, along with castor boxes and a form derived from the samian Drag. 38. Black Burnished and grey ware bowls comparable to those in the previous phase comprise a further 29%. In addition, there is a grey ware flanged bowl with an incurved rim and a Harrold shelly ware flanged bowl, both of which only appear in this latest phase. Jars show an increase back up to 48.7%. Within this, Black Burnished wares have decreased back to 20.5% with grey wares becoming dominant again at 46.8%. Shelly wares show a substantial increase accounting for the remaining 21.6%. This is due to the appearance of later Roman shelly wares from Harrold in Bedfordshire, which account for half of all shelly wares.

As in the previous phase, the samian ware cups are residual and have decreased to 1.3%. Beakers form the majority of drinking vessels, 84.1% of which are Nene Valley colour-coated wares. The remainder comprises a mixture of imported Rhenish wares from Gaul and Trier, along with other Romano-British colour-coated wares. Folded and funnel necked forms are most frequent with a few shouldered examples clearly dating into the 4th century. There is a notable increase in mortaria, which at 8.3% is a substantial increase on any previous phase. Hammerhead and reeded forms from Mancetter-Hartshill and the Nene Valley are present in approximately equal amounts and comprise the majority of vessels. Two mortaria from Oxfordshire are amongst the latest types to reach Leicester and date to the 4th century.

Summary

The chart below summarises the fluctuation through time of the forms used by Evans (2001) to suggest site type or status, such as a rural, urban or military sites. The assemblage from Vine Street clearly falls into the urban category and is comparable to assemblages from Verulamium, Colchester and Alcester (Evans 2001, 29-31).

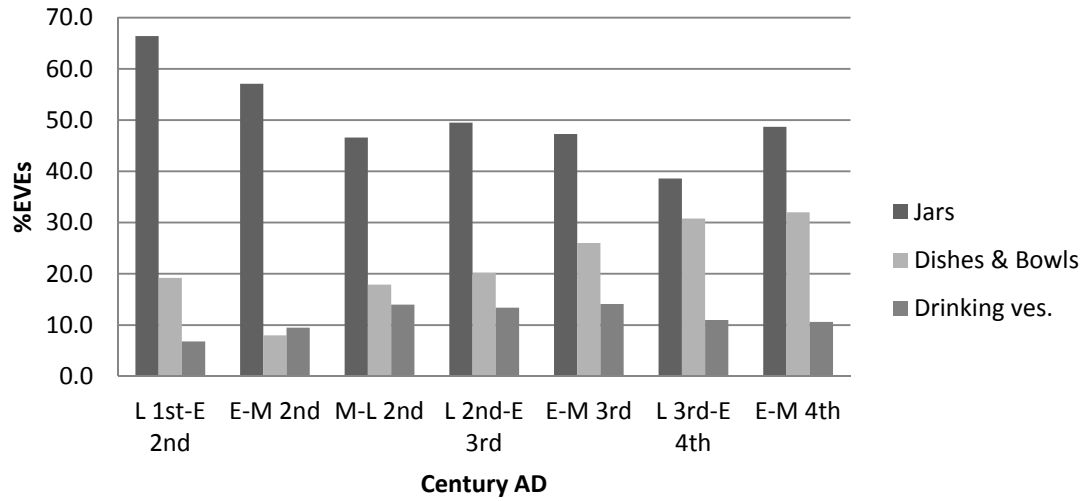


Figure 47: The Roman Pottery: proportions of jars, drinking vessels, dishes and bowls present over time.

There is a decrease in the quantity of jars, though the main drop takes place from the later 1st to the middle of the 2nd century, after which time the proportion remains reasonably stable. This is perhaps a result of the decline in the use of very large storage jars seen in the earliest phases. The number of cups and beakers peaks from the mid- 2nd to the mid- 3rd century, coinciding with the introduction of masonry buildings in the insula.

There is a steady rise in the number of dishes and bowls from the early 2nd century through to the 4th; with the relatively high percentage in the late 1st-early 2nd century explained by the number of late 1st century sandy ware carinated and cylindrical bowls. Samian table wares comprise the majority of dishes during the 2nd century and early 3rd, followed by the increase in Black Burnished wares from the early 3rd through to the early 4th century. The most common table ware is the samian Drag. 18/31 and 18/31R dish, whilst the plain rimmed dish in Black Burnished ware remains the most popular coarse ware form, augmented in the 4th century with a few colour-coated ware examples. Conical bowls in Black Burnished ware with flat, grooved and bead and flange rims dominate from the early 3rd century with a few 4th century colour-coated wares in the latest phase. Grey ware derivatives of both the plain rimmed dish and conical bowls are common alongside the Black Burnished wares. These types of dish and bowl are utilitarian coarse wares as opposed to samian and by the later 3rd century, some colour-coated table wares, which could suggest a change in the way food is prepared or stored compared to that in the more heavily jar dominated late 1st-mid-2nd century period.

Specialist vessels such as mortaria and amphora, also associated with food products and preparation, are present throughout though the quantities are never particularly high. The proportion of mortaria ranges between approximately 1% and 3% until a sudden increase in the early to mid- 4th century. A possible explanation for this can be found by looking at G1004, the drain in Phase 4.6, where mortaria dating between the mid- 3rd and mid- 4th century were recovered. The assemblage from this group most likely represents pottery associated with the peak of occupation at the courtyard house, used secondarily to maintain a later feature, suggesting the highest use of mortaria as kitchen wares coincides with the most affluent period of occupation. The representation of amphora using EVEs is usually small as rims rarely survive compared to the sometimes substantial quantity of body sherds. However, types associated with olive oil, wine, fruit and fish products are present throughout, albeit perhaps in a residual capacity by the early 4th century.

Conclusion

There is evidence for activity from the late 1st to the mid- 4th century, with Insula V developing continuously from initial timber buildings through to masonry strip buildings which become subsumed into a grand courtyard house. The pottery assemblage suggests the inhabitants enjoyed urban living with access to a wide range of goods from the early-mid 2nd century onwards, reaching a high point in the later 3rd to early 4th century during the occupation of Building G. In this respect, the Vine Street assemblage not only provides information relating to the trade in pottery and foodstuffs, but also perhaps

the aspirations of those occupying the insula in choosing to acquire the latest styles of vessels to use as culinary fashions changed.

THE EARLY-MIDDLE ANGLO-SAXON POTTERY

Nicholas J. Cooper and Alice Forward

Introduction

Ten sherds of Early to Middle Anglo-Saxon pottery were retrieved, from contemporary deposits of Phase 5 as well as intrusively and residually from deposits dating to Phases 2, 4, 8, and 9. The assemblage is one of four, totalling 106 sherds, examined as part of the current study of sites in the north-east quarter of Leicester (three from the Highcross excavations and one from Sanvey Gate). Together with three other assemblages excavated in the late 1980s and early 1990s comprising The Shires (Blinkhorn 2007), Causeway Lane (Blinkhorn 1999) and Bonners Lane (Blinkhorn 2004), the total from the City in recent times totals 255 sherds. In addition, a large assemblage from the settlement at Eye Kettleby near Melton Mowbray totalling 2581 sherds, is currently being analysed (Cooper and Forward in prep), and has provided the opportunity to review the methods of analysis of an unprecedented amount of material at the same time.

Chronology

Whilst the association of this type of coarse handmade pottery with metalwork of Early Anglo-Saxon date (*c*.450-650) is well attested across Leicestershire and Rutland and decorative elements, when they occur, can be paralleled with more complete vessels from pagan cremation and inhumation cemeteries of 5th- and 6th-century date, the question of whether the production of Early Anglo-Saxon pottery extends into the Middle Anglo-Saxon period (*c*.650-850) remains unanswered and, at present, has been assumed largely on the basis of a lack of evidence to the contrary. This is due to an almost complete lack of diagnostic Middle Anglo-Saxon imports from outside the region such as Ipswich and Maxey-type wares and a paucity of associated metalwork or other material culture of the same date, both in the City and across the County. We either have to assume that the fabric and forms of these vessels remain unchanged across four centuries or that this part of the East Midlands becomes aceramic after the mid- 7th century, creating a ceramic lacuna which is not filled until the appearance of early Stamford ware products in the mid- 9th century.

When the relatively low-level of pottery usage during the Anglo-Saxon period is compared with the massive scale of production and use during the Roman and medieval periods, the concept of becoming aceramic is easier to grasp. However, the main difficulty with accepting the idea for Leicestershire is that the Charnwood district has been identified, on the basis of the distinctive Mountsorrel granodiorite inclusions, as the centre of production of the so-called 'Charnwood' ware, the source of much of the pottery under discussion here as well as across much of the East Midlands during the 5th to 7th centuries (Williams and Vince 1997, 219 and fig. 7; Young and Vince 2005, 31), and so it would need explaining why production and use suddenly stops at the end of the Pagan period. Whilst stating that the ware has been identified on Christian sites such as Repton and Flixborough, Williams and Vince, stop short of categorically stating that it continues into the Christian period but do acknowledge that by the later 7th century the ware is being replaced by the Ipswich and Maxey-type wares across the region (1997, 219).

With the exception of a Maxey ware vessel from Wymondham Manor House (Pickstone and Connor 2008, 290) and an example of Ipswich ware from Uppingham (A. Vince pers. comm.) this replacement does not include Leicestershire or Rutland respectively. If the ware does continue through the 7th and 8th century, we might expect to see evidence for it in Leicester which we know, politically and religiously is becoming an important centre. The latest stratified association of the pottery within the fill of a sunken-featured building is with a bone comb at Bonner's Lane tentatively dated to *c*.AD 650-720 (Harvey 2004, 106 and fig.42.34, dating revised by Ian Riddler pers. comm.). The occurrence of a bone spindle whorl from the post-hole of the same building would also support a Middle rather than Early Anglo-Saxon date.

Across Leicestershire and Rutland it should also be possible to detect this continuity but progress is hampered by the fact that the later 7th and 8th century appears to represent a period of transition from the dispersed settlement pattern towards the nucleated pattern of villages we know today. Many of the sites detected by field walking therefore belong to the dispersed pattern whilst the evidence for those which

continued is hidden beneath modern villages. A programme of controlled metal detecting on field walked sites would help to confirm how long these sites continue whilst systematic garden walking and metal detecting within villages, alongside the results of developer led excavations may reveal the necessary association of Middle Saxon metalwork with the pottery or with the distinctive imported wars that have so far remained elusive.

To summarise, in the present state of knowledge it is probably best to date any assemblage of pottery of Early Anglo-Saxon character to the period *c.*450-700 with the proviso that future evidence may support an extension further into the Middle Anglo-Saxon period. When diagnostic decoration occurs, it may be possible to refine dating slightly for individual groups but the variable nature of fabrics and conservative nature of the forms dictates that this will rarely be possible on the domestic assemblages found across the City and County.

Methodology

The assemblage was analysed by fabric and form and quantified by sherd count, weight and EVEs, with rim diameter, girth, decoration and surface treatment also being recorded. Fabrics have been analysed using low power microscopy (x20) and identified in accordance with the series developed by Blinkhorn for the two currently published assemblages from the City (Blinkhorn 2000 and 2004), but simplified following petrological thin-section work undertaken by David Williams on the material from Causeway Lane and The Shires (Little Lane and St Peter's Lane) (Williams forthcoming), the details of which are discussed below.

Fabric Analysis

Studies by both Blinkhorn and Williams established that the pottery of this date was produced exclusively using opening materials of mineral origin, predominantly quartz and granite, the quartz also occurring alongside, or deriving from, quartzite and sandstone. This contention is supported by analysis of the large assemblage from Eye Kettleby (Cooper and Forward in prep) and numerous other small assemblages across Leicestershire (e.g. Cooper 2008) and Rutland (Blinkhorn 2000).

The petrological examination by Williams identified four main inclusion types; granite, quartz, quartzite and sandstone, from which a series of six fabrics (SX1-6) was established, to include a dense, fine sandy quartz fabric and a quartz fabric also including calcareous material. Blinkhorn's analysis of the same material recognised the same divisions but included further subdivision of the quartzite fabrics to make nine in all (F1-9), six of which were recognised in the small assemblage from Causeway Lane (Blinkhorn 1999, 165).

sx	Highcross	sx	Williams	F	Blinkhorn 1999	BL	Blinkhorn 2004
sx1	Quartz	sx1	Quartz(ite)	F1	White quartz(ite)	BL5	Quartzite
				F2	Grey quartz(ite)		
		sx2	Fine sandy quartz	F3	Fine sandy quartz(ite)		
				F5	Sparse sandy		
		sx6	Sandstone	F8	Sandstone		
sx3	Granite	sx3	Granite	F4	Coarse Granite	BL1	Granite
				F6	Fine Granite		
						BL3	Granite and shell
sx4	Quartz and shell	sx4	Quartz and Limestone	F7	Quartz calcareous	BL4	Limestone and white quartzite
						BL2	Shell
n/a		sx5	Sand and mica (IA?)	F9	Fine micaceous (IA?)		

Whilst confirming the ubiquity of granite and quartz, the opportunity to study the large assemblage from Eye Kettleby has thrown doubt on the merit of subdividing fabrics too much on the basis of density and grain size, when the extremes turn out to be at either end of a continuum and probably represent the result of potters preparing and working clay under a range of atmospheric conditions using highly variable

sources of opening materials. Additionally, it has highlighted the problem of assessing the significance of minor constituents of fabrics such as calcareous material and ferruginous clay pellets which are probably natural occurrences in the clay.

The present analysis has therefore adopted the major elements of Williams' series (fabrics sx1, sx3 and sx4) and a concordance is presented which seeks to group the fabrics from the other series according to dominant inclusion type, when they cannot be separated with confidence using low power microscopy alone. For example, sx6 (sandstone) has been incorporated with sx1 (quartz) as it is only positively identified when iron staining is present (for which there are no examples recorded) and could easily be confused with quartzite, when no staining is present.

Results

Table 41: The Early-Middle Anglo-Saxon Pottery: quantification of pottery from Vine Street by fabric.

Fabrics	Sherds	%sherds	Weight	%weight	EVEs	%EVEs
SX1	9	90	89	89	0.325	100
SX3	1	10	11	11	0	0
SX4	0	0	0	0	0	0
Total	**10**	**100**	**100**	**100**	**0.325**	**100**

Table 42: The Early-Middle Anglo-Saxon Pottery: the distribution of the assemblage by phase and fabric

Phase / Sherds	SX1 Quartz	SX3 Granite	SX4 Qu/Sh	Total
2.5	1			1
4.06	2			2
5	2			2
8.1	2	1		3
9.02	1			1
0 Unphased	1			1
Total	**9**	**1**		**10**

Discussion

Stratigraphic Distribution

Of the 10 sherds from Vine Street only two are from a Saxon context (4139 in G1042, vegetation depression). The remaining sherds are both intrusive from Roman Phases 2 and 4 and residual in Medieval Phases 8 and 9. Unlike Freeschool Lane and Vaughan Way there is no other finds evidence dating to the early or middle Anglo-Saxon period.

Fabric, form, decoration and surface treatment

The majority of the Vine Street assemblage is quartz tempered (90%) with only 10% tempered with granite. The three rims in the assemblage were all closed jar forms. The rim sherd from (5685) is of note as it is an out-flaring rim, burnished and well formed. There is an absence of decorated or stamped sherds from Vine Street but all the sherds have been finished with all three rims burnished and the remaining body sherds smoothed.

Catalogue

Illust	Context	Phase	Group	Description
1.	2277	4.06	G0519	Jar with upright flat rim, burnished on the exterior and smoothed on the interior.
2.	5685	9.02	G0833	Jar with out-flaring rim, highly burnished on the exterior and on the interior of the vessel to just below the shoulder.
3.	2323	8.1	G0544	Jar with upright flat rim, burnished on the interior and the exterior.

THE MEDIEVAL AND POST-MEDIEVAL POTTERY

Deborah Sawday

Introduction

A total of 11400 sherds of medieval and later pottery, weighing 250205 grams, was recovered from the site. Approximately 62 % of the total from phase 7 to phase 9.02, 7150 sherds weighing 152276 grams, was targeted for detailed study.

The pottery was analysed and recorded using Access and Excel databases which together form the site archive. The selected material dated from the late Anglo Saxon to the medieval period, with Potters Marston, dating predominantly from the 12th to the late 13th centuries, typically being the most common ware, accounting for over 68 % of the total by sherd count. Almost 17% of the assemblage by sherd count was in late Saxon or Saxo Norman wares: Leicester, Lincoln, Stamford fabrics ST2 and ST3, Torksey, Thetford and Saint Neots wares/type wares, whilst there was a notable absence of late medieval ware, the Medieval Sandy wares MS7 and MS88, Tudor Green/Surrey White ware, Midland Purple and Cistercian wares.

Methodology

The pottery was recorded with reference to the *Minimum Standards for the Processing, Recording, Analysis and Publication of Saxon and Medieval Ceramics* (MPRG 2001) and the *Guide to the Classification of Medieval Ceramic Forms (MPRG 1998).* Quantification is by sherd number, weight (grams), and vessel rim equivalent, the latter represented by the addition of the percentages of the circumference of each of the vessel rims present, where one vessel is equivalent to 1.00 Eve.

Fabrics

The pottery was examined under an x 20 magnification binocular microscope and classified using the ULAS fabric series (Sawday 1989), (Davies and Sawday 1999), (Davies and Sawday 2004), based on the original series devised by Rosemary Woodland, (Woodland 1981), (Woodland 1987). The fabric codes and sources – where known – are shown in the fabric list,

Table 43. Previously undefined fabrics without a known kiln source, which consequently have not been defined elsewhere, and those new to the series are in the Freeschool Lane report.

Table 43: The Medieval Pottery Fabrics.

Fabric	Common Name/Kiln & Fabric Equivalent where known	Approx. Date Range
LE	Leicester ware (1)	*c.*850-*c.*1100
ST3	Stamford ware 3 – coarse, fabrics E/F, H A/D (2)	*c.*850/900-1050+
ST2	Stamford ware 2 - fine, fabrics G B/(A) (2)	*c.*1050-12th *c.*
ST1	Stamford ware 1 – very fine, fabrics B/C (2)	c.1150-13th *c.*
LI1/2	Lincoln Kiln type/Lincoln late Saxon Shelly ware (3)	*c.*870-early 12th *c.*
SN	St Neots/St Neots type ware - Northants CTS 100 (4)	*c.*850-1100
TH	Thetford ware/type (5)	*c.*850-*c.*1200
TO	Torksey ware/type (6)	*c.*850-*c.*1200
RS1-3	Reduced Sandy wares-? Local (7)	*c.*850-*c.*1400
PM	Potters Marston ware - Potters Marston, Leicestershire (8)	*c.*1100-*c.*1300/50+
SP2	Splashed ware 2 – Nottingham Fine Fabric NSP (9)	*c.*1100-1150
SP3	Splashed ware 3 - Leicester (10)	*c.*1100-1250
OS1	Oxidised Sandy ware 1-? Local, Brackley fabric T68, (11) Northants CTS fabrics 302-305, (12)	*c.*12th-13th C.
OS2	Oxidised Sandy ware2 -? Local.	*c.*12th -13th C.
OL	Oolitic Limestone Tempered ware - ?South Lincolnshire (3)	*c.*12th -13th C
CS	Coarse Shelly ware (includes sherds previously catalogued as LY4 – Lyveden Stanion A ware) - Northampton fabric T1/2, T2, (13) Northants	*c.*1100-1400

Fabric	Common Name/Kiln & Fabric Equivalent where known	Approx. Date Range
	CTS 330 (12)	
LY4	Lyveden/Stanion type ware 4 - Lyveden Stanion A ware) - Northampton fabric T1/2, T2, (13) Northants CTS 319 (12)	*c*.1150-1400
LY1	Lyveden/Stanion type ware 1 - Northampton fabric T2 (13), Lyveden/Stanion 'B' ware, Northants CTS fabric 320 (12)	*c*.1200/1225-1400
CO2	Coventry Sandy ware/type – Coventry fabric A (14), Warwick CTS SQ202/203 (15)	12th – 14th C.
CO1	Coventry Glazed ware/type – Coventry fabric D (14), Warwick CTS SQ21/SQ211 (15)	*c*.1150-1250
CC1	Chilvers Coton ware 1 - Chilvers Coton fabric A/Ai (16), Warwick CTS WW01, WW012? (15)	*c*.1250-1400
CC2	Chilvers Coton ware 2 - Chilvers Coton fabric C (16), Warwick CTS SQ30 (15)	*c*.1250/1300-1500
CC5	Chilvers Coton fabric C (16), Warwick CTS SQ30 (15)	14th -16th C
NO1	Nottingham Early Green Glazed ware fabric NOTGE (9)	*c*.1210-*c*.1250
NO2	? Nottingham Coarse Sandy Ware NCSW (9)	*c*.1230-*c*.1280
NO3	Nottingham Light Bodied/Reduced Green Glazed ware NOTGL/NOTGR (9)	Early/mid- 13th to *c*.1350
BR2	Brill/Boarstall ware/type –Brill/Boarstall 'standard fabric', Oxford fabric OXAM (19)	*c*.1200-1400
MS1	Medieval Sandy ware 1 - quartz tempered fabric, possibly a fine version of Chilvers Coton fabrics A/Ai, (16)	Early/mid 13th *c*.-1400
MS2	Medieval Sandy ware 2 – misc. coarse soft fired quartz tempered fabrics, including coarse Chilvers Coton fabrics A/Ai, (16), and ? Nottingham, Burley Hill/Allestree, Derbyshire (17)	Early/mid- 13th *c*.-1400
MS3	Medieval Sandy ware 3 – misc. coarse hared fired quartz tempered fabrics -? Burley Hill/Allestree/Ticknall, Derbyshire (17)	Early/mid 13th *c*.-*c*.1400-1400/1450
MS8	Medieval Sandy ware – misc. sandy fabrics? including under fired Midland Purple ware, fabric MP2 (17)	*c*.1300-1550
MP2	Midland Purple ware 2 -? Ticknall, Derbyshire (17)	*c*.1375-1550

(1) Hebditch 1967-8
(2) Kilmurry 1980, Leach 1987
(3) Young *et al* 2005
(4) Hunter in McCarthy 1979, Northants CTS
(5) Rogerson and Dallas 1984
(6) Barley 1964, 1981
(7) Davies and Sawday 1999
(8) Haynes 1952, Vince 1984, Sawday 1991, Davies and Sawday 1999
(9) V. Nailor pers. comm./ Nailor & Young 2001
(10) Sawday 1998, Davies and Sawday 1999
(11) Mellor pers. comm
(12) Northants CTS
(13) McCarthy 1979, Brown 1993/4
(14) Redknap and Perry 1996
(15) Ratkai and Soden 1997.
(16) Mayes & Scott 1984
(17) Coppack 1980, Cumberpatch 2002/3

Table 44: The Medieval Pottery: fabric totals by sherd numbers, weight (grams) and EVES

Fabric	Sherds	%	Grams	%	EVE	%
LE – Leicester ware	6	0.08	71	0.04	0.1	0.09
ST3 – Stamford ware 3	382	5.34	4049	2.66	4.971	4.23
ST2 – Stamford ware 2	599	8.38	7468	4.90	9.624	8.19
ST1 – Stamford ware 1	160	2.24	1921	1.26	1.25	1.06
LI1 – Lincoln Kiln Type Shelly ware	13	0.18	209	0.14	0.105	0.09
LI2 – Lincoln Late Saxon Shelly ware	8	0.11	78	0.05	0.115	0.10
SN - St Neots/St Neots type ware	20	0.28	239	0.16	0.205	0.17
TH - Thetford ware/type ware	3	0.04	77	0.05		0.00
TO - Torksey ware/type ware	22	0.31	375	0.25		0.00
RS1-3 - Reduced Sandy wares	41	0.57	525	0.34	0.865	0.74
PM - Potters Marston ware	4932	68.99	115023	75.56	84.6595	71.45
SP1/2 - Splashed ware 1/2	18	0.25	270	0.18		0.00
SP3 - Splashed ware 3	335	4.69	7762	5.10	5.205	4.43
OS1/2 - Oxidised Sandy ware 1/2	123	1.72	2599	1.7	3.641	3.10

Fabric	Sherds	%	Grams	%	EVE	%
OL - Oolitic ware	2	0.03	77	0.05	0.13	0.11
CS - Coarse Shelly ware	140	1.96	2935	1.93	2.975	2.53
CO1/2 - Coventry ware 1/2	56	0.78	2274	1.5	2.08	2.38
LY4 - Lyveden/Stanion type ware 4	6	0.08	152	0.10		0.00
LY1 - Lyveden/Stanion type ware 1	5	0.07	57	0.04		0.00
CC1 - Chilvers Coton ware 1	159	2.22	3948	2.59	0.77	0.66
CC2 - Chilvers Coton ware 2	2	0.03	22	0.01		0.00
CC5- Chilvers Coton ware 5	2	0.03	60	0.04		0.00
NO1 -3 Nottingham ware 1 -3	82	1.14	1582	1.03	0.465	0.39
BR2 - Brill/Boarstall ware/type 2	1	0.01	12	0.01		0.00
MS1/2 - Medieval Sandy ware1/ 2	23	0.32	299	0.19	0.325	0.28
MS3/8 - Medieval Sandy ware 3/8	7	0.10	128	0.08		0.0
MP2 - Midland Purple ware 2	3	0.04	64	0.04		0.0
Totals	7150	100	152276	100	117.4855	100.00

The Pottery from Selected Groups by Phase and Plot

An attempt has been made to analyse a representative sample of the pottery from the relevant Insula, the streets and the plots in phases 7 to 9. It is hoped that this will help to refine the chronology and enhance our understanding of the topographic development of this hitherto largely unexamined area in the north east quarter of the medieval town.

Phase 7

Above Insula V (Figure 50: illus. 1, 3-5 & 7-10)

Groups G441, G559, G1482 (Pits)
Group G780 (Soil)
Assemblage: 262 sherds, 2659 grams, 2.136 EVEs, 10.14 grams ASW.

Table 45: The Medieval Pottery: the phase 7 medieval pottery above Insula V, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	252	96.1	2521	94.8	1.956	91.5
LI1 - Lincoln	1		4			
LI2 - Lincoln	1		4			
SN – Saint Neots	7	2.6	59	2.2,	0.05	
OL - Oolitic	1		71			
Totals	262		2659		2.136	

The coarse Stamford ware, ST3 accounts for 96% of the 262 sherds in this assemblage, most of which were from the pit, G559. The four everted and lid seated jars, in ST3, Kilmurry forms 2 and 3 (Kilmurry 1980), in this context, date from the 10th and 11th centuries. Also present in G559, in the same fabric, were two bowl rims in ST3, one inturned, the other a rim too fragmentary to identify but with triangular rouletting on the flange, and a crucible, Kilmurry form 19 (*ibid* 1980). A bowl with an inturned rim in Saint Neots ware/type ware and possibly residual fragments of Lincoln Kiln type and Lincoln Late Saxon Shelly wares, dating from the late 9th or 10th centuries (Young *et al* 2005), were also found in the backfill of the pit.

The rest of the ST3 assemblage from G441, G1482 and G780 comprised two collared jar rims possibly dating from the later 11th or 12th centuries, and the wall of a storage jar decorated with thumbed clay strips, Kilmurry's surface modifier, M62, (Kilmurry 1980) under a thick olive-green glaze. Twenty six sherds from the body of an externally sooted vessel, probably a cooking pot were found in the same fabric. The everted and squared rim of a jar in the Oolitic ware, OL, which is dated to the 11th and 12th centuries at Lincoln (Young *et al* 2005, 123), was also present in G780.

Above the Eastern Street (Figure 50: illus. 2 & 6)

Groups G589, G1029, G1403 (Pits)
Assemblage: 18 sherds, 330 grams, 0.435 EVEs, 18.3 grams ASW.

Table 46: The Medieval Pottery: the phase 7 medieval pottery above the Eastern Roman Street by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	14	77.7	207	62.7	0.435	100
LI1 - Lincoln	2	11.1	26	7.8		
TO – Torksey/type	1		91			
PM – Potters Marston	1		6			
Totals	18		330		0.435	

The coarse Stamford ware, ST3, accounts for fourteen of the eighteen sherds in this small group. The identifiable vessels, two ST3 bowls, Kilmurry forms 1-3 and 1-17 (Kilmurry 1980), the latter with rectangular rouletting on the upper flange, together with a lid seated jar, Kilmurry form 3-12, which is dated from the 11th century at Stamford (*ibid* 1980, 136, 138).

A tiny fragment of Potters Marston also occurred in G1403, the patchy oxidation and reduction on the surfaces and the thin wall is typical of early examples of this ware which is thought to date from the late 11th or early 12th centuries. This pottery has been used to separate out the phase 7.03 material from the earlier phases of pottery at Freeschool Lane where its appearance coincides, as here, with the first occurrence of the Oolitic war, fabric OL. Two residual sherds of Lincoln Kiln type Shelly ware dating from the late 9th or 10th centuries are also present.

Both these groups of pottery in phase 7 came from features close to the line of the Roman street in the southern part of the site, G1403 actually cutting the street. The exception was G1482, which lay above the northern part of Roman Building G.

The four sherds of Lincoln Kiln Type Shelly ware and Lincoln Late Saxon Shelly ware, and the seven sherds of Saint Neots ware or type ware, from the pits above Insula V and the features above the Eastern Street, possibly relate to earlier agricultural activities on the site such as manuring. These sherds may date from as early as the late 9th or 10th centuries. The 231 sherds from the pit G559, which was not, unfortunately, completely excavated and the 26 sherds, probably all from one pot in G441, provide continuing evidence of activity in the area into the 11th or 12th centuries.

Phase 8.1

Beneath St Michael's Lane (subsequently Elbow Lane)

Group G900 (Soil)
Groups G1126, G1128, G1130, G1139 (Quarried Wall Footings)
Groups G1133, G1135, G1137, G11409 (Pits)
Assemblage: 134 sherds, 1990 grams, 2.046 EVEs, 14.6 grams ASW.

Interestingly, only one fragment of residual late Saxon Shelly ware, fabric LI2, is present, whilst the white bodied sherd of coarse Stamford ware, fabric ST3, could date as late as the 12th or even the early 13th century. The fine Stamford ware, ST2, accounts for 20.8 % of the assemblage by sherd count, the three identifiable vessels in this fabric, a jug body sherd, the glazed rim of a spouted pitcher and a dish or bowl, possibly Kilmurry's form 15 (Kilmurry 1980) probably dating from the mid- 12th century. The rim of the latter is not paralleled at Stamford; similar bowls which were also not recorded in Kilmurry's typology are known at Lincoln (Young *et al* 2005, fig.86.585-587, 93).

Typically for early medieval Leicester, Potters Marston was dominant in every group, accounting for over 60 % of the totals by sherd count and weight. Jars were the most common vessel type, chiefly in Potters Marston, with the cylindrical profiles typical of 12th-century examples of this ware (Davies and Sawday 1999, fig.88.27, 36, 41-45, fig. 89.51, 54 and 57) and shouldered vessels possibly dating to the mid- or later 12th century, (*ibid* 1999, fig.89.56 and 61). Little decoration was in evidence save on Potters Marston, with body sherds decorated with incised or combed horizontal lines and a single example of rectangular rouletting, and rims with thumbing or thumb nail impressions. Minor wares comprise the local Splashed ware, SP3, the fine Nottingham Splashed ware SP2, dated from *c.*1100 to *c.*1180 at Nottingham, and Reduced and Oxidised Sandy wares, including a simple everted jar rim in OS1, and a jug with rouletted decoration on the body in OS2. A sherd of the Chilvers Coton fabric CC2, dating from the mid-13th or 14th century was discounted as intrusive in G1128.

Table 47: The Medieval Pottery: the phase 8.1 medieval pottery beneath St Michael's Lane (subsequently Elbow Lane) by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	28	20.8	299	15.0	0.185	
ST1 - Stamford	1		1			
LI2 - Lincoln	1		4			
RS – Reduced Sandy	1		23			
PM – Potters Marston	82	61.1	1316	66.1	1.261	61.6
SP2 – Nottingham Splashed	2		28			
SP3 – Leicester Splashed	5		80			
OS1/2 – Oxidised Sandy	14		239		0.6	
Totals	134		1990		2.046	

The pottery evidence suggests that the pitting overlying Buildings C and E and the robbing of some of the Roman walls were indeed contemporary activities, dating to the 12th century and both pre-dating the establishment of St Michael's Lane, though no joining sherds were noted between the two groups. The paucity of earlier residual ware from these assemblages, and from the soil G900 on the northern side of St Michael's Lane, is of note and may suggest that there was little activity in the area prior to this phase.

Beneath the Line of the Possible Southern Street (Vine Street)

Groups G239, G240, G246, G1290 (Quarried Wall Footings)
Groups G235, G1291 (Pits)
Assemblage: 116 sherds, 1859 grams, 1.010 EVEs, 16.0 grams ASW.

The bulk of this assemblage, 85 sherds weighing 1377 grams, came from the only partially excavated pit G325 above Building G. No pottery was found in the related pits G592, G879, G880 and G1291 and the rest of the material came from the quarried wall footings listed above. The Coarse Shelly ware, fabric CS, is thought to date from the 12th century, whilst Potters Marston jar rims, generally associated with early cylindrical profiles were common (Davies and Sawday 1999, fig.88.36 and 45, fig.89.52), but also

those more often associated with shouldered profiles (*ibid* 1999, fig.89.53, 59 and 60). Several jug fragments in Potters Marston and the Splashed ware fabric SP3, a spouted pitcher in the fine Stamford ware ST2, and twelve sherds in the very fine Stamford fabric ST1; including at least two in the Stamford fabric C (Kilmurry 1980, 133), and a sherd in the Coventry D ware, fabric CO1, suggest a terminal date some time after the mid or later 12th century for this group.

Table 48: The Medieval Pottery: the phase 8.1 medieval pottery beneath the line of the possible Southern Street (Vine Street), by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	1		21		0.15	
ST2 - Stamford	4		46		0.10	
ST1 - Stamford	12		117			
LI2 - Lincoln	1		16			
PM – Potters Marston	88	75.8	1509	81.1	0.76	75.2
SP3 – Leicester Splashed	6		87			
CS – Coarse Shelly	2		11			
CO1 - Coventry	2		52			
Totals	116		1859		1.010	

Once again there is a notable absence of obviously residual earlier material here, save for a rouletted body sherd in the Late Saxon Shelly ware, LI2, in G235. The pottery dates suggest a similar *terminus post quem* for the establishment of the possible southern street to that for St Michael's Lane noted above.

Beneath Plot 2

Group G259 (Quarried Wall Footings)
Group G1076 (Pit)
Group G1083 (Post Hole)
Assemblage: 21 sherds, 291 grams, 0.145 EVEs, 13.8 grams ASW.

In the absence of more convincing evidence a 12th century date for the robbing in this part of the Roman Building G, in G259, can only be suggested by the two sherds in coarse and fine Stamford ware, fabrics ST2 and ST3. A convex knife trimmed base, probably from a cooking pot or jar, in Potters Marston may be of a similar date.

The nine sherds from the pit G1076 included a fragment of late Saxon Lincoln Kiln Type Shelly ware, LI1, an abraded Potters Marston jar rim similar to vessels at Causeway Lane (Davies and Sawday 1999, fig.88.34), and seven other Potters Marston sherds, including a convex base. A collared jar rim (*ibid* 1999, fig.88.30) was amongst the eight Potters Marston sherds in the pit G1083 together with a fragment in the Stamford fabric ST2. A terminal date in the 12th century date is also suggested for this group.

Table 49: The Medieval Pottery: the phase 8.1 medieval pottery beneath plot 2, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	1		2			
ST2 - Stamford	2		8			
LI2 - Lincoln	1		3			
PM – Potters Marston	17	80.9	278	95.53	0.145	100
Totals	21		291		0.145	

Beneath Plot 3

Groups G230, G243, G701, G737, G738, G742, G743, G745, G746, G747, G762, G824, G828 (Quarried Wall Footings)
Groups G670, G733 (Pits)
Assemblage: 325 sherds, 5977 grams, 13.76 EVEs, 18.3 grams ASW.

Only two sherds in the Stamford ware fabrics ST1 and ST2 and seven sherds in Potters Marston were found in the pit G733. Similarly, the pit G670 produced few identifiable vessels save two Potters Marston jars dating from the 12th century (Davies and Sawday 1999, fig.88.27 and fig.89.56) and a

Stamford ware, fabric ST3, pedestal vessel, probably a dish, dating from the 10th to 12th or, possibly, the 13th centuries, (Kilmurry 1980, 141).

Table 50: The Medieval Pottery: the phase 8.1 medieval pottery beneath plot 3, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	2		24			
ST3 - Stamford	9		107		0.260	
ST2 - Stamford	65	20.0	737	12.3	0.800	5.8
ST1 - Stamford	13		82		0.120	
LI1 - Lincoln	2		26			
SN – Saint Neots	2		7			
TO - Torksey	3		29			
RS1 – Reduced Sandy	10		99		0.125	
PM – Potters Marston	179	55.0	3923	65.6	11.735	85.2
SP3 – Leicester Splashed	25		563		0.515	
OS1 – Oxidised Sandy	4		104		0.140	
CS – Coarse Shelly	1		66		0.065	
CO1 - Coventry	10		150			
Totals	325		5977		13.760	

Virtually all of the pottery in this phase and plot came from the back fill of the robber trenches. Groups of more than twenty sherds were only recovered from trenches G701, G745, G746 and G824, and the pit G670, and over 42% of the pottery by sherd count came from one trench, G745, where the material had an average sherd weight of 17.9 grams**.**

Approximately 55% of the assemblage by sherd count was in Potters Marston with a relatively high average sherd weight of 21.9 grams. Jars, chiefly in Potters Marston, were the most common vessel type, accounting for 11.195 EVEs. Many were only identifiable by their rims, but included typically 12th century forms (Davies and Sawday 1999, figs.88 and 89), one being particular common (*ibid* 1999, fig.88.34). However, a number of these vessels had rims associated with shouldered profiles (*ibid* 1999, fig.89.53, 56 and 60) or the upright moulded rims thought to be later in the sequence (*ibid* 1999, fig.90.68 and 76). A minimum of four Potters Marston jugs were present including a jug neck and other vessels paralleled at Causeway Lane, (*ibid* 1999, fig.93.106 and 111, fig.94.121), and a dripping dish (*ibid* 1999, fig.93.103) in the same ware, perhaps dating to the later 12th or possibly the early 13th century. A Coarse Shelly ware bowl similar to vessels found in fabric T2 at Northampton may be have a similar date range to the latter (McCarthy 1979, fig.99.582 and 590). A mid or later 12th century date is suggested by an upright bowl with a horizontal flange in the Splashed ware fabric, SP3, whilst other regional imports included twelve sherds of Coventry A ware, fabric CO2, dating from *c.*1100 to *c.*1400. At least three spouted pitchers in the Stamford fabrics ST2 and ST3 and a ST3 pedestal dish, together with thirteen sherds in the Stamford fabric ST1 were also identified. The latter included a sherd in fabric C dating from *c.*1150 and a jug rim possibly dating from the later 12th century. A small fragment of Potters Marston ridge tile, probably dating to the early 13th century, occurred in the backfill of the robber trench G701.

Residual late Anglo Saxon or Saxo Norman pottery included two sherds tentatively identified as Leicester ware, fabric LE, and fragments of Lincoln Kiln Type Shelly ware, and Saint Neots and Torksey type wares

Beneath Plot 4

Groups G550, G1044, G1077 (Pits)
Assemblage: 125 sherds, 3501 grams, 2.345 EVEs, 28.0 grams ASW.

Over 60% of the assemblage by sherd count came from G550, but Potters Marston was the dominant ware in both this and G1044, accounting for over 71% of the sherd totals from the two pits, followed by the Stamford fabrics ST1 and ST2, which made up another 21% of this assemblage. A few fragments in Coarse Shelly ware and the Coventry fabric CO1, together with a jar rim in the Oxidised Sandy ware,

OS1, were also identified. The Stamford ware vessels included a handle from a spouted pitcher in ST3, with thick yellow glaze, Kilmurry's glaze 4 or 6, typical of the 10th and 11th centuries at Stamford (Kilmurry 1980, 12, 124) and possibly residual here, and a form 1 bowl, and lid seated and collared jar rims in ST2. Five 12th or possibly early 13th century jars with cylindrical and shouldered profiles together with three bowls with upright or everted rims were recorded in Potters Marston.

Table 51: The Medieval Pottery: the phase 8.1 medieval pottery beneath plot 4, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	1		76			
ST2 - Stamford	24	19.2	234	6.68	0.40	17.0
ST1 - Stamford	2		11			
RS1 – Reduced Sandy	1		6		0.07	
PM – Potters Marston	82	65.6	2934	83.8	1.625	69.2
SP3 – Leicester Splashed	3		61		0.10	
OS1 – Oxidised Sandy	9		143		0.15	
CS – Coarse Shelly	2		31			
CO1 - Coventry	1		5			
Totals	125		3501		2.345	

The pit G550 produced pottery with an unusually large average sherd weight of 34.1 grams the highest amongst the pottery groups in this phase. This group also contained an uncommon Potters Marton vessel type, previously only identified at the site of medieval tenements above the Roman forum (accession numbers A302 1971 7057 and A295 1973 6373), and in area 1 on the Freeschool lane excavations, the rim and handle from a spouted pitcher**.** The pit contents were also relatively unusual in that they included four Potters Marston storage jars (Davies and Sawday 1999, fig.88.37, 39 and 53), all had thumbing on the exterior rim, and one was also decorated with clay strips. Two jar rims in the Reduced Sandy ware, fabric RS1 and the Splashed ware, SP3 were also present. A single sherd of the Splashed ware, SP3, occurred in the pit G1077, whilst no finds were recovered from the soils G591 covering the land formerly designated as Insula XI.

Beneath Plot 5

Group G537 (Quarried Wall Footing)
Assemblage: 14 sherds, 231 grams, 0.235 EVEs, 16.5 grams ASW.

Table 52: The Medieval Pottery: the phase 8.1 medieval pottery beneath plot 5, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	4		24		0.135	57.44
ST2 - Stamford	2		6			
PM – Potters Marston	7	50.0	168	72.7	0.10	
SP3 – Leicester Splashed	1		33			
Totals	14		231		0.235	

A Potters Marston jug with a cylindrical profile (Davies and Sawday 1999, fig.88.34), a Splashed ware, fabric SP3, jug neck, decorated with rilling and rectangular rouletting under a bright orange glaze and two sherds in the fine Stamford ware, ST2, make up the bulk of this small assemblage dating from the mid-12th century. A number of thick walled, oxidised Potters Marston sherds of unknown vessel type, suggest a terminal date in the later 12th or early 13th century for the group as a whole.

Two jars including a lid seated vessel dating from the 11th century and an abraded rouletted bowl rim in the coarse Stamford ware ST3 are apparently residual in this context.

Beneath Plot 6

Groups G554, G555, G558 (Quarried Wall Footings)
Group G565 (Rebuilt Wall Footing)
Assemblage: 317 sherds, 4415 grams, 4.905 EVEs, 13.9 grams ASW.

Table 53: The Medieval Pottery: the phase 8.1 medieval pottery beneath plot 6, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE - Leicester	1		19		0.10	
ST3 - Stamford	35		380		0.445	
ST2 - Stamford	47	14.8	491	11.1	0.610	12.4
ST1 - Stamford	20		190			
LI 2- Lincoln	1		18		0.04	
PM – Potters Marston	175	55.2	2885	65.3	3.475	70.8
SP3 – Leicester Splashed	10		146		0.110	
OS2 – Oxidised Sandy	3		13		0.045	
CS – Coarse Shelly	15		143		0.08	
CO1 - Coventry	6		80			
CO2 - Coventry	4		50			
Totals	317		4415		4.905	

Most of the pottery came from the robber trench G558 within the Roman Building F, this assemblage representing 68% of the totals, by sherd count, and over 76% by weight. Fifty-three sherds were recovered from within the two walls in Group G565, which has been interpreted as a possible small stone structure built within the robbed foundation trenches of the Roman Building G. The size of this assemblage certainly supports the idea of occupation in the vicinity.

The Stamford ware fabrics ST2 and ST3 occurred in every group, as did the fine Stamford ware ST1, save in G554. Similarly, Potters Marston was also found in all the groups save G554. Over 55% of the pottery by sherd count, was in this ware, with 12th-century cylindrical jars the dominant vessel form (Davies and Sawday 1999, fig.87 and fig.88), only two jars with shouldered profiles occurring in G558 (*ibid* 1999, fig.89.56 and 60). Two Potters Marston bowls were also present, including a rim generally associated with upright profiles (*ibid*, fig.92.93). Decoration was limited to a few examples of thumbing and incised lines on jars and, in the case of one of the bowl, thumbed strips. Stamford ware jars decorated with inscribed and combed wavy lines were also common in fabrics ST1 and ST2, generally in Kilmurry forms 4 and 11 (Kilmurry 1980) dating from the 12th century. Part of a relatively unusual vessel, the base of an externally glazed globular cup, Kilmurry form 9, which is not closely dated, was also found in ST2 (*ibid* 1980). A similar vessel was found in plot 4 in phase 8.2. Very fine Stamford ware, fabric ST1, was found in every group save G554 as noted above. This fabric included a sherd in the developed Stamford ware fabric C and seven more sherds with copper glaze dating from *c.*1150 at Stamford, including a jug or tubular spouted pitcher. Other regional imports are represented by a few fragments in the Coventry fabrics CO1 and CO2, and the Coarse Shelly ware, fabric CS, one of the latter a jar of 12th- or possibly early 13th-century date (McCarthy 1979, fig.82.92) in G558.

Single sherds of residual late Anglo Saxon pottery in the possible Leicester ware, fabric LE, and an abraded inturned bowl rim in the Lincoln Late Saxon Shelly ware, LI2, thought to date from the late 9th or 10th century were found in G558. The coarse Stamford ware ST3, included two lid seated jar rims dating from the 10th or11th centuries in the same context.

Beneath Plot 7

Group G614 (Quarried Wall Footings)
Groups G655, G867 (Demolition Spreads)
Groups G249, G518, G617 (Pits)
Assemblage: 39 sherds, 531 grams, 0.629 EVEs, 13.6 grams ASW.

Only seven sherds of pottery were found in the features to the north of the plot. A jar with a simple everted rim in the Late Saxon Shelly ware LI2, possibly dating from the late 9th or 10th century, is residual in the demolition spread G867. The rest of the pottery: Potters Marston, Stamford, orange and green glazed Splashed ware and a thin walled sherd in a Reduced Sandy ware, dates from the 12th century. Identifiable vessels included a glazed spouted pitcher rim, Kilmurry form 5-25, and two handles, possible from similar vessels in the Stamford fabric ST2. The rims, but not the profiles of six Potters Marston jars (Davies and Sawday 1999, fig.88.28, 29, 32 and 35 and fig.89.60) and a bowl (*ibid* 1999, fig.92.93) are also present in this ware, which accounts for over 56% of the group by sherd count.

Table 54: The Medieval Pottery: the phase 8.1 medieval pottery beneath plot 7, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LI1 – Lincoln	2		16		0.075	
ST3 - Stamford	1		2			
ST2 - Stamford	10	25.6	89	16.7	0.05	
RS – Reduced Sandy	1		7			
PM – Potters Marston	22	56.4	358	67.4	0.504	80.12
SP3 – Leicester Splashed	3		59			
Totals	39		531		0.629	

Phase 8.2

St Michael's Lane (Subsequently Elbow Lane)

Group G1141 (Ditch)
Assemblage: 40 sherds, 648 grams, 0.485 EVEs, 16.2 grams ASW.

Table 55: The Medieval Pottery: the phase 8.2 medieval pottery beneath St Michael's Lane (subsequently Elbow Lane), by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	1		26			
ST2 - Stamford	19	47.5	217	33.4	0.15	
ST1 - Stamford	1		11			
PM – Potters Marston	16	40.0	369	56.9	0.335	69.0
SP3 – Leicester Splashed	2		19			
CS – Coarse Shelly	1		6			
Totals	40		648		0.485	

The only finds associated with this phase came from the ditch on the northern side of St Michael's Lane. The 21 sherds in the Stamford ware fabrics ST1, ST2 and ST3 included seventeen from the upper half of a jar, Kilmurry form 4-55, and the strut from a tubular spouted pitcher with applied interlace decoration, Kilmurry's type M56, (Kilmurry 1980), the latter dating from the mid-12th to the early or mid-13th century. Four jars in Potters Marston (Davies and Sawday 1999, fig.88.27, 30 and 34) are possibly all of 12th century date. Fragments of Coarse Shelly ware and the Splashed ware fabric, SP3, both dating from *c.*1100, make up the rest of this group.

Within Plot 1

Group G898 (Soil)
Assemblage: 40 sherds, 266 grams, 0.165 EVEs, 6.65 grams ASW.

Table 56: The Medieval Pottery: the phase 8.2 medieval pottery in plot 1, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LI - Lincoln	4		71		0.105	63.6
ST2 - Stamford	7		22			
PM – Potters Marston	25	62.5	151	56.7	0.060	36.3
SP3 – Leicester Splashed	3		16			
OS1 – Oxidised Sandy	1		6			
Totals	40		266		0.165	

Most of the assemblage was made up of 12th-century body sherds in the Stamford fabric, ST2, Splashed ware, SP3, the Oxidised Sandy ware, OS1 and Potters Marston, some of the thicker walled and oxidised fragments in the latter possibly dating to the early 13th century. The identifiable vessels comprised a jar rim in Potters Marston (Davies and Sawday 1999, fig.89.54) and four sherds, weighing 71, grams from a residual late Saxon bowl, with rouletting on the rim flange in LI1, Lincoln Kiln type Shelly ware (Young *et al* 2005, fig.50.187).

Apart from 37 sherds intrusive in Roman phases, this group represented the only late Saxon and medieval pottery recovered from this small area to the north of the site.

Within Plot 2(Figure 50: illus. 17)

Timber Building 2
Groups G829, G1008, G1065, G1080 (Post-Holes)
Group G1301 (Beam Slot)
Groups G260, G764, G821 (Pits)
Assemblage: 304 sherds, 7426 grams, 6.024 EVEs, 24.4 grams ASW.

Table 57: The Medieval Pottery: the phase 8.2 medieval pottery in Timber Building 2 plot 2, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	18		265		0.550	
ST1 - Stamford	4		103			
SN – St Neots	1		10			
PM – Potters Marston	259	85.1	6576	88.5	4.959	82.3
SP3 – Leicester Splashed	7		171		0.110	
OS1/2 – Oxidised Sandy	3		60			
CS – Coarse Shelly	9		215		0.405	
CO1 - Coventry	2		20			
NO1 - Nottingham	1		6			
Totals	304		7426		6.024	

The 28 sherds from the post holes and beam slot associated with the timber structure included three jars, one with a shouldered profile, and a jug with decorative rilling at the neck in Potters Marston ware (Davies and Sawday 1999, fig.90.76, fig.93.116). These and relatively thick walled body sherds, vessel type unknown, in the same ware probably date from the mid- or later 12th or the early 13th century.

Over 85% of the sherds were in Potters Marston, with relatively small quantities of Stamford ware, fabrics ST1 and ST2, present. Shouldered Potters Marston jars were in evidence, (*ibid* 1990, fig.89.52, 53, 60-61, fig.90.67-68), together with storage jars (*ibid* 1999, fig.91.83-84) and jugs. Many of the latter were represented only by handle fragments, both rod and strap, and sometimes with thumbing along the sides or edges, and double or triple thumbing at the handle base. A few jug rims (*ibid* 1999, fig.92.93 and fig.93.105), thumbed jug bases (*ibid* 1999, fig.94, 120-121), part of a spout from a spouted pitcher were also recorded.. The latter is a relatively unusual Potters Marston vessel type, but a similar vessel was also found in plot 4 in phase 8.1, in area 1 on Freeschool Lane. A fragment of what may be a bowl rim, heavily sooted externally (*ibid* 1999, fig.92.93) was also identified in this ware, together with a number of rouletted body sherds of unknown vessel type.

The other identifiable vessels comprised jug fragments including a rilled neck in the Coarse Shelly ware fabric CS, (McCarthy 1979, fig.83.115-116) and the double thumbed base of a jug handle in the Oxidised Sandy ware, OS2. A rod handle with chevron decoration occurred in the Splashed ware fabric, SP3 (Davies and Sawday 1999, fig.95.139). Two jars in CS (McCarthy 1979, fig.82.90 and fig.85.173) may date from *c.*1200 and *c.*1250 respectively, whilst a tiny fragment in the Nottingham fabric NO1 is also thought to date from *c.*1250, but the undeveloped greenish yellow glaze may suggest that it is a relatively early example of this fabric. These later vessels were all found in context (5745) in the pit G260.

Approximately 88% of the pottery by sherd count came from the backfill of the two pits G260 and G764, the 136 sherds from G260 having an above average sherd weight of 28.8 grams and an EVEs of 3.970. Whilst a few sherds weighed ten grams or less, and were clearly residual, the relatively large average sherd weight appears to confirm that this material is probably secondary refuse associated with the occupation of the timber building**.**

Within Plot 3(Figure 51: illus. 20)

Group G834 (Post Hole)
Group G254 (Pit)
Assemblage: 186 sherds, 4122 grams, 3.09 EVEs, 22.16 grams ASW.

Only two sherds, weighing twenty grams, of 12th-century Potters Marston were recovered from the stone-lined storage or cess pit G251 which lay close to the masonry building and this material was not catalogued. Similarly, only forty-three pottery sherds were found in the six other pits within this plot, and of these G254 alone produced more than twenty sherds of pottery, and this assemblage of 185 sherds is discussed here. Over 62% of the pottery by sherd count was in Potters Marston, with the local Splashed ward, SP3, and the Stamford ware fabrics ST1 and ST2 and the Oxidised Sandy ware, OS2, making up the bulk of the remainder. Jars were the most common vessel type, with both cylindrical and shouldered profiles present, predominantly in Potters Marston, but also in SP3 (Davies and Sawday 1999, fig.94.134) and OS2. No Potters Marston jugs were recorded but the fragments from four glazed jugs were recovered

in SP3. Two spouted pitchers and at least one jug and the strut from a tubular spouted pitcher with applied interlace decoration in ST1 and ST2, give a terminal date in the later 12th or early to mid- 13th century for this group. A fragment of late Saxon Kiln Type Shelly ware, LI1, and sherds in the coarse Stamford ware, ST3, were also present.

Table 58: The Medieval Pottery: the phase 8.2 medieval pottery in plot 3, G254 and G834, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	2		9			
ST2 - Stamford	22		320		0.375	
ST1 - Stamford	16		187		0.380	
LI2 - Lincoln	1		12			
PM – Potters Marston	117	62.9	2939	71.3	1.890	61.1
SP3 – Leicester Splashed	14		269		0.260	
OS2 – Oxidised Sandy	14		386		0.185	
Totals	186		4122		3.090	

One sherd of Potters Marston dating from the 12th century in the post hole G834 was the only find associated with the separately fenced area postulated by the presence of a series of post holes to the west of the plot. Eight more sherds dating to the 12th or early 13th century were associated with the possible stone and gravel boundary footing G1078, and the Soil G825. These were not catalogued owing to the small size of the pottery assemblages

Within Plot 3

Masonry Building 1
Group G664 (Masonry Wall Footing)
Group, G668 (Trample or Earth Surface)
Assemblage: 44 sherds, 1034 grams, 0.60 EVEs, 23.5 grams ASW.

Table 59: The Medieval Pottery: the phase 8.2 medieval pottery in plot 3, Masonry Building 1 by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	1		53			
ST1 - Stamford	2		19			
PM – Potters Marston	33	75.0	729	70.5	0.580	96.6
SP3 – Leicester Splashed	3		147			
CS – Coarse Shelly	1		44			
CO2 - Coventry	1		20		0.020	
CC1 – Chilvers Coton	3		22			
Totals	44		1034		0.600	

Four sherds of pottery, weighing 33 grams, were recovered from within the footings of the Masonry Building, G664. Body sherds of Potters Marston and the Splashed ware, SP3, dating to the 12th or possibly the 13th century, occurred in contexts (5363) and (6604). A single fragment, weighing three grams, of the Chilvers Coton fabric CC1, dating from *c.*1240 or 1250 is possibly intrusive in an upper fill, context (5231).

The abraded base of a pedestal lamp, Kilmurry form 10, (Kilmurry 1980), in the Stamford fabric ST2 was amongst the remaining 34 sherds found in the occupation layer G668 within the building. The Potters Marston included a shouldered jar and another with an upright rim and a jug with cordons at the neck, (Davies and Sawday 1999, fig.90.69 and 71 and fig.93.117), together with thick walled body sherds. A Splashed ware, fabric SP3, jug had a rod handle with the incised chevron decoration typical of this ware (*ibid*, 1999, fig.95.139). This pottery could have a terminal date in the late 12th or early to mid-13th century, whilst two joining sherds of CC1 from the same context are possibly intrusive in this phase. Much of this pottery probably relates to occupation within the masonry building, but the fragmentary nature of this material suggests that the bulk of the original rubbish was disposed of elsewhere.

Within Plot 4 Possible Structure re-using Roman Footings (Figure 50, Figure 51: illus. 13-16 & 19)
Groups G549, G1026, G1043 (Pits)
Assemblage: 557 sherds, 13206 grams, 12.05 EVEs, 23.7 grams ASW.

Table 60: The Medieval Pottery: the phase 8.2 medieval pottery in a possible structure in plot 4, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	17		251		0.540	
ST2 - Stamford	85		1221		1.945	
ST1 - Stamford	14		163			
LI2- Lincoln	1		8			
PM – Potters Marston	378	67.8	9979	75.5	7.715	64.0
SP3 – Leicester Splashed	38		1067		1.29	
OS1/2 – Oxidised Sandy	19		464		0.390	
CS – Coarse Shelly	5		53		0.170	
Totals	557		13206		12.050	

No pottery was associated with the stone-lined storage or cess pit G546. The six sherds in the post hole G569, and a further nine sherds in the trample G599, associated with possible occupation within the footprint of the Roman structure to the east of the site, are all early medieval in date.

The bulk of this large assemblage, 348 sherds, weighing 7450 grams, came from the backfill of a group of pits, G1043, to the west of the structure, where several joining sherds from different contexts were identified. Over 160 sherds were also recovered from G1026 just to the south, which was not fully excavated. The remainder came from G549 in the southern half of the plot.

Collared jars, Kilmurry's forms 4 and 11, most commonly dated from the later 11th and 12th centuries occurred in G1043, in the coarse and fine Stamford wares ST3 and ST2, with only a couple of examples of the everted and lid seated types, Kilmurry's jar forms 2 and 3. The two latter are dated generally from the 10th and 11th centuries, although later examples are known (Kilmurry 1980). Other identifiable vessels in the same fabrics include three pedestal and one cresset lamp and two bowl rims, Kilmurry forms 10, 12, 14 and 20 (*ibid* 1980, figs.4 and 5).

Potters Marston accounted for between approximately 50% and 71% of the assemblages, by sherd count, from each of the pits, with jars in this ware the predominant vessel type. Most of these vessels are only identifiable by the rims and include many examples of types generally associated with cylindrical profiles. This suggests a degree of residuality here, as upright moulded rims associated with 13th century shouldered vessels are the most commonly identifiable form, notably in G1043. Three Potters Marston storage jars and single examples of a jug - a roughly thumbed rod handle - and a bowl in the same ware with wavy line decoration on the rim flange, occurred in G549 and G1043. Three shouldered jars are also found in the Splashed ware SP3, together with two rounded bowls similar to Potters Marston vessel types (Davies and Sawday 1999, fig.89.59, fig.92.92), and a jug and a pedestal lamp fragment in the same ware (*ibid* 1999, fig.95.144 and fig.96.164). A straight sided bowl and the pegged rod handle from a jug were also recorded in the Oxidised Sandy ware, OS2.

A range of table wares occurred in the fine Stamford ware, ST2, in G1043, including the rim of a pedestal cup and the remains of up to seven jugs or tubular spouted pitchers with various combinations of combed, applied decoration and stabbed decoration. Two of the identifiable tubular spouted pitchers, including a strut, were both decorated with interlaced clay strips, Kilmurry's surface modifier M56 and triangular stabbing, M13 (Kilmurry 1980, fig.73), whilst the latter vessel was also had a wide strap handle and body sherd with horizontal and curvilinear combing. A table ware fragment of unknown vessel type had an unusual decoration of rectangular grid stamps in a chequer board pattern, the latter not paralleled by Kilmurry at Stamford.

Highly decorated table wares, particularly jugs, are dated from the late 12th century at Stamford (Kilmurry 1980). The absence here of the very fine Stamford ware ST1, Kilmurry's fabric C (*ibid* 1980, 133) and the copper glaze often associated with the later phase of this industry at Stamford seems fairly typical of the traded Stamford wares in Leicester. These vessels and the lower half of a bung hole cistern and a dripping dish (Davies and Sawday 1999, fig.93.103) in Potters Marston suggest a terminal date

some time in the early to mid-13th century for this group as a whole. This date is supported by the presence of a fragment of SP3 ridge tile in (5026) G1043, thought to date from *c.*1200.

Within Plot 5

Group G539 (Pits)
Assemblage: 137 sherds, 2570 grams, 1.885 EVEs, 18.7 grams ASW.

Table 61: The Medieval Pottery: the phase 8.2 medieval pottery in plot 5, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	7		42		0.20	
ST2 - Stamford	6		38			
ST1 - Stamford	3		7			
PM – Potters Marston	110	80.2	2341	91.0	1.605	85.1
SP3 – Leicester Splashed	5		80		0.080	
CS – Coarse Shelly	4		44			
CO2 - Coventry	2		18			
Totals	137		2570		1.885	

Less than twenty sherds were recovered from the remaining pits in this plot, G538 and G1046, and these were not catalogued, whilst o pottery was recovered from the soil, G1047. Typically, Potters Marston accounted for over 80% of the assemblage by sherd count from G539, with cylindrical jars the most common form. However, a shouldered jar, and a dripping dish in the same fabric, both from context (1265) suggest a terminal date in the later 12th or early 13th century for this group**.**

Contexts (1023) and (1029) contained body sherds in Potters Marston, Splashed ware Coarse Shelly ware, and the very fine Stamford ware ST1, which could all date to 12th century. Possibly residual pottery in the coarse Stamford ware ST3 was also present in both contexts, and included a collared jar of late 11th or 12th century date and a lid seated jar dating from the mid or late 11th or the 12th centuries and some other tiny abraded sherds in the same fabric.

Within Plot 6

Group G562 (Possible Hearth Pit)
Groups G557, G561, G571 (Pits)
Assemblage: 182 sherds, 2931 grams, 1.835 EVEs, 16.10 grams ASW.

Table 62: The Medieval Pottery: the phase 8.2 medieval pottery in plot 6, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 - Stamford	2		27		0.055	
ST2 - Stamford	22		375			
ST1 - Stamford	2		13			
SN – St Neots	1		9		0.065	
TO – Torksey/type	1		4			
PM – Potters Marston	107	58.79	1596	54.45	0.935	50.9
SP3 – Leicester Splashed	42	23.07	802	27.3	0.505	27.5
OS1/2 – Oxidised Sandy	2		8			
CS – Coarse Shelly	2		64		0.220	
CO2 - Coventry	1		33		0.055	
Totals	182		2931		1.835	

Almost 60% of the totals by sherd count are in Potters Marston. The ware was the dominant in all three pit groups but was very fragmentary, and although jars in this ware were the most common identifiable vessel type, only three profiles survived and of these only one was shouldered. However a rouletted jug rim and neck in the same ware, (Davies and Sawday 1999, fig.93.108), and a part of a jug or tubular spouted pitcher in the Stamford ware, ST1, in the very fine fabric C with copper glaze, dates from at least *c.*1150, and quite possibly the later 12th or early 13th century. An inturned bowl rim in the Coventry

ware CO2, and two jars in the Coarse Shelly ware, CS, (McCarthy 1979, fig.81.52 and fig.82.91) may be of a similar date.

The four sherds, weighing 40 grams, from the possible hearth pit G562, comprised a Saint Neots ware/ type ware jar rim (McCarthy 1979, fig.80.17), a fragment of Torksey type ware with diamond rouletting, and a bowl, Kilmurry form 1 (Kilmurry 1980) with traces of rouletting on the rim flange, in the coarse Stamford ware ST3. This pottery probably dates from the 10th or 11th centuries and is apparently residual in a context which cuts the phase 8.1 quarried wall footings, G414 and G843.

Within Plot 7 – St Michael's Churchyard (Figure 51: illus. 18)

Group G250 (Possible Kiln-Pit), Group G1427 (Inhumations)
Group G236 (Trample), Groups G666, G994 (Pits)
Assemblage: 200 sherds, 4495 grams, 2.500 EVEs, 22.4 grams ASW.

Table 63: The Medieval Pottery: the phase 8.2 medieval pottery in St Michael's Churchyard, plot 7, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	8		80			
ST1 - Stamford	2		10			
PM – Potters Marston	188	94.0	4377	97.37	2.500	100
SP3 – Leicester Splashed	2		28			
Totals	200		4495		2.500	

A glazed jug or tubular spouted pitcher handle fragment, dating from the mid- 12th century, was the only medieval find in the possible kiln pit, G250, whilst a single sherd of Potters Marston, dating from the 12th or possibly the early 13th century occurred in the associated trample, G236. Five more sherds of Potters Marston, of a similar date range, including two jar rims (Davies and Sawday 1999, fig.88.33 and 56) and the neck from a jug, were in the soils surrounding the child burial SK30 in G1427.

Whilst only no pottery finds were directly associated with the possible structure to the north of the plot, G870, G894 and G1005**,** the remainder of the assemblage, 193 sherds, weighing 4350 grams, was found in the pits G666 and G994 close to the boundary with plot 6, with the bulk of the material, 161 sherds being recovered from the latter pit group. A total of 181 sherds of Potters Marston, accounted for over 94% of the assemblage from the two groups, and included a minimum of eighteen jars, with cylindrical and shouldered profiles present in approximately equal quantities.

Highly decorated vessels occurred in both pit groups. Four Stamford ware sherds in fabric ST2 from G994 are decorated with rectangular grid stamps, a similar decoration was noted on the Stamford ware in plot 4 in the same phase, whilst a Potters Marston jug strap handle in G666, has an unusual clay pad at the top of the handle which is covered in stamps, 10mm in diameter, with a cross in a circle motif. Three lines of stamps also run down the length of the handle, but these are only roughly punched into the surface, and the pattern is not always very clear. A similar if not identical stamp was noted on the shoulder of a Potters Marston jug from the site of medieval tenements above the Roman forum in Leicester, in a residual context (Leicester Museums Accession Number A295 1973 6369 dr.11/12). It might be though significant that this cross in a circle motif is found on a vessel near the church, but this type of decoration is also found on other wares, for example on large storage jars at Thetford, (Rogerson and Dallas 1984, fig.168.270), where there are no known religious associations. A sherd of the green glazed Splashed ware SP3 and two sherds in the very fine Stamford ware, ST1, one with copper glaze, dating from *c.*1150 are also present.

All the finds came from the south of the site save the few sherds of pottery associated with the G1427 inhumations. The pottery in the features to the south pre-dates the later burials in phase 9.1, providing a useful *terminus post quem* for the soil layers and associated inhumations.

Phase 8.3

St Michael's Lane (Elbow Lane)

Group G1142 (Metalled Surface), Group G1145 (Possible re-cut Ditch)
Assemblage: 9 sherds, 232 grams, 0.55 EVEs, 25.7 grams ASW.

Table 64: The Medieval Pottery: the phase 8.3 medieval pottery in St Michael's Lane (Elbow Lane) by fabric, sherd numbers and weight (grams)

Fabric	Sherds	Weight	%	Eves
ST2 - Stamford	3	60		0.415
ST1 - Stamford	1	6		
PM – Potters Marston	5	166	71.5	0.135
Totals	9	232		0.550

Only two sherds were recovered from G1142, the thumbed strap handle from a Potters Marston jug, and the copper glazed neck of a jug or tubular spouted pitcher in the very fine Stamford fabric ST1. These finds do suggest a *terminus post quem* of *c.*1150 for the metalled surface G1142, a useful if limited piece of dating evidence, as no finds occurred in the phase 8.2 spreads, G890, which lay below the surface.

The seven sherds in the backfill of the possible re-cut ditch: a jar and thin walled body sherds in Potters Marston, and two rims and a spout from two spouted pitchers in the Stamford ware, ST2, all date from the early or mid- 12th century. A bottle or a flask rim in ST2 was found in the same context. Flasks are uncommon and not closely dated, whilst bottles can date from the 10th century but only become numerous at Stamford in the late 12th and 13th centuries (Kilmurry 1980, 141). Whilst the identification of the latter vessel type is uncertain and the dating of the group as a whole is unclear, stratigraphically the finds in the re-cut of the ditch are later than those in the original ditch backfill, G1141 in phase 8.2, which contained pottery dating from the mid- or later 12th century.

Within Plot 2

Group G755 (Pits)
Assemblage: 45 sherds, 987 grams, 1.165 EVEs, 21.9 grams ASW.

Table 65: The Medieval Pottery: the phase 8.3 medieval pottery in plot 2, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	Weight	%	Eves
ST2 - Stamford	9	158		0.18
PM – Potters Marston	36	829	83.9	0.985
Totals	45	987		1.165

A single yellow glazed collared jar rim, Kilmurry form 4-41 (Kilmurry 1980) and a strap handle with double thumbing at the base, vessel type unknown, occurred in the Stamford fabric ST2. Five Potters Marston jars, three with cylindrical and one with a shouldered profile (Davies and Sawday 1999, fig.88.29, 34, 38 and 55) were also present. This small assemblage is dated by the Stamford ware from the mid 12th century.

These were the only finds in this phase which represented pitting across Roman Building G fronting on to St Michael's Lane, and is presumably associated with the continuing occupation of Timber Building 2.

Within Plot 3(Figure 51: illus. 21-22 & 24)

Groups G252, G826 (Demolition and Back fill of Stone Lined Storage/Cess Pits)
Group G238 (Robbed or re-cut Post Hole)
Groups G257, G749, G756, G757, G759, G826 (Pits)
Assemblage: 585 sherds, 13125 grams, 10.635 EVEs, 22.43 grams ASW.

Just over half of the assemblage came from the demolition and back fill of the stone lined pits, G252 and G826. Many joining sherds were found in the former, notably from PM jugs. Potters Marston generally dominated all the pit groups, save G257, accounting for between 97% of the 198 sherds in G252, and over 80% in G757 and G826, and between 43 and 64% of the sherd totals in G759 and G749. Jars, or storage

jars, generally in Potters Marston, were the most common identifiable vessel type, and shouldered examples occurred in every pit group, most often in Potters Marston, but also in Oxidised Sandy ware 2 and Splashed ware 3.

Table 66: The Medieval Pottery: the phase 8.3 medieval pottery from the pits and a post hole in plot 3, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE - Leicester	3		28			
ST3 - Stamford	3		26			
ST2 - Stamford	31		537		1.375	
ST1 - Stamford	5		54		0.110	
SN – St Neots	3		24		0.05	
TO – Torksey/type	15		216			
RS1 – Reduced Sandy	22		302		0.645	
PM – Potters Marston	428	73.1	10380	79.0	6.705	63.0
SP3 – Leicester Splashed	38		974		0.465	
OS1/2 – Oxidised Sandy	30		508		1.085	
OL - Oolitic	1		6			
CS – Coarse Shelly	4		59		0.200	
NO2 - Nottingham	1		6			
MS1 – Medieval Sandy	1		5			
Totals	585		13125		10.635	

In terms of dating evidence jugs, dating from *c.*1150, occurred in Potters Marston in G252, F257 and G759, whilst there was some evidence of jugs or tubular spouted pitchers of a similar date in ST1 and ST2 in G257. No jugs were found in G749 but Potters Marston jars with upright moulded rims (Davies and Sawday 1999, fig.90.68 and 77) thought to date from the mid- or later 12th and into the 13th century were found in this context. A Splashed ware jug in the Nottingham fabric SP1 in G757 is dated *c.*1180-1250 at Nottingham. The latest material in G826 was a spouted pitcher in the Stamford fabric ST2, and a very fine sherd in ST1 in the Stamford fabric C, both dating from *c.*1150 to *c.*1250.

All of the pits in this group were in the north west quarter of the plot, save for two features in group G257. These lay immediately north of the Masonry Building 1 and their pottery assemblages, totalling 79 sherds, 1733 grams, with a fairly typical average sherd weight of 21.9 grams, are never the less, notably different from that in the rest of the plot. Potters Marston is not the dominant ware either in terms of sherd count or weight, the Oxidised Sandy ware, OS2, and the local Splashed ware, SP3, occur in equal quantities by sherd count, whilst SP3 is dominant in terms of weight, and OS2 is most common in terms of EVEs, which total 1.085. Identifiable vessels included a thumbed Potters Marston jug handle and storage jar, and an upright hammer headed bowl in OS2. However, typically, jars are the most common type in these fabrics with, most notably, a maximum of six of these vessels, all finely made and turntable finished in OS2. The majority have a simple everted rim (Davies and Sawday 1999, fig.97.170), with just one collared example. Most are externally sooted; some possibly post deposition, one with a line of sooting on the top of the rim suggesting that it was perhaps used with a cover or lid.

All the other pit fills seemed to share a broadly contemporary terminal date together with residual material. G757 in particular, although stratigraphically later than G826 contained some of the earliest pottery, single fragments of residual Leicester ware, fabric LE, and Saint Neots ware/type ware. However, G257 also contained two sherds weighing eleven grams in the Nottingham fabric NO2, and the Medieval Sandy ware MS1, in context (4683). The former was decorated with a 'transitional' over fired lead glaze, whilst the latter had yellowish green glaze and a fabric tempered with very small quartz inclusions, and may have been an early but fine example of the Chilvers Coton fabric CC1. This pottery is dated from *c.*1230, and from *c.*1240 or *c.*1250 respectively, at Nottingham and Chilvers Coton. Context (4684) also contained three fragments, 397 grams of medieval ridge tile, in the Splashed ware fabric, SP3, one of the first of the ridge tile fabrics to appear in Leicester during the early or mid- 13th century.

This phase sees the abandonment of the stone lined cess pits used in the previous phase, (G251 and G819) and the re-organisation of the plot. However, the repositioning of the pits within the formerly vacant area

to the west suggests some continuity of occupation and seems to demonstrate a deliberate decision to avoid re-using the site of the original pits in phase 8.2.

Within Plot 3, Masonry Building 1

Group G665 (Rebuilt Wall within Building 1)
Group G671 (Trample)
Groups G674, G677 (Possible Trample or Earth Surfaces)
Group G702 (Internal Feature)
Assemblage: 23 sherds, 214 grams, 0.200 EVEs, 9.30 grams ASW.

Most of the pottery, twenty sherds in all, was retrieved from the rebuilt wall, G655, and the trample or earth surface, G677, Potters Marston, dating from the 12th or early 13th century, being the most common find. A Potters Marston bowl rim in G665, a variant on a type found at Causeway Lane, Leicester, (Davies and Sawday 1999, fig.92.93), and a plain strap handle from a jug in Coarse Shelly ware, in G677, probably both date to the late 12th or early 13th century.

Single sherds occurred in G702, and G671, the handle from a spouted pitcher in the Stamford fabric, ST1, in G702 and a Splashed ware, fabric SP3, jug fragment in G671. These probably date from the 12th or early 13th centuries, with a terminal date of *c.*1250. The presence of this residual material here suggest that, rather than representing occupation refuse, the pottery was accidentally brought in with the soils used to re-surface the floors.

The recorded pottery is very similar to that found in the underling features in phase 8.2, and may be residual here. One sherd of the late Saxon Lincoln Kiln Type Shelly ware fabric LI1 was residual in (6001) in G665, and another possibly residual fragment of Torksey type ware occurred in a lower layer, context (6349), in the same group. No post Roman pottery was recovered from the remaining features in this group.

Table 67: The Medieval Pottery: the phase 8.3 medieval pottery from Masonry Building 1 in plot 3, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	1		5			
ST1 - Stamford	1		16			
LI1 – Lincoln	1		15			
TO – Torksey/type	1		8			
PM – Potters Marston	11	47.8	85	39.7	0.200	100
SP3 – Leicester Splashed	3		30			
OS1 – Oxidised Sandy	1		10			
CS – Coarse Shelly	4		45			
Totals	23		214		0.200	

Within Plot 4, Timber Structure 1(Figure 51: illus. 23)

Group G548 (Demolition and Re-Use of Stone Lined Storage Pit)
Group G547 (Probable Timber Structure)
Assemblage: 67 sherds, 1926 grams, 1.425 EVEs, 28.74 grams ASW.

Table 68: The Medieval Pottery: the phase 8.3 medieval pottery from plot 4, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	7		70		0.050	
ST1 - Stamford	5		29			
PM – Potters Marston	53	79.1	1806	93.7	1.375	96.4
OS2 – Oxidised Sandy	1		11			
MS2 – Medieval Sandy	1		10			
Totals	67		1926		1.425	

All the pottery, save for one sherd in G547, occurred in the backfill of the pit G548 whilst no post Roman material was recovered from the pit G1468. Joining sherds, primarily in Stamford ware, were noted

between contexts (1010), (1011) and (1018) within this group. The Stamford ware, ST1, included glazed body sherds with incised horizontal lines in the very fine fabric C, dating from *c.*1150. However, 40 of the 52 Potters Marston sherds in this group in contexts (1010) and (1082) came from three shouldered jars, (Davies and Sawday 1999, fig.fig.87.24, 89.53 and fig.90.68) and included a profile of the latter vessel. These jars probably date from early 13th century, their relatively large average sherd weight of over 39 grams, suggesting that they were secondary refuse. The overall range in size of the pottery fragments supports the notion that the feature may originally have been a storage pit, re-used as a cess pit, (M. Morris, pers. comm.) which was periodically emptied.

A fragment of relatively thin walled Potters Marston dating to the 12th or early 13th century was the only find in a post hole G547, interpreted as probably part of a timber structure. A green glazed wheel thrown sherd, weighing ten grams, in a Medieval Sandy ware, fabric MS2, was found in G548 in context (1010) one of the upper fills of the backfill of the pit. This sherd, possibly a coarse Nottingham ware, is dated from *c.*1230 or *c.*1240.

Within Plot 7, St Michael's Churchyard

Group G1012 (Pit)
Assemblage: 74 sherds, 1634 grams, 1.200 EVEs, 22.08 grams ASW.

Shouldered jars and storage jars in Potters Marston were the most commonly identifiable vessel type present, in an assemblage which was dominated by this ware. Several of the jars and a storage jar were decorated with inscribed horizontal or wavy lines on the inner rims. Another storage jar had a single line of diamond rouletting on the rim, and a jug was inscribed with wavy lines around the base of the neck, both were in Potters Marston.

The rim of a dish, Kilmurry form 15, (Kilmurry 1980) and three copper glazed sherds in the Stamford fabric ST1, at least one possibly from a jug or tubular spouted pitcher, were also present. This assemblage is dated from the mid or later 12th to the 13th century, the size of some of the individual Potters Marston sherds indicating the possibility that some of this material was secondary refuse.

Table 69: The Medieval Pottery: the phase 8.3 medieval pottery from Plot 7, St Michael's Churchyard, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	1		1			
ST1 - Stamford	5		56		0.100	
PM – Potters Marston	63	85.1	1417	86.7	1.100	91.6
SP3 – Leicester Splashed	3		113			
CO1 - Coventry	2		47			
Totals	74		1634		1.200	

Phase 9.1

St Michael's Lane (Elbow Lane)

Groups G897, G1138 (Pits)
Assemblage: 11 sherds, 323 grams, 0.390 EVEs, 29.3 grams ASW.

Table 70: The Medieval Pottery: the phase 9.1 medieval pottery from St Michael's Lane (Elbow Lane) by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves	%
ST3 - Stamford	1	4	0.050	
ST2 - Stamford	3	60	0.075	
PM – Potters Marston	6	225	0.265	67.9
NO2 - Nottingham	1	34		
Totals	11	323	0.390	

The five sherds, weighing 71 grams from the pits, group G897 which cut St Michael's Lane, included the rim from a cresset lamp in the Stamford fabric ST2 and a bowl rim, Kilmurry form 12, in ST3. Neither vessel is closely dated at Stamford, the latter first occurs from the late 11th century, but is also found in group 62 at Stamford Castle, which was dated originally from the late 13th (Kilmurry 1980, 94) but more probably has a terminal date in the early to mid-13th century. Two Potters Marston jugs were also found in the pits, including one with an inturned rim, a variant of a type recorded at Causeway Lane, (Davies and Sawday, fig.93.113). The other with a simple upright rim and an internal bevel, which may also date to the early or mid 13th century, weighed 78 grams and was evidently secondary refuse, perhaps associated the masonry structure G661 in plot 7, to the south.

Five sherds in Potters Marston including two jug rims, one with a strap handle below the rim together with a green glazed jug handle in the 'transitional' Nottingham fabric NO2, were found in the pit G1138, at the western end of St Michael's Lane. No finds were recovered from the soils G893 and G1146 which were associated with St Michael's Lane north of plot 7.

These pits, which cut through layers of soil into the lane below, are evidence of the decline of this east-west thoroughfare through the town, which is thought to have been replaced by Grape Street to the south.

Grape Street

Group G1030 (Slumped Street Surface)
Group G1485 (Soil Accumulation)
Assemblage: 7 sherds, 90 grams, 0.076 EVEs, 12.8 grams ASW.

The latest pottery is this small group is probably a sherd of the Chilvers Coton fabric CC2. The fabric equivalent at Chilvers Coton, fabric C occurs sporadically from *c.*1250, but becomes much more common during the 14th and 15th centuries at the production centre (Mayes and Scott 1984, 40-41). Potters Marston and two sherds in the Chilvers Coton fabric CC1 are also present; the latter includes a relatively highly fired fragment possibly dating from the later 13th century. These finds and possibly residual Stamford ware and an abraded jar rim in the Oxidised Sandy ware, OS2, are the only post Roman pottery finds recovered from layers directly associated with Grape Street, save for a single residual Potters Marston sherd in G1051, phase 9.02.

Table 71: The Medieval Pottery: the phase 9.1 medieval pottery from Grape Street, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	Weight	Eves	%
ST2 - Stamford	1	2		
PM – Potters Marston	2	20	0.75	98.6
OS2 - Oxidised Sandy	1	13	0.001	
CC1 – Chilvers Coton	2	40		
CC2 – Chilvers Coton	1	13		
Totals	7	90	0.76	

Within Plot 2

Group G831 (Lime Kiln Pit)
Group G882 (Quarried Wall Footing)
Groups G753, G771, G823, G836, G837, G838, G881, G886 (Pits)
Assemblage: 909 sherds, 23905 grams, 13.035 EVEs, 26.3 grams ASW.

Table 72: The Medieval Pottery: the phase 9.1 medieval pottery from plot 2, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	44		665		0.910	
ST1 - Stamford	12		297			
TH – Thetford/type	3		77			
PM – Potters Marston	746	82.0	20245	84.4	9.890	75.8
SP3 – Leicester Splashed	24		615		0.335	
OS1 - Oxidised Sandy	2		125		0.280	
CS – Coarse Shelly	44		1199		1.150	
LY1 – Stanion Lyveden	1		13			
CO1 - Coventry	2		124			
CO2 - Coventry	5		193		0.470	
CC1 – Chilvers Coton	15		141			
NO3 - Nottingham	6		158			
BR2 – Brill/Boarstall type	1		12			
MS2 – Medieval Sandy	3		72			
MP2 – Midland Purple	1		29			
Totals	909		23965		13.035	

Only fifteen sherds were recovered from the robbed well G687 including a fragment of Medieval Sandy ware, MS1, dating from *c.*1250. This small pottery assemblage was not catalogued and is not discussed further here.

The 147 sherds in the back fill of the lime kiln pit G831, predominantly in Potters Marston, included shouldered jars in the Coventry ware, CO2, (Redknap and Perry 1996, fig.14.34), the Oxidised Sandy ware OS1, Potters Marston, with upright moulded rims, (Davies and Sawday 1999.fig.90.68 and 78) and the Splashed ware, SP3, (*ibid* 1999, fig.90.68 and 78, fig.94.134), together with two Potters Marston storage jars, one decorated with inter crossing diagonal thumbed strips. Jugs included an abraded Coarse Shelly ware rim and another in the coarse Stamford ware, ST3, and a thumbed base in Potters Marston (*ibid* 1999, fig.93.108). More unusually, the foot of a Splashed ware, SP3, cauldron and a yellow glazed globular cup rim decorated with cordons and diamond rouletting, Kilmurry form 9 in the fine Stamford ware, ST2, (Kilmurry 1980, fig.57.1) were also present.

Most of this pottery dating from the 12th or 13th centuries, together with two abraded fragments, weighing fifteen grams, in the Chilvers Coton fabric CC1, dating from *c.*1240/50, was found in an upper fill, context (5731) of G831. Many of the sherds were sooted and/or burnt, or showed evidence of patches of oxidation or reduction – but neither this nor the range of vessel types - could be directly linked to any processes associated with the lime kiln before it was back filled.

The 22 sherds in the quarried wall footing, G882, included three jugs with dark green glaze, weighing 145 grams in the Nottingham fabric NO3. The dark grey interior of two of these sherds, and the decorative rilling on the other, the latter paralleled at Nottingham in group N12, dated to the 3rd quarter of the 13th century, (Coppack 1980, fig.72.149, Table 7) suggests a terminal date in the later 13th century for this small group.

Much of the pottery from the pits, 285 sherds, 6639 grams, was found in G771, but large assemblages of over 100 sherds were also recovered from G753, G823 and G837. Some of the earlier pottery included a copper glazed globular cup in the Stamford ware, ST1, and another sherd in the same ware in the very fine Stamford fabric C, both date from *c.*1150. The identifiable vessels in Splashed ware, SP3, were all jugs and included two rod handles decorated with diagonal slashing and thumbing and a simple everted rim with cordons at the neck. This ware is thought to have a terminal date of *c.*1250, and is probably residual in this phase.

Eighty four per cent of the 740 sherds from the pits were in Potters Marston, with a maximum of 26 shouldered jars, including another example of a shouldered jar with a moulded rim, (Davies and Sawday 1999, fig.90.67) weighing 96 grams, and a massive shouldered storage jar, the most common vessel form by EVEs, with a total of 7.725. Both of these vessels are probably secondary refuse. This is in contrast to the six cylindrical jars in the same ware accounting for an EVE total of only 1.115, and its seems likely that this latter material and the tiny assemblages from G838, G881 and G886, are residual in this phase. Only two straight sided or rounded Potters Marston bowls (Davies and Sawday 1999, fig.92.93) were present, whilst up to eighteen PM jugs were identified, mostly represented by thumbed strap handles or thumbed bases. The relatively high proportion of jugs and the fact that two of the sherds, including, the neck from a jug, were glazed, and that many of the rims were finely made and apparently finished on a turntable, suggests a date some time in the mid or later 13th and possibly into the 14th century for the ware.

A 13th or early to mid- 14th-century date is also suggested for the five Coarse Shelly ware jars (McCarthy 1979, fig.82.91 and 93), and for a jug rim, and thumbed and slashed jug strap handles, (*ibid* 1979, fig.83119, fig.85.178) in the same ware. A single fragment of Stanion Lyveden ware, LY1, decorated with an applied clay strip and rouletting and dating from *c.*1225 occurred in G753 (Bellamy 1983, fig.3.19). Body sherds in the Chilvers Coton fabric CC1, the Nottingham fabric NO3, the Brill Boarstall type ware BR2, and the Medieval Sandy ware fabrics MS and MS2, dating from the mid- 13th century were found in the pits G753, G771, G823, G836 and G837. A twisted rod handle from a pipkin, with a hooked profile in the Coventry fabric CO1 similar to a skillet handle at Coventry (Redknap and Perry 1996, fig.35.513) and weighing a sizeable 117 grams, occurred in G837. The latest pottery included a hard fired jug base in MS2 in G771 possibly dating to the 14th century, whilst a knife trimmed jar base in the Midland Purple fabric MP2, thought to date from *c.*1375 into the 15th century, is possibly intrusive in this context.

The assemblage represents refuse, some of it secondary, associated with the pitting around and Timber Building 2, and is evidence of the continuing occupation of the building in this phase. The assemblage includes a range of domestic vessels and regional imports, many highly decorated. The residual material, including the seven sherds from the backfill of the robber trench G682, which had possibly been re-used as a cess cess-pit, probably dated from the 12th century and may relate to the first phase of the timber building in phase 8.2 as, no doubt, does some of the residual material from the pits noted above.

The quarry G882, and the pits G881 and G886, cut through the line of the possible north south street thought to exist during phases 8.2 and 8.3, and hence provide a *terminus ante quem* for its decline.

Within Plot 6 (Figure 52: illus. 30-32)

Group G603 (Quarried Wall Footings)
Groups G588, G594, G637 (Pits)
Assemblage: 78 sherds, 3280 grams, 0.532 EVEs, 42.05 grams ASW.

The thirteen sherds from the backfill of the medieval robber trenches, G603, included an abraded pedestal dish in the fine Stamford ware ST2, a rare form at Stamford dating from the late 12th and early 13th centuries (Kilmurry 1980, 141), and a sherd in the Coventry fabric CO1, with combed horizontal and vertical lines, under an orange glaze, a decoration typical of this ware, fabric D, at Coventry (Redknap and Perry1976, fig.33), where it has a terminal date of *c.*1250. The latest pottery is a single sherd in a Medieval Sandy ware, MS2, with a speckled apple green glaze, probably dating from the mid-13th century.

The pottery from the remaining features in this plot, 65 sherds in all, included 31 with an average weight of 75.7 grams, from three highly decorated jugs, with baluster, conical and rounded profiles, in the Chilvers Coton fabric CC1, in context (100), the northernmost of two pits in G594. The southernmost pit in G594 also contained two sherds from jugs in the Oxidised Sandy ware OS1 and the Nottingham ware NO3, with an average sherd weight of just over 66 grams. This pottery which dates from the mid or later 13th century is clearly secondary refuse. Four relatively small fragments of Potters Marston were also recovered from both these features, whilst possibly residual Potter Marston and Splashed ware, fabric SP3 also occurred in the pit, G588, the latest material a PM shouldered jar (Davies and Sawday 1999, fig.90.67) with thumbing on the exterior rim and thumbed clay strips on the body of the vessel.

Table 73: The Medieval Pottery: the phase 9.1 medieval pottery from plot 6, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	9		114		0.050	
PM – Potters Marston	26	33.3	559	23.7	0.317	59.5
SP3 – Leicester Splashed	2		28			
OS2 - Oxidised Sandy	1		90		0.125	
CS – Coarse Shelly	1		14		0.040	
CO1 - Coventry	3		70			
CC1 – Chilvers Coton	33	42.3	2356	71.8		
NO3 - Nottingham	1		43			
MS2 – Medieval Sandy	2		6			
Totals	78		3280		0.532	

Within Plot 7 St Michael's Churchyard

Groups G228, G613, G887, G895, G896 (Soils)
Groups G1421, G1451, G1452, G1453 (Inhumations)
Group G681 (Quarried Wall Footings)
Assemblage: 205 sherds, 3439 grams, 3.70 EVEs, 16.77 grams ASW.

Ten sherds weighing 107 grams were recovered with the inhumations G1421, G1451, G1452 and G1453, north and south of the timber structure, G876. The only identifiable vessel types were a jar with a cylindrical profile in Potters Marston (Davies and Sawday 1999, fig.88.35), and part of a spout from a green glazed spouted pitcher in the local Splashed ware, SP3. This vessel type has not been previously identified in this ware, although similar pots are known in Nottingham Splashed ware (Nailor 2005, fig.110.794). Two glazed sherd in the Stamford fabrics ST2 are also present in this small assemblage which dates from the 12th century and may be residual in this phase.

It appears that the church was restored at this time and new floor levels inserted, and most of the assemblage came from the soils associated with this activity. However, only two sherds of residual pottery, Stamford and Potters Marston occurred in G896, and sixteen more predominantly residual sherds were recovered in G228, the latest find, an orange glazed Nottingham ware jug rim in NO2, a ware 'transitional' from Splashed ware and dating from *c.*1230, which overlay the quarried wall footing G681.

The largest group, 154 sherds, weighing 2618 grams, was found in the soils, G895, which capped the phase 8.2 inhumations G1426 and lay below the new mortared or granite footings to the church porch, G661 and G864. This group, G895, also extended north over St Michael's Lane, and possibly over the backfill of the pit, G897 in the same phase, which had cut St Michael's Lane, further evidence of the decline of the Lane in this phase. The residuality of much of the pottery from these soils, as with those noted above, is also evident here in the range of fabrics and vessel types present, which date generally to the 12th if not late 11th century, predominantly in Potters Marston. Most were jar rims associated with cylindrical profiles, (Davies and Sawday 1999, fig.88.21, 27, 28 and 34), and bowls, generally with early upright or rounded profiles, (*ibid* 1999, fig.92.90-94), with a notable absence of jugs in this ware. Potters Marston accounted for only just over 58% of the group by sherd count**,** with the Splashed ware fabric SP3 and the fine Stamford wares ST1 and ST2 accounting for another 25 % of the totals. At least two sherds in the Stamford fabric ST1 and a spouted pitcher in ST2 post dated 1150, and they and the Splashed ware have a terminal date in the mid 13th century.

The Chilvers Coton fabric, CC1, dating from *c.*1240/50 occurred in all soils save G228 and G896. Most were glazed body sherds, vessel type unknown, but probably jugs, although one rounded and semi vitrified body sherd in G895 may be part of a crucible. A glazed and white bodied Nottingham ware sherd in NO3, in G613, dates from the mid- 13th century, whilst a rilled jug neck with dark green glaze in the same fabric in G895, has light grey interior surfaces characteristic of vessels dating from the slightly later in the 13th century at Nottingham. A few shouldered Potters Marston jars, probably dating from the 13th century, (Davies and Sawday 1999, fig.88.47, fig.89.60 and 63) were also recovered from G887 and G895.

Ten sherds, predominantly in the glazed Chilvers Coton fabric, CC1, dating from *c.*1250 and including a jug handle decorated with stabbing in CC1 and, more unusually an internally glazed fragment, probably

from a bowl in CC5, were recovered from the quarried wall footing G681. This quarrying is thought to signal the demise of the north south street as a major thoroughfare across the site. A Potters Marston jug with a thumbed strap handle was also present in this context, (Davies and Sawday 1999, fig.93.105). No pottery was found in association with surfaces within the possible new porch, G581.

Table 74: The Medieval Pottery: the phase 9.1 medieval pottery from plot 7, St Michael's Churchyard, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	35		361		0.635	
TO - Torksey	1		27			
RS – Reduced Sandy	1		47		0.025	
PM – Potters Marston	118	57.5	2135	62.08	2.395	64.7
SP2 – Nottingham Splashed	2		11			
SP3 – Leicester Splashed	24		438		0.280	
OS1/2 - Oxidised Sandy	6		121		0.175	
CS – Coarse Shelly	3		27		0.08	
CO1 - Coventry	1		9			
CC1 – Chilvers Coton	10		183			
CC5 – Chilvers Coton	1		31			
NO2 - Nottingham	1		16		0.110	
NO3 - Nottingham	2		33			
Totals	205		3439		3.70	

Within Plot 8 to the east of the Plot(Figure 52: illus. 34)

Groups G563, G669, G686, G739 (Pits)
Assemblage: 603 sherds, 11540 grams, 6.22 EVEs, 19.1 grams ASW.

Table 75: The Medieval Pottery: the phase 9.1 medieval pottery from the eastern half of plot 8, (above former plot 3) by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	39		382		0.354	
ST1 - Stamford	12		275		0.325	
LI1 - Lincoln	2		64			
SN – St Neots	4		59		0.040	
RS1/3 – Reduced Sandy	3		35			
PM – Potters Marston	444	73.63	8787	7.14	4.296	69.0
SP2 – Nottingham Splashed	4		41			
SP3 – Leicester Splashed	38		882		0.790	
OS1/2 - Oxidised Sandy	7		174		0.075	
CS – Coarse Shelly	11		254		0.165	
LY4 – Stanion Lyveden	6		152			
CC1 – Chilvers Coton	14		226			
NO2 - Nottingham	1		4			
NO3 - Nottingham	8		89		0.175	
MS2 – Medieval Sandy	9		108			
MS3 – Medieval Sandy	1		8			
Totals	603		11540		6.220	

These features all lay within the eastern half of the plot. A single sherd of probably residual 12th century Potters Marston from G669 represented the only pottery found in the backfilling of the robbing of Masonry Building 1, which had evidently fallen into disuse at this time. However, a further 28 sherds, with a terminal date from the mid- or later 13th century, and not catalogued here, were recovered from a spread G684 and the backfill of a pit G703 within the building.

The bulk of the pottery came from two groups of pits; G686 to the north, and G563 to the south, the latter lay close to the possible line of Grape Street which is thought to have come into use in this phase, and cut the line of the projected north-south street across the site, indicating the abandonment of the latter at this

time. Over 73% of the totals by sherd count are in Potters Marston and almost a half of this total occurred in G563. The preponderance of Potters Marston jars with cylindrical profiles, and the absence of any jugs, suggests that many of the 275 sherds in G563 are residual in this phase. Stratigraphically this pit appears to be broadly contemporary with the quarrying of the Roman footings in G882 to the north in plot 2, which also cut the line of the projected north south street and was dated to the later 13th century. The only pottery here clearly dating from *c.*1240/1250 is a single sherd of the Chilvers Coton fabric CC1 in context (2441).

The remainder of the assemblage in the two pits, G686 and G739, both contained a significant proportion of 13th century Chilvers Coton, Nottingham and Medieval Sandy wares, mostly body sherds of unknown vessel type, but also fragments from a minimum of twelve jugs. These included a rim in NO3 (Young 2005, fig.145.1130) and the bases of two balusters in CC1 and MS2 respectively. One or more examples of shouldered Potters Marston jars occur in all the pits save G669, which contained a single unidentifiable sherd of PM. Potters Marston jugs, predominantly with simple everted rims (Davies and Sawday 1999, fig.93. 105-107) and thumbed bases (*ibid* 1999, fig.94.120-121), were also common, many decorated with rouletting or combed or incised lines on the body and slashed or stabbed handles. Four jugs, a jar and a simple everted bowl rim in the Splashed ware, fabric SP3, together with three bowls in Potters Marston (*ibid* 1999, fig.92.93, 96 and 97) were also present.

Two residual late Saxon Lincoln Kiln Type Shelly ware, sherds in LI1, and four Saint Neots ware/type ware sherds including a jar rim (McCarthy 1979, fig.86.213), occurred in G563, together with a crucible, Kilmurry form 16 (Kilmurry 1980, fig.16.12). This vessel and the traces of copper found on over 30 sherds of CC1 and Potters Marston in context (4551) in G686, together with quantities of copper slag found in the same context, are evidence of industrial activity, including metal working within the plot, further evidence of which was found in the backfill of the pit G1481 to the south west.

Within Plot 8 to the west of the Plot (Figure 51: illus. 25-27., Figure 52: illus. 28 & 33)

Groups G765, G767, G1481 (Pits)
Assemblage: 208 sherds, 5747 grams, 3.420 EVEs, 27.6 grams ASW.

Seventy five sherds were recovered from the partially excavated pit, G1481, which lay to the south-west of the plot close to the line of Grape Street which is thought to have come into use at this time. Jugs, including three in Potters Marston, were the most common identifiable vessel type. The group also included a Potters Marston dripping dish, and jugs in CC1 and the Nottingham fabric NO3, the latter dating from *c.*1225 or 1250 (Nailor 2005, fig.145.1132). Rather more uncommon, but not unknown in Leicester, was a sherd in the Chilvers Coton fabric CC5, which is also thought to date predominantly from *c.*1250 to 1300. A fragment of ridge tile crest in the local Splashed ware, SP3, probably dating from the early 13th century, was also found in this pit. The pit is thought to have had an industrial function, possibly related to the copper smelting and casting in plot 9, 14m to the south, although no traces of copper alloy slag were found on the pottery, unlike other finds from the same feature, which suggest that soil for backfilling the pit may have been moved here from the adjacent plot (M. Morris, pers. comm.).

Table 76: The Medieval Pottery: the phase 9.1 medieval pottery from the west half of plot 8, above former plot 4, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 - Stamford	11		73			
ST1 - Stamford	5		56		0.140	
PM – Potters Marston	148	71.15	4752	82.68	2.840	83.04
OS2 - Oxidised Sandy	1		13			
CC1 – Chilvers Coton	15		269		0.400	
CC5 – Chilvers Coton	1		29			
NO1 - Nottingham	2		12			
NO3 - Nottingham	24		530		0.040	
MS2 – Medieval Sandy	1		13			
Totals	208		5747		3.420	

Four vessels, including a jar rim and two more jars with cylindrical and shouldered profiles in PM, and the profile of a rounded bowl in CC1, made up the small assemblage of 72 sherds, from the square cut pit, G765. None of the vessels was complete but the presence of three profiles and the relatively high average

sherd weight of 26 grams makes this an unusual group. The pit to the north of G765, G767, contained 61 sherds, many also with an unusually large average sherd size. One sherd, part of a rim and handle weighing 271 grams, came from an uncommon vessel in Potters Marston, from what is thought to be a spouted pitcher. Eighteen sherds making up the profile of a possibly residual cylindrical jar (Davies and Sawday 1999, fig.88.35) and twelve more from a shouldered jar in the same fabric were also present, together with two sherds in the Medieval Sandy ware MS2, and the Nottingham fabric NO3 dating from the early or mid-13th century. Both these pits lay to the west of the plot close to land adjacent to All Saints Church, and may contain some secondary refuse associated perhaps with the church or later phases of the Masonry Structure 1, which was also situated close by, in what was formerly plot 4 in phase 8.3. The association with the church is perhaps confirmed by the presence of two industrial features G542 and G586 in this plot, evidently associated with metal working, whilst documentary sources indicate that the church underwent refurbishment and rebuilding in the later 13th century (M. Morris, pers. comm.) No pottery finds were directly associated with these two features.

Within Plot 9 (Figure 52: illus. 29)

Groups G543, G585, G1027 (Pits)
Assemblage: 738 sherds, 16937 grams, 11.448 EVEs, 22.9 grams ASW.

Table 77: The Medieval Pottery: the phase 9.1 medieval pottery from plot 9, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	37		373		0.720	
ST1 - Stamford	5		50		0.075	
SN – St Neots	1		5			
RS3 – Reduced Sandy	1		1			
PM – Potters Marston	601	81.4	13176	77.7	8.283	72.3
SP2 – Nottingham Splashed	7		173			
SP3 – Leicester Splashed	24		921		0.230	
OS1 - Oxidised Sandy	3		109		0.390	
CS – Coarse Shelly	21		550		0.310	
LY1 – Stanion Lyveden	2		32			
CO1 - Coventry	1		991		1.000	
CO2 - Coventry	5		153		0.255	
CC1 – Chilvers Coton	11		110			
NO1 - Nottingham	1		12			
NO3 - Nottingham	13		232			
MS2/3 – Medieval Sandy	5		49		0.185	
Totals	738		16937		11.448	

Most of the pottery, 424 sherds, came from the partially excavated pit, G585, lying on the south western edge of the excavation, Potters Marston was dominant, accounting for over 83% of these totals by sherd number from this feature, and for over 77% and over 79% of the totals for G543 and for G1027 respectively. Potters Marston jars were the major vessel type in all three pit groups, vessels with shouldered profiles being the most common, followed by jugs. Much of the latter was highly decorated, with inscribed and combed lines, rouletting, thumbing, stabbing and notching, and applied clay strips occurring as motifs. Residual pottery including 11th and 12th century Stamford wares occurred in all the pits, and a fragment of Saint Neots ware/type ware in G585.

Five sherds in the Coventry fabrics CO1 and CO2 included an unusual find, in CO1, a tubular spouted pitcher. The rim and a tubular spout survive, together with the scars from three handles. A hole has been bored into the rim prior to the firing of the vessel, to affix a lid, probably with a leather thong. Tubular spouts are also known at Coventry in the fabric equivalent, fabric D, (Redknap and Perry 1996, fig.33.491-492), which has a terminal date of *c.*1250. At least three sherds of 13th century wheel thrown sandy ware including the Chilvers Coton fabric CC1, the Nottingham fabrics NO1 and NO3 and the Medieval Sandy wares, MS, MS2 and MS3, are found in each of the pits, together with fragments of oolitic Stanion/Lyveden ware, fabric LY1, dating from *c.*1225 in G585 and G1027. However, some individual sherds have relatively large sherd weights, suggesting that at least some of this material is secondary refuse, for example at least two Potters Marston jar rims, in G585 (Davies and Sawday 1999, fig.89.52 and 90.72) weighed over 100 grams each, whilst the tubular spouted pitcher in the Coventry

ware, CO1, noted above, weighed 991 grams. These finds were, perhaps, associated with occupation on the Grape Street nearby or with All Saints Church to the west.

Phase 9.2

Grape Street

Group G1051 (Re-Surfacing)
Assemblage: 1 sherd, 2 grams, 0.00 EVEs, 2.0 grams ASW.

A single thin walled sherd of Potters Marston possibly dating from the late 11th or 12th centuries is residual in this context. However, the resurfacing of this street does appear to tie in with the suggestion that Grape Street replaces St Michael's Lane and becomes an east west thoroughfare through the north east quarter of the medieval town in this period (M Morris pers. comm.). This is further supported by the presence of a sherd of CC2, dating from *c.*1250 or possibly the 14th century in the stratigraphically earlier soils in phase 9.1 noted above, and by the evident decline of St Michael's Lane in the same phase.

Within Plot 2

Group G1483 (Pit)
Assemblage: 111 sherds, 2806 grams, 1.675 EVEs, 25.2 ASW.

Table 78: The Medieval Pottery: the phase 9.2 medieval pottery from plot 2, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST1 - Stamford	2		43			
PM – Potters Marston	84	75.6	2426	86.45	1.420	
SP3 – Leicester Splashed	2		24		0.055	
CS – Coarse Shelly	5		67		0.050	
LY1 – Stanion Lyveden	2		12			
CC1 – Chilvers Coton	9		121		0.150	
NO3 - Nottingham	4		57			
MS2 – Medieval Sandy	2		27			
MS8 – Medieval Sandy	1		29			
Totals	111		2806		1.675	

Over 75% of the totals by sherd count are in Potters Marston, with equal numbers of jars and jugs present. The former mostly have rim styles associated with early cylindrical profiles, only two shouldered vessels are identifiable. The jugs are represented not by their rims, but by strap and one rod handle, necks and one thumbed base (Davies and Sawday 1999, fig.94.120). A few sherds in Coarse Shelly ware and Splashed ware make up the rest of the coarse wares, much of which, together with two sherds of developed Stamford ware with copper glaze dating from *c.*1150 to 1250 is probably residual in this phase.

Two hand made and glazed sherds in the Stanion Lyveden ware LY1 date from *c.*1225. These, together with the wheel thrown sandy wares, including the Chilvers Coton fabric CC1, the Nottingham ware NO3 and the Medieval Sandy wares MS2 and MS8 dating from *c.*1240 or *c.*1250, and possibly into the early 14th century, make up the rest of the assemblage.

Within Plot 7

Group G885 (Spreads)
Group G607, G704 (Pits)
Assemblage: 10 sherds, 233grams, 0.355 EVEs, 23.3 grams ASW.

Table 79: The Medieval Pottery: the phase 9.2 medieval pottery from plot 7, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST2 - Stamford	2	33	0.075
ST1 - Stamford	1	31	
CC1 – Chilvers Coton	4	103	
NO1 - Nottingham	1	22	
NO3 - Nottingham	1	20	0.140
MS2 – Medieval Sandy	1	24	0.140
Totals	10	233	0.355

A residual glazed Stamford ware jar rim, and two glazed jug handles in the Chilvers Coton ware CC1, and the Nottingham ware NO1, were the only pottery finds from pit G885. The Nottingham handle is rod shaped with stabbing down the centre of the handle, neither features commonly found on Nottingham wares, (Coppack 1980), but it does have the dark green glaze characteristic of the 13th and 14th century Nottingham glazed wares.

A single sherd of the Chilvers Coton fabric CC1, with a mottled green glaze, and dating from *c.*1240/50 was the only post Roman pottery find in the pit group G607. Similarly, only six sherds were recovered from the backfill of the large pit, G704, within the south western corner of the plot**,** representing a minimum of four jugs in fabrics CC1, NO3, (Coppack 1980, fig.71.144), and MS2, dating from the mid or later 13th century. Two sherds in the Stamford fabrics ST2 and ST1 were also present, but no Potters Marston.

These finds represent the total pottery assemblage in this phase. In spite of the continued survival of be the church and the building of a new structure, G847, to the south of the site, the lack of pottery suggests that there was minimal activity here at this time as, in view of the open nature of the ground, it seems unlikely that any rubbish would have been removed elsewhere. The pottery was associated with soil layers lying above human charnel, and may provide a *terminus ante quem* for these internments, although the dating evidence is somewhat limited.

Within Plot 8

Groups G734, G735, G768, G770, G1296 (Pits)
Group G769 (Stone-Lined Pit/Cess Pit)
Assemblage: 227 sherds, 4395 grams, 2.42 EVEs, 19.3 ASW.

The 23 sherds from the back fill of the stone lined pit, G769, had a fairly high average sherd weight of 17.2 grams, as this included several relatively large Potters Marston jar fragments, but none of the pottery was primary refuse. Two shouldered jars and a jug in Potters Marston and thick walled body sherds in the same fabric all probably date from the 13th century; a *terminus post quem* some time after the mid-13th century for this small group of pottery is confirmed by the two sherds in the Chilvers Coton fabric CC1.

The cess pit cuts the pits G734 and G735, which contained predominantly Potters Marston, and also Splashed and Stamford wares. Much of this was residual, as G734 in particular, also produced four sherds in CC1, including one very hard fired example with a purple glaze, together with a brown glazed fragment of the Medieval Sandy ware MS3, and an orange glazed sherd of MS8, all probably dating to the 14th century. An under fired fragment of the Midland Purple ware, MP2 is dated from the later 14th, or possibly the early 15th century. A single sherd of early 12th century Potters Marston, dating to the 12th century, was the only medieval find in G1296, one of two isolated pits to the south east of the site.

Table 80: The Medieval Pottery: the phase 9.2 medieval pottery from plot 8, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	24		272		0.090	
ST1 - Stamford	5		33			
SN – St Neots	1		6			
RS1 – Reduced Sandy	1		5			
PM – Potters Marston	154	67.8	3630	82.59	2.250	92.9
SP2 –Nottingham Splashed	3		17			
SP3 – Leicester Splashed	5		70		0.080	
OS2 – Oxidised Sandy	1		2			
CS – Coarse Shelly	2		19			
CO1 - Coventry	2		26			
CC1 – Chilvers Coton	18		162			
NO2/3 - Nottingham	7		57			
MS3 – Medieval Sandy	1		52			
MS8 – Medieval Sandy	1		9			
MP2 – Midland Purple	2		35			
Totals	227		4395		2.420	

Eleven sherds were recovered from the backfill of the pit G768, all in Potters Marston, the only identifiable vessel being a jug with a simple upright rim and external bevel, (Davies and Sawday, 1999, fig.93.111). The pit to the south, G770, contained copper alloy slag and traces of this material had fused on to several sherds in Potters Marston and the Chilvers Coton fabric CC1 in the pottery assemblage. Eighty seven of the 129 sherds in this group were in Potters Marston, the only identifiable vessels in this ware being seven jugs (Davies and Sawday 1999, fig.93.108, 115-116, fig.94.120-121) and a dripping dish (*ibid* 1999, fig.93.104). Nineteen of the remaining sherds were in CC1 and the Nottingham fabrics NO2 and NO3, all in unidentifiable vessel types, with a possible terminal date in the later 13th century. Unusually thick residue, possibly lime scale, was noted on two of the Potters Marston sherds in G770 and one of the Nottingham ware sherds in G768.

Similar industrial activity was noted in plot 9 in phase 9.1 and both are thought to be associated with building works at All Saints church to the west. Approximately 180 more sherds, which were not catalogued, occurred within the pits G638, G683, G736 and G754, most were predominantly residual save for a few dating from the mid or later 13th century in G638 and G683.

Within Plot 9

Groups G590, G1484 (Cess Pits)
Assemblage: 169 sherds, 2665, 2.360 EVEs, .15.7 grams ASW

The bulk of the pottery, 125 sherds, came from the backfill of the cess pit G590, and much of this was residual in this phase, notably that from the layer context (1122) which contained only Potters Marston dating from the 12th and 13th centuries. Identifiable vessels in this ware included two sherds, weighing 148 grams, from a shouldered jar (Davies and Sawday 1999, fig.89.66) in one of the lower contexts, (1143). Part of at least three dripping dishes and an unusual vessel, a carinated bowl together with the rims from two jugs and a shouldered jar were also recorded in Potters Marston (Davies and Sawday 1999, fig.93.109). Jugs in Potters Marston, the Coventry fabric CO1, the Chilvers Coton fabric CC1 and the Nottingham ware, NO3 were also present. Some of the latest material came from an upper layer, context (1140), and included three sherds, weighing 199 grams, from a red bodied jug in NO3, with a dark green glaze and a splayed base, similar vessels at Nottingham dating from the 14th century (Coppack 1980, fig.79.177). The disparity both in the sherd weights and the date ranges of the pottery suggests that the cess pit was subject to periodic emptying.

Only forty four sherds were recovered from G1484, and the material was more fragmentary than that from G590. The only identifiable vessel types were a jar rim and a jug handle in Potters Marston and a jar rim in CS, Coarse Shelly ware probably dating from the 13th or early to mid 14th century (McCarthy 1979, fig.82.93).

Table 81: The Medieval Pottery: the phase 9.2 medieval pottery from plot 9, by fabric, sherd numbers and weight (grams)

Fabric	Sherds	%	Weight	%	Eves	%
ST2/3 - Stamford	7		26			
ST1 - Stamford	1		11			
PM – Potters Marston	118	69.8	1882	70.6	1.100	46.6
SP3 – Leicester Splashed	1		8			
CS – Coarse Shelly	3		24		0.040	
CO1 - Coventry	6		233		1.000	42.37
CC1 – Chilvers Coton	25		215		0.220	
NO3 - Nottingham	7		251			
MS3 – Medieval Sandy	1		15			
Totals	169		2665		2.360	

Discussion - The Pottery Fabrics and Forms

(see, Table 44 and Table 82; Figure 50-Figure 52)

A significant part of the assemblage, 1213 sherds, weighing 1487 grams and representing over 16% of the assemblage by sherd count but less than1% by weight, and approximately 13% by Eves, was in the late Saxon and Saxo Norman Leicester, Stamford, Lincoln, Saint Neots, Thetford and Torksey type wares. The Stamford wares dominated this assemblage accounting for 1141 sherds, with the remaining wares including the Lincoln Shelly wares and the Leicester ware occurring only as minor wares. The six sherds of Leicester ware were all residual in phase 8.1 in plots 3 and 6, and most of the remainder was also residual in phases 8 and 9.

The range of fabrics and vessel forms in the phase 7 assemblage (Table 45 and Table 46) is very similar to the small group of late Saxon and Saxo Norman pottery from Vaughan Way in that the coarse Stamford ware, ST3, Lincoln and St Neots wares were present in both assemblages and the identifiable vessel types on both were primarily made up of jars and bowls. Only six sherds Leicester ware were recovered and these are all residual in phase 8.1 in plots 3 and 6. Whilst the proportions of the wares are different, the range of fabrics and forms present overall, is not dissimilar to that from the somewhat larger phase 7 assemblage at Freeschool Lane.

Potters Marston accounted for over 68% of the site totals by sherd count and over 75 % by weight. Minor wares include the Reduced Sandy wares and the early medieval Leicester Splashed ware, SP3 whilst the regional imports, the Oxidised Sandy wares, the Coarse Shelly wares and the Coventry fabrics CO1 and CO2 also only make up a small part of the assemblage. These regional wares occur in most of the plots and with sufficient frequency to suggest that they were traded to Leicester.

Approximately 60% to 74% of the assemblages by sherd count in phases 8.1, 8.2 and 8.03 (Table 47 - Table 69) are in Potters Marston, and between 75% and 68% respectively of the assemblages by sherd count in phases 9.1 and 9.02 (Table 70-Table 81) are also in this ware. Some of the Potters Marston is probably residual in the latter phase. However, only 38% of the assemblage by sherd numbers occurs in the wheel thrown glazed sandy wares dating from the 13 century in Nottingham, Chilvers Coton and Medieval Sandy wares, the latter of uncertain provenance, but probably originating in Derbyshire. Only five sherds occur in the later medieval Medieval Sandy ware, fabric MS8, and the Midland Purple ware, MP2. There was little evidence of later activity on the site, interestingly only thirteen of the 50 contexts in the late medieval, post medieval and modern phases 10 to 13, which were not catalogued, contained late medieval pottery.

Table 82: The Medieval Pottery: vessel forms by sherd numbers, weight (grams) and EVE.

Form	Phase 7			Phase 8			Phase 9		
	Sherd	**Grams**	**EVE**	**Sherd**	**Grams**	**EVE**	**Sherd**	**Grams**	**EVE**
Jar	70	681	**1.785**	1202	30910	**57.274**	648	21637	**32.221**
Storage Jar	1	60		48	390	**2.525**	32	1748	**0.86**
Bowl/Spouted	8	140	**0.586**	36	957	**2.470**	52	1449	**2.520**
Spouted Pitcher				22	558	**1.355**	9	446	**0.485**
Tubular Pitcher				4	297		2	1010	**1.00**
Jug				161	5234	**3.965**	431	15651	**7.650**
Bottle				1	8	**0.110**			
Cup/Pedestal				3	44	**0.08**	2	25	**0.250**
Dish/Pedestal				4	45	**0.435**	1	70	
Dripping Dish				4	126	**0.405**	8	309	**0.460**
Cistern				1	166				
Cauldron							1	168	
Pipkin							1	117	
Lamp				5	226	**0.215**	1	1	**0.075**
Crucible	2	3	**0.200**				1	6	**0.110**
Phase Totals	81	8914	**2.571**	1491	42641	**68.834**	1189	42637	**45.631**

Jars dominated the phase 7 assemblage, followed by bowls, a storage jar and two crucibles. All were in the early coarse Stamford ware ST3, save for a jar in Oolitic ware, and an inturned bowl in Saint Neots. Jars and storage jars, bowls and jugs made up the bulk of the identifiable vessel forms in phase 8. Most of these were in Potters Marston which accounted for over 70% of the identifiable vessel types by EVES from this phase, together with dripping dishes and a previously unknown vessel type in this ware, a cistern. Bowls were the only vessel type in the Reduced Sandy ware, RS1, whilst jars, jugs and bowls were found in the local Splashed ware, SP3. A similar range of vessels were also recorded in the minor wares, the Coarse Shelly ware, CS, the Oxidised Sandy wares OS1 and OS2, and the Coventry wares, CO1 and CO2. The Stamford wares showed the greatest diversity of vessels types, which included not only jars, bowls and lamps but also table wares: a bottle, spouted pitchers, jugs, tubular spouted pitchers, cups, dishes and pedestal vessels. However, the fragmentary nature of much of this fine and often highly decorated pottery meant that the Stamford ware had an EVE total of only 1.8 in this phase.

Potters Marston also dominated the phase 9 assemblages, representing over 72% of the EVE totals, and most commonly occurring as jars, and storage jars, bowls and jugs. Two unusual vessels were found in the Coventry ware, CO1, a tubular spouted pitcher and a pipkin handle, neither vessel being exactly paralleled at Coventry, whilst part of a cauldron was found in Splashed ware 3. These wares and the Coarse Shelly wares, the Oxidised Sandy wares and the Stamford wares are probably residual in this phase soon after 1250. All were recorded in a range of vessel types, notably jars, jugs and bowls, whilst a large range of table ware vessel forms similar to those in phase 8, occurred in Stamford ware. The wheel thrown glazed sandy wares dating from the early or mid 13th century, chiefly the Chilvers Coton fabric CC1, the Nottingham fabrics NO1, NO2 and NO3 and the Medieval Sandy ware MS2 and MS3 are found here almost exclusively as jugs, but still account for only 1.15 EVE, or less than 15% of the jugs by EVEs from this phase.

Discussion - The Plots

(see Table 83 -Table 87; Figure 48 and Figure 49)

Eighteen sherds of residual late Saxon pottery occurred above Roman Building G in phase 8.1, and a further 29 in plot 3 phases 8.2 and 8.3 which lay above the building and another fifteen occurred in plot 8 into which it was later subsumed. Similarly nineteen sherds were found in plot 4 and another 8 in plot 9 into which it was later incorporated, both of which lay above the southern half of the same Roman building, whilst 44 sherds occurred in plot 6 above Roman Building F.

Comparisons between the medieval assemblages from the plots are hindered by the fact that only two of the plots, plots 2 and 7, showed evidence of continuous activity from phase 8.1, before the plot boundaries were formalised, and throughout phases 8.2 to 9.2. Furthermore, these were the only plots to keep the same boundaries, save for one fairly minimal change, the expansion of plot 2 to the east, over the line of the former north south street, in phase 9.1. Even then, these two plots are quite different in character, in that the latter was primarily a church and burial ground, whilst the former saw continuous domestic occupation from at least phase 8.2, if not before, until the site was abandoned in the later 13th or early 14th century. Plot 6 also kept the same boundaries save that it was cut to the south by the line of Grape Street in phase 9.1. However, activity on this plot seems to have been sporadic, and there was no surviving structural evidence of any occupation within the plot.

The only assemblage in plot 1 lay within phase 8.2, whilst plots 3, 4 and 5 were subsumed into the new plots 8 and 9, in phases 9.1 and 9.2. Even these differences however, did not preclude late Saxon and Saxo Norman wares occurring in every plot, as noted above, often in residual contexts, and Potters Marston the being the most common ware throughout.

The assemblage in plot 1, to the north of the site, whilst limited to phase 8.2, has a typical range of early medieval fabrics. However, the EVEs are atypical probably because the assemblage was unusually small, and this is the only plot where the jar is not the dominant vessel form. A relatively small assemblage was also found in plot 5, where the activity was limited to single episodes of quarrying and pitting in phases 8.1 and 8.2 respectively. Again the range of fabrics is typical for the early medieval period, whilst the vessels types are somewhat restricted, body sherds from a cup and a bowl were present, but jars and a dripping dish were the only types identifiable by EVEs. The evidence for plots 3 and 4 is similarly restricted to phase 8 and both share similar characteristics, in terms of fabrics and the percentages of kitchen wares measured by both EVES and sherd count. There was a slightly lower proportion of table wares in the latter, with an EVEs of only 2.7%, as opposed to 9.5% in plot 3.

Plots 2 and 7, the site of continuous activity from phase 8.1 pre-dating the plots, and throughout phases 8.3 and 9.1 to 9.2, showed a remarkable similarity in terms of the range of fabrics and vessel types; although the assemblage from plot 7 was only, according to the initial sherd count made during the assessment of the material, approximately a fifth of that from plot 2. Kitchen wares were dominant, representing over 85% of the EVEs and over 30% by sherd count for the each plot. Similarly the table wares made up over 10.0% of the EVEs for plots 2 and over 7.0% for plot 7, the proportions by sherd count being 7.2% and 5.5% respectively.

Plots 8 and 9, dating from *c.*1250, do have significantly higher proportions of the wheel thrown and glazed Nottingham, Chilvers Coton, and Medieval Sandy wares than the other plots, and the table wares are more common here, accounting for a relatively high proportion by sherd count and for over 19% of the EVEs in plot 8, and a very high 33.7% in plot 9. These figures reflect the fact that, unlike the other plots, these figures do not include residual kitchen wares from earlier phases. Pottery cooking vessels also became gradually less common in the high and later medieval periods as metal vessels became more affordable and the cooking pots came to represent a relatively lower proportion of pottery assemblages as a whole, whilst Chilvers Coton and related wares, dating from *c.*1250, occur predominantly as jugs.

Perhaps the slightly higher proportion of table wares in plot 3 when compared to plot 4, which contained assemblages of a similar date, does reflect some status associated with Masonry Building 1 in the former, but the evidence is not compelling. On the other hand, the range of vessel types in plot 7 gives no hint that this is thought to be the site of the St Michael's Church, where one might expect to find a relatively large number of fine table wares perhaps associated with the altar and the celebration of mass. This may

be reflection of the fact that this church not only in the back lanes, but poorly endowed (Courtney 1998, 134). Conversely, the fact that the largest number of table wares was recorded in plot 9 is evidence perhaps not only of the later date of this plot when table wares were more common, for the reasons noted above, but of an association with All Saints Church, whose land bounded this plot to the west. This was a church with a large parish fronting on to a major thoroughfare, the medieval High Street, unlike St Michael's, and apparently well endowed, as it was undergoing refurbishment in later 13th century, (M. Morris, pers. comm.).

Overall the results are limited; in terms of the range of fabrics/wares, the differences between the plots are minimal. In terms of social standing, there are no potentially high status continental imports here. Not surprisingly perhaps, as elsewhere in Leicester, the pottery assemblages included few vessels types that could be directly linked with the industrial activity here or in plots 2 and 7, save for one crucible fragment in plot 8. There is also some evidence to suggest that soils were moved from industrial features in phase 9.1 plot 9 into plot 8 (M. Morris, pers. comm.), which may have distorted the archaeological record somewhat.

Table 83: The Medieval Pottery: the pottery by wares, sherd numbers and weight (grams) from Insula V and XI and the streets or lanes

	Insula V		**Grape Street**		**Eastern Roman Street.**		**St Michael's Lane**		**Southern Street**	
Ware	**Sherds**	**grams**	**sherds**	**grams**	**sherds**	**grams**	**sherds**	**grams**	**sherds**	**grams**
Late Saxon./Saxo Norman										
ST – Stamford	252	2521	1	2	14	207	58	684	17	184
LI1 - Lincoln	2	8			2	26	1	4	1	16
SN – St Neots	7	59								
TO -Torksey					1	91				
RS - Reduced							1	23		
Medieval										
PM – Potters M			3	22	1	6	109	2076	88	1509
SP2/3 –Splashed							9	127	6	87
OS1/2 – Oxidised			1	13			14	239		
OL - Oolitic	1	71								
CS – Coarse Shelly							1	6	2	11
CO - Coventry									2	52
NO - Nottingham							1	34		
CC1/2 – Chilvers Coton			3	55						
Totals	**262**	**2659**	**8**	**92**	**18**	**330**	**194**	**3193**	**116**	**1859**

Table 84: The Medieval Pottery: vessels types by EVEs, where 1.00 EVE = one vessel, from Insula V and the medieval thoroughfares

Vessel Type	**Insula V**	**Grape Street**	**E. Roman Street**	**St Michael's Lane**	**S. Street**
Jar	1.535	0.076	0.250	1.941	0.65
Bowl	0.401		0.185	0.145	
Spouted Pitcher				0.395	0.10
Jug				0.805	0.26
Bottle				0.11	
Lamp				0.075	
Crucible	0.20				
Totals	2.136	0.076	0.435	3.471	1.010

Table 85: The Medieval Pottery: Plots 1 to 9, the major wares by period and sherd numbers and as a percentage of the total assemblage for each plot.

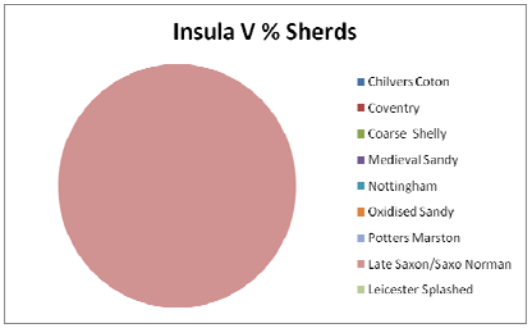
	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6		Plot 7		Plot 8		Plot 9	
Ware	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**	**sherds**	**% plot**
Late Saxon/Saxo Norman																		
LE – Leicester					5	0.43					1	0.17						
ST – Stamford	7	17.5	92	6.61	171	14.7	155	20.6	22	14.57	137	23.7	65	12.3	96		43	4.74
LI1/2 - Lincoln	4	10.0	1	0.07	4	0.35	1	0.13			1	0.17	2	0.38				
SN – St Neots			1	0.07	5	0.43					1	0.17			5	0.48	1	0.11
TO -Torksey					19	1.63							1	0.19				
TH - Thetford			3	0.22							1	0.17						
Sub Totals	**11**	**27.5**	**97**	**6.97**	**204**	**17.5**	**156**	**20.7**	**22**	**14.57**	**141**	**24.3**	**68**	**12.8**	**101**	**0.48**	**44**	**4.85**
Early Medieval/Medieval																		
PM – Potters Marston	25	62.5	1142	82.1	768	66.0	513	6.48,	117	77.48	308	53.3	391	74.0	746	71.8	719	79.2
SP3/4 – Leicester Splashed	3	7.5	33	2.37	83	7.14	41	5.4	6	3.97	54	9.36	32	6.0	43	4.14	25	2.76
OS1/2 – Oxidised Sandy	1	2.5	5	0.36	49	4.22	29	3.88			6	1.03	6	1.14	9	0.87	3	0.33
CS – Coarse Shelly			58	4.17	10	0.86	7	0.93	4	2.65	18	3.12	3	0.57	13	1.25	24	2.65
NO - Nottingham			11	0.79	1	0.09					1	0.17	5	0.95	42	4.04	21	2.33
CC1/5 – Chilvers Coton			24	1.7	3	0.26					33	5.72	15	2.84	48	4.63	36	3.97
MS1/2 – Medieval Sandy			5	0.36	1	0.09	1	0.13			2	0.35	1	0.19	10	0.96	3	0.33
Sub Totals	**29**	**72.5**	**1278**	**91.8**	**915**	**78.6**	**591**	**10.3**	**127**	**84.1**	**422**	**73.0**	**543**	**85.6**	**911**	**87.6**	**831**	**91.57**
Later Medieval																		
MS3/8 – Medieval Sandy			1	0.07											3	0.29	3	0.33
MP1-4 – Midland Purple			1	0.07											2	0.19		
Sub Totals	**-**		**2**	**0.14**											**5**	**0.48**	**3**	**0.33**
Plot Totals	**40**		**1390**		**1163**		**749**		**151**		**577**		**528**		**1038**		**907**	

Table 86: The Medieval Pottery: Plots 1 to 9, the vessel types by EVE, and as a percentage of the total EVEs for each plot, where 1.00 EVE = one vessel.

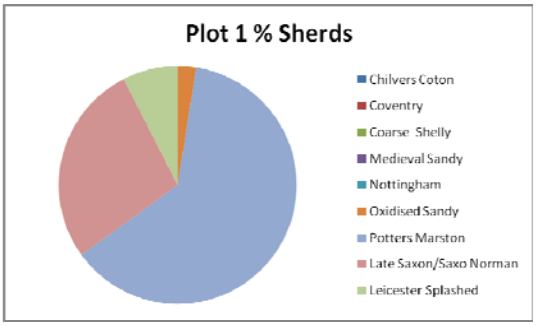
	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6		Plot 7		Plot 8		Plot 9	
Vessel Type	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**	**EVE**	**% plot**
Cooking ware																		
Jar	0.06	36.3	18.134	82.2	23.78	84.0	13.21	83.5	2.065	97.4	6.587	91.2	6.594	78.6	8.390	69.5	8.008	57.9
Bowl	0.105		0.54	2.4	1.105	3.9	0.745	4.7			0.32	4.4	0.750	8.9	0.955	7.9	0.325	2.3
Dripping Dish					0.250	0.8	0.100	0.6	0.055	2.5					0.100	0.82	0.36	2.6
Totals	**0.165**	**36.3**	**18.674**	**84.6**	**25.135**	**88.7**	**14.055**	**88.8**	**2.12**	**99.9**	**6.907**	**95.6**	**7.344**	**87.5**	**9.445**	**78.22**	**8.693**	**62.8**
Table ware																		
Spouted Pitcher		63.6	0.175	0.79	0.680	2.4	0.080	0.5							0.100	0.83	0.310	2.2
Tubular Spouted Pitcher																	1.000	7.2
Jug			1.940	8.8	1.710	6.0	0.350	2.2			0.315	4.3	0.570	6.7	2.30	19.0	3.365	24.3
Cup			0.250	1.1			0.080	0. 5										
Dish					0.160	0.5							0.100	1.2				
Pedestal cup					0.175	0.6												
Totals		**63.6**	**2.365**	**10.69**	**2.075**	**9.5**	**0.51**	**2.7**			**0.315**	**4.3**	**0.670**	**7.9**	**2.40**	**19.83**	**4.675**	**33.7**
Storage/transport																		
Storage Jar			1.005	4.5	0.425	1.5	1.040	6.5					0.370	4.4	0.105	0.87	0.44	3.1
Lighting																		
Lamp							0.215	1.3										
Industrial																		
Crucible															0.110	0.91		
Plot Totals	**0.165**	**99.9**	**22.044**	**99.9**	**27.635**	**99.7**	**15.820**	**99.3**	**2.120**	**99.9**	**7.222**	**99.9**	**8.384**	**99.8**	**12.06**	**99.8**	**13.808**	**99.6**

Table 87: The Medieval Pottery: Plots 1 to 9, the vessel types by sherd count, and as a percentage of the total sherds for each plot.

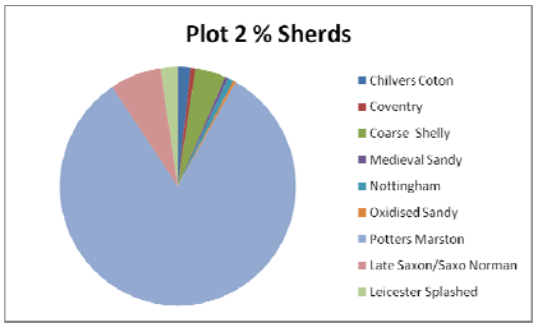
	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6		Plot 7		Plot 8		Plot 9	
Vessel Type	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**	**No**	**% sherd**
Kitchen ware																		
Jar	1		398		412		233		78		169		170		197		120	
Bowl	4		17		8		14		1		6		9		22		5	
Dripping Dish					1		2		1						2		6	
Cauldron			1															
Pipkin			1															
Totals	**5**	**12.5**	**417**	**30.0**	**421**	**36.1**	**249**	**33.2**	**80**	**52.0**	**175**	**30.3**	**179**	**33.3**	**221**	**21.4**	**131**	**14.4**
Table ware																		
Spouted Pitcher			5		14		2				1		1		1		3	
Tubular Spouted Pitcher					1		2						1				1	
Jug			94		71		31				43		25		165		140	
Cup			2				1		1		1							
Dish/pedestal dish					3						1		1					
Pedestal cup							1											
Totals			**101**	**7.2**	**89**	**7.6**	**37**	**4.9**	**1**	**0.6**	**46**	**7.9**	**28**	**5.5**	**166**	**15.9**	**144**	**15.8**
Storage/transport																		
Storage Jar			18		7		30				1		4		14		6	
Cistern							1											
Totals			**18**		**7**		**31**				**1**		**4**		**14**		**6**	
Lighting																		
Lamp					1		4											
Industrial																		
Crucible															1			
Identifiable Totals	**5**	**12.5**	**536**	**38.5**	**518**	**44.5**	**321**	**42.8**	**81**	**53.6**	**222**	**38.4**	**211**	**39.9**	**402**	**38.7**	**281**	**30.98**
All Sherds by Plot	**40**		**1390**		**1163**		**749**		**151**		**577**		**528**		**1038**		**907**	



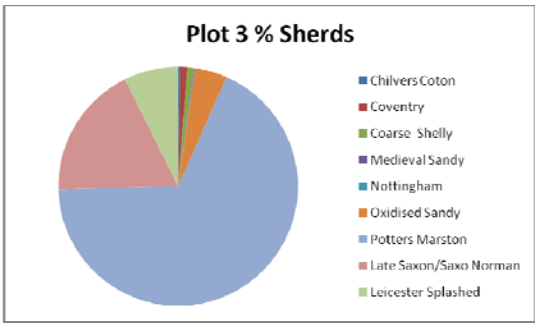
Insula V sherd total 262



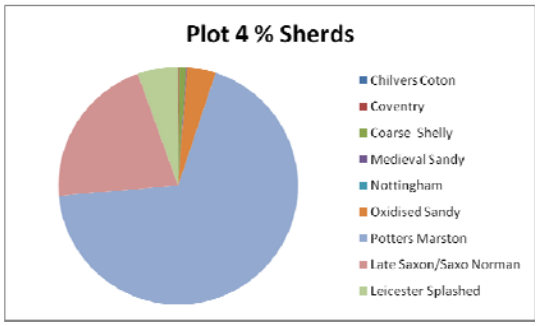
Plot 1 sherd total 40



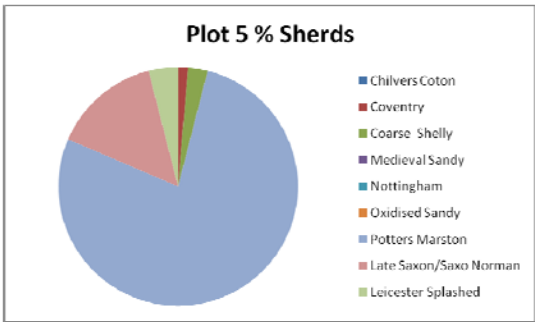
Plot 2 sherd total 1390



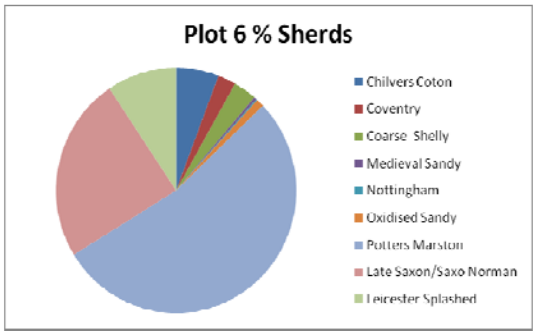
Plot 3 sherd total 1163



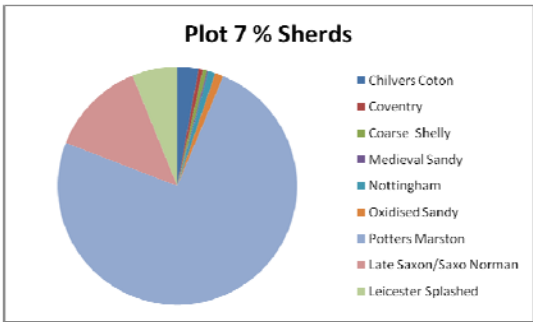
Plot 4 sherd total 749



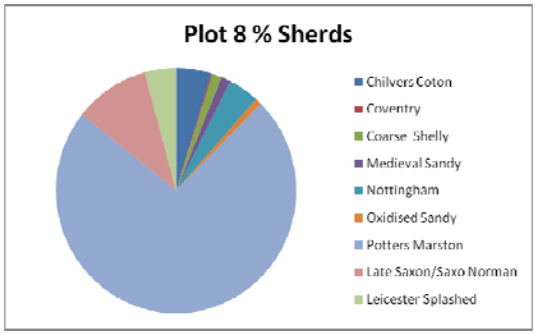
Plot 5 sherd total 151



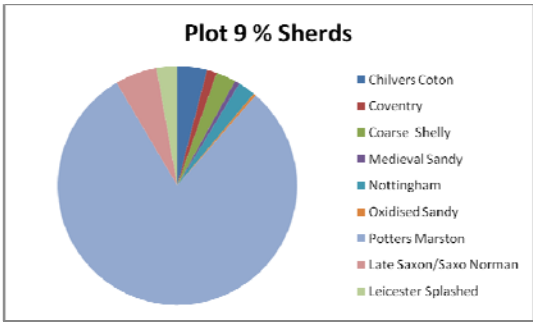
Plot 6 sherd total 577



Plot 7 sherd total 528

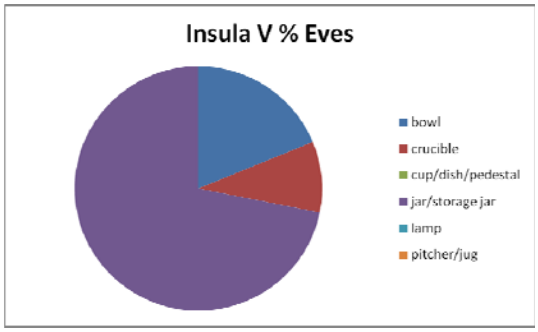


Plot 8 sherd total 1038

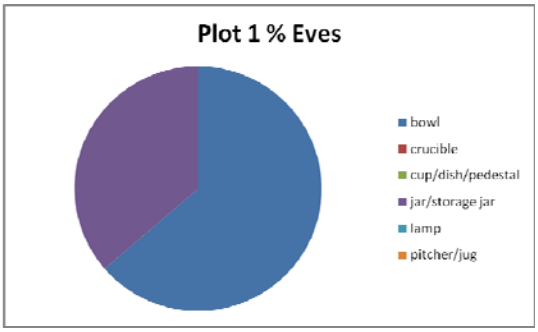


Plot 9 sherd total 907

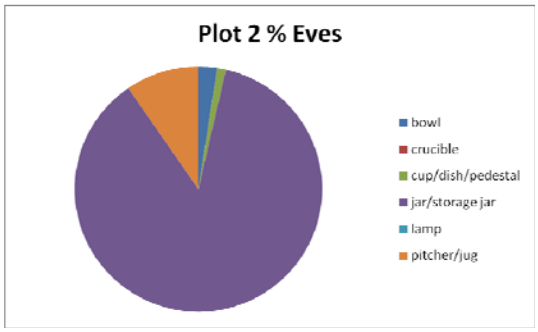
Figure 48: The Medieval Pottery: the major wares in Phase 7 to 9 by plot and sherd numbers



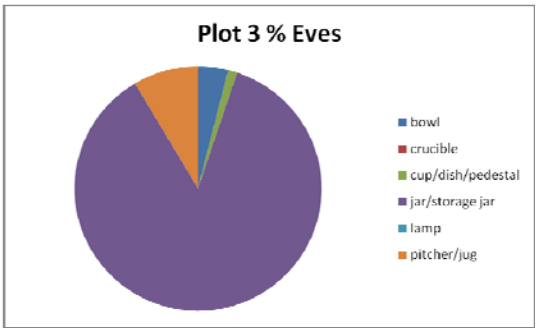
Insula V EVE total 2.136



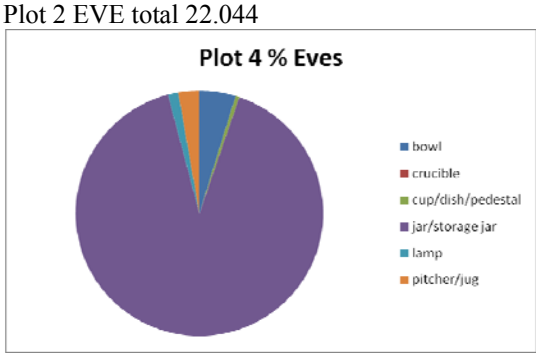
Plot 1 EVE total 0.165



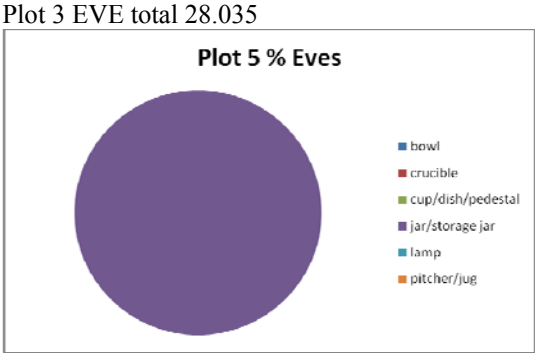
Plot 2 EVE total 22.044



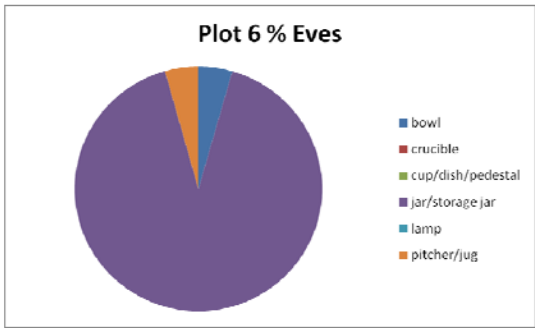
Plot 3 EVE total 28.035



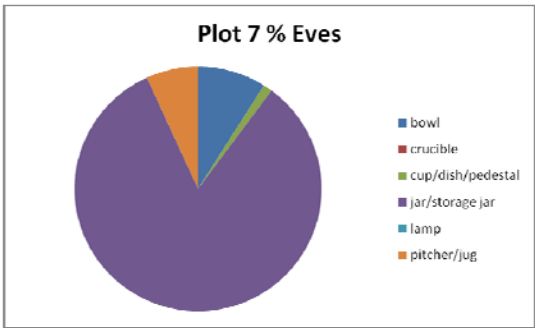
Plot 4 EVE total 15.72



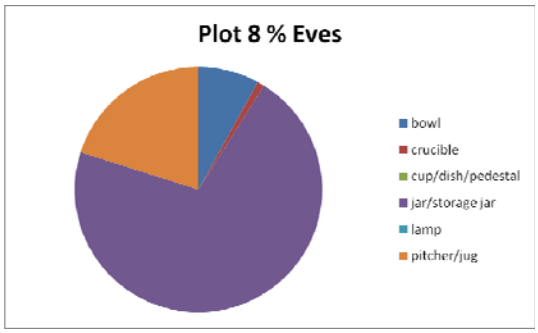
Plot 5 EVE total 2.065



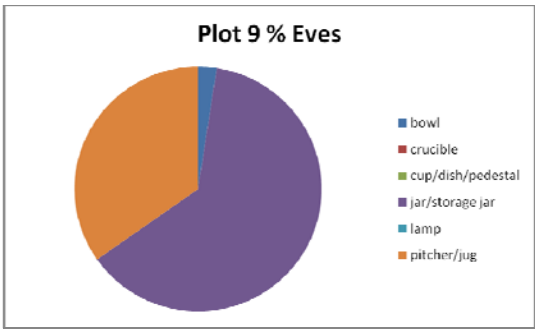
Plot 6 EVE total 7.222



Plot 7 EVE total 8.384



Plot 8 EVE total 11.96



Plot 9 EVE total 13.4475

Figure 49: The Medieval Pottery: EVE totals by major vessel type by plot, where 1.00 EVE = one vessel

Conclusion

The concentration of late Saxon pottery (excluding the Stamford fabrics ST2 and ST3) above Insula V is of note, the remaining sherds occurring above the eastern Roman street (Table 83 and Table 84)**.** The distribution of the residual late Saxon pottery in later phases, including the above and Leicester, Thetford and Torksey type wares, continues to show a distinct bias towards those plots in the southern half of the site which lay above the Roman structures still partially visible in the late 9th, 10th and 11th centuries. This may reflect a desire to avoid the church to the north. St Michael's was one of Leicester's oldest parishes, and whilst little is known of its origins, or the occupants of the parish, as Martin points out, there must have been some to endow and support the church (Martin 1990, 21).

Forty-seven sherds occurred in plot 3 and the layers below which lay above Roman Building G and another fifteen occurred in plot 8 into which it was later subsumed. Similarly nineteen sherds were found in plot 4 and another 8 in plot 9 into which it was later incorporated, both of which lay above the southern half of the same Roman building. Similarly, 44 sherds occurred in plot 6 above Roman Building F. In all, approximately 454 sherds, weighing 5098 grams, were recovered in these fabrics. It is possible that some of the 40 Reduced Sandy ware sherds, which also occurred predominantly in plot 3, may be of a similar late-Saxon or Saxo-Norman date.

The range of fabrics and vessel forms in the phase 7 assemblage is very similar to the small group of late-Saxon and Saxo-Norman pottery from Vaughan Way. The coarse Stamford ware, ST3, Lincoln and St Neots wares were present in both assemblages and the identifiable vessel types in both were primarily made up of jars and bowls, whilst the few sherds of late Saxon Leicester ware which were present were all residual in later phases. Even without the Reduced Sandy wares, which as noted above, are of uncertain date, this quantity of material would suggest occupation at an early date, the presumably ephemeral evidence probably being destroyed by subsequent early medieval pitting and quarrying.

The best evidence for occupation in phase 7 is provided by pits dug down against Roman wall footings to the north in Building G. In spite of a similar lack of clear structural evidence within Building G in the early medieval phase 8.1, the level of activity and the relatively large amounts of associated pottery suggest that the site was also occupied at this time. Many of the pits occurred within the walls of the Roman buildings, such as G670, in plot 3, from which a substantial quantity of pottery was recovered, which lay within the centre of building with a possibly re-used Roman well to the north. Many other pits continued to be dug against the Roman masonry in later phases. Some of the pottery fragments were quite sizeable, notably that from one isolated and partially excavated feature G550 in plot 4, to the south of Building G which cut the former Roman Eastern Street. This material appeared to be secondary refuse**,** also perhaps associated with some re-use of the Roman buildings to the north.

A similar pattern emerges to the east. The sheer quantity of pottery below plot 6 in phase 8.1 in Roman Building F certainly appears to confirm the evidence of occupation here within the rebuilt Roman wall footings. The presence of a possible cess pit, G571 in plot 6, pitting and a hearth pit, suggest continuing occupation in phase 8.2, possibly within the Roman structures.

The pottery in plot 3, phase 8.2, would appear to relate to occupation within Masonry Building 1, but the fragmentary nature of the material indicates that most of the rubbish was evidently not disposed of directly into features within the plot, but elsewhere, a similar pattern to that observed across the site. Evidence of medieval rubbish disposal notably in Worcester, suggests that 'domestic refuse was not generally discarded into pits, whether dug for the purpose or opportunistically….most domestic refuse was initially dumped onto rubbish heaps (middens), and subsequently only a proportion of the material was incidentally incorporated into pits, ditches and other features, usually as deliberate backfill.' If pits were used for the day-to-day disposal of refuse the ceramic component of that fill should have a number of characteristics: 'it should include large parts of individual vessels, the majority of sherds should be relatively large and not very abraded, there should be a small amount of residual pottery but the majority should be contemporary, there should be quite a high concentration of discrete groups of pottery and other surviving refuse such as bone' (Dalwood and Edwards 2004, 86-7). No examples of such rubbish pits with groups of complete or almost complete vessels are found here, with only very rare examples of sherds from different contexts joining together. Most of the pottery occurred in features with residual pottery and a mixtures of other materials, such as clay, charcoal, bone, cess, slag and so on, suggesting

that this material had indeed been 'derived from material scraped up from the ground surface incorporating parts of rubbish dumps or upcast from recently excavated features ' (*ibid* 2004, 87).

Plot 3 in phases 8.2 and 8.3 is, however, unusual in two ways, firstly for the way in which the re-organisation of the plot in the latter phase seemed to suggest a certain continuity in occupation. The occupants seemed to know the site of the former pits and to have chosen a markedly different location for the new ones. The assemblage within this plot, in G257, close to the Masonry Building 1, whilst not unusual in terms of sherd weight was not dominated, as was typical by Potters Marston wares, but contained an unusually complete assemblage of six finely made Oxidised Sandy ware jars on fabric OS2, perhaps one of the few instances of secondary if not primary refuse on the site.

The assemblage in plot **7** in phase 8.3 is also of note**,** the size of some of the individual Potters Marston sherds in particular indicating the possibility that some of this material was probably secondary refuse. This feature is quite a distance from the postulated building to the north of the plot, but relatively close to Building H. The status of the latter remains uncertain at this time, it appears to survive into this phase, and was possibly being utilised for occupation. Alternatively was this material the redeposited rubbish dumped from the adjacent north south street? The evidence from plot 4 in phase 8.3 suggests that a storage pit, re-used as a cess pit, was periodically emptied out and the cess and rubbish disposed of elsewhere - as large fragments from several vessels were found – but none was reconstructable.

A possible example of secondary refuse occurred in two pits, phase 9.1 plot 8 with the recovery of large fragments of several highly decorated but incomplete vessels. Other refuse thought to be associated with All Saints Church, was also found here, and this together with the absence of structural evidence of occupation in this phase suggests that this material may also be from the church. Alternatively, the refuse may be associated with later phases of the Masonry Structure 1 in plot 4, situated close by. Another example of secondary refuse was found in plot 6 in phase 9.1 in the shape of part of three highly decorated jugs. Typically, there was no accompanying structural evidence of occupation in this plot, and this pottery was probably brought in as refuse from outside, possibly as in plot 8, from All Saint s Church.

Whilst there was no direct evidence for continuing occupation within Timber Building 2 in plot 2 in phase 9.1, once again the amount of pitting and the sheer quantity of material and the relatively large sherd size would seem to suggest continuing occupation here in this phase, though no doubt some of this pottery was residual from phase 8.2. The quarries to the west provide convincing evidence and a useful *terminus ante quem* for the decline of the north south street at this time.

Continuing activity in plot 9 in phase 9.2 is once again evident from the large number of pits and the size of the pottery assemblage in this phase, was this related to on site occupation? Over 950 sherds were recorded here, though not all were catalogued. Whilst there was no visible evidence for the timber building originally located on this plot, no subsequent activity seemed to occur on the footprint of the building, had it simply been truncated in more recent times, or was the site simply being used as a rubbish dump, perhaps for All Saints Church to the west?

A similar pattern emerges in this phase in plot 8 to the south, where a concentration of pits to the north west of the site, including a possible storage or cess pit and a bread oven were found with quantities of pottery. Yet again no visible evidence of any structure which could be associated with occupation within the plot survives. Could these cess pits have been housed in simple mud or timber structures, which have disappeared without trace? These would have been used, perhaps, by the agricultural workers tending the gardens and orchards, which the documentary evidence tells us were here from at least the late 13th century (Courtney 1998, 133-134) if not the 14th century.

Whilst the pottery in phases 10 to 13, dating from *c.*1400 up to modern times, was not catalogued, the material was assessed during the preliminary spot dating of all the archaeological contexts prior to the phasing of the site. Of approximately 80 contexts, only fourteen produced exclusively late medieval pottery, and of the remainder almost a half produced residual medieval pottery, clear evidence of the decline in this part of town in the late medieval period and that the site continued to remain undeveloped until comparatively modern times. Of the 50 post medieval and modern contexts with pottery in phases 11 to 13, almost a half contained residual medieval pot.

The Illustrations (Figure 50, Figure 51, Figure 52)

Illus.	DrNo	Group	PC	Context	Plot	Phase	Fabric	Form	Comments
1	214	G0559	2425	2753	Insula V	7	ST3	jar	
2	211	G1403	1477	1478	E. Roman Street	7	ST3	jar	
3	216	G0559	2425	2753	Insula V	7	ST3	jar	
4	215	G0559	2425	2753	Insula V	7	ST3	jar	
5	221	G1482	4604	4437	Insula V	7	ST3	Storage jar	
6	204	G0589	1147	1148	E. Roman Street	7	ST3	bowl	
7	217	G0559	2425	2753	Insula V	7	ST3	bowl	
8	213	G0559	2425	2753	Insula V	7	ST3	crucible	
9	212	G0559	2425	2753	Insula V	7	SN	bowl	
10	232	G0780	5403	5403	Insula V	7	OL	jar	
11	226	G0762	4662	4661	Plot 03	8.1	RS1	jar	
12	228	G1045	4749	4745	Plot 04	8.1	PM	spouted pitcher/ cauldron	
13	207	G0549	1258	1257	Plot 04	8.2	ST2	unknown	
14	208	G1026	1321	1323	Plot 04	8.2	PM	jar	
15	209	G1026	1321	1323	Plot 04	8.2	PM	jar	
16	210	G1026	1321	1324	Plot 04	8.2	PM	Storage jar	
17	233	G0260	5884	5883	Plot 02	8.2	PM	spouted pitcher/ cauldron	
18	218	G0666	3162	3161	Plot 07	8.2	PM	jug	Stamp detail 2:1.
19	206	G0549	1258	1257	Plot 04	8.2	PM	cistern	
20	222	G0254	4606	4605	Plot 03	8.2	OS2	jar	
21	220	G0759	4246	4255	Plot 03	8.03	RS1	jar	
22	219	G0759	4246	4255	Plot 03	8.03	RS1	jar	
23	203	G0548	1093	1010	Plot 04	8.03	PM	jar	
24	225	G0749	4644	4643	Plot 03	8.03	PM	jar	
25	223	G0767	4619	4618	Plot 08	9.1	PM	jar	
26	230	G0765	4956	4955	Plot 08	9.1	PM	jar	
27	231	G0765	4956	4955	Plot 08	9.1	PM	jar	
28	224	G0767	4619	4618	Plot 08	9.1	PM	spouted pitcher/ cauldron	
29	205	G0585	1246	1246	Plot 09	9.1	CO1	Spouted pitcher	Three handled with two holes bored through rim above strut and the handle opposite.
30	200	G0594	2592	100	Plot 06	9.1	CC1	jar	(stipple = iron rich clay slip)
31	201	G0594	2592	100	Plot 06	9.1	CC1	jug	
32	202	G0594	2592	100	Plot 06	9.1	CC1	jug	
33	229	G0765	4956	4955	Plot 08	9.1	CC1	bowl	
34	227	G0686	5017	4720	Plot 08	9.1	NO3	jug	

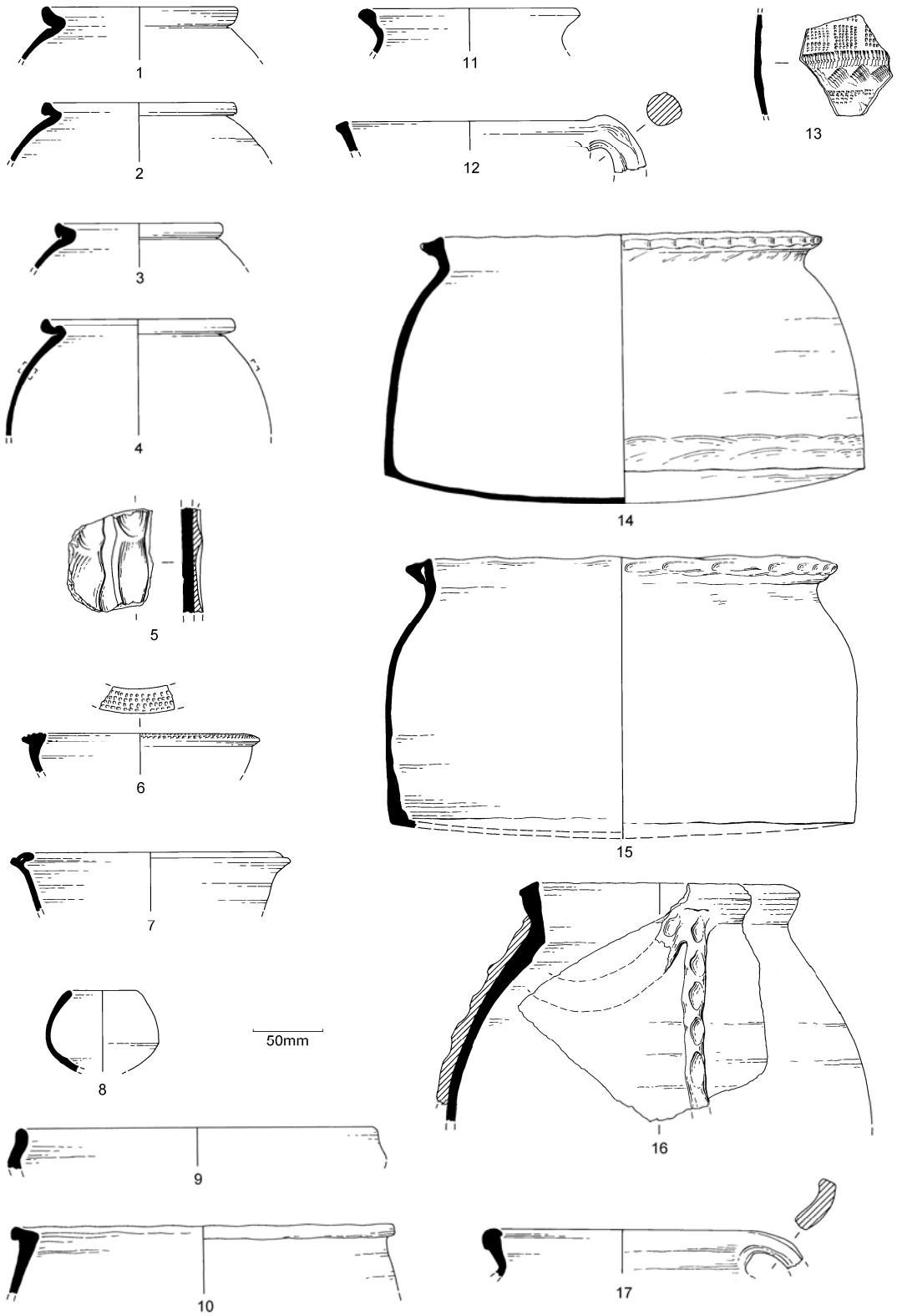


Figure 50: The Medieval Pottery: illustrated pottery, 1-17

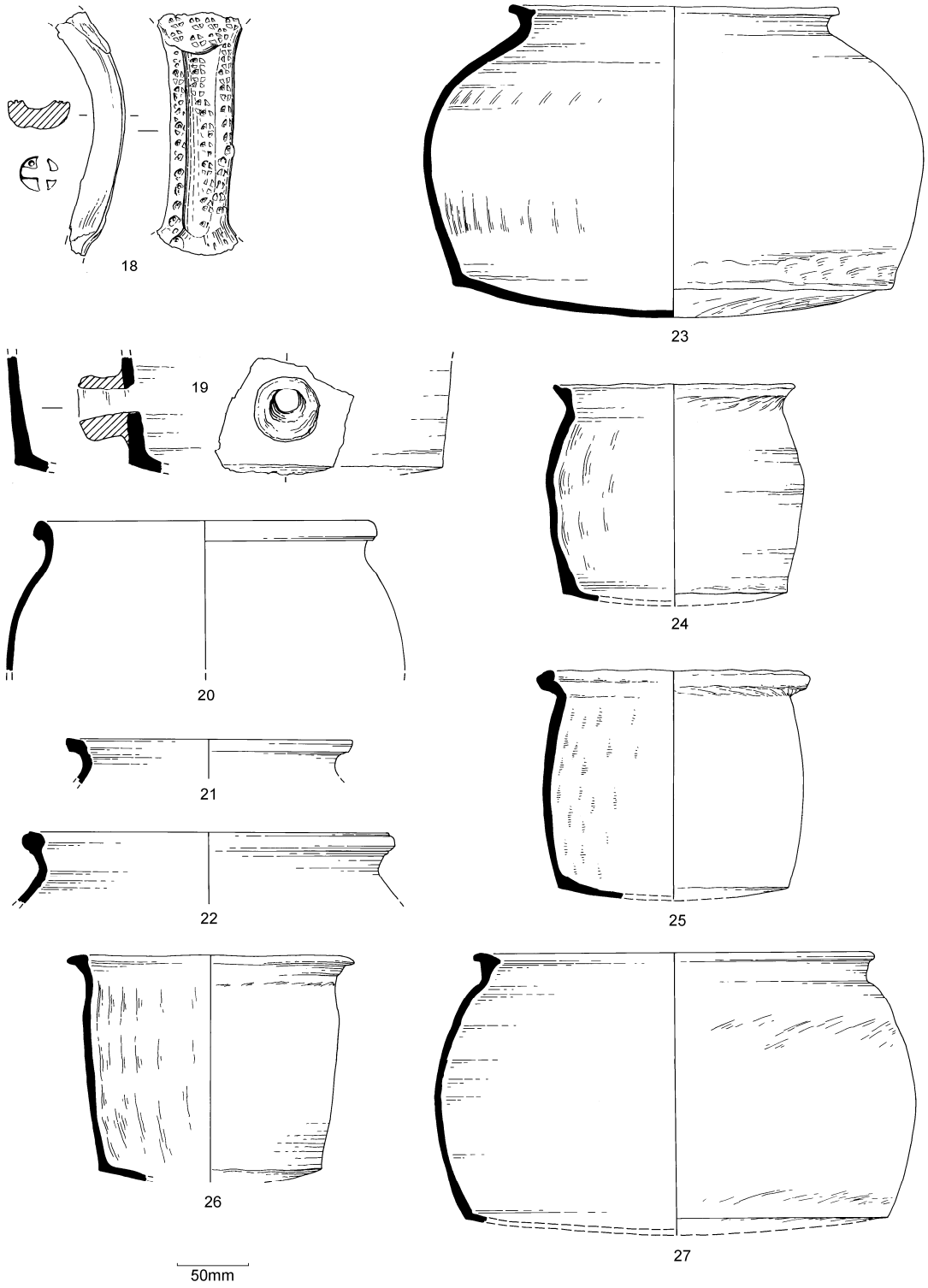


Figure 51: The Medieval Pottery: illustrated pottery, 18-27

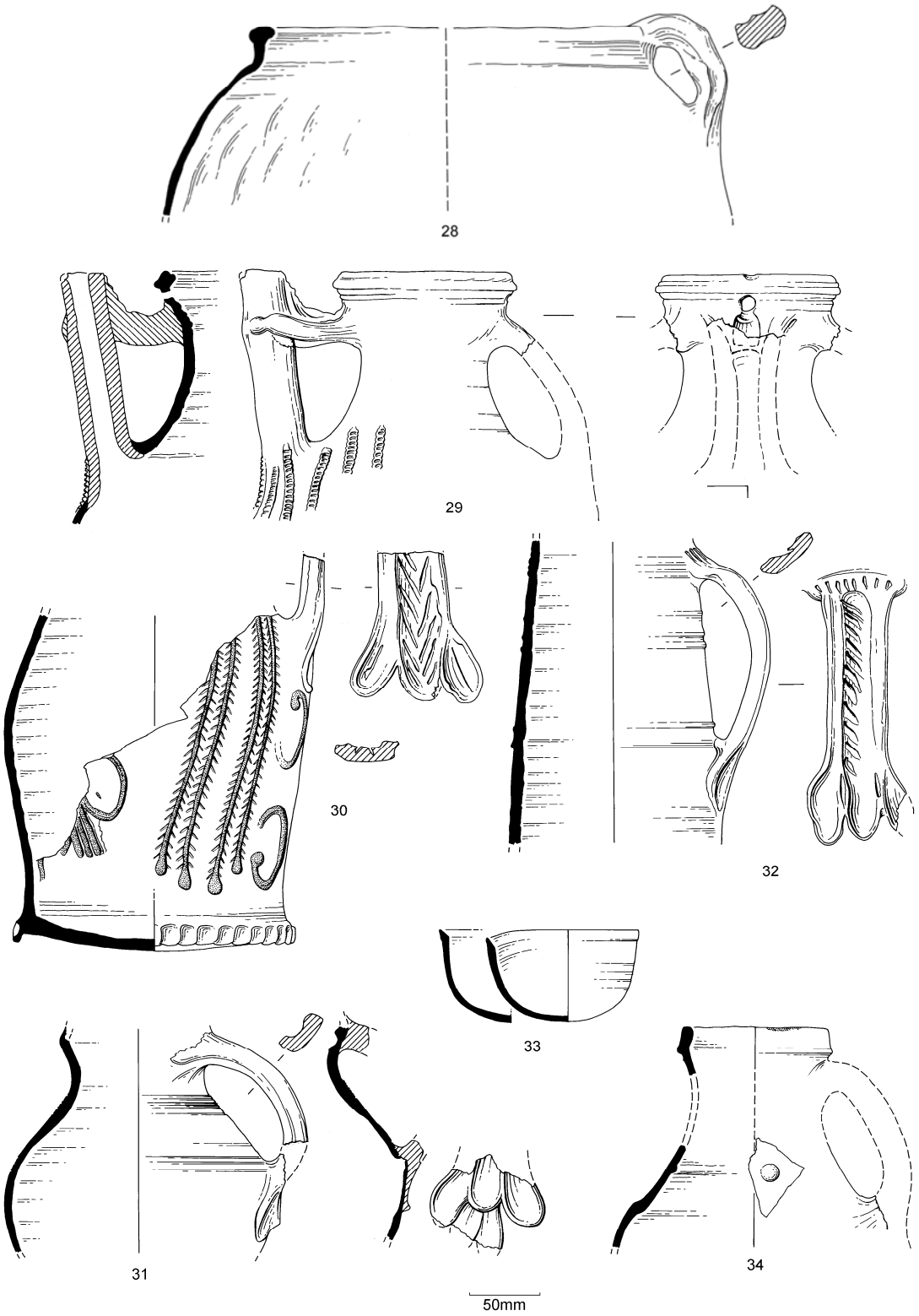


Figure 52: The Medieval Pottery: illustrated pottery, 28-34

THE MEDIEVAL RIDGE TILE *Deborah Sawday*

Sixty nine fragments of medieval ridge tile were recovered from the site of which approximately 28 fragments occurred in phases 8.1 to 9.2 in the plots listed in the table below.

Table 88: The Medieval Ridge Tile by fabric, fragment numbers and weight (grams) by Plot

Fabric	Plot2	Plot 3	Plot 4	Plot 6	Plot 7	Plot 8	Totals
Potters Marston		1/13					1/13
Splashed ware 3	1/111	3/397	1/130			6/392	11/900
Chilvers Coton 1	1/46				1/31	5/167	7/274
Chilvers Coton 2	4/519						4/519
Medieval Sandy ware				3/88		1/152	4/240
Bourne ware/type 1	1/21						1/21
Totals	7/697	4/410	1/130	3/88	1/31	12/711	28/2067

Only three ridge tile crests were found, and all were fragmentary and in unphased or residual contexts. The crest types, which were first characterised at the Austin Friars, Leicester (Allin 1981), include a double horned and a spiked knob crest in the Splashed ware, SP3, (*ibid* 1981, fig.16.5m, fig.17.13), and a pinnacle crest in the Chilvers Coton fabric CC1.

The paucity of roofing material from the site may be indicative of the general poverty of the area in the medieval period, and suggests that few if any substantial structures capable of supporting roofs with tiled ridges were built here. It is tempting to relate these few tiles to the church of St Michael. The lack of later medieval fabrics, only one context in phase 10 included a few ridge tile fragments in the later medieval Midland Purple ware, MP2, supports the notion that the area was abandoned by this time. Alternatively the material may have been removed off site for re-use as building material elsewhere in the town. However these tiles are perhaps most likely to have been associated with All Saints Church to the west, which documentary sources indicate underwent refurbishment and rebuilding in the later 13th century (M. Morris, pers. comm.).

THE MEDIEVAL FLOOR TILE *Deborah Sawday*

Only four fragments of medieval floor tile were recovered from the site. A very abraded fragment, with no surviving upper surface, but with an oxidised pinkish fabric and green glaze on the cut edges, is probably a 14th-century product of the Chilvers Coton kilns. This tile was found in the robber trench, G556 in plot 6, in phase 8.2.

Two more probably 14th-century floor tiles comprise a brown glazed monochrome tile and another inlaid tile, a corner fragment with two small quatrefoils, possibly a variant of Whitcomb design number 91. Whitcomb describes the latter as an 'Elaborated-fleur-de-lis placed diagonally, with three small quatrefoils on either side. At the inner corner of the design is a quadrant of a circle enclosing a very small quatrefoil' (Whitcomb 1956, 91). This tile has been previously identified at several churches in Leicester, including All Saints, St Mary de Castro and Leicester Abbey (*ibid* 1956). The design is also known in Warwickshire, Derbyshire and Nottinghamshire, and this tile, which has a fine reduced dark grey body, is possibly a Nottingham product. Both tiles were both found in context (6332) in Group G1454, plot 7, within a group of phase 10 inhumations to the west of the church. Part of a corner fragment of a printed tile, thought to be 15th or, possibly, even 16th century in date (*ibid* 1956, 11-12, 22-25) was found in an unstratified context. Unfortunately the tile design could not be identified.

It is tempting to relate these few tiles to the church of St Michael, but as with the ridge tile, they could well be associated with All Saints Church to the west.

THE CLAY TOBACCO PIPES *D A Higgins*

Introduction

This report deals with the clay tobacco pipes recovered by the University of Leicester Archaeological Services from excavations at Vine Street, Leicester, which were carried out between 2004 and 2006. The site codes used for this work are A22.2003 and A24.2003. The pipes from both phases of work were examined and this report prepared between July and September 2008.

Material Recovered

This site was excavated in two phases (A22.2003 and A24.2004) and produced a total of 52 fragments of pipe comprising 6 bowl, 44 stem and 2 mouthpiece fragments. These were recovered from 22 different contexts, in addition to which there were two unstratified groups of material. Most contexts only produced one or two fragments of pipe and the largest context group only contained six fragments. Where two or three pieces of pipe were recovered they were often of different dates, showing that residual material was present in many of the contexts. Although the fragments recovered can be used to provide an indication of the date of each deposit, these dates are not as reliable as if larger numbers of pipes has been represented. The assemblage includes one fragment with an internal bowl cross, one with a moulded maker's mark and one with leaf decorated seams.

The pipes in relation to the site

As a result of their small size and mixed nature, these excavated pipes do not provide particularly reliable dating evidence for the site as a whole. The best dating evidence comes from context 500, which produced a bowl marked RK for Richard King, who was working from *c.*1800 until his death in 1828 (*Figure 53c*); from context 509, which produced a very late style of stem and mouthpiece, probably dating from *c.*1880 or later (*Figure 53e*), and from context 2213 (G634 – Phase 13), which produced a substantially complete pipe of *c.*1820-70 with leaf decorated seams (*Figure 53d*). This substantially complete pipe, in particular, was almost certainly discarded soon after it was broken and is unlikely to have been disturbed since.

Although only very small groups, it is worth noting that three of the four A24.2004 contexts (4192, 4245 and 8438) only produced 17th- or very early 18th-century fragments, suggesting that this phase of the excavations was dealing with generally earlier deposits than the A22.2003 phase of work, where most of the contexts produced fragments of 18th- or 19th-century date.

The most problematic pieces were recovered from three contexts that should have pre-dated the introduction of pipes. There was one piece of late 17th- or early 18th-century stem from 1159 (G543 – Phase 9.1), which was beneath Plot 5 pits and two pieces of stem from contexts 3202 (G623 – Phase 12) and 4245 (G228 – Phase 9.1), late 18th- or early 19th-century and late 17th or early 18th century respectively, which comprised burials/charnel pits. These three fragments may be intrusive in the contexts in which they occur.

The pipes themselves

In terms of the pipes themselves, the finds from this site are generally rather fragmentary and most of the pieces recovered are not marked or decorated. The only such pieces recovered are the RK moulded mark and the bowl with simple moulded leaf seams noted above (*Figure 53c & d*). Good parallels for the RK mark have been found in a kiln dump of King's waste, dating from *c.*1820 (Higgins 1999, Figs 99.21-23). In addition, there was one fragmentary plain bowl of *c.*1760-1810 with an internal bowl cross, arranged as an 'X' in relation to the long axis of the pipe, from context 8438 (*Figure 53b*) and a complete spur bowl in a local style dating from *c.*1690-1730 (unstratified; *Figure 53a*). Only one burnished piece was noted, a plain 17th-century stem from context 1104. So far as could be determined, all of the fragments are of typical local styles and characteristic of assemblages from Leicester. A summary of the pipe evidence from the site is presented in *Table 89* below.

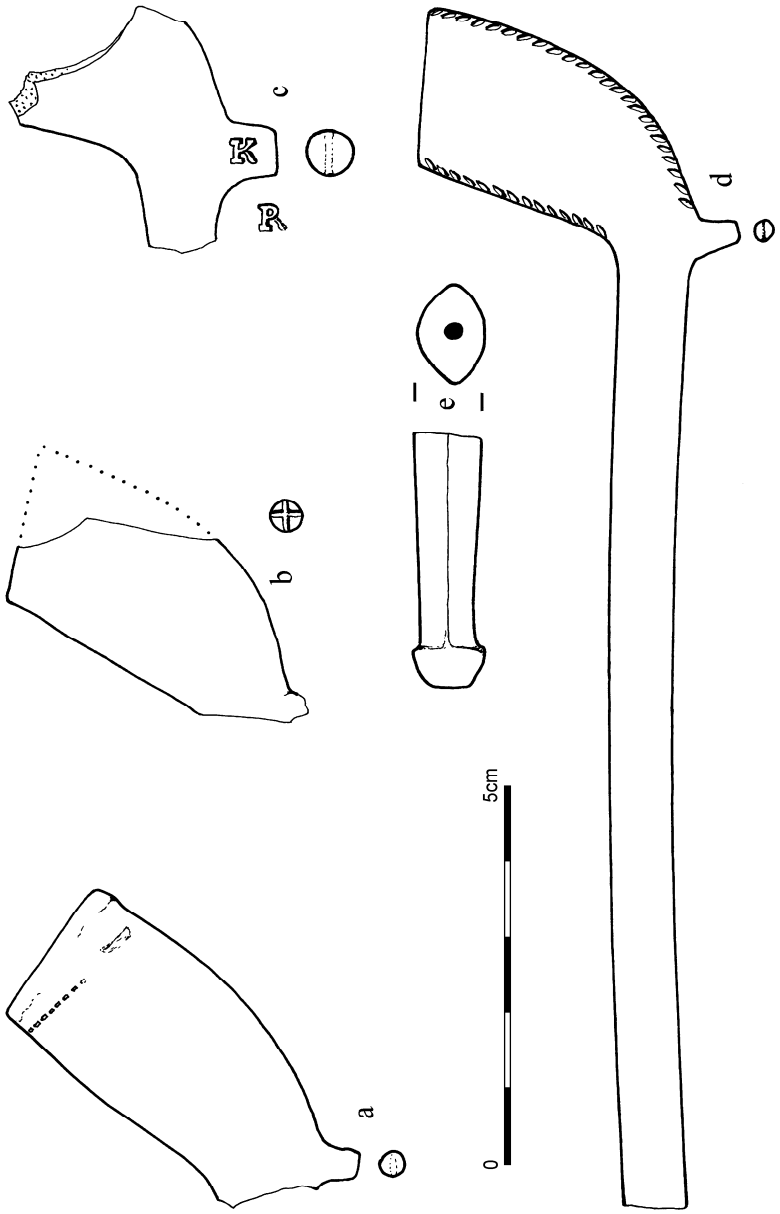


Figure 53: The Clay Tobacco Pipes: example of the clay tobacco pipes recovered from the Vine Street excavations

Table 89: The Clay Tobacco Pipes: context Summary showing the numbers of bowl (B), stem (S) and mouthpiece fragments (M) from each context, the total number of fragments recovered (Tot) and then two date ranges. The first gives the overall date range of pipe fragments recovered and the second the likely deposition date for that particular group, based on the latest closely datable pipe fragments present. Marked or decorated pipes are noted in their respective columns as well as the figure numbers of illustrated examples.

Site	Cxt	Grp	B	S	M	Tot	Range	Deposit	Marks	Dec, etc	Figs	Comments
A22 2003	36	-		1		1	1760-1910	1760-1910				Single thin, cylindrical stem fragment - very battered and abraded.
A22 2003	431	-		2		2	1760-1910	1760-1910				Two plain stem fragments - most likely late C18th or early C19th in date.
A22 2003	492	-		1		1	1650-1730	1650-1730				Plain stem fragment from a long-stemmed pipe.
A22 2003	500	-	1	1		2	1760-1910	1800-1830	RK		3	A plain stem fragment of later C18th or C19th type and the lower part of a plain heel bowl with the moulded initials RK on the sides of the heel - no internal bowl cross. This is similar in form to an example from a kiln group of c1820 from Causeway Lane (Higgins 1999, Fig 99.22) and can be attributed to Richard King (1775-1828) who is recorded as a pipemaker from at least 1805 until his death in 1828 (Hammond 1999, 228).
A22 2003	506	-		2		2	1610-1910	1750-1910				One piece of C17th stem (which must be residual) and one piece of later C18th or C19th date.
A22 2003	509	-		1	1	2	1760-1930	1880-1930			5	One stem fragment of later C18th or early C19th date and a late stem with very wide, flat, oval section and a nipple mouthpiece.
A22 2003	517	-		2		2	1630-1910	1630-1910				One piece of C17th stem (which must be residual) and one piece of later C18th or C19th date (most likely C19th).
A22 2003	1104	G633		1	1	2	1610-1910	1750-1910				One piece of C17th stem (which must be residual) with a good quality burnish and a very thin mouthpiece from a later C18th or C19th pipe with a simple cut end.
A22 2003	1107	G631		1		1	1630-1730	1630-1730				
A22 2003	1128	G633		1		1	1660-1720	1660-1720				Thick stem fragment.
A22 2003	1159	G543		1		1	1660-1720	1660-1720				Thick stem fragment.
A22 2003	2061	G639		5		5	1610-1910	1750-1910				Two fragments of C17th or C18th date (probably late C17th or first half of C18th) and three pieces of later C18th or C19th date (most likely late C18th or early C19th).
A22 2003	2213	G634	2	2		4	1660-1910	1820-1870		Leaf seams x 1	4	Group includes the lower part of a local style spur bowl of c1660-80 (not burnished) and a stem fragment of late C18th or C19th type. The best dating, however, is provided by a joining stem and bowl (fresh break) of c1820-70. The bowl has small, simple leaves on its seams and the surviving stem is 125mm long, suggesting it was freshly deposited in the context.
A22 2003	2215	G634		3		3	1610-1880	1750-1880				One piece of C17th stem (which must be residual) and two pieces of later C18th or C19th date (probably later C18th or early C19th).
A22 2003	2340	-		2		2	1750-1910	1750-1910				Two fragments of later C18th or C19th date (most likely late C18th or first half of C19th).
A22 2003	2386	-	1	5		6	1700-1910	1780-1910				The group includes one thick C18th stem (residual) but all the other pieces are

Site	Cxt	Grp	B	S	M	Tot	Range	Deposit	Marks	Dec, etc	Figs	Comments
												thinner stems of later C18th or C19th types. One small fragment of a spur survives, most likely of very late C18th or early C19th date and all of the later stems could be of this date.
A22 2003	3202	G632		1		1	1750-1910	1750-1910				One plain stem, most likely of late C18th or early C19th date.
A22 2003	3234	G660		2		2	1800-1910	1760-1910				The group includes one thick C18th stem (residual) and one thinner stems of later C18th or C19th type.
A22 2003	U/S	-		6		6	1610-1910	1610-1910				Stems of mixed dates.
A22 2003	U/S - Area 2	-	1			1	1690-1730	1690-1730			1	A complete spur bowl of a local style with internally trimmed and bottered rim, which is half milled. Not burnished, no internal bowl cross and base of spur flattened. Stem bore 7/64".
A24 2003	4192	G1057		2		2	1610-1720	1610-1720				Two stems of C17th or early C18th date.
A24 2003	4245	G228		1		1	1660-1720	1660-1720				A stem of C17th or early C18th date with a markedly oval section.
A24 2003	6085	G1055	1			1	1760-1810	1760-1810		internal bowl cross x 1	2	The larger part of a plain bowl with an internally trimmed rim and a stem bore of 5/64". There is an internal bowl cross arranged as an '+'. Most of the heel or spur is missing but it was probably plain. The bowl is poorly moulded with numerous cracks in the surface where the clay has 'stretched' under pressure.
A24 2003	8438	G902		1		1	1610-1710	1610-1710				
Totals			6	44	2	52						

THE SMALL FINDS *H.E.M. Cool*

Introduction

The material has been divided into broad chronological periods and then by function following divisions first suggested by Crummy (1983) and followed by Cooper in his discussion of the Causeway Lane finds (Cooper 1999). Table 90 and Table 91 provide summaries of the assemblage as a whole. The typological discussion aims to date the material and place it within a broader context. This has generally been done by directing the reader to the appropriate standard work of reference. Any references to Crummy Types, for example, are derived from Nina Crummy's seminal work on the small finds from Colchester (Crummy 1983).

Table 90: The Small Finds: the discussed finds by material and site phasing

Phase	Silver	Cu Alloy	Pb Alloy	Iron	Fired Clay	Glass	Bone Antler Ivory	Jet, Shale	Stone	Total
2	-	9	1	3	1	-	1	-	-	15
3	-	36	-	34	4	3	26	-	4	107
4	-	14	-	17	4	1	21	2	4	63
5	-	-	-	-	-	-	-	-	1	1
6	-	-	-	-	-	-	1	-	-	1
8	-	17	-	10	3	-	15	2	3	50
9	-	11	-	5	2	1	6	1	2	28
10	-	5	-	3	1	-	2	-	-	11
11	-	-	-	-	-	-	1	-	-	1
13	-	6	-	-	2	-	1	-	3	12
14	-	1	-	-	-	-	-	-	-	1
U/S	1	52	7	-	3	-	12	2	1	78
Total	1	151	8	72	20	5	86	7	15	368

Table 91: The Small Finds: the discussed finds by date of find and function

Function	Roman	Anglo-Saxon	Saxo-Norman	Medieval	Post Medieval	Uncertain	Total
Personal	95	-	2	44	2	-	143
Toilet	13	-	-	-	-	-	13
Textile	11	-	-	9	-	-	20
House	16	-	-	2	-	1	19
Recreation	21	-	-	3	-	-	24
Weighing	3	-	-	1	-	-	4
Writing	3	-	-	1	-	-	4
Transport	4	-	-	8	-	-	12
Tools	23	-	-	11	-	-	34
Fastener	18	-	1	5	1	-	25
Agriculture	1	-	-	-	-	-	1
Military	7	-	-	-	1	-	8
Religion	4	-	-	1	-	-	5
Craft debris	40	-	1	5	-	-	46
Miscellaneous	4	1	-	3	-	2	10
Total	260	1	4	93	4	3	368

The opportunity has also been taken to provide more extensive lists of *comparanda* from Leicester. This is based on both published and unpublished excavations within the city conducted by the University of Leicester Archaeological Service and its predecessor, and other published excavations such as those by Kenyon (1948) at Jewry Wall. For some categories of Roman finds it has also been possible to augment these with my own records of the collections in the Jewry Wall Museum (Cool 1983). It should be stressed that the Leicester *comparanda* are far from complete as it has not been possible to review all the excavated assemblages. It is hoped, however, that it is sufficient to achieve the aim of placing the Vine

Street finds within their Leicester context and so to reveal those aspects of the assemblage that are part of the normal Leicester pattern, and those aspects where it deviates and which may help to characterise the nature of the activity taking place on the site. The nature of the *comparanda* available means that this approach is most successful in the Roman period where much more information about the finds recovered from Leicester has been recorded. Less information is available about Leicester's Saxon and medieval material culture, but it is hoped that the approach will provide the foundations for similar work on those periods in the future.

Following the consideration by period and function an overview is offered structured according to site period. This provides merely a site specific consideration. The general overview comparing the Highcross sites and all the other Leicester sites is reserved for the letterpress volume.

The Prehistoric Finds

Lynden Cooper comments: a small assemblage of worked flint was retrieved from the site, one struck flake of which has been catalogued below under Roman stone objects (no. 168) as it came from a Roman context and could relate to the continuation of flint technology through later prehistory and into the Roman period. None of the assemblage is considered to be found in a context contemporary with use except a group of Mesolithic pieces from Phase 1 pit (contexts 3579, 3595 and 3596) comprising three blades, a bladelet, a bladelet core and six struck flakes, all of which were very sharp and in fresh condition as not disturbed since deposition. Additonally, a Mesolithic core tablet, the sharpness of which would indicate it had been disturbed from a buried soil, came from robber trench fill (8370). The remainder of the assemblage, 22 pieces, comprises bladelets, flakes and cores of a general Mesolithic to Bronze Age date.

The Roman finds

Personal Ornaments

Personal ornaments always form a major part of any Roman assemblage and the Vine Street assemblage is no exception to this as they form over a third of all the Roman finds. They are discussed by broad category.

Brooches

Thirty-two complete and fragmentary brooches were recovered of which 26 could be assigned to type as summarised in Table 92 (Column 1).

There are four brooches whose *floruit* spans the early to mid- 1st century. Two of these are one-piece bow brooches (nos. 1 and 2), often termed the Nauheim Derivative (see Olivier 1988, 36-8 and Bayley and Butcher 2004, 147 for general discussion). Such brooches were in use prior to the Conquest but had gone out of general use by *c.*AD 75. This family is regularly found in excavations at Leicester. At Causeway Lane there were eleven examples (Mackreth 1999, 251 nos. 16-25) and eight at Jewry Wall (Kenyon 1948, 248 nos. 1-3) as well as examples from other sites (see Table 92). The other two to which a similar early date may be assigned belong to the Rosette / Langton Down family (nos. 8 and 9), but as both are only represented by the lower bow identifying the variant is not possible. The smaller example (no. 9) is probably a Langton Down brooch; the other (no. 8) is definitely a Rosette brooch. Both of these are pre-conquest forms going out of use in the early years of the post-conquest period (Bayley and Butcher 2004, 150-1). Rosette brooches appear to have been relatively uncommon at Leicester with the only other example recorded coming from Causeway Lane (Mackreth 1999, 249 no.14). Langton Down brooches were a little more common with examples having come from excavations at the forum (Hebditch and Mellor 1974, 45 no. 8), in Bath Lane (Clay and Mellor 1985, 69 no. 6), at the Shires (forthcoming cat no. 15) and from unpublished excavations at St Nicholas Circle (A163.1969 sf 67).

The other early type, the Hod Hill, is the best represented type in this assemblage. This family was an introduction that took place at the time of the Conquest and remained in common use for the next 25 years (see Bayley and Butcher 2004, 152-3). They became much rarer in the 70s though are still occasionally found on sites not occupied until the early years of that decade (Cool and Philo 1998, 34 nos. 5-10). Several different variants are present. Nos. 4 and 5 are example of the simplest Hod Hill type of brooch (Hull Type 60 – see Crummy 1983, 10). The basal lugged form Hull type 61 is represented by nos. 6 and 7. No. 3 is too fragmentary to assign to a type. As may be seen from Table 92 the Hod Hill family was a common type at Leicester. Earlier examples of this family include two examples of Hull Type 60 from the Causeway Lane excavations (Mackreth 1999, 253 no. 26) and The Shires (forthcoming cat 17) and one of Hull Type 61 from Castle Street (A124.1970 sf 2). At least one example of the top lugged Hull Type 63 came from Jewry Wall (Kenyon 1948, 251 no. 11).

As Table 92 shows, the British pre-conquest type of one-piece brooch (the Colchester) is very common from sites in Leicester. This was going out of use during the 50s as the Colchester Derivative two-piece forms replaced it. Given its absence here, it is possible that the other early forms noted at Vine Street were possibly in use during the later part of their *floruit,* i.e the third quarter of the 1st century. Certainly the brooch assemblage at Vine Street does not show quite as strong an emphasis on early brooches as that from the Shires does.

Colchester Derivative brooches are the commonest type of brooch to be recovered from Leicester generally and are well represented here (see Table 92). The form is typical of the second half of the 1st century with some examples continuing in use into the 2nd century. The ones recovered from Vine Street were most likely to have been in use during the 1st century. No. 11 is too badly corroded and fragmentary for the type to be identified, but the lack of the spring might hint at being a rear hook form as the spring etc is frequently missing from these as the spring fixing arrangement was very inadequate. The example with a hinged pin (no. 12 from the Burgess Street evaluation) is similar to a brooch with a recessed bead moulding from the Shires (forthcoming cat no. 7). They are most commonly found in the East Midlands and Mackreth argued for a dating between the 50s and the later 1st century AD, based on the close similarity with derivatives employing the less durable rear hook spring mechanism (Mackreth forthcoming in Shires report). The two examples with the Polden Hill style of spring fixing (nos. 13 and

14) where the bar through the centre of the spring is held in perforated plates at the end of the spring cover (see Bayley and Butcher 2004, 159-60) are both small examples of Hull Type 96. This is a Midlands type thought to be early in the sequence, a dating supported by the Phase 2 context of no. 13.

The fifth Colchester Derivative brooch (no. 10) is the most interesting. It has a lug with large perforation and traces of a possible second perforation (Bayley and Butcher 2004,155 for type). The lug is unusually positioned, this and the vestigial wings suggest it may well be early in the sequence when much experimentation was going on into different spring fixing mechanisms. This would suggest a date in the middle of the 1st century is appropriate

The second half of the 1st century saw the development of new forms of brooches, the main types being the trumpet, the headstud and the fantail. At the same time the Colchester Derivative shape continued as 'T'-shaped brooches, often decorated with enamel and provided with small headloops. All these forms continued in use into the mid 2nd century. At Leicester, headstud and trumpet brooches appear to have been the types most preferred generally (see Table 92), though only the former was found at Vine Street. No. 15 is an example of the headstud brooch Hull Type 148A which does not have enamelled bow decoration. The chord of the spring is held by a forward facing hook suggesting it could well be early in the headstud sequence as that is one of the spring fixing arrangements adopted by Colchester Derivatives. The fact that this example has a rivetted headstud rather than one cast as part of the brooch would also support a 1st century date (Bayley and Butcher 2004 164-7, see p. 165 for a discussion of rivetted studs).

The other two headstud brooches (nos. 16 and 17) belong to the main family of enamelled headstud brooch (Hull Type 149B - see Bayley and Butcher 2004, 164-6 for full discussion of the family). The details of the enamelling are a little indistinct but both seem to have enamel placed around a set of reserved blocks rather than in the more normal diamond and triangle cells. The size of the reserved blocks also distinguishes it from the style where the enamelling is reduced to two long cells whose inner edges are zig-zagged to leave a central spine such as that from Wroxeter (Mackreth 2000, 150 no. 19). These large reserved blocks do not seem to be a common form of bow decoration on these brooches, and it is possible that it represents a regional variant. Two others are certainly known in the East Midlands. A similar headstud with a row of metal lozenges surrounded by enamel is stated to have been found in Northamptonshire (Hattatt 1985, 102 no. 421) and one where the central band is described as large beads comes from Derby (Mackreth 1985, 289 no. 23). The latter does not record the presence of any enamel. Two earlier headstud finds from Leicester also had reserved lozenges. The example from Causeway Lane was a Hull type 145B with toothed edges to the bow (Mackreth 1999, 249 no. 7). That from Jewry Wall does not fit happily into the Hull typology having a forward facing footknob and a moulded crest (Kenyon 1948, 251 no. 14). The example from Jewry Wall came from a context dated to the earlier 2nd century (c.AD 125 – 30), whilst that from Causeway Lane came from one assigned to the mid- 2nd to early 3rd century. One of Vine Street brooches came from a mid- 1st to early 2nd-century context. Mackreth argued that the features on the Causeway Lane brooch argued for a date of manufacture prior to *c.*AD 75, and an early date for this brooch would be supported by its separately riveted headstud (see no. 15 discussed above). At present therefore it would appear that this decorative style was being used on headstud brooches early in the type's *floruit*.

The other brooch that can be assigned to the broad later 1st to mid- 2nd century band is the small hinged brooch no. 18. This is an example of a Hull Type 137 which is placed by Bayley and Butcher (2004, 159) in their initial T-shaped brooch family. Such brooches developed during the later 1st century and continued in use into the 2nd century. The precise chronology of this type with the triangular moulding on the head is still unknown.

There are only three brooches which can be assigned to the 2nd century or later. No. 19 is a Wroxeter brooch (see Bayley and Butcher 2004, 169) which was a predominantly 2nd-century form with a distribution throughout the province (Mackreth 1995, 963 no. 27). The other two brooches, by contrast, are very unusual within a British milieu and both seem most likely to be imported from the continent as they are unusual finds for Britain. The millefiori enamel decoration on no. 19 also points to it being an import from the continent as this type of enamelling does not appear to have been favoured by British craftmen. No. 20 is an example of Exner's Gruppe II 4 (Exner 1939, 89). No. 19 falls into the same broad category (Gruppe II - Gleichseitige). However, it does not fall into any of the well known variants of those, and neither Exner nor other authors such as Sellye (1939) and Riha (1979) who have published large groups of enamelled Roman brooches from the continent have included brooches like it. On general grounds a 2nd- into 3rd-century date can be suggested for both, a date supported by the Phase 3 contexts

they were found in.

Table 92: The Small Finds: summary of the Roman brooches from Leicester

Type	Vine Street	Free-school	Vaughan Way	Cause-way	Shires	Jewry Wall	Misc sites	Total
End 1st BC - early 1st AD								
Lion	-	1	-	-	-	-	-	1
Early - mid 1st AD								
One-Piece	2	-	1	11	2	8	4	28
Colchester	-	1	-	1	3	7	7	19
Rosette	1	-	-	1	-	-	-	2
Langton Down	1	-	-	-	1	-	3	5
Mid 1st century								
Aucissa	-	-	-	-	1	-	-	1
Bagendon	-	-	-	-	-	-	1	1
Hod Hill	6	-	-	1	2	8	3	20
Early Plate	-	-	-	-	1	-	-	1
Mid 1st – 2nd century								
Colchester Derivative	5	-	1	5	4	14	5	34
Headstud	3	-	-	1	3	1	2	10
Trumpet	-	-	2	5	-	-	1	8
Lower Severn T-shape	1	-	1	-	1	-	-	3
Fantail	-	-	-	-	-	-	5	5
Algren 227	-	-	-	1	-	-	-	1
2nd century								
Shield bow	-	-	-	-	-	1	-	1
Alcester	-	-	-	-	-	1	-	1
Wroxeter	1	-	-	-	-	-	-	1
2nd - 3rd century								
Equal-armed	1	-	-	-	-	-	-	1
Knee	-	-	-	-	2	1	2	5
Disc	-	-	-	1	-	4	1	6
Plate	-	-	-	-	1	-	-	1
Cruciform plate	1	-	-	-	-	-	-	1
Figured plate	-	-	-	-	-	1	-	1
4th century								
Crossbow	-	-	-	-	-	1	-	1
Penannular								
Penannular	-	-	-	-	1	-	-	1
Penannular A	-	-	-	1	-	8	-	9
Penannular C	1	-	1	-	-	-	-	2
Penannular D	3	-	-	-	-	2	-	5
Penannular E	-	-	-	-	1	1	2	4
Total	26	2	6	28	23	58	36	179

The site also produced at least four penannular brooches, three of which belong to Fowler's (1960) type D with bent back terminals. Penannular brooches tend not to be closely dateable as they have very long lifespan. Two of these, however, are usefully stratified (nos. 23 and 24). One of the pins also came from a penannular brooch (no. 29). The ribbed barrel-like junction with the hoop indicates that it would have been of very late Roman or sub-Roman date (no. 29).

To sum up the brooch assemblage. The majority of the bow brooches were probably in use during the second half of the 1st century, and are fairly typical of a Leicester assemblage. Brooches that need to be of the 2nd century are much rarer. As can be seen from Table 92 most Leicester sites show a much stronger 1st-century brooch presence than they do a 2nd-century one, though on some sites such as Jewry Wall there is a reasonably strong 2nd-century showing. What sets the Vine Street assemblage apart is that such late brooches as there are would appear mainly to be unusual continental imports. The incidence of brooch-wearing declined markedly in the later 2nd century amongst the British population as a whole, but some people continued to wear the new knee brooches and the highly decorative enamelled plate brooches. The fact that people who lived at Vine Street during Phase 3 appeared to be losing unusual brooches certainly sets them apart and, as discussed later, is one of the clues that can be used to consider who these people might be.

Early to mid- 1st-century forms

1 One piece brooch (in two joining fragments). Copper alloy. Circular-sectioned wire bent to form spring of two turns either side of missing bow; internal chord and part of pin extant. Present length 31mm, width of spring 12mm. A24.2003. sf 1090 : 5026, G1043 : Phase 8.2 (ID102).

2 One-piece brooch. Copper alloy. Spring of four turns with chord below oval-sectioned bow which tapers to foot, triangular catch plate with lower end of pin corroded in place. Majority of pin and part of spring now separate pieces. Length 64mm, width of spring 14mm. A24.2003. sf 431 : Unstratified. (ID160). Figure 54

3 Hod Hill brooch lacking part of lower bow, foot and most of catch-plate. Copper alloy. Top of bow bent over to form cylindrical hinge cover; 'D'-sectioned tapering bow; centrally a thin rib on either side of thick rib. Traces of tinning on hinge. Present length 23mm, hinge width 13mm. A22.2003. sf 149 : Unstratified.(ID166). Figure 54

4 Hod Hill brooch lacking upper part. Upper bow with two central ribs, ribs and edges of bow have beaded appearance; two transverse ribs; flat lower bow tapering to small foot knob projecting forward with rib above; faint groove parallel to edge on lower body; triangular catchplate with broken edges and deliberate circular perforation. Present length 44mm, width of upper bow 7mm. A22.2003. sf 172 : unstratified. (ID163). Figure 54

5 Hod Hill brooch. Upper part of bow bent up and over to form hinge cover, pin missing. Bow tapers to foot with central slightly expanded rectangular panel with central groove producing two transverse ribs with vertical nicks to form beaded appearance; three transverse ribs above and below panel; two ribs forming footknob at base; trapezoidal catch plate. Traces of white metal on hinge cover and in edges of channels between ribs suggest the whole front of the brooch was ooriginally 'tinned'. Length 40mm, width hinge cover 11.5. A24.2003. sf 1967 : 8011, G123 : Phase 2.4. (ID98). Figure 54

6 Hod Hill brooch in very poor condition. Top of bow bent forward to form hinge cover with small part of the top of the hinged pin preserved; upper bow has three vertical ribs with vertically ribbed lugs at base; two horizontal ribs centrally, part of tapering lower bow retaining part of catch plate at rear. Part of lower bow and foot missing. Present length *c.* 48mm, width of hinge cover 14mm. A24.2003. sf 1971 : 6997, G1129 : Phase 3.8. (ID164).

7 Hod Hill brooch lacking hinge cylinder and pin. Upper bow has low beaded rib parallel to each edge; centrally a tall beaded rib on either side of a zig-zag rib nicked across; acorn-shaped lug at base of upper bow on either side; two horizontal ribs centrally; leaf-shaped lower bow with punched pattern depicting the veins of a leaf; flat foot-knob with rib above; triangular catch plate; front of bow tinned. Present length 49mm, width of upper bow 10mm. A24.2003. sf1945 : 6875, G1127 : Phase 3.8. (ID165). Figure 54

8 Rosette brooch; foot. Expanding foot with eight vertical ribs and two rivets inserted; broken angular catch plate behind. Present length 26mm, width of foot 19mm. A24.2003. sf473 : 4198, G1073 : Phase 4.6. (ID161). Figure 54

9 Rosette or Langton Down brooch; foot. Expanding foot with four vertical ribs; broken angular catch plate behind. Present length 17mm, width of foot 10.5mm. A22.2003 : sf707 : unstratified. (ID162)

Mid- 1st- to 2nd-century forms

10 Colchester Derivative brooch. Copper alloy. Angular perforated lug behind head with vestigial wings on ether side; tall 'D'-sectioned tapering to narrow foot with transverse nick across; trapezoidal catchplate. Length 47mm, width of wings 18mm. A24.2003. sf1987 : 8149, G107 : Phase 2.4. (ID99). Figure 54

11 Colchester Derivative brooch lacking spring, pin and catch plate. Part of one hollow wing, 'D' sectioned bow tapering to foot and twisted sideways. Surfaces much corroded. Length 62mm. A22.2003. Sf 1122 : 1455, G547 : Phase 8.03. (ID173).

12 Colchester Derivative type with hinged pin (now missing). Partial remains of axis bar visible inside cylindrical wings which are decorated with a faint vertical moulding at each end. The head is triangular in section and rises above the line of the wings, its crest decorated with a single beaded moulding extending along the midline for the length of the bow, which tapers evenly to its tip. The catch plate is solid. Length: 50mm. A21.2006. Sf 5 : Tr.4a : Unstratified. (Catalogue entry supplied by Nick Cooper)

13 Polden Hill brooch. Copper alloy. Short semi-cylindrical spring cover with pronounced rib at each end and ends perforated for bar that passes through spring of 3 and 4 turns either side of broken pin; chord of spring held in perforated lug; Oval-sectioned bow tapering to foot and humped over to the spring cover at top; triangular catch-plate. The whole much corroded. Length 37mm, width of wings 28mm. A24.2003: sf1988 : 8163, G117 : Phase 2.5. (ID 101). Figure 54

14 Polden Hill brooch lacking lower bow and pin. Semi-cylindrical spring cover with bar through spring lodged in notches in the ends of the spring cover; spring of four turns with chord passing through cast loop on the head; 'D'-sectioned tapering bow with central rib. Present length 20mm, width of wings 15mm. A24.2003. sf 156: Unstratified. (ID170).

Late 1st to mid- 2nd-century forms

15 Headstud brooch. Copper alloy. Short wings with three vertical grooves on each; one side of spring of four turns remains, chord held by forward facing hook, pin through centre of spring lodged in lug behind wings; 'D'-sectioned tapering bow with narrow rib on either side, top of bow has recessed central perforation; hemispherical footknob with rib above; broken catch plate behind. Length 39mm, width of wings 14mm. A22.2003. Sf 333: unstratified. (ID167). Figure 54

16 Headstud brooch. Cast circular headloop; short stepped wings with closed cylindrical hinge cover at back; hinged pin fixed on crossbar within cover which is lodged in perforations in its end; pin still corroded in place within the catch plate; rectangular-section tapering bow with raised circular ring and dot cell on top, front of bow has central rectangular cell with row of reserved oval blocks centrally; traces of much decayed enamel in this and the ring and dot cell; flat-based foot knob separated from lower bow by constriction and rib; trapezoidal catchplate. Length 44mm, wing width 15mm. A22.2003. sf 899 : 2485, G565 : Phase 8.1. (ID168). Figure 54

17 Headstud brooch lacking pin and parts of catch plate. Description as no. 16 above other than there being two ribs at the base of the bow. Corrosion products on the base of the footknob suggest it might have had an enamelled cell there too but the traces are now too indistinct to be certain. Length 47mm, width of wings 13mm. A24.2003. sf914 : 2914, G428 : Phase 2.5. (ID169).

18 T-shaped brooch. Copper alloy. Wings bent into closed hinge cylinder with joint at back, hinge bar retaining part of pin; shallow 'D'-sectioned bow tapering to foot consisting of cross rib and small knob' transverse rib at top of bow with elongated triangle moulding on upper part of bow; trapezoidal catch plate Length 37mm, width of wings 21mm. A24.2003. sf 1021 : unstratified (ID100). Figure 54

2nd- and 3rd-century forms

19 Wroxeter brooch. Copper alloy. Flat disc head with small flat cast head-loop projecting from top with two horizontal grooves separating it from the disc; two lugs on back of head retaining much corroded pin, precise form of attachment unclear; 'D'-section bow; central hollow-backed acanthus, with rib between petals and pair of ribs top and bottom; 'D' sectioned lower bow tapering to foot knob consisting of three horizontal ribs, central one the widest; trapezoidal catchplate. Length 65mm, width of head 17mm. A24.2003. sf918 : 2925, G786 : Phase 3.4. (ID159). Figure 55

20 Equal-armed brooch. Copper alloy and enamel. Hollow backed square unit; projecting perforated bar on each side in cruciform pattern with disc at each end, upper bar with hinge at back of disc missing; trapezoidal catchplate on back of lower disc. Central unit has recessed square cell with millefiori cane segments set in a translucent deep blue ground. Parts of three opaque white canes with dark centres remain. Discs each have a recessed ring filled with enamel, now much decayed and appearing green, within this ring a further ring and contrasting dot is visible and frequently appear silver - possibly applied contrasting metal. Traces of transverse grooves giving a milled/beaded effect on edges of discs and square unit. Length 42mm. A24.2003. sf1930 : 6275, G151 : Phase 3.3. (ID96). Figure 55

21 Plate brooch. Copper alloy. Central square plate with four D-sectioned arms with concave sides and outer ends with ridge and square knobs; double lug with end of hinged pin between behind one arm, and trapezoidal catch-plate behind opposite arm. Central plate has small transverse grooves around edges; three oval cells in three corners and a triangular cell in fourth, remains of enamel in each. Length 22mm. A24.2003. sf1019 : 4962, G723 : Phase 3.8. (ID97). Figure 55

Penannular brooches

22 Penannular (Fowler C) brooch. Circular-sectioned hoop flattening to rectangular-sectioned terminals that are coiled back onto hoop in spirals of one and a half and two turns, Diameter 35 x 32mm, section 2.5mm. A24.2003. sf 305. : 3161 : G666 : Phase 8.2. (ID175). Figure 55

23 Penannular (Fowler D) brooch. Circular-sectioned hoop becoming rectangular-sectioned at terminals with ends bent back on the hoop, terminals each have three transverse grooves; circular sectioned pin flattened end wrapped around hoop. Diameter 32 x 29mm, hoop section 3mm. A24.2003. sf1980 : 8102, G109 : Phase 2.5. (ID177). Figure 55

24 Penannular (Fowler D) brooch. Broken circular-sectioned hoop becoming rectangular-sectioned at extant terminal with end bent back on the hoop, terminal has central transvers channel with rib either side. Now bent into a smaller ring. Present diameter 23 x 22mm, hoop section 2mm. A22.2003. sf328 : 3536, G448 : Phase 3.6. (ID178)

25 Penannular (Fowler D2) brooch. Circular-sectioned hoop becoming rectangular-sectioned at terminals with ends bent back flat on the hoop, terminals notched and a zone of transverse grooves immediately behind each terminal. Diameter 25mm, hoop section 2mm. A24.2003. sf564 : unstratified. (ID176). Figure 55

26 Penannular brooch (?). Copper alloy. Part of oval-sectioned hoop with both ends broken; traces of additional piece, possibly from pin, wrapping around. Diameter 50mm, approximately 25% of circumference intact. Hoop section 4 x 3.5mm. A22.2003. sf872 : 2747, G389 : Phase 3.4. (ID235).

Miscellaneous brooch fragments

27 Bow brooch lacking upper part; narrow bow tapering to foot; broken triangular catch-plate. Much corroded. Present length 44mm. A22.2003. sf 1104 : 2155, G326 : Phase 2.2. (ID172).

28 Bow brooch, lower part only. Strip bow with central rib; triangular catch-plate. Present length 31mm. A22.2003. sf 601 : 1104, G6333 : Phase 13. (ID171).

29 Penannular or annular brooch pin. Copper alloy. Circular-sectioned shank curved down then up to broken point; other end flattened with two channels, originally bent around hoop now broken. Present length 50mm, section 3mm. A22.2003. sf 264 : 3119, G1414 : Phase 14. (ID225).

30 Brooch pin. Copper alloy. Circular-sectioned, one end pointed, other broken. Present length *c.* 50mm, section 1.5mm. A24.2003. sf 1977 : 8077, G160 : Phase 3.1. (ID224).

31 Brooch pin. Copper alloy Circular-sectioned wire pointed at one end and bent over at other, broken, end. Length 38mm, section 1mm. A24.2003. sf 2016 : 8006, G885 : Phase 9.02.(ID111).

32 Brooch pin. Copper alloy. Complete pin retaining one coil from spring. Length 34mm. A24.2003. sf 587 : 4649, G1249 : Phase 3.5. (ID174)

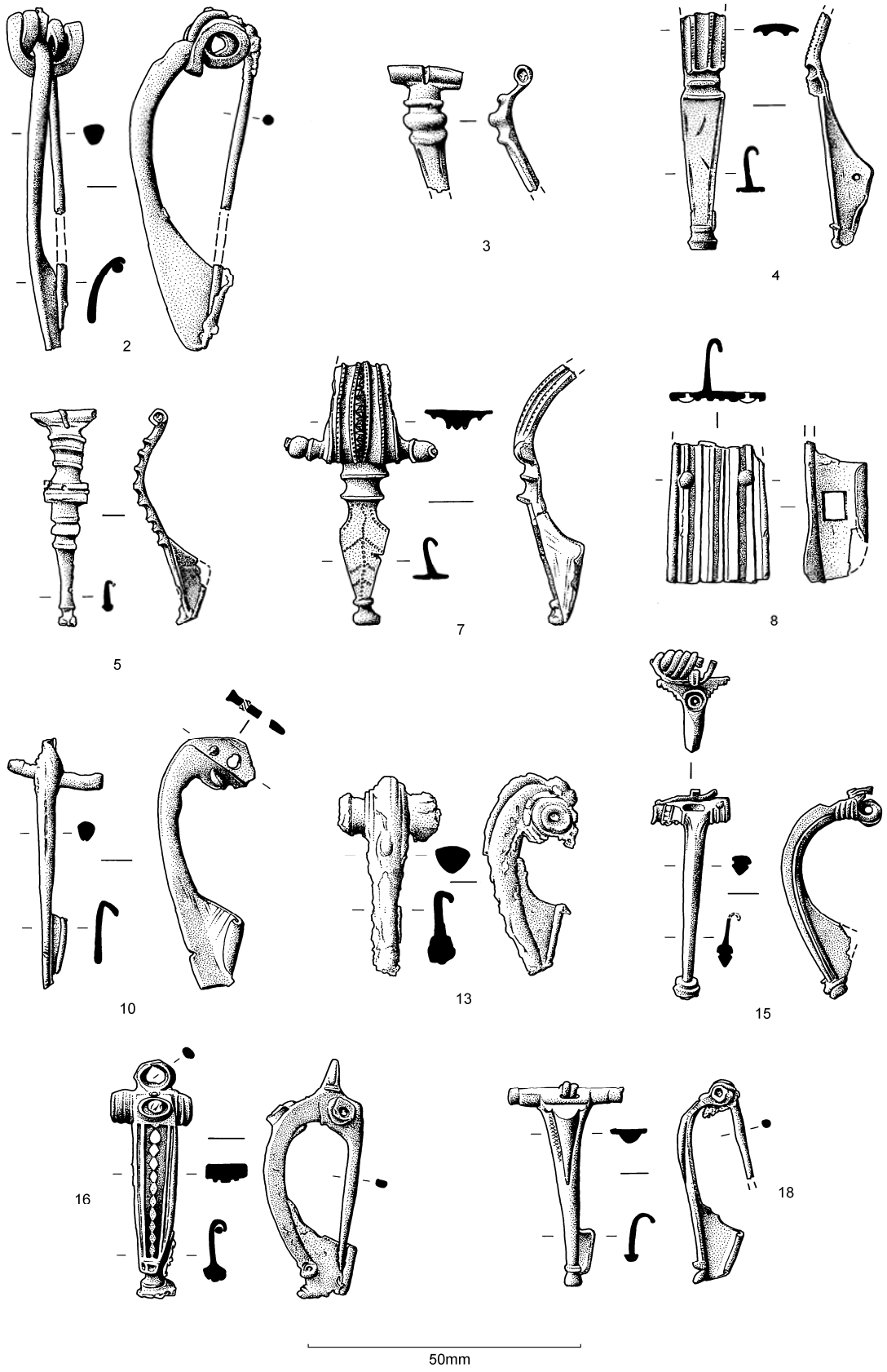


Figure 54: The Small Finds: the illustrated brooches, 2-5, 7-8, 10, 13, 15-16, 18

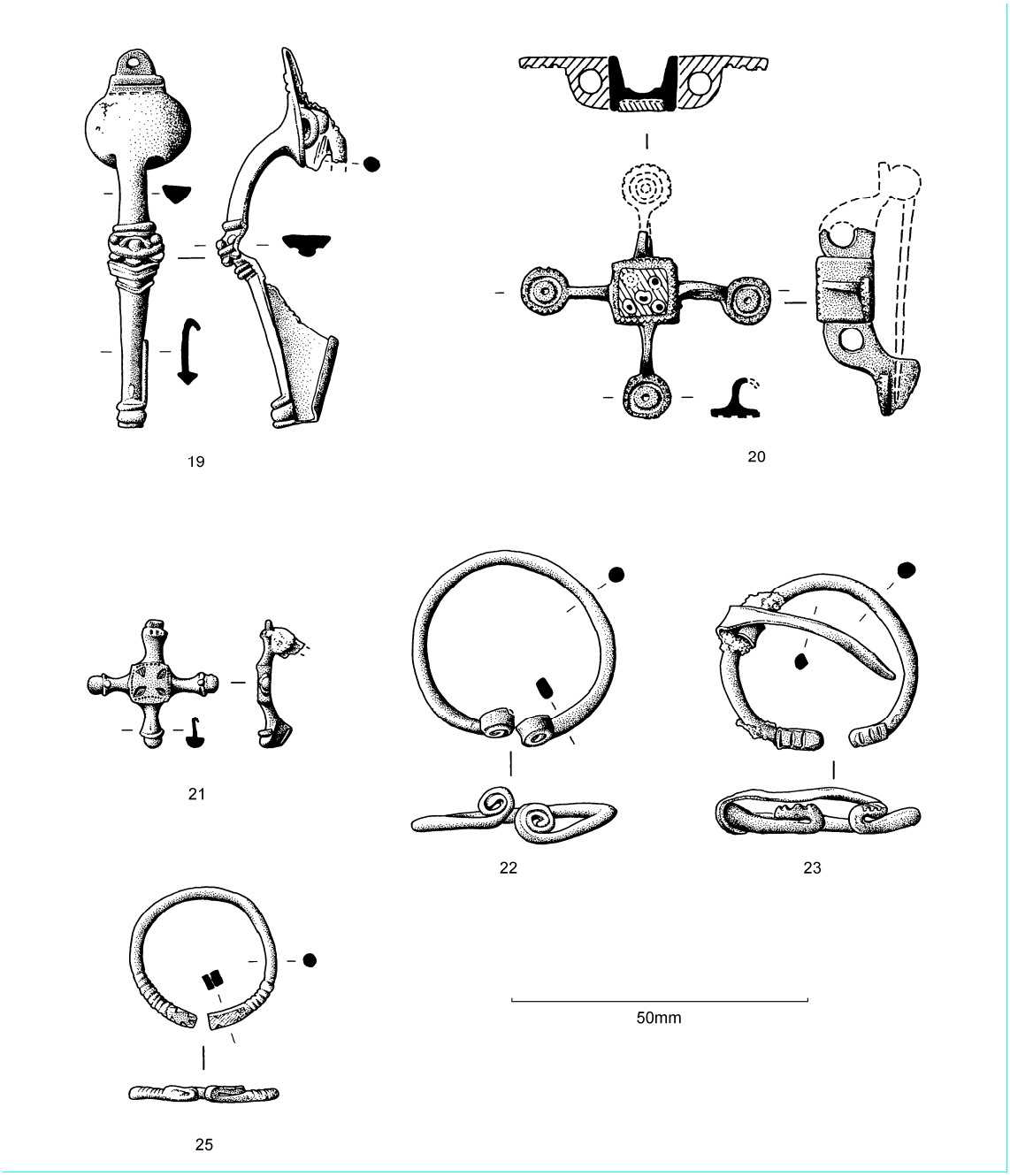


Figure 55: The Small Finds, the illustrated brooches, 19-23, 25

Hair pins

Table 93 summarises the common types of hair pins from Vine Street and Freeschool Lane together with the numbers found at other large sites in Leicester.

As can be seen, the types from Vine Street are ones that have regularly been found elsewhere in the town. The assemblage is dominated by 2nd-century forms (Crummy 1983, 21 type 2; Cool 1991, Groups 3 and 5). The copper-alloy hair pins are welcome additions that allow my standard typology to be revised. The initial definition of Cool Group 3 depended on whether the head was the same diameter as the shank (3A) or larger (3B). The defining feature of the group is having curved units between cordons. A recurring form within it has a piriform shape on one or more cordons with a small knob and cordon terminal. Cooper describing two examples from Causeway Lane aptly named them flask and stopper pins (Cooper 1999, 258 nos. 54 and 55). It is very noticeable that this flask and stopper type, both cut-into the shank and cast, is very common in Leicester. Kenyon published six examples from the Jewry Wall excavations as her type B2 (Kenyon 1948, 262) and Cooper knew of four other examples from unpublished

excavations. To these may be added three unpublished examples of Group 3A in the Jewry Wall Museum collection (Cool 1983, 526-9 nos. 24, 32, 47), from South Bond Street (Acc no. 116.1962/579), Causeway Lane and Freeschool Lane (116.1962/821). Unpublished examples of 3B (Cool 1983, 531-3, nos. 13, 18, 22 and 26) where the head is of greater diameter than the shank include ones from St Nicholas Street (Acc. No. 116.1962/778), Silver Street (Acc. No. 116.1962/418) and two unprovenanced examples (Acc no. BR 15, BR 20). Though this is not the place to re-examine the distribution of the flask and stopper pins throughout the province in detail, inspection of my original records (Cool 1983) suggests that the piriform flask and stopper variant tends to occur more commonly in the east than in the west. Other examples from the East Midlands can also be cited such as that from Derby (Dawson 1985, 212 no. 11) and more recently from the Bantycock gypsum mine excavations close to Newark (unpublished excavations by Pre-construct Archaeology). The regular recovery of the variant in Leicester suggests it was particularly popular in the town and may well be a local type.

Table 93: The Small Finds: Roman hairpins from selected sites in Leicester

	Vine Street	Free-school	Causeway Lane	Shires	Jewry Wall	Total
Early Roman forms	-					
Cool Group 3	3	-	2	-	9	14
Cool Group 5	1	-	-	-	-	1
Cool Group 8 var	1	-	5	-	-	6
Crummy Type 2	11	1	10	2	76	100
Late Roman forms						
Crummy Type 3	-	-	10	3	55	68
Crummy 4	2	-	-	-	-	2
Crummy 5	1	-	-	2	4	7
Not closely dated						
Crummy 1	8	-	19	3	14	44
Total	27	1	46	10	158	242

In general, 3A pins were most popular in the 2nd century whilst the 3B pins had a longer lifespan. At Jewry Wall, six of the flask and stopper pins came from 2nd-century contexts, including one from a pre-Forum early 2nd-century context. In the Causeway Lane excavations, one came from a mid- to late 2nd-century context and another came from one of the late 2nd to early 3rd centuries. At Leicester flask and stopper pins, both cut into the shank and where the head is of a larger diameter thus seem to be of 2nd-century date. One example of the three found here came from a Phase 3 context (no. 34), the others are otherwise residual or unstratified.

In the light of the number that have come from Leicester and the fact that flask and stopper pins of both head constructions (3A and 3B) seem to be contemporary there, it would seep appropriate to define them as a distinct type which might best be described as Group 3C.

No 37 also belongs to what appears to be a type that is currently restricted to Leicester. Cooper (1999, 258-9) first drew attention to the form which is defined by having a head consisting of sets of expanded cordons, often with nicked or milled edges. He suggested it might be a variant of my Group 8 and the nomenclature has been kept here in

Table 93 though it is a distinct type and I found nothing similar to it elsewhere in the province in my survey of hairpins (Cool 1983). The contexts of the Causeway Lane examples indicated a date range within the second half of the 1st century and during the 2nd century. The Vine Street example is unfortunately residual and cannot help define the dating further.

In defining the type Cooper drew attention to the fact that one of the flask and stopper hairpins from Jewry Wall had similarly nicked cordons (Kenyon 1948, 262 no. 3). This detail seems to be a recurrent feature of the Group 3C pins from Leicester occurring as well on one of the examples from Causeway Lane (Cooper 1999, 258 no. 55), and on an unpublished example in the Jewry Wall Museum (Silver Street – 116.1962/418; Cool 1983, 532 no. 22). Given the flask and stopper pins are of 2nd-century date,

this may well suggest that the Group 8 variant ones are too.

As can be seen from Table 93, late Roman forms are relatively uncommon at Vine Street, especially when compared to sites such as Causeway Lane and Jewry Wall. Of some interest is that it is the slightly more complex late forms that are represented, the diamond and triangle facetted cube head of Crummy Type 4 (nos. 49 and 50) and the knob and cordon heads of Crummy Type 5 (no. 51). The simple knob heads of the Crummy Type 3, dominant elsewhere in Leicester are absent.

Finally the simple undecorated bone pins of Crummy Type 1 which are not closely dateable within the Roman period are numerous here (nos. 53-62) as they are elsewhere in Leicester. These are normally considered to be hair pins, albeit with some reservations. Certainly if Stephens (2008, 115-9, 123) is correct in her belief that what we have been terming hair pins are better considered to be hair bodkins, often used for sectioning the hair during hair dressing rather holding it in place, Crummy Type 1 pins would have served perfectly adequately. It may be noted that here one of the pins (no. 57) has the sort of high gloss that is often developed when a bone implement is used for textile work, so it is possible that sometimes they might have been used as pin beaters whilst weaving. Vine Street also produced evidence for the manufacture of this type of pin. This is discussed below, and may go some way to explaining why this was the second most numerous type at Vine Street.

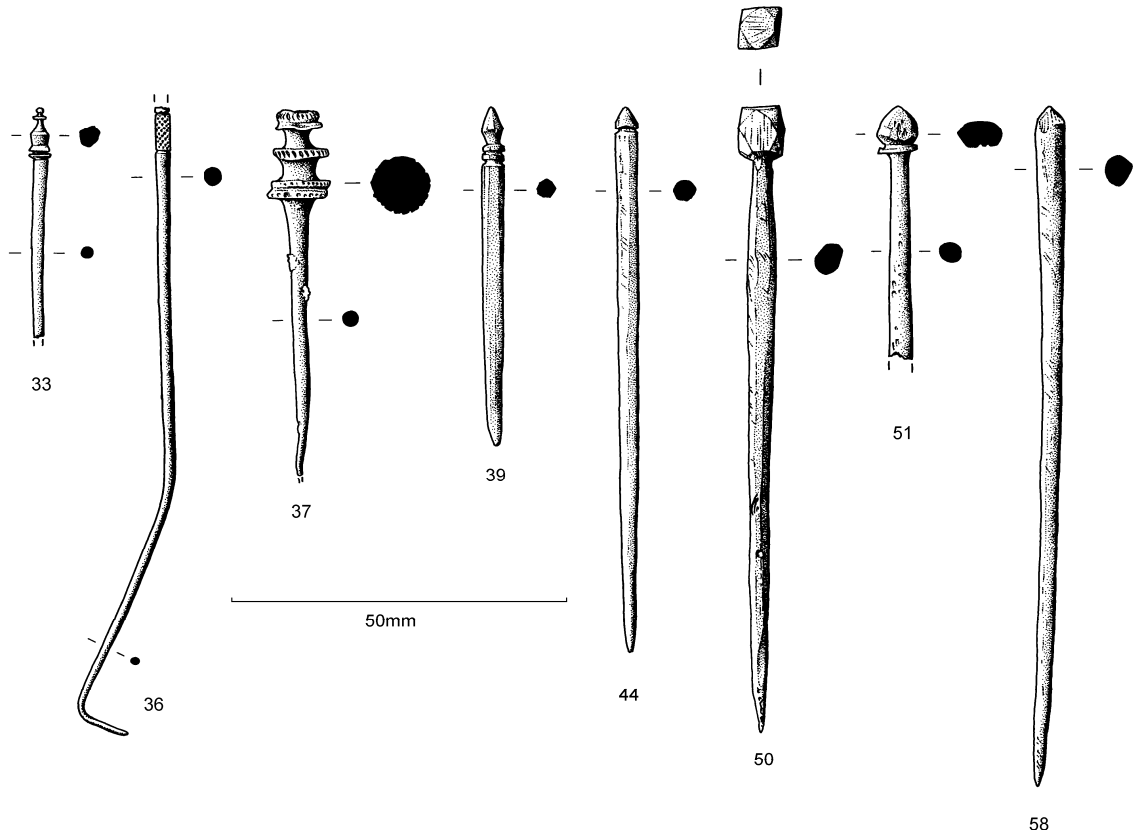


Figure 56: The Small Finds: the illustrated hairpins, 33, 36-7, 39, 44, 50-1, 58

Early Roman forms

33 Hair pin (Cool Group 3). Copper alloy. Circular-sectioned shank tapering to broken end; head of slightly larger diameter than top of shank - piriform knob with ribbed knob at top, two narrow ribs below. Present length 35mm, head section 3mm, shank section 2mm. A24.2003. sf280 : 3311,G476 : Phase 4.1. (ID120). Figure 56

34 Hair pin (Cool Group 3). Copper alloy. Piriform knob with two cordons below; circular-sectioned broken shank. Present length 57mm, head section 3.5mm, shank section 2.5mm. A24.2003. sf1910 : 5930, G930 : Phase 3.5. (ID154)

35 Complete copper alloy hairpin of Cool's Group 3B (1990, 154) belonging to a distinct subgroup with a 'flask and stopper' head which appears to have a concentration around Leicester. The present example is almost identical in design

and length to one from Causeway Lane, Leicester (Cooper 1999, 258 and fig. 123.54) the only differences being a double reel at the base of the head and that the head is wider than the tapering shaft, rather than flush. L: 120mm. A21.2006. Sf 11 : Tr.1a : unstratified. (entry supplied by Nick Cooper).

36 Hair pin (Cool Group 5C). Copper alloy. Circular-sectioned shank with flat top and tapering to point. Two grooves cut into top of shank with diagonally cross-hatched grooves between. Shank bent at base. Length 113mm, maximum shank section 2mm. A24.2003. sf1761 : 5864, G1291 : Phase 8.1. (ID153). Figure 56

37 Hair pin (Cool Group 8 variant). Copper alloy. Head consisting of three cordons of diminishing diameter towards top separated by concave-sided units, lowest has paired ribs with lowest one having nicked sides; second cordon is single with nicked sides, top has paired ribs with gently rounded radially nicked top; circular-sectioned shank tapering to broken end. Present length 55mm, maximum head diameter 9mm, shank section 2.5mm. A24.2003. sf597 : 4829, G743 : Phase 8.1. (ID152). Figure 56

38 Hair pin (Crummy Type 2). Bone. Circular-sectioned tapering broken shank; conical head; two grooves. Stained green. Present length 70mm, section 4mm. A22.2003. sf781 : 2644, G1364 : Phase 3.5. (ID 585).

39 Hair pin (Crummy Type 2). Bone. Conical terminal with two grooves around top of circular-sectioned shank; point re-sharpened. Length 51mm, maximum section 3.5mm. A24.2003. sf1027 : 4949, G731 : Phase 4.7. (ID6). Figure 56

40 Hair pin (Crummy Type 2) broken into two non-joining pieces. Bone. Circular-sectioned tapering shank with conical terminal and two grooves around top of shank; tip broken. Length 73mm, maximum section 3mm. A24.2003. sf1743 : 5428, G224 : Phase 4.6. (ID18)

41 Hair pin (Crummy Type 2). Bone. Oval-sectioned shank tapering to chipped tip; conical terminal with two grooves below. Present length 79mm, shank section 4 x 3.5mm. A24.2003. sf2028 : 8422, G1126 : Phase 8.1. (ID31)

42 Hair pin (Crummy Type 2). Bone. Circular-sectioned tapering shank with re-sharpened point; head has possible scar from turning; two grooves. Present length 73mm, section 4mm. A22.2003. sf348 : 3299, G1474 : Phase 8.2. (ID582)

43 Hair pin (Crummy Type 2), in two joining fragments. Bone. Slightly faceted circular-sectioned shank tapering to point and slightly bent; conical terminal with two grooves below. Length 110mm; maximum section 4.5mm. A24.2003. sf 1915 : 6340, G965 : Phase 3.8. (ID39)

44 Hair pin (Crummy Type 2). Bone. Slightly faceted oval-sectioned shank tapering to point; conical terminal with groove below. Length 82mm, maximum section 4 x 3.5mm. A24.2003. sf1088 : 4879, G1276 : Phase 4.7. (ID40). Figure 56

45 Hair pin (Crummy Type 2). Bone. Oval-sectioned shank tapering to point; shallow conical terminal with two grooves below. Length 82mm, maximum section 3.5 x 3mm. A24.2003. sf1781 : 5432, G1250 : Phase 3.6. (ID41)

46 Hair pin (Crummy Type 2). Bone. Circular-sectioned tapering broken shank; conical head; two grooves. Present length 90mm, section 3.5mm. A22.2003. sf725 : unstratified. (ID584).

47 Hair pin (Crummy Type 2). Bone. Circular-sectioned tapering broken shank; conical head; two grooves. Present length 49mm, section 3mm. A22.2003. sf607 : 1251, G508 : Phase 4.1. (ID583).

48 Hair pin (Crummy Type 2). Bone. Circular-sectioned tapering broken shank; top broken at groove. Present length 56mm, section 3mm. A22.2003. sf901 : 2836, G910 : Phase 3.4. (ID586).

Late Roman forms

49 Hair pin (Crummy Type 4). Bone. Ovoid knob head, roughly faceted probably intended to be a diamond and triangle faceted head; approximately circular sectioned shank tapering to point with central expansion. Length 77mm, head section 6mm, shank maximum section 5 x 4.5mm. A22.2003. sf306 : 3161, G666 : Phase 8.2. (ID84).

50 Hair pin (Crummy Type 4). Bone. Cube head with diamond and triangle decoration. Faceted circular-sectioned shank tapering to point and slightly to head. Length 95mm, head section 6.5mm, maximum shank section 4mm. A22.2003. sf261 : 3119, G1414 : Phase 14. (ID85). Figure 56

51 Hair pin (Crummy Type 5). Bone. Oval-sectioned pointed knob head with collar beneath; circular-sectioned broken shank. Present length 39mm, head section 6.5 x 5mm, shank section 3.5. A22.2003. sf621 : 1029, G539 : Phase 8.2. (ID86). Figure 56

Not closely dateable

52 Hair pin (?). Copper alloy. Broken head with two drum-shaped collars; circular-sectioned shank tapering to point. Present length 81mm, head section 4.5mm, shank section 2.5mm. A24.2003. sf1006 : 4918, G742 : Phase 8.1. (ID155).

53 Hair pin (Crummy Type 1). Bone. Circular-sectioned shank tapering to point; flat head. Length 90mm, section 5.5mm. A22.2003. sf299 : 3458, G746 : Phase 4.1. (ID587).

54 Hair pin (Crummy Type 1). Bone. Oval-sectioned faceted shank tapering to broken end; faceted conical head showing traces of cancellous tissue. Present length 78mm, maximum shank section 6.5mm. A22.2003. sf721 : 2264, G558 : Phase 8.1. (ID87)

55 Hair pin (Crummy Type 1). Bone. Circular-sectioned tapering shank; very shallowly conical head; broken base. Present length 69mm, maximum section. A24.2003. sf1076 : 4952, G731 : Phase 4.7. (ID7)

56 Hair pin (Crummy Type 1). Bone. Slightly faceted oval-sectioned shank with faceted conical terminal, tapering towards broken end. Present length 51mm, section 6.5 x 5.5mm. A24.2003. sf2051 : 5905, G992 : Phase 4.2. (ID20)

57 Hair pin (Crummy Type 1). Bone. Circular-sectioned shank with very shallow conical terminal, shank tapering to point. High gloss. Length 113mm, maximum section 5mm. A24.2003. sf1482 : 5669, G997 : Phase 4.6. (ID36)

58 Hair pin (Crummy Type 1). Bone. Circular-sectioned shank tapering to point; conical terminal. Length 103mm, maximum section 4mm. A24.2003. sf1856. 6090, G1237 : Phase 3.7. (ID43). Figure 56

59 Hair pin (Crummy Type 1). Bone. Oval-sectioned tapering broken shank; flat head. Present length 34mm, section 5x4mm. A22.2003. sf889 : 2207, G522 : Phase 4.6. (ID588).

60 Hair pin (Crummy Type 1). Bone. Circular-sectioned tapering broken shank; flat head. Present length 66mm, section 6mm. A22.2003. sf902 : 2861, G371 : Phase 3.0. (ID587).

61 Hair pin (Crummy Type 1). Bone. Circular-sectioned slightly curved shank tapering to asymmetrical point; shallow conical terminal. Lower part much glossier than top. Length 115mm, maximum section 4.5mm. A24.2003. sf1940 : 6652, G955 : Phase 3.7. (ID42)

62 Hair pin. Bone. Oval sectioned tapering shank; conical terminal with concave sides; other end broken. Present length 58mm, maximum section 7.5 x 7mm. A24.2003. sf1963 : 6918, G939 : Phase 3.5. (ID45)

Bracelets

Bracelets are relatively rare in this assemblage probably reflecting the fact that 4th-century material generally is relatively scarce, and the habit of wearing bracelets was predominantly a late 3rd to 4th-century phenomenon. The types present are mainly ones that are not closely dated within the Roman period (nos. 64-71), and there is only one of undoubted 4th-century date (no. 63). It is a similar pattern to that seen in the hairpins where late Roman types were numerous on the sites with large finds assemblages such as Jewry Wall and Causeway Lane, but not at Vine Street. At both those site, for example, various different types of the normally prolific light bangles of the 4th century were recovered (Kenyon 1948, 253 nos. 1-6, fig. 83; Cooper 1999, 261 nos. 95-6), a type which is absent here.

Amongst the copper-alloy bracelets the types represented are cable twist (no. 64), expanding (nos. 65-6) and plain penannular (no. 67). All of these types occur intermittently from the early Roman period onwards becoming commonest in the 4th century (Cool 1983, Groups I, III and V respectively). Cable twist bracelets are the commonest metal bracelet type recovered from Roman Britain. Earlier examples from Leicester include six from Jewry Wall (Kenyon 1948, 253 type D, fig. 83 no. 7), two from the Causeway Lane excavations (Cooper 1999, 261 nos. 92-3) and an unprovenanced fragment in the Jewry Wall museum (Cool 1983, 694 no. 275, Acc. no. 38.390). All were residual like the Vine Street bracelet apart from one of the Jewry Wall ones which came from a mid- 2nd-century context. Neither expanding or plain penannular bracelets appear to have been found at Leicester before. The presence of the penannular bracelet in a Phase 3 context is a particularly welcome addition to the corpus as it is becoming clear that it was probably the 2nd to 3rd century when they were commonest.

The only 4th-century bracelet (no. 63) is a multiple unit bracelet which is an insular form, being much rarer on the continent (Cool 1983 Group XXXI; Swift 2000, 145 fig. 192). My corpus of this type (1983) contains no bracelets with an exactly similar or even broadly similar sequence of motifs and the rectangular unit with decorated wedge-shapes is particularly unusual. The inability to closely parallel the sequence is to be expected as these bracelets tend to have unique combinations of motifs and identical or closely similar examples are rare. An example from antiquarian collections in Leicester had a much simpler combination of motifs with the central zone decorated by a boxed zig-zag with ring and dots with a lozenge unit with ring and dot to each side.(Cool 1983, 914 no. 3, fig. 78 no. 4; Jewry Wall museum no. BR4). A poorly preserved fragment of one from Causeway Lane also had a different pattern (Cooper

1999, 261 no. 97, fig. 125).

There were also three segments from shale armlets or rings, two plain (nos. 68-9) and one decorated (no. 70). Plain shale or jet rings are in use throughout the Roman period, whereas decorated ones are generally of late Roman date. In the case of no. 70 though, the ring and dot decoration is also found earlier. An example from Dorchester, for example, came from a 2nd century context (Mills and Woodward 1993, 141 no. 6), though they have also been found at sites such as Caister-on-Sea where a late Roman date would be indicated (Darling and Gurney 1993, 84 no. 193). Neither the example from Vine Street, or the very similar one from Jewry Wall (Kenyon 1948, 271 no. 8) came from a usefully dated context.

Late Roman forms

63 Multiple unit bracelet; one terminal and part of hoop. Copper alloy. Rectangular-sectioned hoop, widest to wrist; hooked terminal with six vertical grooves behind it; long end unit of horizontal groove with flanking nicks; two vertical grooves; square unit with large ring and dot; two vertical grooves; square unit with two ring and dots arranged vertically; two vertical grooves; Rectangular unit with wedge-shaped slope on either side, horizontal groove on spine and diagonal cross on each face; final extant unit obscured by corrosion. Now bent into a smaller ring. Diameter 29mm, section 5.5 x 3mm. A24.2003. Sf563 : Unstratified. (ID127).

Figure 57

Not closely dateable forms

64 Cable twist bracelet. Copper alloy. Two strand right-hand cable twist with 'D' section; one end broken, other forms a sideways hooked terminal, other formed cuff of one and a half turns. Present length 60mm, section 4 x 3mm. A24.2003. Sf493 : G689 : Phase 13. (ID257).

Figure 57

65 Expanding bracelet. Copper alloy. Thick hoop tapering to either end, possibly hollow at one end where it splits into two, ends overlap and wound around hoop one and half times; hoop bent. Traces of mineralised fabric on hoop. Present diameter 43 x 28mm, maximum hoop section 3mm. A22.2003. Sf 730 : 2323 : G554 : Phase 8.1. (ID125).

Figure 57

66 Expanding bracelet; fragment. Copper alloy. D-sectioned wire. One end retains spiral of two turns, spiral of wire around extant hoop. Length 40mm, hoop section 1.5 x 1mm. A24.2003 . Sf 561 : 4592 : G976 : Phase 4.1. (ID123).

67 Penannular Bracelet. Copper alloy. Shallow 'D'-sectioned hoop, one end thinning to rounded terminal; other end broken. Present length 84mm, section 3.5 x 2mm. A24.2003. Sf575 : 4696 : G1188: Phase 3.3. (ID258)

68 Armlet segment. Shale. D-sectioned with shallow convex crossbar with central groove. Diameter 80mm, 15% of circumference extant, section 10 x 6.5mm. A24.2003. Sf1395 : 5661 : G1009 : Phase 8.2. (ID70)

69 Armlet segment. Shale. D-sectioned with ridge on crossbar. Diameter 60mm, 28% of circumference extant, section 7 x 5.5mm. A24.2003. Sf1108 : unstratified (ID68).

70 Armlet segment. Shale. D-sectioned with row of ring and dots on outer face. Diameter 68mm, 27% of circumference extant, section 7 x 5.5mm. A24.2003. Sf1140 : 5428 : G224 : Phase 4.6. (ID 69).

Figure 57

71 Torc-twisted bracelet ? Copper alloy. Square-sectioned bar with left-hand torc twist. One end hooked, other broken; straightened. Length 85mm, section 2.5mm. A24.2003. sf1989 : 8177 : G814 : Phase 4.6. (ID267)

Finger rings

Three definite and one probable Roman finger-rings were found, all residual or unstratified. The pride of place goes to what must have been a splendid silver ring with semi-precious stone intaglio (no. 72), now sadly reduced to a shadow of its former self as it has obviously been in a conflagration of some intensity as pure silver melts at 960^{o}C. The fire has destroyed the back of the hoop, but sufficient silver remains in place at the bezel to show that the ring form was the very common simple expanded form dominant in the 1st and 2nd centuries (Henig 1974, type IV). The well-cut intaglio shows Mars as Mars Gravidus, naked with a spear and trophy (see Henig 1974, 16 nos. 70-74 - for type and examples from Britain). The stone is now so burnt that its original colour cannot be seen, but other examples from Britain were generally of red jasper. Given the type was the main way in which a person's intaglio was worn in the early-mid-Roman period, the fact that the form is not uncommon in Leicester is to be expected. A similar silver ring set with a cornelian intaglio depicting Ceres came from Silver Street (VCH Leicestershire I, 1907, 204; Henig 1974, 40 no. 267). Copper-alloy rings of the type lacking their settings have also come from Causeway Lane (Cooper 1999, 263 no. 104), Mansfield Road and Swan Street (Cool 1983, 1004 no. 20,

1020 no. 129; Jewry Wall Acc nos. 116/1962/814 and 499). A much-corroded ring retaining a green glass intaglio from the Shires (forthcoming cat no 38) may also belong to this type.

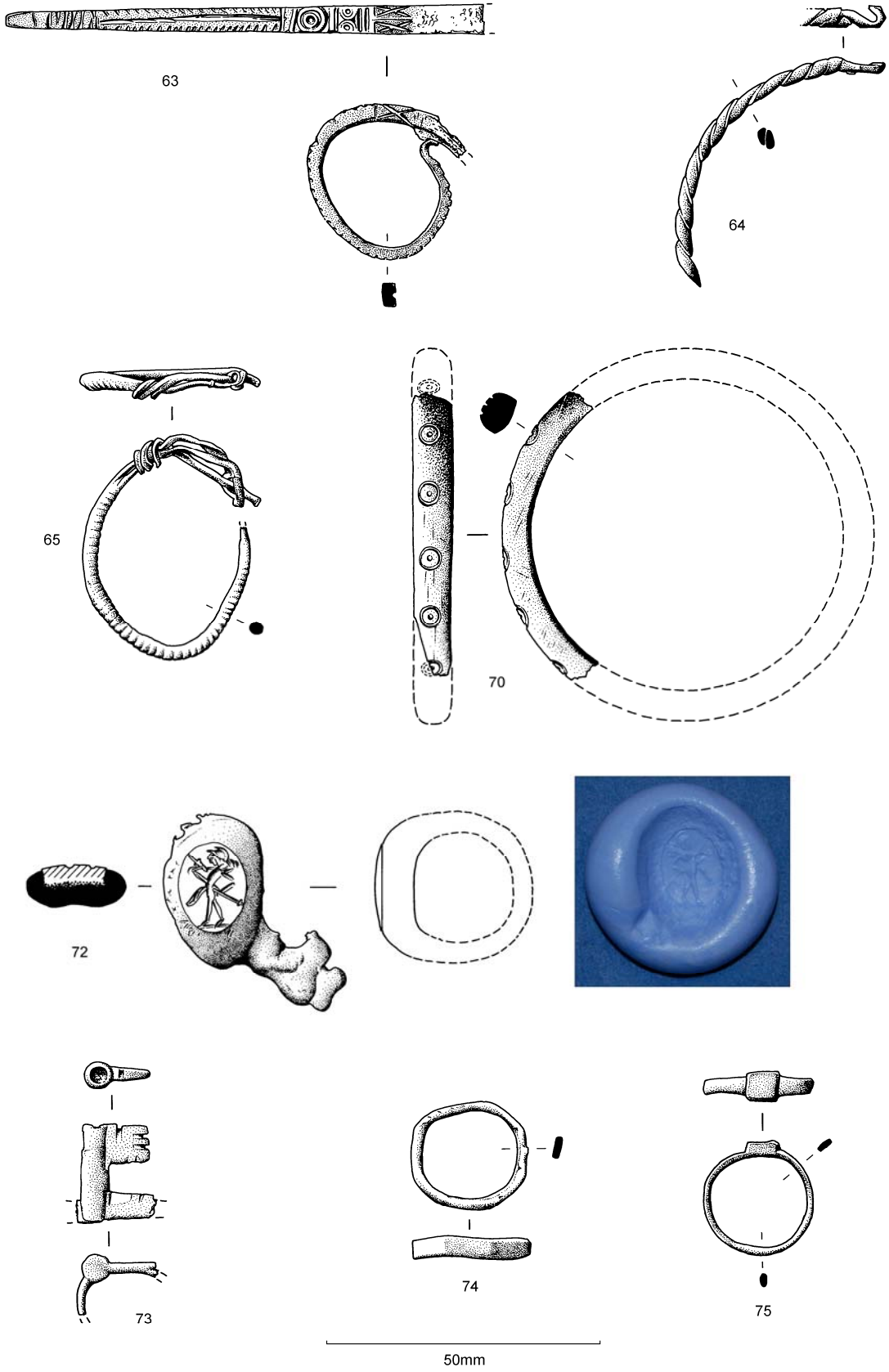


Figure 57: The Small Finds: the illustrated brooches and finger rings, 63-5, 70, 72-5

In the 3rd century, the use of intaglios declined markedly and carrying the intaglio ceased to be the prime job of the finger ring which became more of a fashion item. There are two examples of these later finger rings at Vine Street, one practical and one purely decorative. The ring no. 73 would have been used to fasten a small casket such as that from Butt Road, Colchester where the key was still in the lock (Crummy 1983, 85-8). These rings are moderately common and belong to the 3rd and 4th centuries, possibly coming into use towards the end of the 2nd century (Cool 1983, 245 Group XI). This appears to be the first example of a ring like this to have been recovered from Leicester, though examples of the contemporary but much flimsier key ring type (my Group XII) have been found at Jewry Wall in the disturbed levels (Kenyon 1948, 258 no. 12), Austin Friars in a 3rd century context (A389.1973 sf 772), and at Sarah Street (Cool 1983, 1046 no. 2, Jewry Wall Acc. no. BR72 54.1875). The simple octagonal ring no. 74 belongs to a relatively common 4th century type that came into use in the later 3rd century (Cool 1983, 264 Group XVII). The simple unstratified block bezel ring could belong to this later trend in finger rings but similar ones were also used in the medieval period so it's date is not certain.

Early to mid Roman form

72 Simple expanded finger ring with intaglio. Silver. Now much burnt so that the silver has melted and solidified but retains shape around intaglio to show that it was originally of a simple expanded form. Intaglio burnt to a cream colour and cracked in places and was placed flush with surface of ring . Intaglio design - Mars Gravidus. In impression god strides to right, naked other than helmet and scarf around waist. He holds a spear in his bent right arm and a trophy over his left shoulder with his left hand. Width of bezel 18mm, dimensions of intaglio 16 x 13mm. A22.2003. Sf114 : Unstratified. (ID114).

Figure 57

Late Roman forms

73 Key finger-ring; majority of hoop missing. Copper alloy. Rotary lever lock key; end of stem hollow; key with three wards; central part of bezel with wedge-shaped decoration. Length of stem 17mm, width of key 12mm. A24.2003. Sf 353 : 3591 : G573 : Phase 9.1. (ID158).

Figure 57

74 Octagonal finger ring. Copper alloy. Rectangular-sectioned, widest to finger ring with outer face having octagonal outline; two of facets poorly defined and outline slightly irregular. Diameter 21 x 19.5mm, section 4 x 2mm. A24.2003. Sf522 : 4319 : G1045 : Phase 8.1. (ID131).

Figure 57

Not closely dateable

75 Finger ring. Copper alloy. D-sectioned hoop; square block at bezel. Hoop worn thin at back. Diameter 20mm, bezel dimensions 6 x 6mm, hoop section 2.5 x 1mm. A22.2003. Sf 152 : Unstratified. (ID129).

Figure 57

Beads

The only Roman bead from these excavations was a double perforated shale bead. Kenyon described the double perforated jet and shale beads from Jewry Wall as being for bracelets (Kenyon 1948, 270 no. 1-2), but this was probably due to a confusion with the narrow double-perforated beads that do indeed make up graduated bracelets (see for example Allason-Jones 1996, 27-8). Whilst beads such as no. 76 could have been used in bracelets, they seem more likely to have been used as spacers in necklaces. This certainly seems to have been the role of four beads very similar to no. 76 which were found together with other jet beads sufficient to form a necklace in a burial at Butt Road, Colchester (Crummy 1983, 33 no. 951; Crummy *et al* 1993, Table 2.55 G69). Circular beads such as no. 76 with a central recessed dot are a relatively common variant of the type (e.g. Lawson 1976, 244 nos. 6-7; Allason-Jones and Miket 1984, 306 nos. 7.57-60). An example from Brough-on-Humber (Wacher 1969, 102 no. 12) is often cited as evidence of use in the 2nd century though the context it came from would appear to be the uppermost excavated and is scarcely secure. Other stratified examples (as cited by Lawson) suggest the type was in use during the later third and fourth centuries. This example is residual.

The fact that this is the only bead from the entire assemblage is noteworthy. Strings of small glass beads were a popular fashion in the 4th century and individual beads are a common find on sites occupied at that time. At Causeway Lane, a site that produced a similar number of identifiable finds to Vine Street, seven were recovered (Cooper 1999, 259-60 nos. 71-8). The absence of glass beads at Vine Street, despite the sieving regime which normally locates them even when they might be overlooked in hand

excavation, is another aspect of the rarity of 4th century personal ornaments on this site, to be placed alongside the scarcity of 4th-century hair pins and bracelets.

76 Bead. Shale. Disc with two straight edges on opposite sides; upper face has rounded junction with sides; two cylindrical perforations running between straight edges; small recessed dot centrally on upper face. Diameter 17 x 16mm, thickness 5mm, perforation diameter 1.5mm. A22.2003. Sf 268 : 3161 : G666 : Phase 8.2. (ID 76). Figure 58

Hobnails

In total fourteen hobnails from nailed shoes were recovered, all from Phase 3 contexts. Of these ten were found corroded together in groups. These came from a spread layer of Phase 3.2 and presumably represent a discarded shoe. The others could be casual losses. The number identified is minute compared with the number identified at Causeway Lane where over 500 were recovered often in clumps corroded together and suggesting shoe soles like no. 77 (Cooper 1999, 275-6). In discussing these, Cooper drew attention to the fact that even this large number would only be the equivalent of the nails needed for about five pairs of averagely nailed shoes and lamented the absence of comparative data from sites that were not cemeteries. Some additional data is now available from urban sites that have been excavated under similar conditions to Vine Street, i.e. with at least some sieving and with X-radiography carried out promptly. In addition to Causeway Lane the numbers recovered from two city centre sites in Winchester excavated by Oxford Archaeology can be considered (WINCM: AY93 and 220 – Staple Gardens / Northgate House). These produced 56 and 175 respectively. This would suggest that the number of hobnails recovered from Vine Street is indeed low. This is not something that may be attributed to chronological bias in the assemblage. There were many different fashions of Roman shoe and not all required hobnails. It very much looks as if in comparison to Causeway Lane, shoes without nails were much preferred at Vine Street.

77 Hobnails. Iron. Groups of 5, 3 and 2 corroded together, also three singletons. Found in-situ and believed to be from same shoe. A24.2003. Sf 1790 : 5959 : G933 : Phase 3.2. (ID 357).

78 Hobnails. Iron. Four individual examples

A24.2003. - : 5858 : G1202 : Phase 3.2. (ID 321).
A24.2003. - : 5922 : G208 : Phase 3.3. (ID 322).
A24.2003. - : 5479 : G936 : Phase 3.5. (ID 298). (2 examples)

Toilet and medical equipment

The toilet equipment can be divided into short-handled forms, all of which could have been part of the tripartite toilet sets consisting of tweezers, nail cleaner and ear scoop, and long-handled forms that were sometimes double-ended. In addition there was also a mirror. The incidence of the various types is shown in Table 94 where those from other sites in Leicester are also summarised.

Table 94: The Small Finds: Roman toilet equipment from selected sites in Leicester

	Vine Street	Freeschool Lane	Causeway Lane	Shires	Jewry Wall	Total
Short handled						
Toilet set	1	-	-	-	-	1
Nail cleaner	2	1	1	2	1	7
Ear scoop	-	-	1 (?)	3	-	4
Tweezers	4	-	1		7	12
Long handled						
Ligula	4	1	2	3	5	15
Olivary probe	1	1	1	-	-	3
Olivary probe/scoop	-	-	1	2	-	3
Scoop	-	-	2	-	-	2
Other						
Mirror	1	1	-	-	-	2
Cosmetic pestle	-	1	-	-	-	1
Total	13	5	9	10	13	49

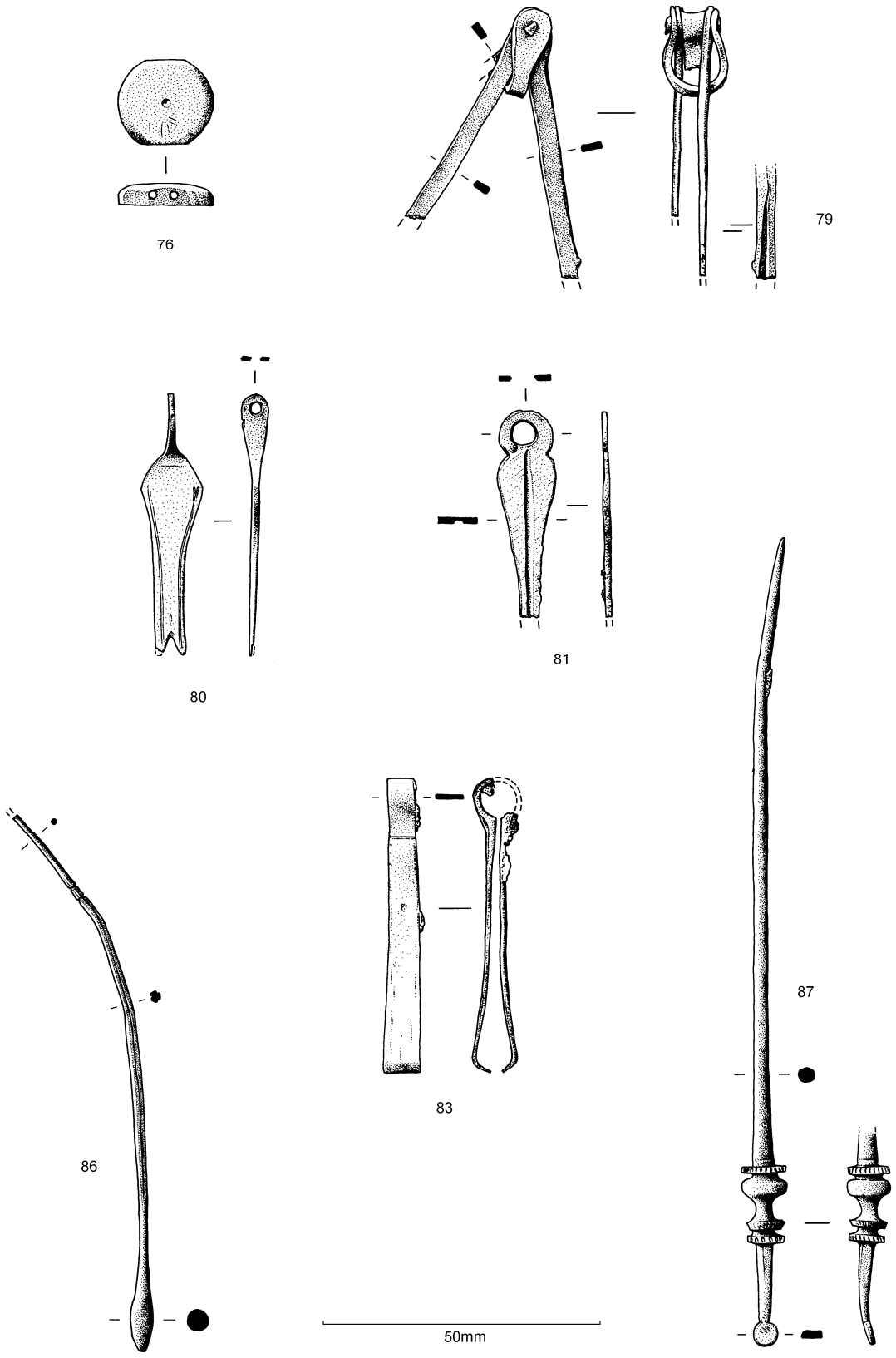


Figure 58: The Small Finds: the illustrated bead, toilet and medical equipment, 76, 79-81, 83, 86-7

Small toilet implements

The one toilet set (no. 79) is fragmentary but belongs to what Eckardt and Crummy (2008, 167) have termed the bar and shackle type. This type of fastening has been found predominantly on sets recovered in 1st-century contexts and seems to be an early form. The nail cleaner preserved is plain with straight sides, again this is a form in use as early as the mid- 1st century continuing to be found in 2nd-century contexts and in some of later Roman date (*ibid* 130). This example cannot be closely dated because it came from a modern context.

The other two nail cleaners found as individual pieces belong to better dated forms. No. 80 is an example of the Baldock form (Eckardt and Crummy 2008, 119-21), a type in use in the 1st and 2nd centuries with a distribution that lies predominantly in the Hertfordshire area. This example lies on the northern margin of the other recorded examples (Crummy amd Eckardt 2004, Illus. 4), though is not alone at Leicester as another is recorded from the Shires (forthcoming cat no.45). No 81 is a high-shouldered nail cleaner, another 1st and 2nd-century form (Eckardt and Crummy 2008, 122). In their discussion of the type they drew attention to three examples from Dragonby and suggested they might be indicative of local production. No. 81 is certainly very similar in appearance and size to one of the Dragonby nail cleaners (May 1996, 276 no. 76) possibly supporting this suggestion of an East Midlands origin. A fragmentary example was also found at St Nicholas circle (163.1969 cat no. 55). This example came for a Phase 3.7 group. Simple tweezers such as nos. 82-5 tend not to be closely dateable. At this site they were concentrated in contexts of Phase 3.

79 Toilet set. Copper alloy. Holder formed by round ended strip bent into a U-shape with perforated ends that held a suspension bar. Three tools (a) nail cleaner - rectangular-sectioned parallel-sided blade with upper end rounded and perforated, other end broken; groove on the extant lower part of the blade; tweezers - upper end only of rectangular-sectioned strip around the suspension bar; (c) tool with blade similar to similar to nail cleaner but lower end broken. Present length 49mm, width of suspension loop 10mm, section of nail cleaner blade 4 x 2mm. A24.2003. Sf 1042 : 4940 : G1299 : Phase 14. (ID 142). Figure 58

80 Nail cleaner. Copper alloy. Leaf-shaped rectangular-sectioned blade with high shoulders; rectangular-sectioned suspension loop at right angles to blade; end of blade notched; groove parallel to each edge of the blade on both sides. Length 48mm, maximum section 11 x 1mm. A24.2003. Sf 1953 : unstratified. (ID 140). Figure 58

81 Nail cleaner. Copper alloy. Leaf-shaped blade with end broken; disc suspension loop in the same plane as the blade; vertical groove down the front of the blade. Present length 37.5mm, maximum section 10 x 1mm. A24.2003. Sf 1002 : 5053 : G197 : Phase 3.7. (ID 141). Figure 58

82 Tweezers. Copper alloy. Two rectangular-sectioned tapering blades corroded together; upper end missing. Present length 44mm, maximum section of blade 6.5 x 1.5mm. A24.2003. Sf 2002: 8240 : G171 : Phase 3.1. (ID 145)

83 Tweezers, broken in two lacking small part of one arm. Copper alloy. Rectangular-sectioned bar expanding slightly to ends, bent into two with incurved ends; two transverse grooves below loop head. Length 53mm, maximum section 6.5 x 1mm. A24.2003. Sf 785 : 2619 : G399 : Phase 3.6. (ID 216). Figure 58

84 Tweezers. Copper alloy. One arm with part of terminal loop retaining suspension bar fragment; other end broken. Present length 48mm, section 5 x 1mm. A24.2003. Sf 1016 : 4957 : G177 : Phase 3.7. (ID 264).

85 Tweezers, now in three joining pieces. Copper alloy. Rectangular-sectioned strip bent in half to form circular suspension loop; ends of blades bent in. Length 49mm, blade section 4 x 1mm. A24.2003. Sf 1771 : 5669 : G997 : Phase 4.6. (ID 144)

Long-handled implements

Long-handled implements such as ligulas (nos. 87-90) are not closely dateable within the Roman period and could have functioned as either toilet accessories or as medical implements. Olivary probes like no. 86 are regularly found in sets of medical implements (e.g. Jackson 1986, 128 nos. 30, 33-5) but they tend to be combined with other implements such as scoops forming a double-ended implement like the example found at Causeway Lane (Cooper 1999, 265 no. 120). The Vine Street probe is single-ended and so is not necessarily a candidate for having been used medically. As a group, therefore, all of these long-handled implements would happily fit into a domestic milieu associated with cosmetics and do not hint at any medical or pharmaceutical use.

Of especial interest is the ligula no. 87 as it combines both the flask and stopper motif and nicked cordons, both features which it has been suggested are indicative of local manufacture when found on hair

pins (see above). It was found in a Phase 2 context, further strengthening the 2nd-century associations of this workshop. A similar ligula with the flask and stopper motif but without the nicked cordons was also recovered from Great Holme Street (A77.1977 cat no. 57).

86 Olivary probe. Copper alloy. Circular-sectioned probe terminal; pointed faceted shank, now bent. Length *c.* 110mm, probe section 4mm; shank section 1.5mm. A22.2003. Sf 737 : 2364 : G377 : Phase 3.9. (ID 143). Figure 58

87 Ligula. Copper alloy. Piriform flask-shaped unit with cordon above and below, edges of cordons diagonally nicked; circular-sectioned shaft with small angled ligula plade projecting from top; circular-sectioned shank tapering to point and bent at one end. Length *c.* 150mm, section of piriform knob 8mm, shank section 2.5mm. A24.2003. Sf1966 : 6914 : G110 : Phase 2.5. (ID 151). Figure 58

88 Ligula. Copper alloy. Circular-sectioned shank tapering to point at one end and with a flat oval 'spoon' at a slight angle at other; handle bent. Length *c.* 113mm, shank section 2mm. A24.2003. Sf 1018 : 4939 : G996 : Phase 4.6. (ID134).

89 Ligula. Copper alloy. Circular-sectioned shank; broken at one end, other end has a broken flat oval 'spoon' at a slight angle at other. Present length *c.* 21mm, shank section 1.5mm. A24.2003. Sf1976 : 8077 : G160 : Phase 3.1. (ID 138).

90 Ligula? Copper alloy. Circular-sectioned shank tapering to point, other end broken across expansion. Shank slightly bent. Present length 103mm, shank section 1.5mm. A22.2003. Sf 776 : 2633 : G784 : Phase 3.1. (ID 135).

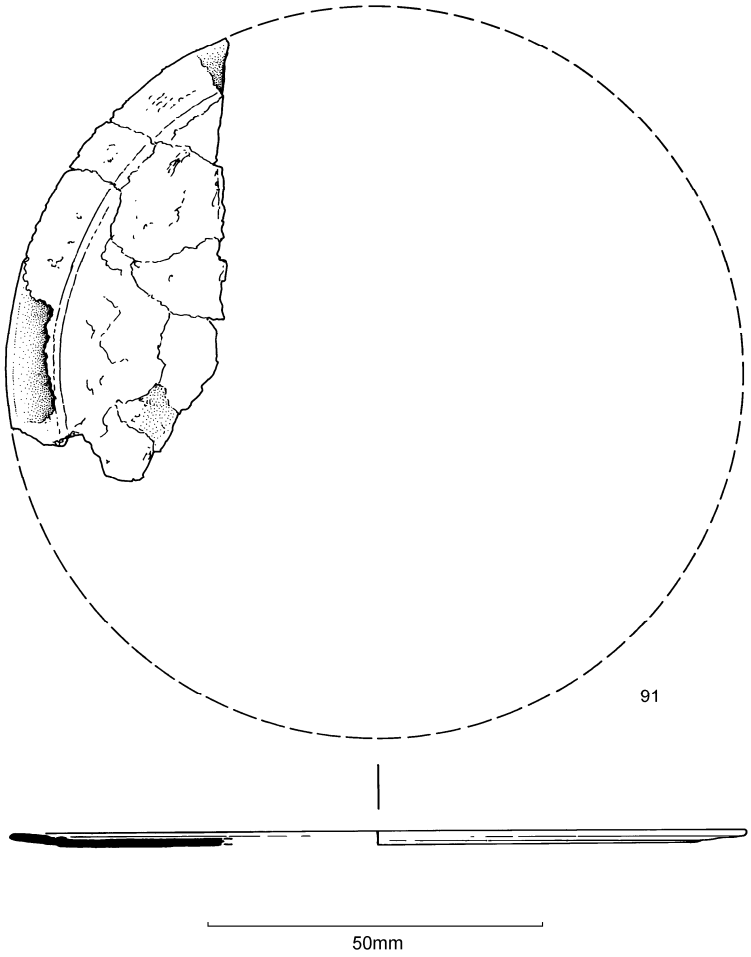


Figure 59: The Small Finds: the illustrated mirror, 91

Mirror

One fragment of a hand mirror was recovered (no. 91). It was probably of Lloyd-Morgan (1981) Group H given the reflecting face that is extant is flat and relatively thick. This would have been a large impressive piece with a separately made handle. They came into use in the later 1st century but clearly could have had a long life as such a piece was likely to be carefully curated. Another mirror fragment was

found at Freeschool Lane but other than that mirrors do not appear to have been recognised in Leicester before.

91 Mirror, seven fragments. Copper alloy with both surfaces silvered. Approximately 20% of circumference in two fragments with five detached fragments. Face flat with two grooves concentric to edge. Diameter *c.* 100mm, thickness 1.5mm. A24.2003. Sf 1514 : 5428 : G224 : Phase 4.6. (ID 105). Figure 59

Textile Equipment

The different types of textile equipment recovered are summarised in Table 95. At Vine Street, as at most other sites in Leicester, it is bone needles that predominate. Though traditionally assigned to the textile category, it has to be admitted that they generally would have been rather thick to deal with many types of material though they have been used successfully on coarser fabrics (Crummy 1983, 65). Recently an intriguing suggestion has been made as to another likely function. It has been pointed out that they would have been ideal if the elaborate hairstyles seen in the depictions of Roman women were sewn rather than pinned (Stephens 2008, 121). Certainly that function would explain why items such as no. 97 have deliberately blunted points. It would also fit well with the number of hair pins recovered from many Leicester sites which seem to point to the women of the town expending considerable attention on their coiffures. To maintain comparability with many other assemblages quantified by function, they have been placed in this functional category with the proviso that many might have been more at home on the dressing table than in the work box.

Table 95: The Small Finds: Roman textile equipment from selected sites in Leicester

	Vine Street	Freeschool Lane	Causeway Lane	Shires	Jewry Wall	Total
Bone needle	6	-	11	3	22	42
Copper alloy needle	2	1	4	-	1	8
Iron needle	1	-	-	-	-	1
Pot spindle whorl	3	-	3	-	-	6
Shale spindle whorl	1	-	-	-	-	1
Total	13	1	18	.	23	58

Needles

The only type of bone needle that can be identified with certainty is the Crummy Type 1 with pointed end (nos. 92-3) as the others are broken across the eye. Bone needles are not closely dateable within the Roman period, though here it can be suggested that at least one from a Phase 4 context (no. 96) is residual in that context as it has been deliberately stained green which is an early Roman trait (Crummy 1983, 21). The copper alloy needles are of a type generally found in 3rd and 4th-century contexts. An example from Causeway Lane came from a late 2nd/early 3rd-century context (Cooper 1999, 265 no. 128) and a similar date is suggested by the context of no. 98.

92 Needle, Crummy type 1. Bone. Oval-sectioned shank with conical terminal, tapering to broken end; small circular eye. Present length 68mm, maximum section 6 x 4mm. A22.2003. Sf792 : 2619 : G399 : Phase 3.6. (ID88). Figure 60

93 Needle, Crummy type 1. Bone. Oval-sectioned shank tapering from conical terminal to broken point; rectangular eye. Present length 78mm, maximum section 4.5 x 3.5mm. A24.2003. Sf 1014 : 4339 : G1048 : Phase 9.1. (ID25). Figure 60

94 Needle, Crummy type 1. Oval-sectioned shank with flattened head, shank tapering to broken point; rectangular eye. Present length 77mm, shank section 4 x 3.5mm. A24.2003. Sf525 : unstratified. (ID 30).

95 Needle, Crummy type 1/2. Bone. Circular-sectioned tapering shank; broken across base of elongated perforation; tip facetted and shows high gloss. Stained green. Present length 76mm, maximum section 4mm. A24.2003. Sf1874 : 6104 : G1380 : Phase 3.6. (ID1).

96 Needle, Crummy type 1/2. Bone. Circular-sectioned tapering shank; broken across base of perforation and across shank. Stained green. Present length 76mm, maximum section 4mm. A22.2003. Sf885 : 2207 : G522 : Phase 4.6. (ID591).

97 Needle, Crummy type 1/2. Bone. Circular-sectioned tapering shank; broken across rectangular perforation; blunt faceted tip. Present length 84mm, maximum section 3.5mm. A22.2003. Sf308: 3489 : G526 : Phase 4.1. (ID590).

98 Needle, Crummy type 3. Copper alloy. Rectangular-sectioned head becoming circular-sectioned and tapering to point at other; head grooved on either side with rectangular eye. Shank bent. Length 123mm, shank section 2mm. A22.2003. Sf812 : 2784 : G411 : Phase 3.4. (ID136). Figure 60

99 Needle, Crummy type 3. Copper alloy. Rectangular-sectioned head becoming circular-sectioned and tapering to point at other; head grooved on one side with rectangular eye. Shank bent, eye broken across. Length *c.* 120mm, shank section 2mm. A24.2003. Sf 456 : unstratified. (ID 137).

100 Needle ? Iron. Tapering to point and other end has a perforation. Present length 25mm, width 2.5mm. A24.2003. - : 8149 : G107 : Phase 2.4. (ID315).

Spindle whorls

The whorls consist of one deliberately made biconical whorl and three fashioned from re-used pottery sherds. In the latter case only whorls with a perforation of 4 to 8mm in diameter, centrally placed, have been classified as spindle whorls as this is the diameter that would have been suitable for a Roman spindle (Walton Rogers 2007, 23). Other whorls that do not fulfil these criteria have been placed in the miscellaneous section below. Lawson (1976, 272) suggested that shale spindle whorls were not intrinsically dateable, but the biconical form such as no. 104 here does appear predominantly to be a late Roman form. At Greyhound Yard Dorchester, for example, four were recovered all from 3rd century or later contexts (Mills and Woodward 1993, 145 fig. 78 nos. 8, 9, 11-2), and it occurs regularly in the most recent excavations at Lankhills, Winchester in later 4th-century graves In general turned shale spindle whorls do not start to appear until the middle of the 4th century and currently evidence would appear to suggest that they are commonest in the later part of that century and into the 5th century (Cool forthcoming). This example is a useful addition to the dated corpus. Other examples from Leicester have come from Redcross Street (A316.1962 cat no. 74) and Vaughan Way.

101 Spindle whorl. Grey ware pottery sherd. Carefully ground to disc, now chipped on one side; central perforation with slightly waisted hour-glass profile. Diameter 36 x 35mm, thickness 7mm, perforation diameter 6mm. A24.2003. Sf 2030 : 8010 : G1105 : Phase 3.2. (ID 60). Figure 60

102 Spindle whorl. Disc carefully ground from a plain samian sherd, one edge chipped. Cylindrical perforation centrally. Surface slip remains on one side only, other side gloss has been ground away leaving only traces near perforation. Diameter 37 x 36mm, thickness 9-11mm, perforation diameter 6mm. A22.2003. Sf 713 : 2226 : G634 : Phase 13 (ID 81).

103 Spindle whorl broken in two. Greyware base ground down to form disc with slightly raised edge and retaining two concentric grooves on underside; cylindrical perforation. Diameter 58mm, maximum thickness 9mm, perforation diameter 7mm. A22.2003. Sf 920 : 2631 : G292 : Phase 2.2. (ID72).

104 Spindle whorl. Shale. Biconical with flat face either side of cylindrical perforation. Diameter 42mm, thickness 16.5mm, perforation diameter 7mm. A24.2003. Sf 1804 : 4505 : G225 : Phase 4.6. (ID71). Figure 60

Household Equipment

In the previous functional categories, the Roman finds from Vine Street have occasionally deviated slightly from the normal Leicester pattern but that has often been a result of chronological bias. In this category, as can be seen from Table 96, there is much more deviation and some of the finds from the site are unusual finds probably reflecting the unusual nature of the Phase 3 courtyard house.

This category includes both common and uncommon items. Round-bowled spoons or *cochleare* of the first to 2nd century like the bone example no. 105, are ubiquitous on Leicester sites. As well as the bone ones summarised in Table 96, three of the Causeway Lane copper alloy spoons were also of this type. Three were found at Jewry Wall, again in both copper alloy and bone (Kenyon 1948, 259 no. 3; 269 nos. 6-7). Amongst the unpublished sites copper alloy examples were found at Thornton Lane (A305.1963 nos. 45-6) and at Great Holme Street (A78.1975 cat no, 137). The occurrence of one at Vine Street is thus of no surprise. The copper alloy spoon (no. 106) with an oval bowl and offset handle was a type in use from the early 2nd century onwards and apparently less common amongst Leicester's inhabitants. An example was found in an early pre-Forum context at Jewry Wall (Kenyon 1948, 259 no. 2) and at Bonners Lane (A168.1993 cat no. 1).

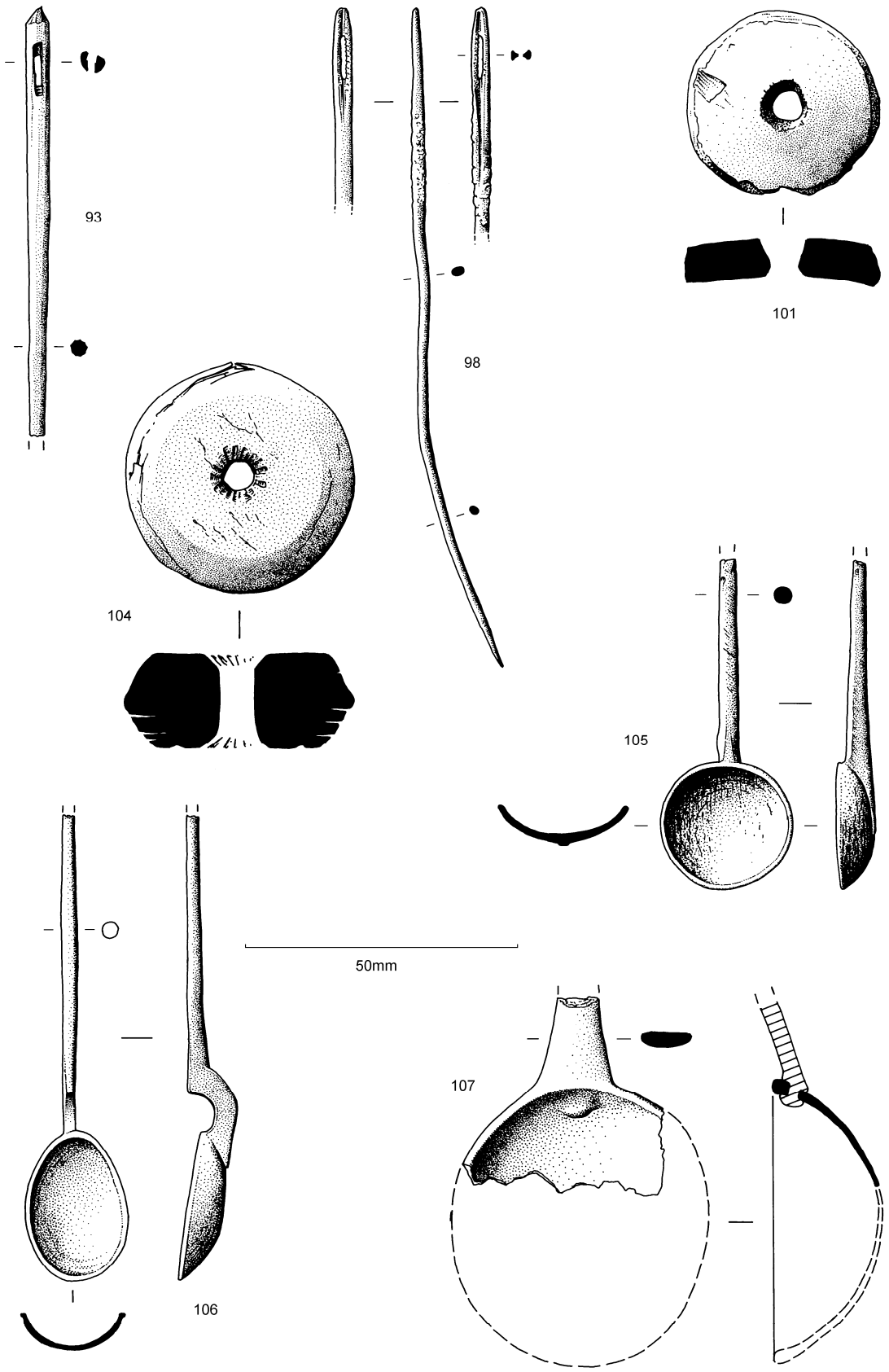


Figure 60: The Small Finds: the illustrated textile and household equipment, 93, 98, 101, 104-7

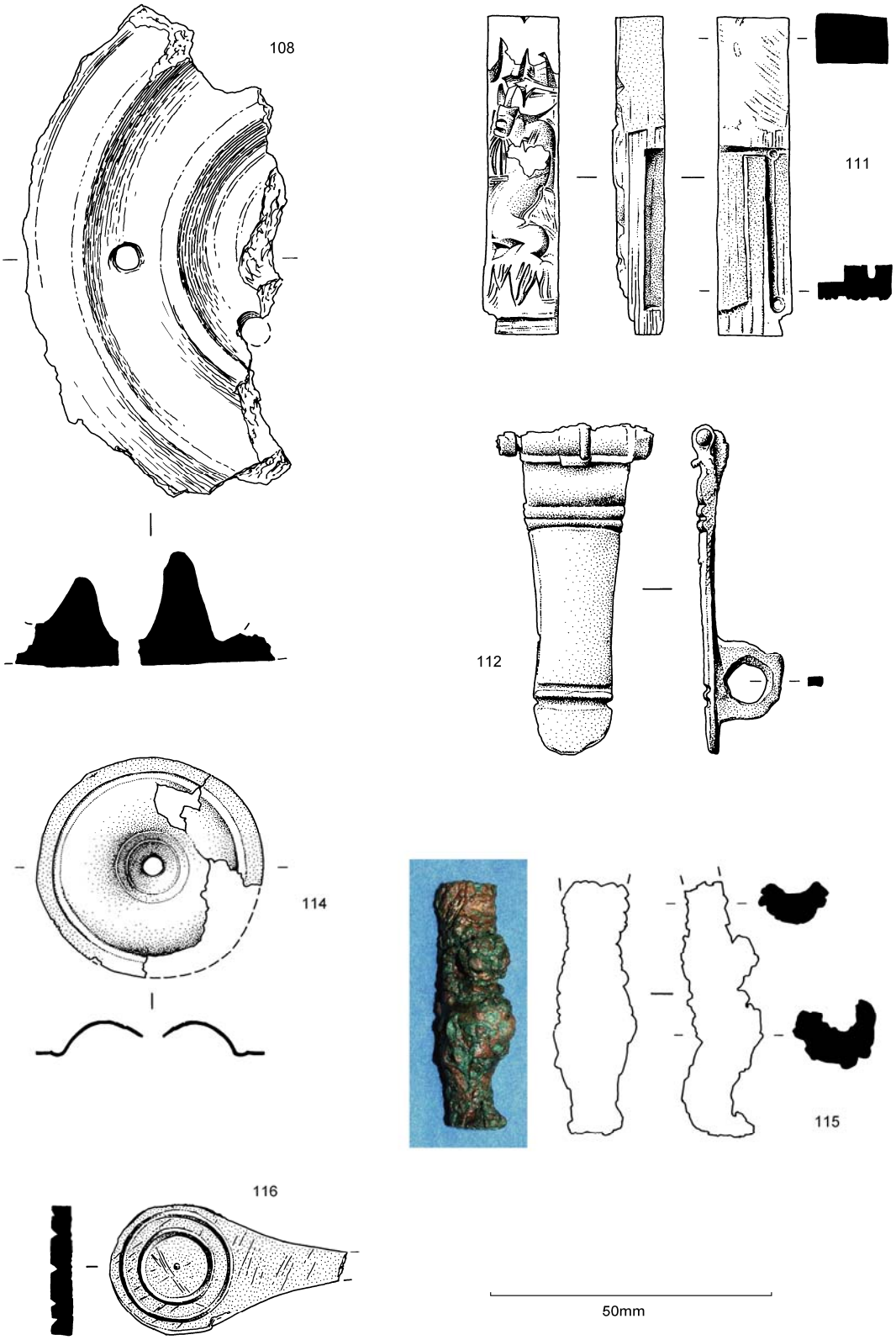


Figure 61: The Small Finds: the illustrated household equipment, 108, 111-12, 114-16

Table 96: The Small Finds: Roman household equipment from selected sites in Leicester

Types	***Vine Street***	***Causeway Lane***	***Shires***	Total
Utensils				
Bone spoon	1	1	1	3
Copper alloy spoon	1	5	1	7
Iron ladle	1	-	-	-
Shale vessels	-	4	-	4
Quernstones	5	7	5	17
Cheese press	1	-		1
Furniture				
Box fittings	4	2	-	6
Furniture foot	1	-	-	1
Inlay	2	1	2	5
Hinge	-	1	-	1
Total	13	21	9	45

Utensils and vessels

The other items in this category are an iron ladle (no. 107) and a cheese press (no. 108). Cheese presses always tend to be rare items in pottery assemblages, and none appear to have been present in assemblages published from Leicester before. They were an introduction that came with the army initially, but which were adopted sporadically by the native population. They presumably related to quite specialised cheese making (Cool 2006, 95-7).

105 Spoon, Crummy Type 1. Bone. Circular bowl; circular-sectioned broken handle joining bowl with triangular moulding on underside. Present length 60mm, diameter of bowl 23mm, handle section 3.5mm. A24.2003. Sf 438 : unstratified. (ID 26). Figure 60

106 Spoon, Crummy Type 2. Copper alloy. Oval bowl with pointed end at junction with handle; circular-sectioned broken handle with stepped junction to underside of bowl. Present length 85mm, bowl dimensions 27.5 x 19mm. A24.2003. Sf2001 : 8170 : G1113 : Phase 3.2. (ID149). Figure 60

107 Ladle. Iron. Part of hemispherical bowl with strip handle placed asymmetrically. Bowl diameter *c.* 90mm, present height *c.* 30mm, width handle 15mm. A24.2003. Sf 534 : 4505 : G225 : Phase 4.6. (ID 334). Figure 60

108 Cheese press; flat base fragment. Greyware. Fabric 000. Flat base with parts of two ridges extant; one circular perforation, Base diameter 120mm+, basal EVE *c.* 32. A22.2003. Sf 772 : 2061 : G639 : Phase 13. (ID616). Figure 61

Quernstones

109 Rotary grinding upper stone. Fine-grained buff sandstone with red grains. Flat upper and lower faces with slightly angled skirt. Very smooth grinding face. Diameter *c.* 200mm, *c.* 25% circumference extant; thickness 36mm. A24.2003. Sf1926 : 5319 : G790 : Phase 3.2. (ID376)

110 Quern, lower stone. Coarse reddish sandstone. Vertical skirt, roughly worked lower face; very smooth grinding face. Circumference *c.* 300mm, *c.* 15% circumference extent; thickness 39mm. A24.2003. Sf 448 : 4139 : G1042 : Phase 5. (ID377)

110a Rotary quern upper stone in a coarse sandstone (probably Millstone Grit). Upper surface flat with wedge-shaped slot for handle attachment. Area of central perforation damaged. Vertical skirt. Concave lower grinding surface smooth. Diameter c. 440mm, c. 30% circumference extant; thickness 67mm. A24.2003. Sf1107:5387: Phase 4.6 reused as a post pad.

110b Rotary quern lower stone in a coarse sandstone (probably Millstone Grit). Convex upper surface with central tapering recess for pivot and smoothed patches. Skirt angled to a slightly narrower base, the surface of which is rough. Complete but edges damaged. Diameter 380mm, height 95mm. Sf 1052

110c Rotary quern lower stone fragment in a coarse sandstone (probably Millstone Grit). Convex upper surface with areas of wear and polish. Underside dressed. Diameter 400mm. (3246).

Box fittings and furniture elements

It is amongst this category of household items that the Vine Street assemblage is most markedly set apart from other Leicester assemblages, and indeed the assemblages from many other Romano-British sites. Some elements have been regularly found at Leicester before. Bone inlays such as nos. 116-7 were used to decorate boxes or much larger pieces of furniture as can be seen on the stile from a cupboard door found at Hayton in East Yorkshire (Hartley *et al* 2006, 176 no. 138). In addition to the ones summarised in Table 96, other bone inlays can be noted from the excavations in the Forum and Basilica (Hebditch and Mellor 1973, 52 nos. 39-40) and The Shires (forthcoming cat nos. 61-2). Copper alloy mounts such as nos. 114 and 115 are also a frequent element of household assemblages. Hasps such as no. 112 are less frequently recovered. Another was recovered from St Nicholas Circle (163.1969 cat no.38) and both were similar to one found at Richborough (Wilson 1968, 103 no. 194) though that appears to have had a solid hinge bar whereas on no. 112 it was a separate iron rod.

No. 115 is a type that is much less commonly encountered than any of the preceding pieces. Though much obscured by corrosion the features discernible on this piece suggest that it depicted the head and foot of a panther similar to that forming the handle of a folding knife from Standon, Herts. (Worrell 2007, 317). Feet taking the form of felines like this were commonly used on Roman three-legged tables as can be seen on tombstones depicting banqueting scenes. They also occur in miniature and were part of small tripod stands (Henig 1970). It was suggested that one from London was the foot of a casket (Wheeler 1930,107, pl. XLVIIa no. 2). Another function could well have been as part of a stand for lighting equipment. This piece, for example, is comparable in size to the dolphin feet used on a candlestick from the villa at Dalton Parlours (Cool 1990, 86 no. 30, fig. 70).

The final piece, a panel from an ivory composite box (no. 111) is an extraordinary find, not just from Roman Britain but also from many other western provinces. Relief-carved ivory boxes are extremely rare. This may be put in context by considering the worked skeletal assemblage from the extensively excavated and rich Roman city of Augusta Raurica (Augst) in Switzerland. This has been the subject of detailed study and consists of over 4,500 objects. Amongst all of that material there is only a single panel from a relief-decorated ivory box (Deschler-Erb 1998, 180 no. 4060). So any figured ivory box panel would be noteworthy, but this is exceptional because of the figured design. It clearly does not belong to the classical tradition. The motif along the base depicts lotus flowers and the iconography of the figure would be appropriate for the Egyptian god Anubis (god of embalming). The two long-stemmed items he holds in his right hand are probably intended to be lances (S-A. Ashton *pers. comm.*)

Roman Egypt had a long-established industry producing decorative panels from skeletal elements. Marangou (1976, 22) has argued that the use of ivory was commonest in the Hellenistic period and the material had become a rare luxury by the Roman period due to changing patterns of supply. Most of the Romano-Egyptian pieces appear to be decorated using deities from the Roman pantheon especially Dionysus and Aphrodite, but given that most appear to be known acquisition through the antiquities market this might be reflecting the taste of the client rather than being a true reflection of the industry. All of the items in Marangou's (1976) study of the large collection from the Benaki Museum Athens, for example, were bought from dealers in Cairo and Alexandria. This volume remains the most extensive study of this type of artefact. It does include four pieces relating to the Egyptian deities Isis, Harpocrates and Bes but it is noticeable that these are curiosities as they are carved in the round, whereas most of the other pieces in the volume depicting the figures from the Roman pantheon are panels from boxes or inlays etc. The degree of background research needed to place this piece fully in context is beyond the scope of this volume but is ongoing. What can be said is that it is a Romano-Egyptian item, that given its material it would have been a luxury item even in Egypt and that it probably came from a small box such as that in the Berlin Stattliche Museen (Marangou 1976, pl 65b). It may also be noted that in Egypt soldiers in the Roman army favoured Anubis, and the fact that the figure is shown holding lances here might hint at a link to military personnel (S-A. Ashton *pers. comm.*). Given the presence of the seal of an eastern legion on the site (see below) this piece might thus be additional evidence for an unusal military presence at Vine Street.

111 Composite box plate. Ivory. Rectangular block with tenon at base recessed along front and outer side; Rectangular-sectioned with slightly convex-curved front face at top, flat faces at base. Front face has figured carving in high relief – a crouched animal-headed figure looking to right, head shows ear, eye and long pointed snout, central part of body has suffered some damage but a concave grooved scallop-shelled motif remains near the figure's left shoulder. a broken curved moulding at right side of the piece might be either the creature's left fore limb or the drapery from a cloak, at the right shoulder two long-stemmed, triangular-headed flowers or foliage grasped by what might be intended for the

creature's right hand (papyrus?). The creature stands on a frieze of three inverted triangles with radiating grooves (lotus?) and below a fringed canopy. The lower part of the back has an angular 'U'-shaped slot leaving an inverted 'T'-shape in relief, the slot close to the outer edge is narrow and has semi-circular expansion top and bottom, slot on other side is wider and extends to edge. Length 57mm, width 13mm, thickness 12mm. A24.2003 Sf1481 : 5669 : G997 : Phase 4.6 (ID33). Figure 61

112 Box hasp. Copper alloy. Very shallow 'D'-sectioned band with rounded end; square projecting hasp with circular perforation on underside of narrow end; cylindrical channel at the other end retaining iron band; front of band has three sets of transverse ribs and channel. Length 59mm, maximum section of band 18.5 x 3mm. A24.2003. Sf 1907 : 5319 : G790 : Phase 3.2. (ID146). Figure 61

113 Box mount (?) Copper alloy. Hollow conical boss with flat end and small flange. Diameter 18mm, height 15mm. A22.2003. Sf 358 : 3751 : G359 : Phase 2.3 (ID236).

114 Box mount. Copper alloy. Hollow domed mount with concave centre with circular perforation centrally; flat flange; concentric grooves around perforation and on flange. Parts of edge and side missing. Diameter 39mm, height 6mm. A22.2003. Sf 164 : unstratified. (ID 229). Figure 61

115 Furniture foot. Copper alloy. Hollow backed figure with flat expanded foot divided into approximately five toes, bulbous belly; bulbous head with eyes on side, hollow-backed 'D; shaped ribbed projection above snapped off at an angle. Surfaces much obscured and pitted by corrosion. Present height *c.* 45mm, maximum section 13 x 11mm. A24.2003. Sf1302 : 5428 : G224 : Phase 4.6. (ID 246). Figure 61

116 Inlay. Bone. Expanded spatulate end with broken shaft. Double ring and dot in expanded end. Present length 41.5mm, maximum section 23.5 x 3.5mm. A22.2003. Sf753 : 2453 : G375 : Phase 3.8. (ID91). Figure 61

117 Inlay. Bone. Triangular with traces of cancellous tissue on polished underside. Groove along each edge. Dimensions 19 x 18mm, thickness 2mm. A24.2003. Sf 1773 : 5372 : G1022 : Phase 4.7. (ID35)

Recreation items

With the recreation category the assemblage returns to the normal profile for a Leicester site as can be seen in Table 97 where in all cases bone counters are common and glass counters are scarce. This is probably reflecting the chronology of the use of the different materials as plano-convex glass counters are most numerous in the mid 1st to mid 2nd centuries and it is only in the 2nd century that bone counters begin to dominate counter assemblages (Cool *et al* 1995, 1555 table 125).

Table 97: The Small Finds: Roman counters from selected sites in Leicester

	Vine Street	Causeway Lane	Shires	Jewry Wall	Total
Glass counters		1			1
Bone Greep 1	2	4		9	15
Bone Greep 2	5	2	*5	15	27
Bone Greep 3	4	7	5	14	30
Bone Greep 4	-		1	1	2
Re-used pottery	10	12	?	?	22
Total	21	26	11	39	97

The counters found in Roman contexts at Vine Street are presented by type and fabric (as appropriate) in Table 98 As can be seen there is an interesting chronological progression from bone to pottery counters. The Causeway Lane data cannot be interrogated in the same way as not all of the 12 pottery counters made from re-used Roman pottery were published with details of their fabrics and contexts, so at present it is unknown whether this is a pattern specific to Vine Street or Leicester. Two of the Phase 4 counters came from the late pits (nos. 129 and 136) and one was recovered from the re-use of the culvert (no. 132).

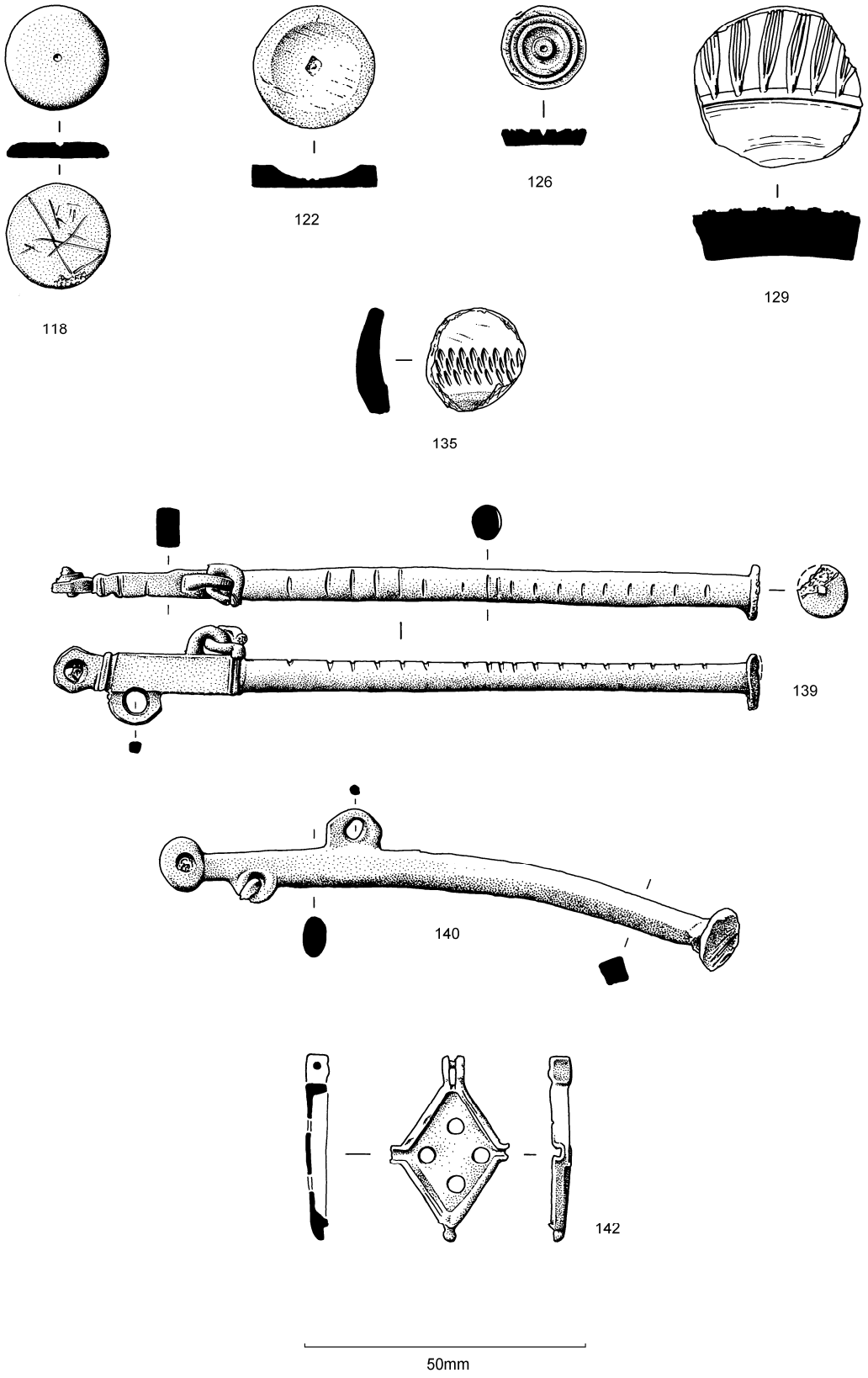


Figure 62: The Small Finds: the illustrated recreational items, items for weighing and writing equipment, 118, 122, 126, 129, 135, 139-40, 142

Table 98: The Small Finds: the distribution by phase of the counters at Vine Street (totals include all counters of the type present, including residual and unstratified).

	Phase 2	Phase 3	Phase 4	Total
Bone Greep 3	1	1	-	4
Bone Greep 1	-	1	-	2
Bone Greep 2	-	2	1	5
Grey ware	-	1	1	4
Samian	-	-	1	2
Colour-coated	-	-	1	2
Black ware	-	-	-	2
Total	1	5	4	21

The recovery of a samian counter in such a late context is of some interest as elsewhere it has been possible to show that the re-use of samian to fashion counters and spindle whorls appears to be a late 4th- to 5th-century phenomenon (Cool 2000, 53 fig. 30), and that these items were often not being made at the time when samian has traditionally been seen as being in use. The scarcity of pottery counters in pre-4th century contexts, and the fact that no. 129 came from a pit where it was unlikely to be residual, suggests this might be another example of this phenomenon. Unfortunately the other samian counter (no. 130) came from a cleaning layer, and the re-used samian spindle whorl (no. 102) was from a modern context, so the period when they were actually in use could not be ascertained.

118 Counter (Greep type 1). Bone. Disc with flat obverse and reverse, central dot on obverse; edges slightly bevelled to reverse. Now burnt white with grey mottling. Diameter 19mm, thickness 2.5mm. A22.2003: Sf 811 : 2745 : G391 : Phase 3.5. (ID615). Figure 62

119 Counter (Greep type 1), half extant. bone. Disc with flat obverse and reverse, broken across central dot on obverse; rounded edges. Diameter 18mm, thickness 2.5mm. A22.2003: sf 900 : unstratified. (ID614).

120 Counter (Greep type 2), approximately one-third extant. Bone Dished obverse centre with lip on underside. Diameter *c.* 20mm, thickness 3.5mm. A24.2003. Sf 2039 : 6151 : G1321: Phase 3.9. (ID3).

121 Counter (Greep type 2); approximately half extant. Bone. Dished obverse centre with central dot. Burnt. Diameter 18mm, thickness 4mm. A24.2003: Sf2039 : 6151 : G1321 : Phase 3.9. (ID 4).

122 Counter (Greep type 2). Bone. Disc with dished obverse and pointed oval dot in centre. Diameter 22mm, thickness 4mm. A24.2003. Sf1045 : 4939: G996 : Phase 4.6. (ID38). Figure 62

123 Counter (Greep type 2). Bone. Circular with dished obverse with central dot. Diameter 20 x 19mm, thickness 3mm. A24.2003. Sf 1139 : 5428 : G224 : Phase 4.6. (ID 32).

124 Counter (Greep Type 2). Bone. Circular disc with dished obverse and central dot. Facet under one edge. Diameter 21mm, thickness 3mm. A24.2003. Sf 1003 : unstratified (ID37).

125 Counter (Greep Type 3). Bone. Flat disc with biconical edge; two concentric rings and central dot on obverse. Facet at one point on under side. Diameter 14mm, thickness 3mm. A22.2003. - :2807 : G317 : Phase 2.4. (ID95)

126 Counter (Greep Type 3). Bone. Three concentric ridges and central raised ring and sunken dot. Diameter 15mm, thickness 3mm. A22.2003. Sf 774 : 2619 : G399 : Phase 3.6. (ID82). Figure 62

127 Counter (Greep Type 3). Bone. Three concentric ridges and central dot; bevelled edges on underside. Diameter 17mm, thickness 3mm. A24.2003. Sf 1778 : 5982 : G698 : Phase 3.7. (ID 5).

128 Counter (Greep Type 3). Bone. Flat disc. Four concentric circle on obverse with central dot. Bevel facet on each side. Diameter 21mm, thickness 3.5mm. A24.2003. Sf440 : unstratified. (ID 28).

129 Counter. Decorated samian pottery. Edges ground to slightly oval disc; retaining part of a lower body design. Diameter 30 x 28mm, thickness 8mm. A24.2003. Sf 1774 : 5669 : G997 : Phase 4.6. (ID57). Figure 62

130 Counter. Samian pottery. Disc with carefully ground edges. Diameter 22 x 20.5mm, thickness 7.5mm. A22.2003. Sf281 : 3336 : unphased cleaning layer. (ID73)

131 Counter. Grey ware body sherd. Roughly faceted into a disc. Diameter 18 x 16mm, thickness 4mm. A24.2003. Sf1927 : 6276 : G156 : Phase 3.5. (ID55).

132 Counter. Grey ware body sherd. Ground to disc. Diameter 35 x 34mm, thickness 10mm. A24.2003. Sf 1908 : 6184 : G1004 : Phase 4.6. (ID56)

133 Counter. Grey ware body sherd. Roughly ground into a disc. Diameter 22mm, thickness 7mm. A24.2003. Sf 1905 : 6001 : G665 : Phase 8.03. (ID58).

134 Counter. Reduced pottery appearing black. Carefully ground to disc. Diameter 31 x 30mm, thickness 7mm. A24.2003. Sf 1044 : 4983 : G1043 : Phase 8.2. (ID 59).

135 Counter. Colour-coated body fragment with glossy red/brown outer surface retaining rouletted band and grey interior. Disc with carefully ground edges. Diameter 18 x 17.5mm, maximum thickness 5mm. A22.2003. Sf267 : 3161 : G666 : Phase 8.2. (ID74). Figure 62

136 Counter. Nene valley colour-coated ware (Fabric C2NV) from a 4th century jar form. White fabric with orange-brown slip on the outer surface. Diameter 34mm. A22.2003. - : 3488 : G526: Phase 4.1. (ID 624)

137 Counter. Grey ware pottery sherd. Disc carefully ground to shape. Diameter 18mm, thickness 4.5mm. A24.2003. Sf 2004 : 4620 : G667 : Phase 9.1. (ID61)

138 Counter. Black burnished pottery sherd. Asymmetrical five-sided shape with ground edges. Diameter 36mm, thickness 6mm. A22.2003. Sf 712 : 2226 : G634 : Phase 13. (ID581).

Items for weighing

The fact that Vine Street has produced two definite and one possible steelyard is another remarkable feature of the finds assemblage. Two (nos. 139 and 141) are definitely associated with the Phase 3 occupation, the third (no. 140) was unstratified. The presence of Roman weighing equipment of any variety is generally absent on Leicester sites (Cooper 1999, 245 Tables 48-50) and until the Vine Street excavations the only example of an item in this category was the steelyard from Jewry Wall (Kenyon 1948, 259 no. 4). Weighing equipment in general is an uncommon element in any Romano-British finds assemblage. This can be seen in large assemblages which have been quantified by Crummy functional types. Attention has already been drawn to the overall Leicester pattern summarised by Cooper. Something similar can be seen in the assemblages derived from multi-site excavations at such diverse urban sites as Cirencester (Viner 1998, 310 Table 16) and Catterick (Cool 2002, 25 Table 85). In the former case over 2000 items were quantified and in the latter over 3000. In both cases the amount of weighing equipment was less than 1% of the total. Against this background, the presence of so many steelyards concentrated in and around this property at Vine Street suggests that at least one of the activities associated with it must have required a lot of weighing. Steelyards of this size can measure a large range of weights depending on which fulcrum is used (see Crummy 1983, 154 for explanation of how a steelyard works). In some the clarity of the scale marking is such that the weights can be calculated. One from Westhawk Farm, near Ashford which was 200mm long was calibrated to weigh items up to 45 Roman pounds (*c*. 14.74kg) (Cool 2008, 154). The steelyard from Colchester was slightly longer and was calculated to have been calibrated to weigh up to about 40 Roman pounds (Crummy 1983, 99 no. 2508). Unfortunately the scale markings on the Vine Street steelyards are only scantily preserved and the likely range of weights cannot be calculated. In the Roman world many commodities were priced by weight rather than number, as can be seen from Diocletian's Price edict (Graser 1940) and the Vindolanda tablets (e.g. Bowman and Thomas 1994, nos. 180, 182, 190 and 192). With the evidence available therefore, it is not possible to suggest quite what was in need of so much weighing at Vine Street.

139 Steelyard beam. Copper alloy. Circular-sectioned bar with disc terminal; fulcrum end rectangular-sectioned tapering in thickness to end, with three loops, two of which retain loops from chains; paired transverse ribs at either end on each face of the fulcrum. Surface of bar damaged from corrosion and no coherent scale markings can be made out though there are transverse indentations from time to time. Length 126mm, section of fulcrum 7 x 4.5mm. A22.2003: Sf287 : 3355 : G451 : Phase 3.6. (ID179). Figure 62

140 Steelyard beam. Copper alloy. Lozenge-shaped bar with disc terminal; oval-sectioned fulcrum with three loops, two retaining parts of chain; surface of bar obscured by corrosion and no scale visible. Bar bent. Length *c.* 110mm, section of bar 5.5 x 6mm, fulcrum section 6.5 x 4mm. A24.2003. Sf 423 : unstratified. (ID 180). Figure 62

141 Steelyard beam? Copper alloy. 'D'-sectioned bent bar, one end broken, other a broken perforated loop. Pairs of vertical grooves as regular intervals along the curved face. Present length *c.* 110mm, section 5 x 3mm. A24.2003. Sf 447 : 4145 : G1265 : Phase 3.7. (ID219).

Writing Equipment

Writing activity at Vine Street is represented by a seal-box base (no. 142) together with one certain and one possible iron styus (nos. 143-4). Seal boxes were in use in the first to third centuries. In Leicester three bases similar to no. 142 came from the Shires (forthcoming cat nos. 83-4) and a tear drop-shaped one came from Jewry Wall (Kenyon 1948, 255 no. 10). Redcross Street produced parts of three round ones (A316.1962 cat nos. 50-52) and an acorn-shaped one came from St Nicholas Street (A653.1965 cat no. 49). The high rate of recovery at some sites and their absence or scarcity at sites which otherwise have large finds assemblages such as Jewry Wall and Causeway Lane suggests that these were not a regular feature of material culture in Roman Leicester, but were concentrated at sites where documents and possibly other items that needed to have their seals protected were concentrated. The Vine Street example came from a pit to the north of Building F and was clearly fragmentary by the time it was

discarded, so it is not possible to say whether it was associated with the activities being carried out in that building. It did, however, pre-date Building G.

The identification of iron stylii relies to a great extent in having the iron X-radiographed so the absence of any records of them from early excavations prior to the regular adoption of this practice would not be surprising, though one is recorded from St Nicholas Street (A653.1965 cat no.61). It may be noted though, that none were identified at Causeway Lane where X-radiography was carried out. The presence of no. 143 in a Phase 2 context attests to the early commercial nature of the activity taking place on the site. Both of the stylii identified are simple undecorated forms. No. 143 belonging to Manning (1985, 85) Type 2, and the broken no. 144 either to that type of the even simpler Type 1.

142 Seal box base. Copper alloy. Diamond-shaped base with four circular perforations; two perforated lugs at one end with transverse hinge bar between; knob at opposite end; central angles each have projecting channel through walls. Length 32mm, width 21mm. A22.2003. Sf 323 : 3567 : G448 : Phase 3.6. (ID 148). Figure 62

143 Stylus. Iron. Wedge-shaped eraser with shoulders; probably circular-sectioned shank tapering at end to point, possibly with a step. Length 138mm, shank section 5mm, width head 8mm. A24.2003. Sf 2007 : 8102 : G109 : Phase 2.5. (ID288). Figure 63

144 Stylus (?). Iron. Slightly tapering wedge-shaped eraser with shoulders to broken shank. Present length *c.* 33mm, width of eraser 7mm. A24.2003. - : 6664 : G951 : Phase 3.7. (ID 313).

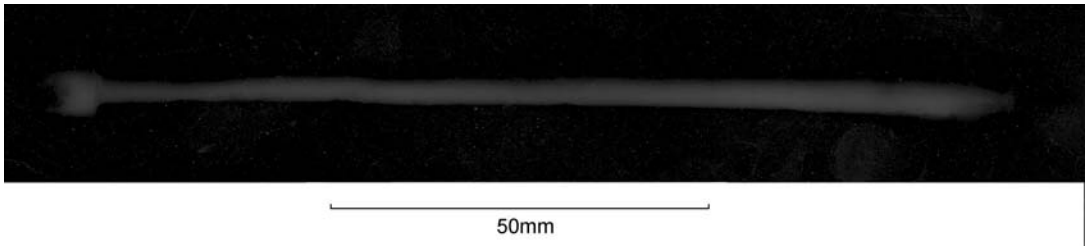


Figure 63: The Small Finds: X-radiograph of iron Stylus (No. 143)

Transport fittings

Inspection of the x-radiographs has revealed four iron items from contexts assigned to the Roman period which probably belong to this category. Nos. 145-7 may be identified (with more or less certainty as indicated by the catalogue entries) as buckles. In the Roman period virtually the only people who wore belts with buckles were soldiers. None of the forms suggested here are military ones so a probably use as harness strap fittings seems most likely. Even here though, it may be noted that buckles were not a frequent feature of Roman horse harness.

The other item in this category is a horse shoe found in the demolition layer over Building G assigned to Phase 4.7 (no. 148). The question of the extent to which horse-shoes were used in the Roman world remains a vexed one. Manning, the leading authority on Romano-British iron work believed they were (Manning 1976, 31), and further developed his ideas in discussing those from Usk (Manning *et al* 1995, 42). Clark (2004, 78-81) reviewing the evidence cast doubt on some of the supposedly secure Roman contexts Manning cited in 1976 but was left with a subset whose contexts seemed secure. The problem is that the features observed on supposedly Roman shoes like no. 148, lobate edges and recessed nail holes, are also typical of Clark's Type 2 of the 11th to 12th centuries. What can certainly be observed is that horse-shoes virtually never feature in assemblages of Roman ironwork from secure contexts in my experience. This piece does not really further the discussion given where it was found. Indeed on the balance of probabilities it might suggest that the demolition episode considerably post-dated the 4th century.

145 Annular buckle. Iron. Diameter 16mm. A24.2003. - : 5575 : G1234 : Phase 3.1. (ID296)

146 Buckle ? Iron. Square frame. Width 13mm. A24.2003. - : 5575 : G1234 : Phase 3.1 : (ID297)

147 Buckle (?) Iron. Three sides of a square frame. Width 30mm, width frame 8mm. A24.2003. Sf572 : 4588 : G1291 : Phase 8.1. (ID332)

148 Horseshoe. Iron. End of one arm. Two rectangular countersunk holes on one side, three on other, outer edge slightly wavy; also one fiddle key nail. Length 95mm, maximum width 90mm, width of web 18mm. A24.2003. Sf 1051 : 4879 : G1276 : Phase 4.7. (ID 352). Figure 64

Tools and knives

This is a category of finds that is dominated by ironwork and as such the only Leicester assemblage available for full comparison is that from Causeway Lane for reasons discussed in connection with the stylii. Even at that site iron tools were absent so it is to be regretted that the ironwork assemblage here did not undergo any investigative conservation as that might have revealed a larger range of items than it has been possible to identify.

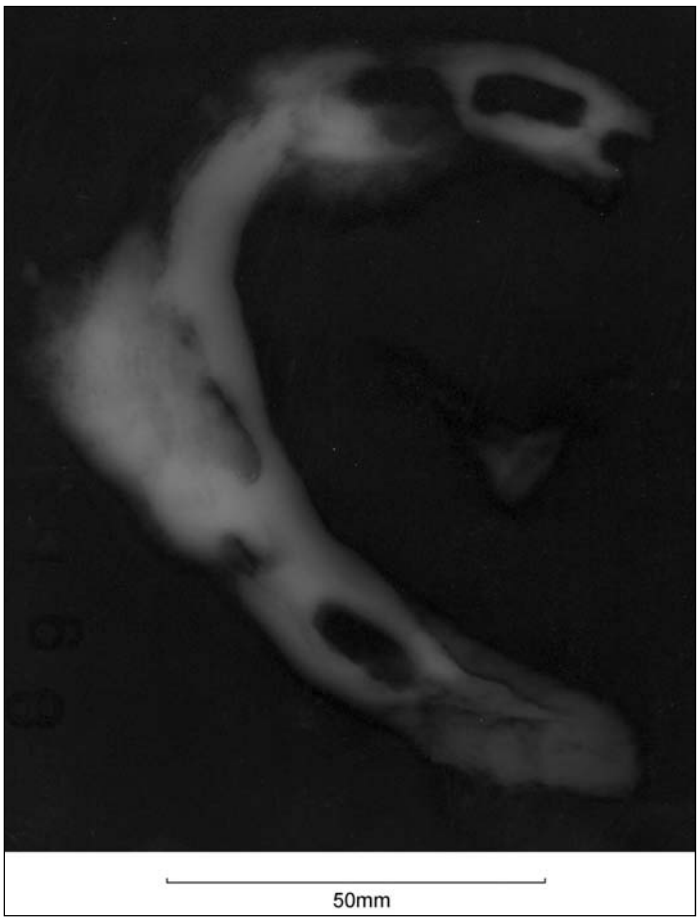


Figure 64: The Small Finds: X-radiograph of iron Horseshoe (No. 148)

Handles

The most unusual item in the entire category is no. 149. This has many of the features that would suggest it was the handle of a folding clasp knife though the slot that would have guarded the edge of the blade is curved and this is unusual. With the exception of the handles depicting a hound chasing a hare (see for example Lloyd-Morgan 2006, 197 no. 2), Roman clasp knife handles tend to be of unique patterns as demonstrated by the bone example from the Shires which depicted Pan playing his pipes (forthcoming cat no. 91). This example seems to be no exception to this rule.

Roman tool and knife handles are frequently well made and well-finished pieces (see Crummy 1983, 107-11). This cannot be said for the bulk of the handles from Roman contexts at this site. There is one fragment from a two piece handle that would have been fastened to a knife or tool with a scale tang (no. 155) and one fragment from what may have been a well-made multi-piece handle (no. 154). The others are either simple hollowed out bones (nos. 150-1) with minimal decoration if any or roughly whittled antler tines (nos. 152-3). These all come from Phase 4 contexts with the antler ones coming from those of Phase 4.6 and 4.7. Antler is not a material that was much exploited during the Roman period though a rise can be seen in very late 4th century and later assemblages. One of these came from a late pit (no. 153), the other was associated with the smithing activity in Building G Room 6 and presumably came from a tool, though possibly not one directly associated with working the hot metal as they tend to have metal handles. the fact that antler was being exploited would suggest that both these contexts were associated with very late 'Roman' activity.

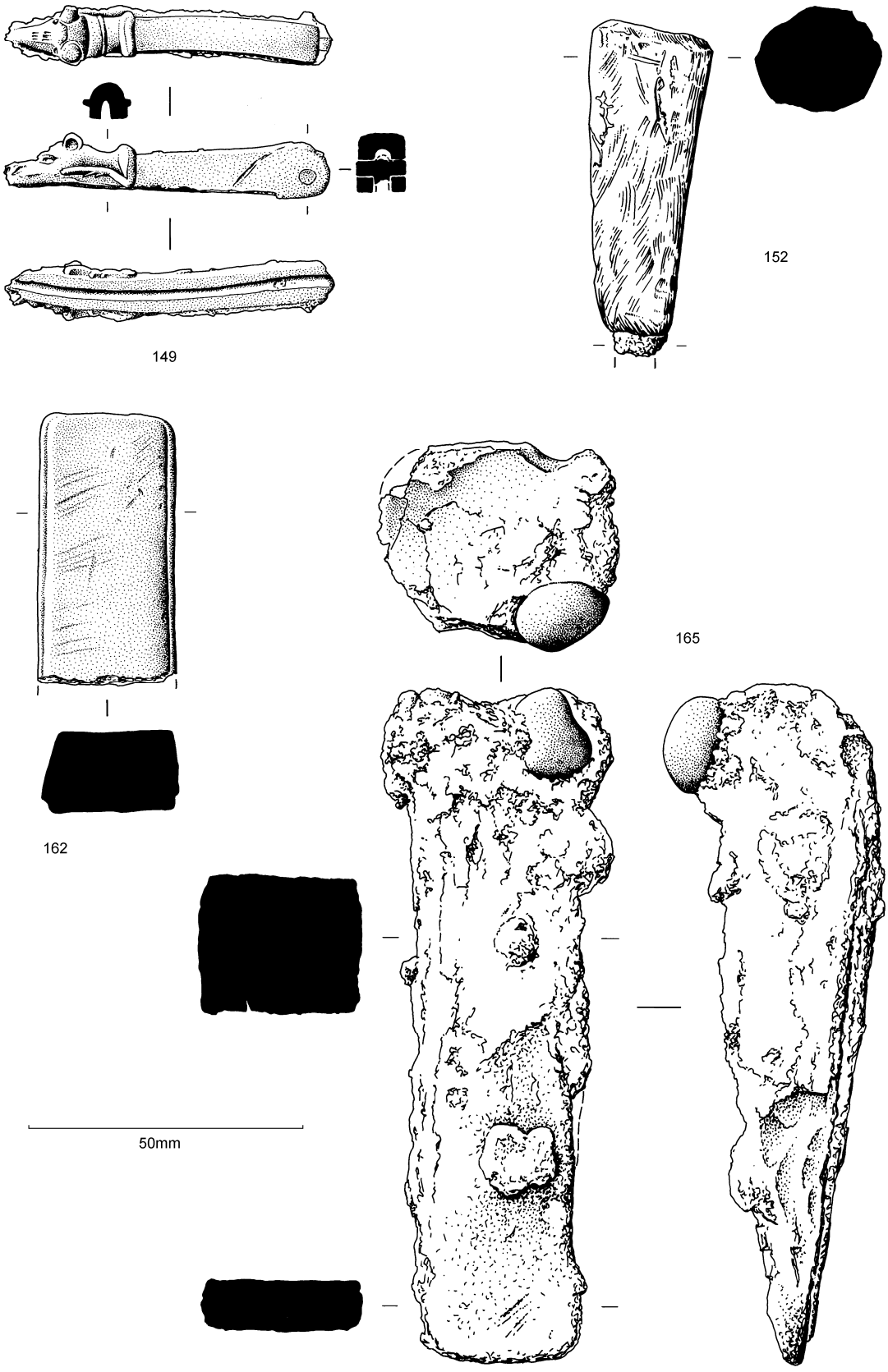


Figure 65: The Small Finds: the illustrated tools and knives, 149, 152, 162, 165

149 Folding knife handle (?). Copper alloy. Square-sectioned handle tapering slightly to terminal depicting an animal's head, possibly a dog; rib marks junction of bar and terminal on sides and top; other end has a small tenon; cylindrical perforation through handle at tenon end close to base, now filled with iron corrosion products; slot clearly visible along most of the length of the underside and probably extended from end to end, slot curved towards the animal-head terminal. Length 60mm, maximum section 10 x 9mm. A24.2003. Sf 1081 : 4972 : G1297 : Phase 14. (ID 247). Figure 65

150 Handle; in two joining fragments lacking lower part and side. Hollowed long bone with one end bevelled; traces of iron tang internally. Present length 61mm, diameter 23mm. A24.2003. Sf 1298 : 5564 : G1275 : Phase 4.1. (ID 22).

151 Handle. Bone. Long bone with cancellous tissue hollowed out; each face has three longitudinal grooves. Length 95mm, diameter 20 x 11mm. A24.2003. Sf 1093 : 5356 : G1017 : Phase 4.7. (ID 46).

152 Handle. Antler. Tine surfaces whittled to give rough facetted surfaces; upper end shows cancellous tissue and is highly polished from handling; lower end retains iron tang. Length 59mm, maximum diameter of handle 22 x 19mm. A24.2003. Sf 1542 : 5749 : G1006 : Phase 4.6. (ID 47). Figure 65

153 Handle. Antler. Tine, each end sawn irregularly, with cancellous tissue hollowed out at lower end. Surfaces polished from handling. Length 52mm, maximum diameter 16 x 15mm. A24.2003. Sf 1997 : 4221 : G253 : Phase 4.7. (ID 50).

154 Handle (?) fragment. Bone. Flake from one piece of a multi-piece handle (?) retaining curved outer surface and small part of flat inner surface indicating the piece originally had a shallow 'D' section. One end has straight cut terminal with wide transverse channel behind. Part of a circular perforation between end and channel; internal surface retains part of a shallow drilled channel with rounded base, perforation cuts edge of this. Present length 38mm, section 11 x 4mm. A24.2003. Sf 1789 : 5432 : G1250 : Phase 3.7. (ID 23).

155 Handle plate fragment. Bone. D-sectioned part of a sawn long bone tapering in one direction, inner face retains part of cancellous tissue; outer face decorated by diagonal grooves producing an acute lattice; two central perforations, one retaining iron. Present length 36mm, maximum section 27 x 8mm. A24.2003. Sf 3000 : unstratified. (ID 53).

Knife and blade fragments

Knives and blade fragments were much less common at Vine Street than they were at Causeway Lane where 36 came from Roman contexts (Cooper 1999, 276). Here only six were identified at most. One was a small example of a Manning (1985) type 16, one of the commonest types of knives found on Romano-British sites. No. 157 might have come from his Type 11 or 12. The other possible blade fragments are not identifiable as to type, though it should be noted that the X-radiograph seems to indicate that the blade of no 158 was serrated so it may have come from a saw.

156 Knife; blade and tang fragment. Iron. Back slightly stepped up to tang; blade tapering to point, stepped choile, central tang. Present length 90mm, blade length *c.* 70mm, blade thickness 10mm. A24.2003. - : 5827 : G1258 : Phase 3.6. (ID 325).

157 Knife; blade and tang fragment. Iron. Straight back continuing line of tang; blade edge parallel to back. Present length 37mm, width blade 16mm. A24.2003. - : 6089 : G967 : Phase 3.8. (ID 331).

158 Blade fragment (?) Iron. Edge possibly shows serrations. Present length 53mm, maximum extant width 8mm. A24.2003. - : 6664 : G951 : Phase 3.7. (ID 314).

159 Blade fragment (?) Iron. Present length 53mm, maximum width 13mm.A24.2003. - : 6425 : G165 : Phase 3.3. (ID 328).

160 Blade or bar (?) Iron. A24.2003. - : 4649 : G1249 : Phase 3.5. (ID 292).

161 Blade fragment (?) Iron. A24.2003. - : 5910 : G995 : Phase 4.2. (ID 306).

Whetstones

The whetstones have not been the subject of expert geological analysis but it may be noted that the lithology of nos. 162-3 appears to be the same and is consistent with them being made of Kentish Rag. Both show grooves along the edges where they were marked out during production. This is not uncommon on Kentish Rag whetstones (e.g. Roe 2007, 149), though was clearly a technique used to produce whetstones in a range of lithologies in the Roman period as the box of whetstones awaiting sale in the Wroxeter forum when it suffered the 2nd-century fire show the technique and were made from a Midlands stone (Cantrill 1931, 96-7). It is a feature that is also seen on two of the whetsones found in the 1965 excavations at the Forum (Hebditch and Mellor 1973, 49 no. 26 and 28). The presence of Kentish Rag whetstones would not be out of the ordinary at Leicester as they were clearly an item of long distance

trade (Peacock 1971, 155).

162 Whetstone. Stone (grey, micaceous, with many white flecks - possibly Kentish Rag). Rectangular-section; groove along each corner apart from the face that is worn smooth. Length 50mm, section 25 x 15mm. A24.2003. Sf 517 : 4266 : G927 : Phase 3.3. (ID 370). Figure 65

163 Whetstone. Stone (Grey with some white flecks and white grains, probably Kentish Rag). Rectangular-section; groove along each corner apart from the face that is worn smooth. Length 74mm, section 24 x 12.5mm. A24.2003. Sf 1067 : 5182 : G1058 : Phase 13. (ID 371).

164 Whetstone. Very fine grained dark grey laminated siltstone. Rectangular-sectioned, rectangular bar; irregular broken ends; three sides worn very smooth with transverse sharpening scratches and marks on wide polished face. Length 128mm, maximum section 30 x 15mm. A24.2003. Sf 1083 : 4162 : G773 : Phase 3.7. (ID 381).

Craft tools

The recovery of no. 165 amongst the smithy debris in Room 6 of Building G is of especial interest. This large wedge-shaped block of iron could have functioned as an anvil if set into a block of wood as was traditionally done. Admittedly it does not belong to any of the classic Roman shapes for anvils (see Manning 1985, 1-4), but as already discussed in connection with the antler-handled tool no. 152 there are good grounds for believing this activity was very late and so there is no reason why it should conform to shapes that were often current several centuries earlier. An alternate interpretation is that that this was a large billet of raw iron. Investigative conservation would probably have indicated which function it had served as the upper face could be expected to have rounded edges if it was an anvil. Such a finish is normal as such edges prevent damage to the object during production.

The function of the other two items is less certain. No. 166 could either have been a carpenter's chisel or a smith's punch, and No. 167 might have been the handle of an implement. Given its length, it too might have been involved in a high temperature industry such as smithing.

Finally the presence of struck flints may be noted, one of which came from a Phase 3 context. It is clear that flint continued to be used to provide sharp cutting edges throughout later prehistory (Young and Humphrey 1999), and it is not unusual to recover struck flints serving the same purpose on Roman sites (see for example Miles 1977, 142-3). Other struck flints of Roman date from Leicester have also been recovered from Bath Lane (Clay and Mellor 1985, 70 nos. 22-3)

165 Anvil. Iron. Approximately square-sectioned block tapering to wedge-shaped end. Length *c.* 250mm, width c 60mm, weight *c.* 3.5kg. A24.2003. Sf 1543 : 5749 : G1006 : Phase 4.6. (ID 350). Figure 65

166 Chisel or punch. Iron. Length 92mm, maximum width *c.* 23mm. A24.2003. - : 6565 : G967 : Phase 3.8. (ID 329).

167 Tool handle? Iron. Square-sectioned bar, one end expanding and broken, other possibly tapering. A24.2003. Present length *c.* 480mm, width bar 15mm. Sf 1886 : 6188 : G947 : Phase 3.6. (ID 366).

168 Struck flint. A22.2003. Sf 335 : 3625 : G490 : Phase 3.5. (ID 378).

Also 3 other struck flints. A22.2003. Sf 265, 273 : 3119 : G1414 : Phase 14.

Fastening and Fittings

Most Roman sites produce a quantity of finds such as studs, rivets etc that can be attributed to this category and apart from the Shires (Cooper 1999, Table 48), the Leicester sites are no exception (Cooper 1999, 246-79, see also Tables 49 and 50). Vine Street produced the normal range of studs, mounts and other fittings and also what would appear to be a higher than average number of fittings associated with security (Table 10). In this table the locks and keys from various other sites have been summarised under the category 'Other sites'. These consist of two tumbler-lock iron slide keys from Great Holme Street (A78.1978 cat no. 79 and 80) a lever-lock key described as being suitable for a casket from Redcross Street A174.1963 cat no. 39 and a key handle from Austin Friars (A389.1973). The key finger rings discussed in connection with no. 73 have also been included.

Table 99: The Small Finds: Roman locks and keys from selected sites in Leicester

	Vine Street	Causeway Lane	Jewry Wall	Other sites	Total
Key handle	1	-	-	1	2
Lift keys	2	-	-	-	2
Slide keys	2	-	1	2	5
Slide lock bolt	-	1	-	-	1
Lever lock key	-	-	1	1	2
Lock pin	-	1	-	-	1
Finger ring key	1	-	1	2	4
Total	6	2	3	6	17

The number of keys and lock fittings reported from Jewry Wall may be under represented as the figures lack any items made of iron and these may be expected form a sizeable proportion of such finds. At Vine Street for example, one of the lift keys and both slide keys were made of iron and the key that would have been used with the key handle no. 169 would also have been made of iron. Such considerations would not apply to Causeway Lane where no keys were found or at the Shires where no keys or locks of any type were reported. As can be seen, Vine Street has produced just over a third of the keys and lock fitting from Leicester This might suggest that the inhabitants at Vine Street had a higher than normal concern with security. Something possibly born out by the fact that at Vine Street the key ring (no. 73) is an effective lever lock key whereas the others from Leicester are much more flimsy and of use only with a weak tumbler lock.

Of the pieces stratified in Roman contexts, two came from Phase 3 contexts and two from Phase 4 ones. One of the latter, the key handle no. 169, may well have been in use earlier. It is an elaborate version of a fleur-de-lis key handle. The basic form is relatively common and was in use from the later 2nd century onwards (Crummy 1983, 126 no. 4161). No. 169 is very similar to an example found in a ditch fill at the Bays Meadow villa filled with debris from the fire that destroyed the villa in the final third of the 3rd century (Lloyd-Morgan 2006, 197 no. 4). Both Phase 3 items came from features pre-dating Building G, and likely related to the occupation of its predecessors, Buildings A, B and D. Both Phase 4 items come from features which can be directly attributed to the occupation of Building G: no. 169 from a refuse pit and no. 170 seemingly dropped within the final hearth residue within the northern range's stoke-room, Room 32. It might thus be suspected that the concern with security centred on the period when Building G and its precursors were in occupation during Phase 3.

Keys

169 Key handle. Copper alloy with remains of iron shank of key. Elaborate trilobate handle with double knob terminal, rounded rib below and cylindrical shaft for handle. Length 84mmm thickness 10mm. A22.2003. Sf 322 : 3488 : G526 : Phase 4.1. (ID 106). Figure 66

170 'T'-shaped lift key. Iron. Expanded handle with bar bent over to form eye, end of bar extending down side of handle; stem ends in 'T'-shape with tooth extending upwards at each end, one tooth broken. Length 226mm, width ward 60mm. A24.2003. Sf 2012 : 8135 : G725 : Phase 4.6. (ID 285).

171 L-shaped lift key. Copper alloy. Rounded rectangular shaft, cut down at one end to form a thinner tang which bends over to form a loop; other end bends through a right angle and has two wards. Length 83mm, shaft section 4.5 x 4mm. A24.2003. Sf1132 : 5479 : G936 : Phase 3.5. (ID133).

172 Key. Iron. Rectangular handle with eye at top; stem with 'L'-shaped bit. Length 70mm. A24.2003. Sf 1097 : 5319 : G790 : Phase 3.2. (ID 353).

173 Key. Iron. Expanded handle; ward at 90 degrees from stem. Present length *c.* 125mm. A24.2003. Sf 2003 : 4328 : G239 : Phase 8.1. (ID284)

Studs and nails

174 Stud head or mount. Copper alloy. Hollow, slightly flattened hemisphere; approximately half extant and centre damaged. Original diameter *c.* 30mm. A24.2003. Sf 1973 : 6543 : G163 : Phase 3.3. (ID 240).

175 Stud. Copper alloy. Hollow domed head; circular-sectioned shank, now bent and broken. Length *c.* 22mm, head diameter 14mm. A24.2003. Sf593 : 4809 : G1387 : Phase 3.5. (ID237).

176 Stud. Copper alloy. Flat disc head with channel around edge; short shank bent flat; upper face has C-shaped punch marks creating creating a central sun burst. Diameter 21mm. A24.2003. Sf 1918 : 6454 : G1127 : Phase 4.6. (ID228).

177 Stud. Copper alloy. Hollow dome-headed stud; short circular-sectioned shank with burred end. Length 7.5mm, head section 6mm, shank section 2mm. A24.2003. Sf 1956 : 6454 : G1127 : Phase 4.6. (ID234).

178 Nail. Copper alloy. Globular head; circular-sectioned broken shank. Present length 21mm, head section 5mm, shank section 2mm. A24.2003. Sf1368 : 5614 : G1261 : Phase 3.8. (ID 233).

179 Nail. Copper alloy. Square-sectioned shank tapering to wedge-shaped point; swollen head. Length 68mm, shank section 7mm. A24.2003. Sf 472 : 4163 : G1052 : Phase 10. (ID 260).

Other fittings

180 Pottery repair. Lead alloy. Circular 'H'-shaped plug retaining fragments of pottery. Diameter 42mm, thickness 16mm, weight 114mm, pottery wall thickness 3mm. A22.2003. Sf 127 : unstratified. (ID 276).

181 Ferrule. Copper alloy. Horizontally ribbed sheet bent into cylinder; one end straight, other broken. Present length 22mm, diameter 10 x 9mm. A24.2003. Sf 1994 : 5960 : G1355 : Phase 3.1. (ID259).

182 Fitting. Copper alloy. Oval-sectioned 'U'-shaped bar with flattened expanded ends, both broken; one end retains a square perforation punched though. Length 36mm, width 35mm, section 4.5 x 3.5mm. A24.2003. Sf1900 : 6198 : G157 : Phase 3.5. (ID 230).

183 Fastener. Copper alloy. Rectangular sectioned bar, one end tapers to point which is bent back into a loop; other broken; bar bent and now highly corroded and obscured. Present length *c.* 25mm, section 6 x 1.5mm. A22.2003. Sf 288 : 3355 : G451 : Phase 3.6. (ID242).

184 Looped spike. Iron. Length *c.* 80mm. A24.2003. - : 5479 : G936 : Phase 3.5. (ID 299).

Agriculture

The ox goad no. 185 is an interesting addition to the corpus of Leicester's Roman finds as hitherto agricultural equipment has not been found within the city itself though it has been found on the extra-mural site of Great Holme Street (Cooper 1999, 245 especially Table 50). This piece came from a Phase 2 context from a boundary post-hole associated with a period of timber structures, and it would be tempting to see this piece as evidence of an agricultural use of the land before the timber building were built. Equally however, it is the sort of item that could be lost while herding cattle through streets.

185 Ox goad. Iron. Strip with three turns and projecting spike. Length 30mm, diameter 15mm. A24.2003. - : 8130 : G121 : Phase 2.4. (ID310).

Military Equipment

The excavations at Vine Street have produced an interesting assemblage of finds associated with the Roman army. It is not uncommon to find such items at Leicester as can be seen from Table 11, but this does appear to be one of the larger assemblages. Cooper records six items from Great Holme Street (Cooper 1999, Table 50) but it has only been possible to include four of these, the lead seals (Wright *et al* 1976, 386-7 nos. 36-39), in the table. In addition, the other-sites category also includes the 1965 excavations at the forum which produced a 1st-century cavalry harness pendant and an enamelled belt plate and buckle of the 2nd century (Hebditch and Mellor 45 no. 2, 47 no. 18) and the 1960 excavation at Bath Lane which produced a 1st-century auxiliary cavalry helmet cheek piece (Clay and Mellor 1985, 64 no. 2). Another lead sealing is also known from St Nicholas Circle (Wright *et al* 1976, 387 no. 40).

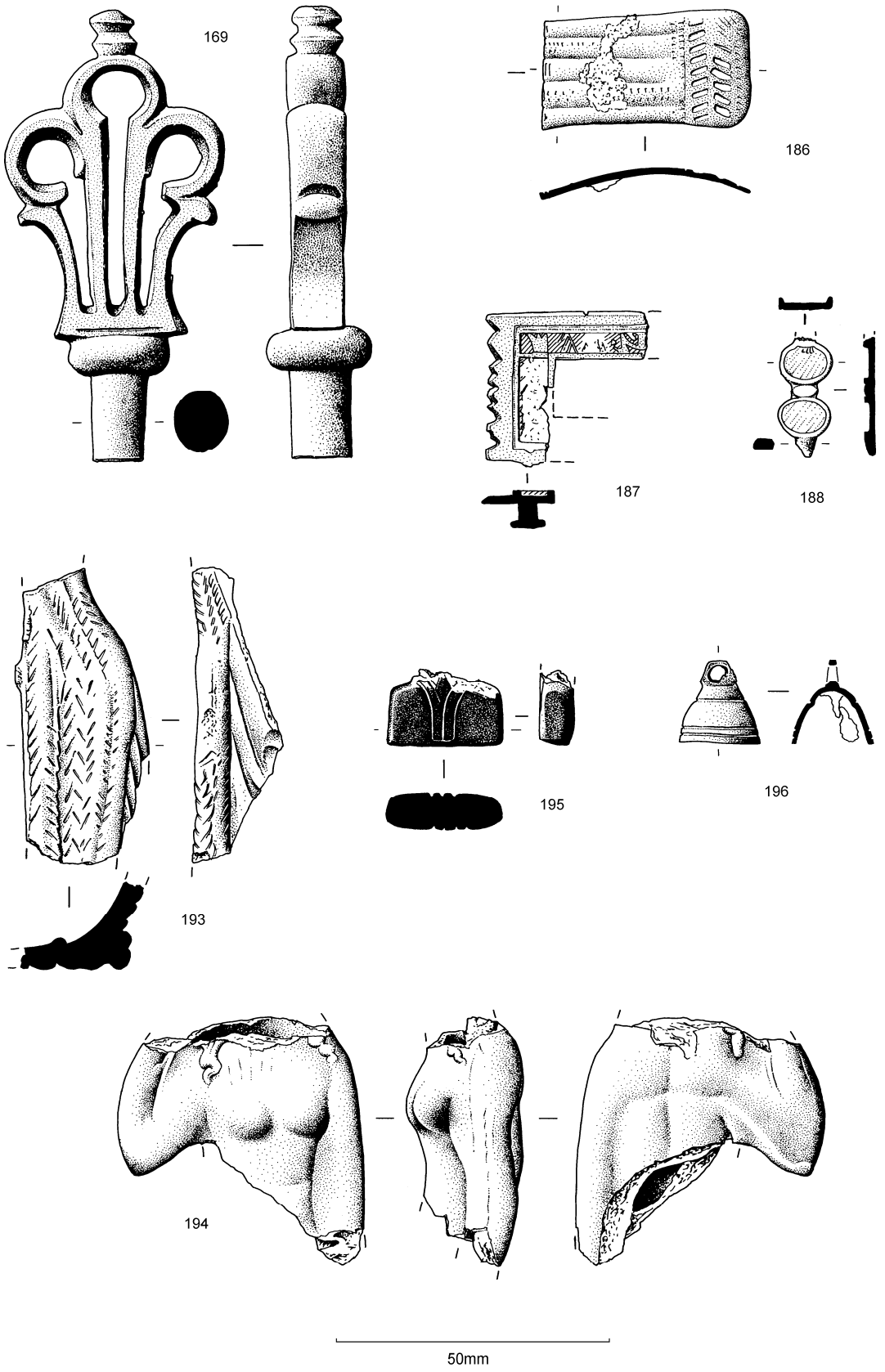


Figure 66: The Small Finds: the illustrated keys, military equipment and religious items, 169, 186-8, 193-6

Table 100: The Small Finds: Roman military equipment from Leicester

	Vine Street	Freeschool Lane	Causeway Lane	Shires	Jewry Wall	Other sites	Total
1st -2nd century	1	-	-	-	-	2[(1)]	3
2nd - 3rd century	2	-	1	-	-		3
4th century	-	-	-	-	2		2
Armour	-	1[(2)]	-	-	-	1	2
Sealings	3	-	-	-	-	5	7
Weapon	1	-	-	-	-	-	1
Total	6	1	1	1 [(3)]	2	8	19

(Notes. [(1)] It is possible a third item could be added here, cat no. 117 from Great Holme Street might be a fragment of a belt buckle but inspection would be needed to confirm this. [(2)] a second piece of armour was found at Freeschool Lane but it is possible that it is not of Roman date. [(3)] The information available to me is not sufficient to attribute this strap fitting to a particular date category).

The earliest piece from Vine Street is no. 186. This type of bracelet has recently been identified as a mid-1st century military armillae (Crummy 2005a) and originally would have been awarded in the early years of the occupation under Claudius or Nero. This example is one of the most northerly of the securely provenanced examples to have been found. It was incorporated into the made up-ground below Building 3 and so need have no direct relationship with the occupation on the site. What it does indicate, however, is the presence somewhere in Leicester of a veteran who had seen service in the early days of the Roman occupation.

Nos. 187-8 are both from military belt plates of the later 2nd and 3rd centuries. These had rectangular enamelled frames, sometimes with an additional decorative bar running along the middle. No. 188 is a fragment of such a bar. The way in which no. 187 has broken makes it unclear whether this place would have a rectangular open space centrally or whether it might have had a similar bar. An example that was clearly a buckle plate without a central bar came from a mid- 4th-century floor in the Commandant's house at Segontium (Wheeler 1923, 20 no. 10, fig. 8). The type with an additional central bar of oval enamelled cells is well illustrated by a belt plate from Caerleon (Boon 1971, 56 fig. 17 inset). Both of these would have been fastened longitudinally to the belt as would the Vine Street one. This feature separates them from the other well known contemporary belt plates with openwork centres which were attached to the belt vertically with groups linked by chains as can be seen on a group of four from South Shields fort (Allason-Jones and Miket 1984, 94 no. 3.10, no. Pl. VI). Both types are regularly decorated with millefiori enamel canes, as no. 187 appears to be, which would most likely mark them out as a continental import as using millefiori enamel was not something that indigenous craftsmen often did.

It is possible that the pieces could have come from the same belt though they were found on different sides of the site at different times. No. 187 came from the backfill of the plunge pool in Building F whilst no. 188 came from a floor level in Room 6 of Building G. What they do indicate is that at least one member of the army was likely to have been present in the courtyard house at some point. These are not the only pieces of the equipment of military personnel present in Leicester at that time as the scabbard runner from Causeway Lane would have been contemporary (Cooper 1999, 279 no. 210).

The discovery of a lead sling shot (no. 189) in the Burgess Street evaluation is a remarkable find. Both the shape and the weight happily fall within the range known from other sites (Greep 1987. 184) and there seems no doubt about its identification. Military equipment in the form of belt fittings and the like are not uncommon finds in towns, especially in the late 2nd to 3rd centuries and might imply nothing more than detachments on policing duties. Lead shot in urban contexts is, by contrast, exceptional and in his survey Greep (1987, 184) noted that 'without exception the British examples have been recovered from sites with undoubted military associations'. It is unfortunate that this piece was found unstratified as if it had come from a dated context, it could have cast an interesting light on the nature of the Army's involvement in Leicester.

The sealings nos. 190-92 are discussed in detail elsewhere (Tomlin & Hassall, 2007). Here it is perhaps appropriate to remark on one of the units mentioned on no. 192. The previous units attested on seals found in Leicester have all been British ones. The seal from St Nicholas Circle was that of the *legio VI*

Valeria Victrix whilst one of those from Great Holme Street belonged to the *Cohors I Aquitanorvm*. From these excavations no. 190 also belongs to a *legionis VI* whilst no. 191 belonged to *legio XX*. No. 192 is very unusual in naming two units – the *VI Victrix* and the *III Cyrenaica*. The latter is of course not a British legion. In the 1st century it was stationed in Egypt and thereafter in the province of Arabia (modern Jordan / Syria) (Alston 1995, 73). Lead sealings are, by their very nature, designed to accompany goods in transit, so the presence of seal of a particular unit is no guarantee of the presence of anyone from that unit. It is perhaps, at the very least, a remarkable co-incidence that evidence for this eastern legion should be found on the same site as the ivory box plate no. 111 from the same part of the world.

186 Armilla, terminal and part of hoop extant. Copper alloy. Rectangular-sectioned, widest to wrist. Terminal has two rows of oval punch marks in herringbone pattern, with two rows of punched leaves also in herringbone pattern, behind that two rows of triangular punch marks; hoop has five shallow ribs, edge ones narrow, second and fourth rib have punched decoration producing cabled pattern. Present length 40mm, section 21 x 1.5mm. A24.2003. Sf878 : 2834 : G379 : Phase 3.1. (ID 124). Figure 66

187 Belt plate. Copper alloy. One end of rectangular frame with open central panel; short end has serrated edge; raised rectangular cell with traces of corroded enamel, probably originally millefiori canes; rivet cast in one with plate with expanded integral washer at the end; inner side of frame broken centrally. Present length 29mm, width 28mm, depth including rivet 7mm. A24.2003. Sf 1188 : 3256 : G453 : Phase 3.6. (ID 245). Figure 66

188 Belt plate fragment. Copper alloy. Two oval linked copper alloy cells infilled with blue enamel. Present length 22mm, maximum width 10mm, thickness 2.5mm. A24.2003. Sf 1855 : 6103 : G968 : Phase 3.9. (ID 254). Figure 66

189 Rugby ball-shaped lead slingshot weighing 92g (3.25 oz). L: 35mm W: 25mm. A21.2006: Sf 3 : Tr.1a : unstratified. (Entry supplied by Nick Cooper).

190 Sealing. Lead alloy. Oval. Obverse: LEVI. Reverse: P (figure of a scorpion) | SF. Dimensions 24 X 17mm. A22.2003: Sf307 : 3355 : G451 : Phase 3.6. (ID 277).
Figure 67

191 Sealing. Lead alloy. Rectangular. Obverse: LXX. Reverse: C.IV.T. Dimensions 21 X 11mm. A24.2003. Sf 401 : 4936 : G737 : Phase 8.1 (ID 278).

192 Sealing. Lead alloy. Rectangular. Obverse L VI V | MVC. Reverse LEGIII | CYR. Dimensions 20 x 15mm. A21.2006 : Sf1 : Tr.4b : unstratified.

Figure 67: The Small Finds: the lead slingshot (189) and lead Legionary seals (190-192)

Religious items

In addition to the lead curse tablets (see Tomlin, below), there are a small number of items which might have had a religious or at least a protective importance for their owners. These include three pipeclay figures which both belong to figure types that were popular on British sites. Nos. 193 and 193a are fragments from two different Dea Nutrix figures. Both are clearly products of the Central Gaulish industries centred on the Allier Valley, as the basket-work is depicted with varying degrees of care and that feature never occurs on the depictions of nursing mothers from the Rhine-Mosel area (Jenkins 1978, 151). In general the Central Gaulish industries producing pipeclay figurines were active from the mid 1st to early 3rd century, but the Dea Nutrix figures do not feature amongst the earliest of the products (Lange 1993) so a later 1st and 2nd-century date for their manufacture is appropriate. They and Venus figurines were the commonest types imported into Britain. Jenkins (1986, 205) knew of about 50 examples from Roman Britain and more have been recovered since, including two others from Great Holme Street (A78.1975 cat nos. 106-5)

No. 194 comes from the common type of Venus (Types I or II in the French literature) where she grasps a tress of hair with her right hand and holds draperies in her left hand hanging down beside her left leg as may be seen on three found in a child's grave in the Eastern cemetery in London (Barber and Boucher 2000, 189). This Venus *anadyomène* is the commonest pipeclay figurine form recovered from Romano-British sites. Fifty years ago Jenkins (1958) was able to cite a hundred examples from the province and many more have been recovered since. This is well demonstrated at Leicester. Jenkins' list included an early find from Redcross Street, but by the time Cooper published the example from Causeway Lane, he was able to note additional examples from the town and its suburbs (Cooper 1999, 279 no. 211), including one from the Shires (forthcoming cat no. 95), two from Great Holme Street (A77-8.1975 cat nos. 101 and 103) and one from the Austin Friars (A389.1973 cat no. 102).

Like the Dea Nutrix figurine, this Venus is most likely to be a product of the Central Gaulish industries of the Allier region (for dating see discussion above). As it is only a torso it lacks the diagnostic details of hairstyle, draperies etc that would allow a more precise origin to be suggested as in studies of these figurines attention is generally paid to form rather than fabric (see for example studies in Bémont 1993). Jenkins (1986, 205) suggested that the Venus figurines arrived in this country during the Hadrianic to Antonine period. The evidence from New Fresh Wharf in London confirms that such figurines continued to be imported well into the second half of the 2nd century at least. Several were recovered, three of which were substantial (Jenkins 1986, 205 nos. 5.1-2, 5.4) and which should probably be regarded in the same way as the unused samian from the same site, i.e. debris from consignments that never got beyond the port. The Central Gaulish material in this group is dated to *c.*170-80 (Bird 1986, 139) and it would be tempting to assign those figurines to a similar date. That they could be curated for a long time though can be seen from the child's burial at London which given it contains part of dolphin-handled glass bottle (Barber and Boucher 2000, 187 no. 3) could not have been interred prior to the late 3rd century and possibly in the 4th century.

Pipeclay figurines are found throughout the province though are commonest in the south with Leicester lying on the northern edge of the greatest concentration (van Boekel 1993, fig. 110). As noted though they are relatively common in the town. In addition to the Dea Nutrix and Venus figures, a fragment depicting a male figure was recovered from Great Holme Street (A77.1975 no. 104).

The next item (no. 195) is a much less common one. The amount preserved is consistent with it being a small head and shoulders figure whose head has been snapped off. Its Roman date appears certain as it was recovered from a final trample layer in Room 6 of Building G which sealed the occupation layers there. Most Roman jet articles are personal ornaments (hair pins, beads, bracelets etc). There are, however, a small number of small three dimensional figurines. These tend to depict animals such as bears and lions and have occasionally been found before in Britain, often in special deposits such as graves (Crummy forthcoming). A very small number of male busts in jet have been recovered from sites in the Rhineland (Hagen 1937, 127 nos. 7-10) but even there they are extremely rare. To my knowledge no jet busts such as these have yet been recovered from Britain. A jet necklace is known from Colchester with a

pendant, possibly also of jet, in the form of a human head (Hull 1958, 257[1]), but the Vine Street piece appears to have been too large to act as such a pendant. Again therefore this site has produced a most unusual item, not just for Leicester but for the rest of Roman Britain.

The small bell no. 196 has been placed in this category and in this date category despite being unstratified as similar bells are not uncommon finds from Roman contexts. They were often used as parts of tintinabula to protect against evil spirits (Manning *et al*, 55-6).

193 Dea Nutrix figurine. Very fine-grained cream fabric with very occasional void. Fragment from the side of the basket chair showing the angle between the upper and lower parts. Edge of the chair bordered on either side by narrow rib, side retains two vertical ribs, all with herringbone cuts to indicate the basket work. Parts of three folds of the skirt of the goddess's gown remain, interior smooth other than along back edge where irregularities suggest additional clay used to lute the back and the front together. The front edge of the chair at the bend between seat and back is indistinct. Dimensions 56 x 20mm. A22.2003. Sf 1302 : 2707 : G399 : Phase 3.6. (ID 77). Figure 66

193a Dea Nutrix figurine. Very fine-grained pale buff fabric with weathered brown patches. Complete base plate with detached fragment from the back of the chair; the two fragments joining with missing chips in places. Asymmetrical D-shaped base with off-centre circular hole pushed through from exterior. Basket-work of chair shown by vertical ribs with a poorly executed herringbone pattern; lower edge of chair bounded by horizontal rib with poorly executed herringbone. The irregular interior of the statuette retains impressions caused by wiping with a cloth as well as faint traces of finger prints; similar but much fainter marks can be seen on the exterior below the edge of the chair. Dimensions of base 72 x 59mm; present height 70mm. A24.2003. sf 1772 : 4879 : G1310. ID 799. Phase 3.5.

194 Venus figurine. Very fine grained pale buff fabric with some small black flecks in places in the rear part of the figure. Upper body retaining arms and a tress of hair on both shoulders. Very well modelled with surface very finely slipped to produce a high gloss surface appearing creamy white. Present length 46mm. A22.2003. Sf 732 : 2358 : G378 : Phase 4.1. (ID 78). Figure 66

195 Figurine (?). Jet. Rectangular-sectioned block representing shoulders, broken on neck; grooves front and back. Present height 14mm, section 20 x 7mm. A24.2003. Sf 1110 : 5372 : G1022 : Phase 4.7. (ID368). Figure 66

196 Bell. Copper alloy. Tall hemisphere with flat top and integral loop; exterior has pair of grooves by base, and single groove below loop. Corroded iron from clapper internally. Length 14mm, maximum diameter 15mm. A24.2003. Sf 166 : unstratified. (ID 147). Figure 66

Craft debris

The finds have produced a range of craft activity in and around the site. Evidence of a smithy was found in Room 6 of Building G during Phase 4, but smithing was obviously taking place in the vicinity earlier (no. 197-8). The earliest evidence of the slag comes from a Phase 3.6 context associated with Building A but was in an area of made-up ground and so could have been imported from elsewhere. Other pieces of slag in Phase 3 contexts seem more likely to relate to ironworking in the vicinity. There is evidence from contexts associated with and in the vicinity of Building C (contexts 4698 and 6415) and also in a culvert associated with Room 6 of Building G. This latter is also likely associated with the smithy.

The Phase 3 copper alloy working was concentrated in the yard immediately north of Building B and west of Building D (nos. 199-200 and 203). The other evidence for the hot working of copper alloy from Phase 4 contexts (nos. 201-202 and 204) was from the courtyard of building G and could well be residual from the Phase 3 industry. No. 199 is an unusual find as though crucible fragments are not uncommon finds on Romano-British sites, they rarely retain cakes of metal as here.

Evidence for the salvaging of lead is provided by the large ingot found within a slate-capped cavity beneath the floor of Room 17 dated to Phase 4.6, the period of demolition of the house. Whether the ingot represents salvage of plumbing fittings from the building itself is open to conjecture.

There are three fragments (no. 205) that are definitely associated with glass blowing as they include part of a cylindrical moile, the part of the paraison that is left on the blowing iron after the vessel is knocked off. It came from a post alignment north of Building G in a Phase 3.7 context. It is blue/green and so a first to 3rd century date would be appropriate. A single moile like this in not sufficient to postulate glass

[1] I am grateful to Nina Crummy for drawing this reference to my attention. She also notes that the pendant has not been closely examined and may be of some mineral other than jet.

blowing on the site, as for that many more moiles and other characteristic debris from glass blowing would be expected (see for example the debris from a glass blowing episode at Wroxeter (Price and Worrell 2006, 132-4, colour plates 2-20). It does add to the evidence already known that glass was being blown in the forum area of Leicester (Price and Cool 1991).

In addition to these hot temperature industries there was also evidence of bone working in the form of roughouts for pins or needles. They have been termed pin rough-outs here as the more finished examples resemble those of Crummy type 1. Given this type lacks a head the rough-outs could as easily have been for needles. The distribution through time is summarised in Table 101. As can be seen this activity was taking place originally in Phase 3.5 or earlier. The Phase 3 contexts are all ones associated with Building F, either forming part of the backfill of the hypocaust or coming from the pits to the north. Most of the items from Phase 4 contexts also come from this part of the site, generally from the made-up ground to the east and so could be residual from the same activity, but equally could be from a second phase of activity as they come from a phase with further primary deposits of worked bone flakes.

Table 101: The Small Finds: the distribution of the bone pin roughouts through time.

Phase	Number
3.6	10
4.1	1
4.6	2
4.7	1
8.2	1
10	1
Total	16

The concentration in and around the bath-suite in Building F is of great interest. Most bath-house assemblages have large numbers of hair pins in them as this was something that women obviously lost frequently during their visits. It would have provided a business opening for any canny entrepreneur, and at Verulamium one appears to have set up shop in a workshop close to the baths in the 2nd century to cater for this need (Niblett *et al* 2006, 92). If the bath-suite was a private one, then it seems unlikely that it would have been used by so many women as to justify an in-house pin manufacturer. If, however, it was another aspect of the commercial activity seen in other parts of the street frontage, then the presence of such a person would make more sense. Equally, as these roughouts were all associated with contexts contemporary to or post-dating the bath-suite's abandonment they may provide an indication of the local activity following its demise.

Iron working

197 Iron smithing slag. Weight 255g. A24.2003. Sf 1923 : 6415 : G1131 : Phase 3.8. (ID 283).

198 Iron slag was also recognised from X-radiographs in the following contexts

A24.2003. - : 4982 : G947 : Phase 3.6. (ID 326).

A24.2003. - : 4698 : G716 : Phase 3.7. (ID 303)

A24.2003. - : 6415 : G1131 : Phase 3.8. (ID 330).

A24.2003. - : 6128 : G974 : Phase 3.9. (ID 319).

A24.2003. - : 5910 : G995 : Phase 4.2. (ID 307)

A24.2003. - : 5513 : G984 : Phase 4.1. (ID 327).

A24.2003. - : 5835 : G1004 : Phase 4.6. (ID 364).

A24.2003. - : 5605 : G1028 : Phase 4.7. (ID 295).

A24.2003. - : 5637 : G1025 : Phase 4.7. (ID 304)

A24.2003. - : 5725 : G1032 : Phase 4.7. (ID 309)

A24.2003. - : 5226 : G1032 : Phase 4.7. (ID 302)

A24.2003. - : 5636 : G1036 : Phase 4.7. (ID 323)

A24.2003. - : 5726 : G1032 : Phase 4.7. (ID 324)

Copper alloy working

199 Crucible; three joining lower body and base fragments forming approximately half the circumference. Reduced vesicular fabric appearing black. Convex-curved side with thickened, slightly concave base. Exterior incorporates copper alloy corrosion products. Interior preserved complete basal cake of copper alloy that has now sheared away and broken into two pieces. Base diameter 32mm, wall thickness 5.5mm, present height 27mm. A24.2003. Sf 1390 : 5589 : G1266 : Phase 3.5. (ID 66).

200 Copper alloy vesicular slag. 65g. A24.2003. Sf 1299 : 5589 : G1266 : Phase 3.5. (ID 252).

201 Molten waste. Copper alloy. Weight 10g. A24.2003. Sf 1047 : 5063 : G1476 : Phase 4.7. (ID 262).

202 Copper alloy working - specks noted in iron corrosion. A24.2003. - : 5524 : G997 : Phase 4.6. (ID 305).

203 Offcut. Copper alloy. Sheet. A24.2003. Sf 1745 : 5827 : G1258 : Phase 3.6. (ID 218).

204 Bar. Copper alloy. Rectangular-sectioned tapering to circular-sectioned; both ends broken. Widest end shows hammer marks on upper end. Present length 42mm, maximum section 4 x 2mm. A24.2003. Sf 1039 : 5050 : G1313 : Phase 4.6. (ID 226)

Lead working

204a Lead Ingot. Large rectangular ingot with rhomboidal section. Length 510mm, width 170mm, height 100mm. A24.2003. Sf 577: 4706 : G1270 : Phase 4.6.

Glass working

205 Glass working debris. Blue/green. Part of a moile; and a (?) cylindrical moile, also a melted fragment. A24.2003. - : 4431 : G716 : Phase 3.7. (ID 251).

206 Glass working debris (?). Blue/green. Pulled out trail. A24.2003. Sf 2063 : 5063 : G1476 : Phase 4.7. (ID 250).

Bone working

207 Pin roughout. Bone. Five-sided shank with cancellous tissue at both roughly chopped ends. Present length 118mm, maximum section 5.5mm. A22.2003. Sf 947 : 2619 : G399 : Phase 3.6. (ID608)

208 Pin roughout. Bone. Six-sided shank with cancellous tissue at one end; both ends roughly chopped. Present length 113mm, maximum section 8mm.. A22.2003. Sf 367 : 3567 : G448 : Phase 3.6. (ID609).

209 Pin roughout. Bone. Six-sided shank with cancellous tissue at one end; both ends roughly chopped. Present length 125mm, maximum section 6.5mm. A22.2003. Sf 364 : 3573 : G448 : Phase 3.6. (ID610). Figure 69

210 Pin roughout. Bone. One squared side; cancellous tissue at one roughly chopped end; other end broken. Length 65mm, maximum section 8 x 6mm. A22.2003. Sf 366 : 3567 : G448 : Phase 3.6. (ID 580)

211 Pin roughout. Bone. Irregularly faceted tapering shank; very shallowly conical head; other end broken.. Present length 83mm, maximum section 6mm. A24.2003. Sf 1786 : 5573 : G1007 : Phase 4.6. (ID 10).

212 Pin roughout. Bone. Six-sided roughly faceted shank with roughly conical head. Present length 66mm. A22.2003. Sf 793 : 2744 : G399 : Phase 3.6. (ID601)

213 Pin roughout. Bone. Six-sided roughly faceted shank with roughly conical head.. Present length 80mm. A22.2003. Sf 365 : 3567: G448 : Phase 3.6. (ID598)

214 Pin roughout. Bone. Six-sided roughly faceted shank; one end roughly faceted to point, other end broken. Present length 71mm, maximum section 7mm. A22.2003. Sf 1229 : 2506 : G1345 : Phase 3.6. (ID599)

215 Pin roughout. Bone. Six-sided roughly faceted shank with roughly conical top, other end roughly chopped. Present length 90mm, maximum section 5.5mm. A22.2003. Sf 761 : 2482 : G571 : Phase 8.2. (ID602). Figure 69

216 Pin roughout. Bone. Six-sided shank with roughly conical top, other end broken. Present length 51mm, maximum section 5.5mm. A22.2003. Sf 701 : 2002 : G593 : Phase 10. (ID607).

217 Pin roughout. Bone. Eight-sided roughly faceted shank. Present length 82mm. A22.2003. Sf 945 : 2619 : G399 : Phase 3.6. (ID603)

218 Pin roughout. Bone. Partially faceted shank, both ends broken. Present length 35mm, maximum section 4mm. A22.2003. Sf 946 : 2619 : G399 : Phase 3.6. (ID604)

219 Pin roughout. Bone. Six-sided roughly faceted shank. Present length 79mm. A22.2003. Sf 727 : 2358 : G378 : Phase 4.1. (ID605)

220 Pin roughout. Bone. Partially faceted shank, both ends broken. Present length 35mm, maximum section 4mm. A22.2003. Sf 1001 : 2207 : G522 : Phase 4.6. (ID606)

221 Pin rough-out. Bone. Rough faceted shank,both ends broken. Present length 40mm, section 5.5mm. A24.2003. Sf 1809 : 6032 : G727: Phase 4.7. (ID 21)

222 Pin roughout. Bone. Partially faceted shank, both ends broken. Present length 32mm, maximum section 4mm. A22.2003. Sf 884 : 2207 : G522 : Phase 4.6. (ID600).

Miscellaneous items

The small number of items for which there is no conventionally agreed functional attribution have been placed here. Whorls with perforations whose properties (diameter, shape or position) indicate that they were not spindle whorls such as nos. 224-6 are a regular element of Roman assemblages and might have functioned as some form of weight. The fragment of window glass that has been shaped into a disc (no. 227) seems too large to be classed as a counter, but the re-working was definitely been carried out in the Roman period as it came from a Phase 3.6 context.

There are noteworthy items in this category. The first is the large shale crescentic pendant (no. 223). This came from a Phase 9 context but the type has very occasionally be found before in contexts that indicate a Roman date. The best-dated example appears to be the arm of one recovered from a late 4th century deposit at Shakenoak (Bridribb *et al* 1968, 48 no. 1). Large parts of two without any decoration were found at Scarborough from a site below the late Roman Signal station there (Smith 1927 182, fig. 8), and at Kingscote in occupation layers within a building occupied down to the end of the 4th century (Timby 1998, 100 no. 70) A flake of one retaining part of the attachment loop was also recovered at Silchester (Lawson 1976, 256 no. 61). Fragments from other examples have occasionally been found but not always recognised for what they are, such as those from an extra-mural site at Alchester (Lloyd Morgan 2001, 249 no. 205) and from the temple site at Uley where the central part of one was found whilst fieldwalking (Woodward and Leach 1993, 174 no. 8).

The Shakenoak, Uley and Silchester examples were described as jet. The ones from Scarborough, Alchester and Kingscote were shale similar to this one. An example is also known from the Rhineland at Kastell Deutz near Köln (Hagen 1937, 126 no. E2). That one has a different ring and dot pattern than the British ones, combining large ones with pairs of small ones. The assessment for the Vine Street finds noted that another example had been recovered from the Blue Boar Lane excavations in 1958. Given that the type appears to be very rare, the fact that two have been found in Leicester is remarkable.

Quite what function these pendants served is not known. Hagen discussing the Deutz example suggested they were horse trappings (Hagen 1937, 94). Certainly from their size they are more appropriate to a horse than to a human figure, unless they were part of some form of ceremonial regalia. A curious feature is that the decoration is around the outer edge. This is not an obvious place to put decoration on a pendant. If it was intended to be seen it would be more effective placed on either of the faces. Currently, therefore, these are rare mystery objects and it is unfortunate that this one is residual as it does not provide any useful clues as to its function.

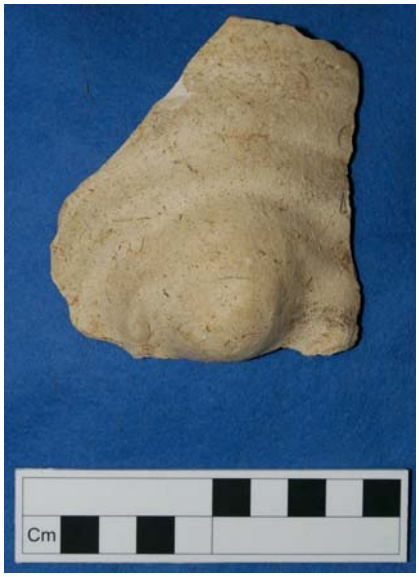


Figure 68: The Small Finds: fragment of a fired clay mask (No. 228a)

A second noteworthy item is the pipe clay fragment that appears to come from a moulded human face that is considerable larger than lifesize (no. 228a). Fired clay masks that would have been used in theatrical or religious events have been found before in Britain such as that from Catterick (Anderson 2002) and London (Marsh 1979, both with references to other examples). This piece differs from them in two major respects. In the first case the size is much larger and in the second the eye is solid. In proper face masks there is an aperture where the eyeball would have been so that the performer could have seen through the mask. Another difference is that this piece seems to have been deliberately finished above the eye, so the forehead and hairline are not present. One of the pieces that Marsh publishes as a face mask (Marsh 1979, fig. 4b) is also made of pipe clay and has some similarities to the Vine Street piece and so equally may not have come from a classic face mask. From the size, it is highly unlikely that the Vine Street piece would have been worn so possibly it should be considered to be some sort of statuary.

223 Pendant. Shale. Crescentic with tapering arms, one broken; semi-circular projection with small transverse circular perforation; row of ring and dots around outer edge. Length 70mm, maximum section of arm 18 x 10mm. A24.2003. Sf 471 : 4195 : G771 : Phase 9.1. (ID 369). Figure 69

224 Whorl. Lead alloy. Disc with cylindrical perforation off-centre; each face has radial grooves occasionally criss-crossing. Diameter 36mm, thickness 5mm, perforation diameter 9mm, weight 55g. A24.2003. Sf 1990 : 8163 : G117 : Phase 2.5. (ID 282).

225 Whorl. Cream ware pottery. Part of whorl lacking most of edges and part of one surface; cylindrical perforation. Dimensions 55 x 49mm, present thickness 11mm, perforation diameter 6mm. A24.2003. Sf 1952 : 5069 : G947 : Phase 3.6. (ID 63)

226 Whorl. Cream pottery. Sherd - one face convex, other face convex centrally and rising up to edge; part of edge broken, original edge appears deliberately formed; oval cylindrical perforation possible centrally. Diameter 60 x 59mm, thickness 12.5mm, perforation diameter 10 x 7.5mm. A24.2003. Sf 578 : 4360 : G753 : Phase 9.1. (ID 62)

227 Counter (?). Blue/green glass. Cast matt/glossy window fragment. Edges carefully ground to disc. Approximately 40% extant. Diameter 50mm, thickness 7mm. A24.2003. - : 4982 : G947 : Phase 3.6. (ID64). Figure 69

228 Plate. Copper alloy (?) - now is a bright red throughout with green corrosion products on surface. Part of a circular disc (approximately 13% of circumference extant). Edge bent up and down to form raised rim; body flat. Diameter 90mm, thickness 1.5mm. A24.2003. Sf 1948 : 6719 : G155: Phase 3.1. (ID 244).

228a Mask (?); fragment. Fired clay, fine-grained buff cream fabric with voids. Fragment retains what may be bulbous pupil, upper part of eye and eye brow. Above there is a finished slightly bevelled edge. On interior edge is smooth and cylindrical at top, then hollow behind mouldings with smoothing marks. Dimensions 87 x 84mm, maximum thickness 14mm. A24.2003. - : 4558 : G929 : Phase 4.1. (ID805). Figure 68

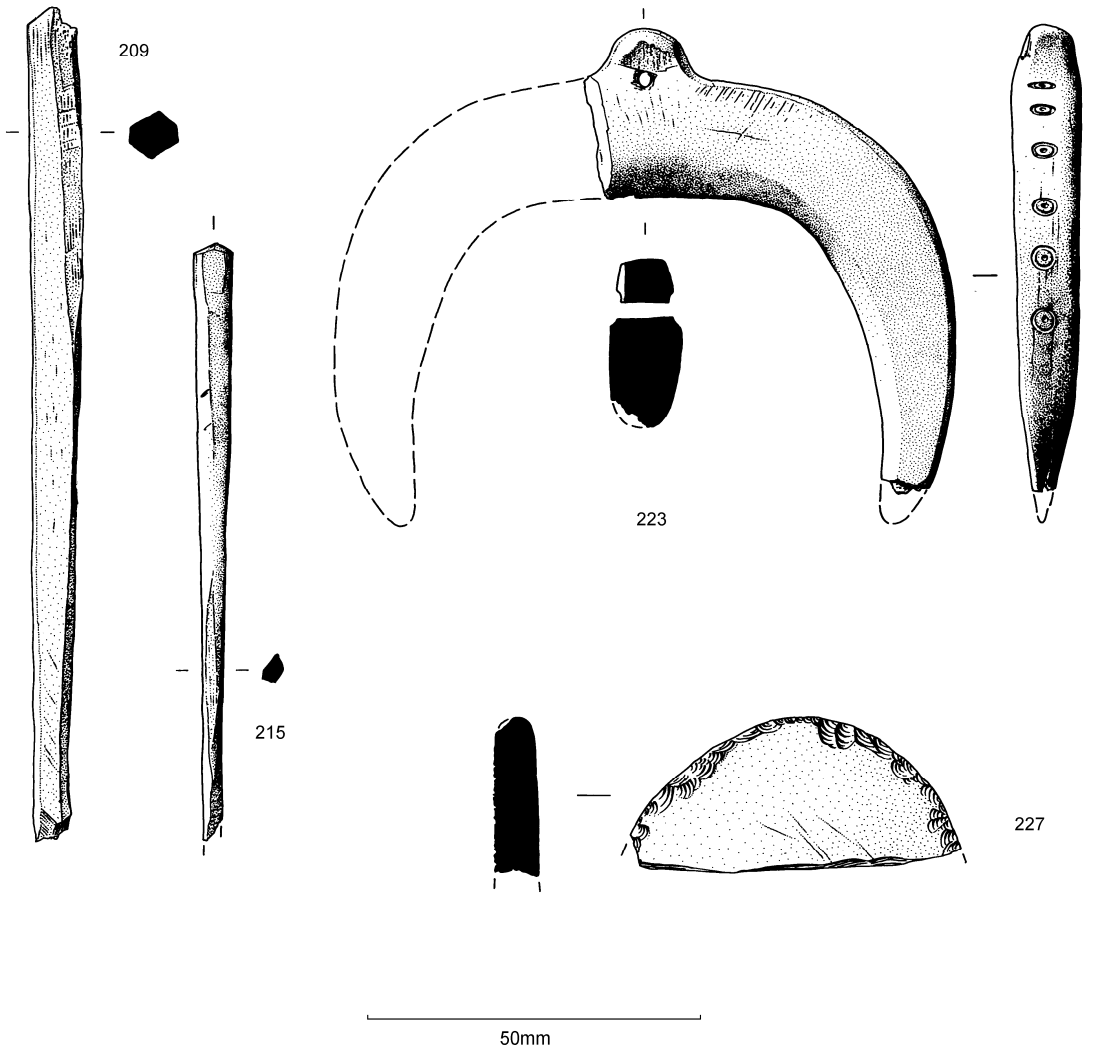


Figure 69: The Small Finds: the illustrated bone-working debris and miscellaneous Items

The Early to mid- Saxon Finds

As can be seen from Table 90 virtually none of the material reported on here was recovered from contexts belonging to Phases 5 and 6. Equally there were no items in the assemblage that need belong to the early to mid Saxon period found in later contexts.

The Saxo-Norman Finds

Nothing was found stratified in the Saxo-Norman Phase 7 either, but there were a small number of items that are typically found in assemblages of that date elsewhere, and so they are discussed here.

Personal ornaments

Pins made from pig fibulae (nos. 228-9) are a regular element of late Saxon/early Norman assemblages as may be seen at Coppergate, York (MacGregor *et al* 1999, 1950-51), though they are occasionally found in very late Roman contexts (Cool 2001, 129 no. 17). Their function has been the subject of some debate (see, for example, MacGregor 1985, 121, Mann 1982, 10). Not all have a perforated eye, and those that do frequently have relatively untrimmed heads that would make them impractical for sewing. Generally a function associated with pinning clothing is preferred. This pair, found in a robber trench, has quite glossy surfaces, possibly hinting they were used as textile tools. The type was also found at Freeschool Lane and three were noted at Jewry Wall (Kenyon 1948, 266 no 8).

229a Fibula pin. Pig fibula with proximal end with straight trimmed end; diaphysis trimmed to point; circular perforation in head. Surfaces glossy. Length 74mm, perforation diameter 3.5mm. A22.2003. sf775 : 2616 : G561 : Phase 8.2. (ID89). Figure 70

229b Fibula pin. Fibula with proximal end with end trimmed to triangle; diaphysis trimmed to point; circular perforation in head. Surfaces glossy. Length 115mm, perforation diameter 4mm. A22.2003. sf775 : 2616 : G561 : Phase 8.2. (ID90). Figure 70

Fasteners

Vine Street produced one example of a riveted mount (no. 230) a type that was more common at Freeschool Lane but which does not appear to have been recorded previously at Leicester. They consist of two thin bone plates held together by iron rivets with a void between them. This is a type of artefact that is closely dated but whose function is obscure. A large group were recovered from Coppergate, York all concentrated in contexts dating from the mid- 10th to mid- 11th centuries (MacGregor *et al* 1999, Table 175). At Winchester they show a similar concentration. In the excavations conducted there between 1961 and 1971, apart from one from a possible 9th-century context, the earliest contexts they appeared in were those of the mid- 10th to mid- 11th centuries (five examples). Four came from 11th to early 12th century contexts, and the latest was dated to the mid- to late 13th century (Biddle 1990, 686-90). This dating has been maintained by a further seven examples from Oxford Archaeology's excavations at Northgate House and the Winchester Library with five coming from mid- 9th to mid- 11th century contexts and only two from mid- 11th to early 13th century ones. The floruit of riveted studs at York and Winchester was thus clearly from the middle of the 10th century to the late 11th century. Closer to Leicester, examples from Lincoln also come from 10th- and 11th-century contexts, with those from 12th-century contexts generally being broken scraps of one plate (Mann 1982, 50). The example from Vine Street is unphased but those from Freeschool Lane came from 12th century or later contexts. It would be tempting to assume they were residual, but it may be noted that one consists of parts of two plates still riveted together, so it is possible that at Leicester they remained in use into the 12th century.

Quite what function they served has been a matter of some debate. Biddle (1990, 678-83) argued that they were the bone strengthening plates for double-sided horn combs. Examples of such horn combs survived at York and London (MacGregor 1985, fig. 52), and some of the earlier Winchester finds had the characteristic notching on the long edges of the mounts caused by the cutting of the teeth. In considering those from Lincoln, Mann had also considered them to be fittings for combs (Mann 1982, 8). The authors of the report on the Coppergate assemblage (MacGregor *et al* 1999, 1952-4), whilst agreeing that some of these mounts could well have come from combs, drew attention to the fact that none retained any traces of horn and considered their function to be obscure. Normally they are found on sites which do have prolific evidence for comb use. Interestingly at both the Leicester sites combs are conspicuous by their

absence, which might support the idea that they did have some other purpose.

230 Rivetted mount. Bone. Two rectangular plates retaining one original short end, other end broken across perforation on one of the plates, other plate is shorter; plates fastened together by two iron rivets but lacking rivet for broken perforation. Exterior face polished. Interior face retains cancellous tissue. Present length 106mm, section of one plate 10 x 2mm, section of rivet *c.* 4mm. Length of rivet 10mm. A22.2003. Sf 1003 : 1253 : G537 : Phase 8.2. (ID578). Figure 70

Craft debris

Antler working

The Vine Street finds assemblage produced one off-cut indicative of antler working. It was unstratified but has been assigned to this period as Saxo-Norm assemblages are the ones where antler artefacts are most frequently found.

231 Off-cut. Antler. Fragment probably from beam showing one longitudinal cut mark and parts of bevelled cuts at end. Present length 65mm. A24.2003. Sf 1936 : unstratified. (ID 52)

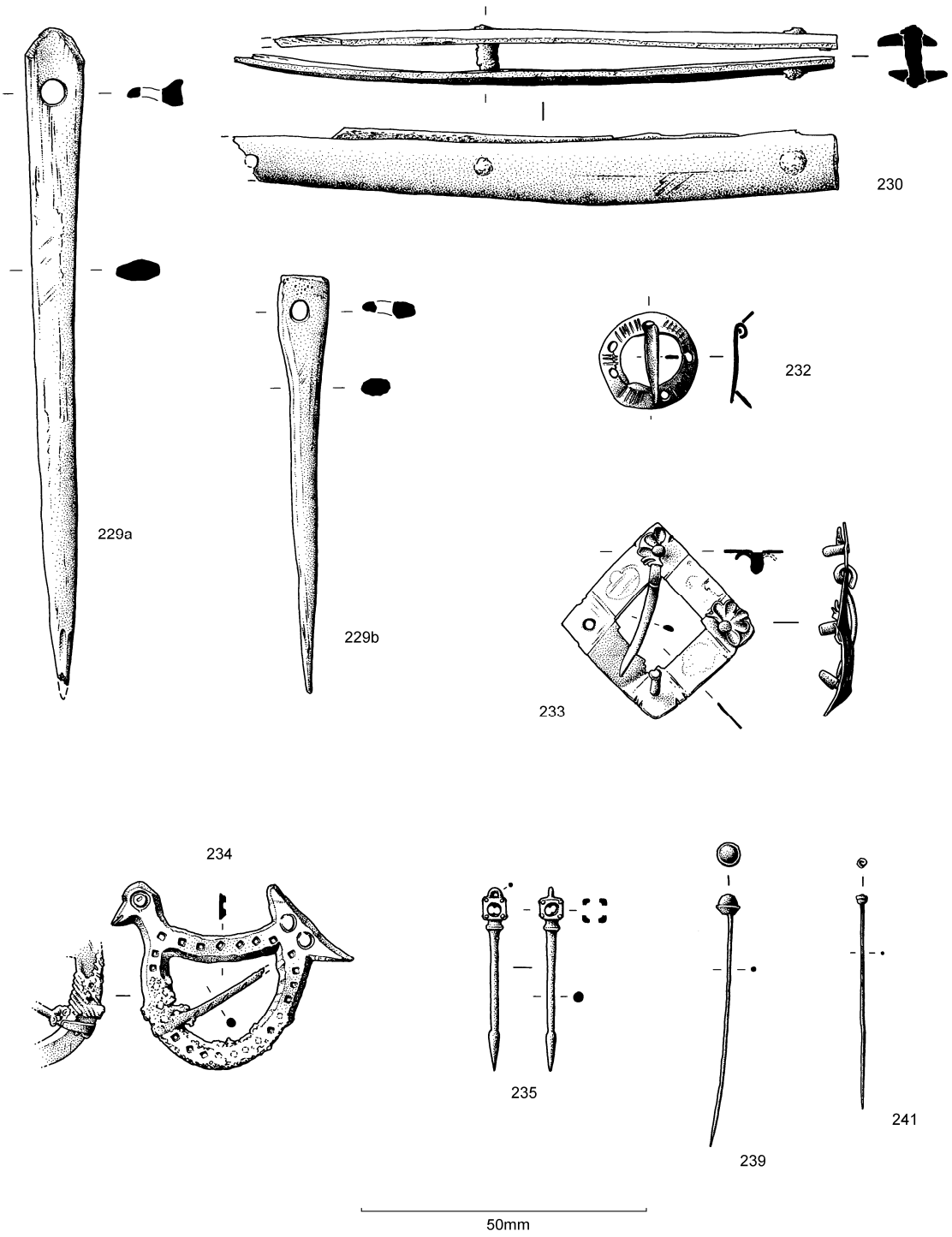


Figure 70: The Small Finds: the illustrated Saxo-Norman finds; and medieval brooches and pins, 229-30, 232-5, 239, 241

The Medieval Finds

For the Roman finds discussed above it was possible to compare them with the assemblages from several different sites in Leicester to ascertain where the Vine Street material was showing a normal pattern for a Leicester site and where it was deviating. This is less easy to do for the medieval period because there have not been so many excavations which have produced a predominantly medieval assemblage. The principal available assemblage comes from the work at the Austin Friars (Mellor and Pearce 1981) but that reflects a very particular type of monastic occupation together with burial, and can scarcely be regarded as typical. Medieval finds are also recorded from Causeway Lane, Jewry Wall, the Shires and occasionally on other sites but on all of them medieval material is much less common than Roman material. This makes the medieval assemblage from Vine Street a valuable one, even though numerically it is only about a third the size of the Roman assemblage.

Personal ornaments

Brooches

All three of the brooches recovered at Vine Street are uncommon forms. No. 232 is a very delicate little brooch that must have been used on a fabric with an open weave as the pin is made of sheet rather than a narrow wire. Given the size, the fabric must also have been relatively thin. Annular brooches are generally considered a 13th- to 15th-century fashion (Biddle and Hinton 1990, 539) and certainly they tend to be absent on sites predominantly occupied during the late Saxon to early Norman period such as Coppergate in York and the Staple Gardens/Library site in Winchester. Given its context in a Phase 8.2 pit, this is a very useful early example. No. 233 also belongs to the annular family of brooches, though it is an uncommon form. Originally it would have been more elaborately decorated given the differential corrosion between the octofoil rosettes. A somewhat similar square brooch, with rosettes but without any additional decoration, was recovered from a mid- 13th-century context in London (Egan and Pritchard 2002, 256 no. 1343)

This unusual brooch or badge no. 234 seems most likely to be of late medieval date as fixing the pin by wrapping it around a recess on the frame is a typical feature of annular brooches of the 13th to 15th centuries (Egan 2002, 248; Biddle and Hinton 1990. 639). Though most of these brooches were ring-shaped some figured ones do occur such as the example formed from the depiction of two birds from a 13th- to 14th-century context at Winchester (Biddle and Hinton 1990, 643 no. 2039). This very jolly, but unstratified bird, would fit most happily into the 14th or 15th centuries when secular badges were very fashionable (Spencer 1990, 95).

Previously at Leicester, the annular brooch tradition has been represented by two examples from Jewry Wall (Kenyon 1948, 252 nos. 12-3), and by an elaborate example from Austin Friars dated to the late 13th to 14th century but found in a 15th century context. (Clay 1981137 no. 39)

232 Annular brooch. Segment of shallow sheet forming ring with angled sides; five circular perforations at irregular intervals; through one of perforation a flat sheet pin is threaded and bent under; four groups of transverse grooves between perforations. Diameter 17mm, section 4.5 x 1mm. A24.2003. sf1767 : 5745 : G260 : Phase 8.2. (ID231). Figure 70

233 Annular brooch. Copper alloy. Square flat frame with perforation in one corner through which a flat pin is threaded and bent to close; small perforation in each corner, three of which have projecting rivets, two of them have parts of octofoil mounts. Differential corrosion suggests that additional decoration had been soldered onto the frame between the octofoils. Dimensions 26 x 26mm, thickness 1mm. A22.2003. sf115 : unstratified. (ID195). Figure 70

234 Annular figured brooch. Copper alloy. D-shaped rectangular-sectioned frame with bevelled edges and flat expansions at two corners forming the head and tail of a bird. Head and tail marked by punched ring and body decorated by punched dots. Broken pin wrapped around breast of bird, probably in a recessed area originally but this area much obscured by corrosion. Maximum dimensions 43 x 36mm, section of frame 4.5 x 3mm. A24.2003. sf402 : unstratified. (ID104). Figure 70

Dress and hair pins

Short pins with decorative and frequently perforated heads (diminutive pins) were fashionable in the later 11th and first half of the 12th centuries, and the type has been discussed in connection with those from

Castle Acre (Margeson 1983, 248-9) and Coppergate, York (McGregor *et al* 1999, 1949). Given their short length it has been suggested that they were used to hold veils or decorate hairstyles with the small perforations holding small chords. Other than the 'sewing' pins discussed below this appears to be the commonest of medieval dress pin found at Leicester (see Table 13). In addition to those found at the Highcross sites, three were recovered from the Shires (forthcoming cat nos. 98-100) and others were found at Magazine Wall (A186.1966 cat no. 6) and Redcross Street (A174.1963 cat no. 87).

Table 102: The Small Finds: medieval dress and hair pins from Leicester

	Vine St.	**Freeschool Lane**	**Vaughan Way**	**Austin Friars**	**Other sites**	Total
Diminutive	2	1	1	-	5	9
Hemispherical head	2	2	-	-	-	4
Cupped glass head	1	-	-	-	-	1
Composite head	-	1	2	1		4
Total	5	4	3	1	5	18

Of the two found at Vine Street the copper alloy no. 235 falls into the typical size range. The bone example no. 236 is longer but is so similar in every way to short examples in this series, see for example one from Coppergate (MacGregor *et al* 1999, 2013 no. 6816, fig. 907), that is seems most appropriate to include it with them especially as bone ceased to be used to make pins in the 12th century (Egan and Pritchard 2002, 297). Both came from contexts assigned to Phase 9.1 which would be late for the accepted *floruit* of the type, but it may be noted that one (no. 235) came from a cess pit which though assigned to Phase 9.1 could have originated in Phase 8 which would be a more appropriate date.

By the 14th and early 15th centuries the pins that were used to fasten veils and other items of clothing were required in very large quantities. In her study of those from London, Pritchard (in Egan and Pritchard 2002, 297) notes that in 1348 a princess had 12,000 pins for her veils in her trousseau. Many of these would probably have been of the 'sewing' pin type discussed in the next section, but probably some would have had decorative heads as 13th and 14th-century assemblages normally have a few pins with such heads though they are normally a very small proportion of the total pin assemblage (e.g. Biddle 1990, 552). Leicester appears to be no exception to this. The characteristics of these later pins is that they have long slender wire shanks and the heads are generally made separately. Nos. 237-8 belong to a variant where the head is small hemispherical knob head. Similar pins were included in the Winchester Type D for though the emphasis there was on the small size of the heads, larger heads were also present (Biddle 1990, 559 nos. 1450-53) from contexts dating to the 13th to 15th centuries. The example from Vine Street with the larger head (no. 237) came from 15th-century garden soil where it was probably residual. The example with a small head (no. 238) came from a Phase 8.2 pit and so is an early example of the type. Elsewhere in Leicester an example came from a Phase 9 context at Freeschool Lane which more accurately reflects the *floruit* of the type.

The remaining pin (no. 239) is a less common variant as it has a glass head set in a small hemispherical cup but its redeposited Phase 10 context fits happily into the 13th to 14th century vogue for such pins.

235 Dress pin. Copper alloy. Hollow cube head with circular perforation on each face and loop on top of head; small globule soldered onto each corner; horizontal rib below head; circular-sectioned shank with point at end. Surface possibly originally tinned. Length 31.5mm, head section 4mm, shank section 2mm. A24.2003. sf 443 : 4102 : G668 : Phase 9.1. (ID122). Figure 70

236 Dress pin. Bone. Spherical knob head with row of facets top and bottom, small rectangular block on top with circular perforation; circular-sectioned shank tapering to point. Length 63mm, head section 5.5mm, shank section 3mm. A24.2003. sf 1102 : 5396 : G1087 : Phase 9.1. (ID29).

237 Dress pin. Copper alloy. Hemispherical knob head with wire shank inserted into base; pointed end. Length 42mm, head section 3.5mm, shank section 1mm. A24.2003. sf 2029 : 6905 : G1089 : Phase 10 (ID157)

238 Dress pin. Circular-sectioned shank with pointed end; small irregular knob head. Length 48mm, head section 2.5mm, shank section 1.5mm. A24.2003. Sf 1993 : 8201 : G883 : Phase 8.2. (ID 156)

239 Dress pin. Copper alloy. Circular-sectioned wire shank with pointed tip; head formed by shallow hemispherical cup filled with translucent deep blue glass. Length 44mm, head diameter 4.5mm, shank section 1mm. A22.2003 : sf276 : 3221 : G605 : Phase 10. (ID121). Figure 70

'Sewing' pins

A regular element of any medieval or post-medieval assemblage is the 'sewing' pin, so-named because of its resemblance to a modern dressmaker's pin which it eventually developed into. Medieval examples were made of wire a wire shank with a second length of wire forming a spiral head. They had a much wider range of functions than just as sewing aids and were a vital element of clothes fastenings as noted in the previous section. At Winchester they first started to appear in any quantity in the 13th century and it was possible to show that their length decreased with time (Biddle 1990, 561-4). At the Highcross sites in general, the evidence would agree with a 13th-century introduction (see Table 103). A relatively small number were found at Vine Street and it is interesting to note that the longest complete example (no. 240) was also the earliest.

Table 103: The Small Finds: the complete sewing pins from Vine Street and Freeschool Lane

Phase	Vine St.	Freeschool Lane	Vaughan Way	Total
8	1	1	-	2
9	2	6	1	9
10	-	36	-	36
11	-	3	1	4
12	-	10	2	12
13-14	1	3	-	4
Unstratified	1	-	2	3
Total	5	59	6	70

240 'Sewing pin'. Copper alloy. Circular-sectioned shank; traces of wound wire head, Bent shank. Length 55mm, shank section 1.5mm. A24.2003. Sf 582 : 4719 : G1043 : Phase 8.2. (ID 113)

241 'Sewing pin'. Copper alloy. Circular-sectioned wire with globular head formed from spiral wire. Length 38mm, shank diameter 0.5mm. A22.2003. Sf 286 : 3342 : G573 : Phase 9.1. (ID 112). Figure 70

242 'Sewing pin'. Copper alloy. Circular-sectioned wire with drum-shaped head formed from spiral wire. Bent out of shape. Length 39mm, shank diameter 0.7mm. A24.2003. Sf 1053 : 4159 : G771 : Phase 9.1. (ID 114)

243 'Sewing pin'. Copper alloy. Circular-sectioned wire, one end pointed, other has differential corrosion from missing head. Bent. Length 55mm, diameter 0.8mm. A24.2003. Sf 2018 : 8006 : G885 : Phase 9.02. (ID 241)

244 'Sewing pin'. Copper alloy. Shank only tapering to point. Length 55mm, section 1mm. A24.2003. Sf 2019 : 8006 : G885 : Phase 9.02. (ID 223)

245 'Sewing pin'. Copper alloy. Circular-sectioned wire with globular head formed from spiral wire; end broken. Present length 33mm, shank diameter 1.5mm. A22.2003. Sf 763 : 2215 : G634 : Phase 13. (ID 117)

246 'Sewing pin', in two joining fragments. Copper alloy. Circular-sectioned wire with part of head formed from spiral wire. Length 48mm, shank diameter 0.7mm. A22.2003. Sf 315 : unstratified. (ID 115)

247 'Sewing pin'?. Copper alloy. Circular-sectioned wire with pointed end. Present length 28mm, shank diameter 0.5mm. A24.2003. Sf 505 : 4415 : G781 : Phase 13. (ID 116)

Buckles and buckle plates

Buckles, buckle plates and other strap fittings were as an essential part of dress in the 13th and 14th centuries as brooches had been in the 1st and 2nd. Leicester has now produced a sizeable number of the common types as well as a few types that are found much less commonly. Although these medieval fittings generally fall into well recognised types, there is no established typology of them as there is for many other classes of artefacts. To aid comparison across the sites the following typology is offered merely to provide a convenient shorthand name and avoid repetition of long descriptive names. Only the

types present at the Highcross sites and at the Austin Friars have been included. Also it should be noticed that this listing only includes the buckles made of copper alloy. At the Austin Friars, some of the deceased were buried with belts fastened by iron buckles (Clay 1982, nos. 137-9 nos. 65-7), but if these were present at Vine Street they have not survived in a recognisable state.

Type 1 annular buckles with free-moving cast pin with spur (no. 249 here).

Type 2 annular buckles with free-moving pin made of wire or sheet wrapped around the frame (not present here see Clay 1982, 133 no. 24).

Type 3 oval buckle frame with ornate outer edge, recessed cross bar and rectangular folded plate (nos. 250-51 here).

Type 4 oval buckle frame with ornate outer edge and integral plate (no. 252 here).

Type 5 oval buckle frame with lipped outer edge, recessed cross bar and rectangular folded plate (no. 253 here).

Type 6 oval buckle frame with lipped outer edge and integral forked spacer bars with sheet coverings for the plate (nos. 254-5 here)

Type 7 rectangular buckle frame with bowed sides, recessed cross bar and rectangular folded sheet plate (nos. 256-7 here).

Type 8 rectangular frame with free-moving cast pin with spur (not present here see Clay 1982, 133 no. 34).

Type 9 D-shaped frame, rectangular folded sheet plate (no. 258 here)

Type 10 large spectacle buckle (not present here see Clay 1982, 133 no. 132).

Type 11 small spectacle buckle (no. 259 here).

Before discussing the examples that fall into these types, an unusual early buckle frame may be noted. No. 248 was clearly a composite piece with a copper alloy frame and an iron cross bar. In the extremely numerous range of 13th and 14th-century buckles the cross bar is cast in one with rest of the frame, rather than being a separate element as here. The composite composition of no. 248 is paralleled amongst some early Roman military buckles. In the absence of any overt 1st to 2nd-century military presence on the site, it has to be assumed that this buckle was contemporary with its context and as such is a useful addition to the corpus of dated buckles as it comes from a Phase 8.2 context.

Of the varieties summarised above. Vine Street has produced by far the largest assemblage from the town as can be seen from Table 104 Austin Friars has the second highest total and five of those were found in *situ* in graves as the deceased had clearly been interred clothed. Here one buckle (no. 249) is recorded as coming from fill of a grave, two (nos. 267 and 251) are recorded as coming from pits of Phase 8.1 and 10.1 respectively and all the rest are unstratified. It may be noted that several of the unstratified pieces still have the buckle frame and buckle plate articulated and are well preserved (nos. 254 and 256-7). A considerable amount of charnel was recovered from the site, deriving from the medieval cemetery. All these facts suggests strongly that many of these unstratified items originally derived from graves and that a proportion of the deceased were inhumed clothed rather than shrouded.

In general annular buckles are a frequent element of 13th and 14th century assemblages (see for example Egan and Pritchard 2002, 57; Hinton 1990, 523-4). Type 1 examples (as defined here) with the distinctive cast tongue have been found at London in a context of second half of the 14th century (Egan and Pritchard 2002, 57 no. 36), and at Winchester in one of the late 14th to early 15th century (Hinton 1990, 524 no. 1245). Pins of this sort that have become detached from their buckles again come overwhelmingly from contexts of that date with only a single example out of the ten published from London coming from a context dated earlier in the century (Egan and Pritchard 2002, 541-50). Annular buckles of this size have frequently been found in inhumation burials in positions that indicate they were used as buckles for hose (Gilchrist and Sloane 2005, 85-6. Given that this buckle came from the fill of a

grave in proximity to the inhumation's left hip, it might have had a similar use originally. A similar buckle was also recovered from Bonners Lane (A168.1993 cat no. 61).

Table 104: The Small Finds: buckles and buckle plates from Leicester sites

Type	Vine St.	Freeschool Lane	Vaughan Way	Austin Friars	Other sites	Total
Type 1	1	-	-	-	1	2
Type 2	-	-	-	1	-	1
Type 3	2	-	-	-	-	2
Type 4	1	-	-	-	-	1
Type 5	1	1	1	3[1]	1	7
Type 6	2	-	-	(?)	-	2
Type 7	2	-	-	-	-	2
Type 8	-	-	-	1	-	1
Type 9	-	-	-	1	-	1
Type 10	-	-	-	1	-	1
Type 11	1	1	1	-	-	3
Recessed plate	4	1		2	4	11
Non-recessed plate	4	3	1	1	1	10
Total	19	5	3	10	7	44

(note. [(1)] as published it is not possible to distinguish whether the three buckles with lipped frames had integral spacer bars (Type 6) or not (Type 5) – Clay 1982, 133 nos. 25-6, 31)

Type 3 buckles with ornate frames (nos. 250-51) are another common type. In discussing the ones from London, Egan and Pritchard (2002, 76) date their period of use from the late 12th to the late 14th centuries. Discussing the ones from the 1961-71 excavations at Winchester, Hinton (1990, 507) describes them as a 14th-century form, and certainly the examples that are illustrated all come from 14th-century contexts (*ibid* 517-9 nos. 1161, 1166, 1170, 1171). Recent excavations in Winchester city centre have produced two others from 14th century contexts and so the greatest popularity probably lies late in the date range evidenced at London.

Type 4 buckles such as no. 251 whilst sharing the general type of buckle frame with nos. 250-51, are a much less common type as it has an integral plate. Buckles with integral plates were the preferred form for spurs (see Whitehead 1996, 32), but this example lacks the normal hook and so was probably a belt fitting. A similar date to Type 3 is indicated because of the frame details.

Types 5 and 6 share the same lipped frame and are separated by the arrangements for fastening the belt in place. At London Type 5 (no. 253 here) with the sheet belt plate wrapped around the cross bar, is found in contexts of the later 13th century and the 14th century (Egan and Pritchard 2002, 70), and examples from Winchester are from contemporary ones (Rees *et al* 2008, 220 no. 1446). As can be seen in Table 104 this appears to be the commonest type recovered from Leicester. As well as being found at all of the Highcross sites and probably at Austin Friars (see note toTable 104), an example with a slightly unusual outline was recovered from Causeway Lane (Cooper 1999, 263 no. 107). The Type 6 combination of the lipped frame with integral spacer bars for the plate appears to be slightly later development, than the form with the sheet plates. Examples are common and widespread late 14th to early 15th-century contexts (see Egan and Pritchard 2002, 80 for discussion). No. 254 still has the plates in position but the shape of the frame can be seen on the fragmentary no. 255.

Type 7 buckles with rectangular frames (nos. 256-7) are another common 14th-century type as is demonstrated at London where six are recorded as coming from contexts of the second half of the century (Egan and Pritchard 2002, 96) and Winchester where one came from a pit dated to the 14th century (Hinton 1990, 517 no. 1154).

So far the overall dating suggested by the buckles from Vine Street would be consistent with them being

deposited mainly in the second half of the 14th century and into the 15th century. This date would also be possible for the remaining two buckles which are not so closely dated. In the case of no. 258 (Type 9) the simple shape does not lend itself to close dating but examples have been found elsewhere in 14th to early 15th century contexts (see for example Egan and Pritchard 2002, 70). In the case of the small spectacle buckles (Type 11 no. 259 here), it is because the type had a long life from the late medieval to early post medieval period (see Whitehead 1996, 52). In London they start to appear in the late 14th century and become common in the 15th century (Egan and Pritchard 2002, 87). At Winchester the bulk come from 15th and 16th century contexts (Rees *et all* 2008, 225-6; Hinton 1990, 521 no. 1209-10). These little buckles were used on shoes, but the fact that only a single example was found at Vine Street probably argues against individuals being commonly buries in buckled shoes.

The strap-end fragments recovered (nos. 260-67) are all types that would have fitted the range of buckles found. Where they are decorated the decorations consists of incised rocker arm decoration or simple punch marks. One has repoussé decoration (no. 266) but that is the height of the elaboration. This is typical of the other Highcross sites and of Causeway Lane (Cooper 1999, 263 no. 108). The elaborate champlevé enamelled belt plates recovered at Jewry wall appear to very rare in the town (Kenyon 1948, 257 nos. 2-3)

248 Composite buckle frame. Copper alloy. 'D'-shaped frame with circular-sectioned U-shaped bar with expanded perforated terminals retaining remains of an iron cross bar. Length 22mm, width 29mm, hoop section 3mm. A24.2003. Sf 1089 : 5026 : G1043 : Phase 8.2. (ID190). Figure 71

249 Annular buckle (Type 1). Copper alloy. Circular-sectioned circular frame; rectangular-sectioned tapering tongue with penannular articulation loop, raised block with 'V'-shaped notches on front of tongue at junction with articulation loop. Diameter 48mm, frame section 6mm. A24.2003. Sf1920 : 6480 : G1453 : Phase 9.1. (ID 188). Figure 71

250 Buckle frame (Type 3). Copper alloy. Oval frame with ornate outside edge and recessed cross-bar; ornamentation consists of two outward facing knops and two ribs on saddle between. Length 20mm, maximum width 21mm, width cross bar 13.5mm. A24.2003. Sf419 : unstratified. (ID182). Figure 71

251 Buckle and plate (Type 3). Copper alloy. Oval frame with thickened outer edge with sheet roller centrally; recessed crossbar; rectangular sheet plate folded around crossbar, strap originally held by five rivets in quincunx pattern forming small bosses on upper face; circular hole through both faces for missing pin; incised zig-zag parallel to long edges and across base. Buckle - length 22mm, maximum width 30.5mm, cross bar width 2mm. Plate - length 33.5 x 22mm. A24.2003. Sf 445 : 4121 : G775 : 10. (ID183). Figure 71

252 Buckle and integral plate (Type 4). Copper alloy. Oval frame with two projecting knobs on outer edge, short recessed cross bar; plate has tapering unit by cross bar with two circular perforations; then 'D'-sectioned broken bar with transverse block half way down; block retains rivet. Present length 54mm, maximum width frame 21mm. A24.2003. Sf1877 : unstratified. (ID209). Figure 71

253 Buckle frame (Type 5). Copper alloy. Oval frame with lipped outer edge and recessed cross-bar. length 15mm, maximum width 17mm, cross bar width 15mm. A24.2003. Sf437 : unstratified. (ID 184)

254 Buckle and plate (Type 6). Copper alloy. Oval lipped frame with side bars of plate cast in one with frame; sheet plates soldered onto both sides, outer edges lobate; circular perforation behind crossbar with wire bent through to form pin; rivet through back plate to hold strap Total length 39mm, maximum width of frame 15mm, width of plate 11mm. A22.2003. Sf112 : unstratified. (ID185). Figure 71

255 Buckle frame (Type 6). Copper alloy. Part of frame with forked side bars of plate cast in one with it. Present length 38mm, width of plate 12.5. A22.2003. Sf 314 : unstratified. (ID189)

256 Buckle and plate (Type 7). Copper alloy. Rectangular buckle frame with bowed sides and recessed cross bar, sheet roller around outer edge; rectangular-sectioned sheet plate tapering to one end folded around cross bar, narrower end on underside; circular perforation through both thicknesses of plate with rectangular-sectioned tongue threaded through and wrapped around cross bar; missing strap fixed into plate by one small rivet close to cross bar and one larger one with burred head at end. Total length 39. Buckle - length 16mm, maximum width 14mm, cross bar width 11mm. Plate - length 26mm, width 9mm. A24.2003. Sf 421 : unstratified. (ID186). Figure 71

257 Buckle and plate (Type 7). Copper alloy. Rectangular buckle frame, solid bevelled outer edge with three grooves centrally; rectangular sheet plate tapering slightly to both ends folded around cross bar, narrower end on underside; oval perforation through both thicknesses of plate with rectangular-sectioned tongue threaded through and wrapped around cross bar; missing strap fixed into place by rivet at end. Plate has been neatly cut to accommodate cross bar and has three rows of curved punch marks at outer end. Total length 38mm. Buckle - length 14mm, width 12mm, cross bar width 10mm. Plate - length 26mm, width 9mm. A24.2003. Sf420 : unstratified. (ID187).

258 Buckle frame (Type 9). Copper alloy. 'D'-shaped frame with recessed cross bar, outer edge has concave edge with recess either side of squared block. Length 14mm, maximum width 25mm, cross bar width 21mm. A22.2003. Sf228 : unstratified. (ID 193)

259 Spectacle buckle frame (Type 11). Copper alloy. Double oval loops with central cross bar; sides bent up slightly on each side. Length 29mm, maximum width 24mm, width cross bar 22mm. A24.2003. Sf422 : unstratified. (ID 191)

Buckle plates from buckles with recessed crossbars

260 Buckle plate; front part only. Copper alloy. Rectangular sheet, two projections from hinge; three rivet perforations in a triangle; line of rocker arm ornament parallel to each edge. Length 30.5mm, width 20mm. A24.2003. Sf566 : unstratified. (ID199). Figure 71

261 Buckle plate. Copper alloy. Rectangular strip originally folded around buckle cross bar; at fold edges recessed and rectangular slot cut out for articulation of pin; rear part of plate maintains width of recess. Strap fastened in place by three rivets, outer two flush with surface, inner one has a projecting ball head on upper face; punched groove parallel to long edges and end. Length 40mm, maximum width 20mm. A24.2003. Sf418 : unstratified. (ID 200). Figure 71

262 Buckle plate. Copper alloy. Rectangular strip originally folded around buckle cross bar; at fold edges recessed on front and back and diamond-shaped slot cut out for articulation of pin. Rivet hole on both plates at rear. Length 19.5mm, maximum width 10mm. A24.2003. Sf167 : unstratified. (ID 201)

263 Buckle plate. Copper alloy. Rectangular strip originally folded around buckle cross bar, only rear part remaining; at fold edges recessed and rectangular slot cut out for articulation of pin. Three perforations for rivets. Now folded in two. Original length 40mm, maximum width 15mm. A22.2003. Sf356 : unstratified. (ID202)

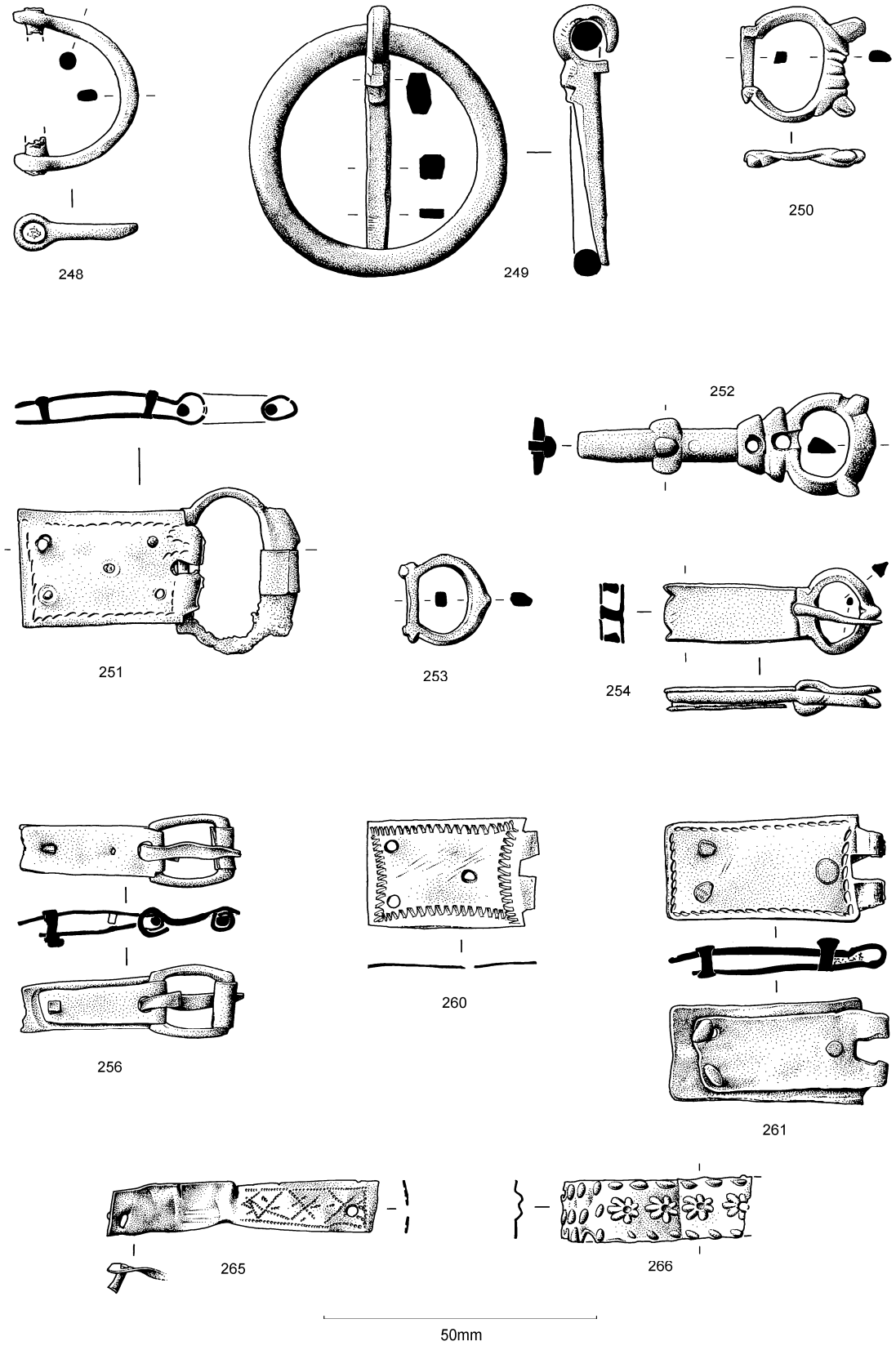


Figure 71: The Small Finds: the illustrated medieval buckles and buckle plates, 248-54, 256, 260-61, 265-66

Buckle plates without recesses

264 Buckle plate. Copper alloy. Slightly tapering rectangular strip broken at fold around cross bar; perforation centrally at end retaining rivet. Length 23mm, maximum width 15mm. A22.2003. Sf354 : unstratified. (ID204)

265 Buckle plate. Copper alloy. Rectangular strip originally folded around cross bar and now bent straight; each end has circular perforation, one retaining rivet. Front has punched decoration, three diagonal crosses and line parallel to each long edge and to outer edge. Original plate length 27mm, width 9mm. A22.2003. Sf165 : unstratified. (ID198). Figure 71

266 Buckle plate. Copper alloy. Front plate consisting of rectangular sheet originally folded around cross bar of buckle; broken across small perforation at outer end' repoussé decoration - oval bosses parallel to long edges and by fold, centrally a row of four flowers with seven petals. Present length 35mm, width 11mm. A22.2003. Sf230 : unstratified. (ID208). Figure 71

267 Buckle plate (?). Copper alloy. Part of a rectangular sheet plate, broken across two perforations behind cross bar with single perforation close to other broken end; now rolled into a rough tube. Length of tube 18mm, diameter *c.* 11mm. A24.2003. Sf1760 : 5864 : Phase 8.1. (ID238)

Strap fittings

Given the number of belt buckles present, it is not surprising that the assemblage included a number of strap mounts and fitting. Given it has been suggested that many of the buckles and their plates originally accompanied burials, it is useful to look at the stratified and unstratified material separately.

The earliest piece (no. 268), from a Phase 8.1 demolition layer, consists of two square plates joined by rivets in the corners. A somewhat similar mount that still retained traces of a leather between the two plates was recovered from London in a late 14th-century context (Egan and Pritchard 2002, 226 no. 1205), and there can be no doubt that no. 268 was a strap stiffener. No. 269, from a phase 9.1 back yard pit is a bar mount designed to stiffen a narrow strap.

Of the four unstratified pieces, no. 270 is very similar to a bar mount with central lobe with two terminals. These have been recovered from London mainly from later 13th and 14th-century contexts though one from a late 12th-century context is also known (Egan and Pritchard 2002, 213). A small example from the 1961-71 excavations at Winchester was found in a mid- to late 13th century context (Hinton 1990, 543 no. 1371, fig. 144). An unusually early example was recently found in a late Saxon/early Norman pit was recently found in the Staple Gardens excavations at Winchester. The only argument against this being a 13th or 14th century dress fitting is that it would have stiffened an unusually wide strap.

The sheet no. 271 comes from a composite strap-end and is the sort of fitting that would have formed a set with the Type 6 buckles and plates discussed above (see Egan and Pritchard 2002, 143 no. 671 for an example with a similar trefoil terminal). A similar later 14th to 15th-century date is appropriate. This type of strap end was also recovered from Freeschool Lane and the Shires (forthcoming, cat no. 41). Given the presence of the Type 6 buckles amongst the unstratified material, it is tempting to suggest that in some cases the deceased could have been buried with quite elaborate belt fittings that include strap ends as well as buckles. Certainly the strap chape (no. 272) and the small sexfoil mount (no. 273) are the sort of fittings that could be expected on belts.

268 Mount. Copper alloy. Two square plates with slightly concave sides; circular perforation in each corner, one pair retain joined by rivet with burred top and bottom; groove parallel to each edge. Dimensions 28 x 28mm, length of rivet 10.5mm. A24.2003. Sf2033 : 8470 : G867 : Phase 8.1. (ID 203). Figure 72

269 Mount. Copper alloy. Elongated oval, hollow-backed mount; perforated terminals, one retaining a small rivet; vertical rib between body and terminal. Length 18mm, width 6mm, length rivet 4mm. A24.2003. Sf599 : 4573 : G1086 : Phase 9.1. (ID197). Figure 72

270 Strap stiffener. Copper alloy. Shallow 'D'-sectioned bar; upper end has flattened spatulate terminal with circular perforation; centrally a circular perforation also with perforation; lower end flattens into perforated diamond plate with rib above and knob below. Upper end now bent in two. Original length *c.* 60mm, maximum width 6.5mm. A22.2003. Sf162 : unstratified. (ID205). Figure 72

271 Strap end. Copper alloy. Trapezoidal sheet narrowing to lower end with trefoil terminal; small circular perforation top and bottom; upper part of front has two diagonal lines of rocker arm ornament in a cross. Length 43mm, maximum width 15mm, thickness 0.5mm. A24.2003. Sf 157 : unstratified. (ID 206). Figure 72

272 Strap chape. Copper alloy. Sheet folded into a narrowing trapezoidal shape with vertical seam at back, pinched flat at base; scooped upper edge with row of small holes and groove parallel to it. Length 30mm, maximum width 15.5mm. A24.2003. Sf424 : unstratified. (ID207). Figure 72

273 Mount. Copper alloy. Sexfoil with central boss; a small rivet on either side on the underside with small washer around one. Diameter 15mm, length of rivet 3mm. A22.2003. Sf704 : unstratified. (ID196). Figure 72

Bead

A small ovoid glass bead was recovered from a Phase 9.1 robber trench. Given that such beads do not appear to be at all common finds in the medieval period (see Egan and Pritchard 2002, 316), the normal tendency would be to assume that this was a residual Roman piece. As has already been note Roman glass beads are conspicuous by their absence on this site. The colour, pale yellow, would also be unusual for a late Roman bead. This example, therefore, may well be of medieval date.

274 Bead. Pale yellow translucent glass. Ovoid. Diameter 5mm, length 5.5mm, perforation diameter 1.5mm. A22.2003. Sf735 : 2297 : G600 : Phase 9.1. (ID 65)

Lace chapes

Table 105: The Small Finds: lace chapes from the Highcross sites

Phase	Vine Street	Freeschool Lane	Vaughan Way	Total
9	-	1	-	1
10	1	18	4	23
11	-	-	5	5
12	-	1	-	1
13	1	-	-	1
Unstratified	-	-	1	1
Total	2	20	10	32

Laces were a vital fastening element of medieval clothing and the ends of these were protected by small chapes made of rolled sheet. The examples from the Highcross sites are summarised in Table 105. As can be seen the chapes first appear in quantity in Phase 10 (c. 1400-1500). This is interesting as that is several decades later than the evidence at London (Egan and Pritchard 2002, 281-90) where the main introduction can be seen in the second half of the 14th century, as it is at Winchester (Biddle and Hinton 1990, Table 79). Several were also recovered from the Austin Friars, one of which (Clay 1982, 137 no. 49) was present in an early context. As the evidence stands. Leicester generally may have lagged a little behind in adopting the fashion for laced clothing. The only complete example from Vine Street belonged to the type where the edges of the sheet were turned inward before being clenched around the lace (Oakley 1979, 263 Type 2)

275 Lace chapes. Copper alloy. Sheet wrapped into cone; at junction the edges are turned into the interior. Length 26mm, maximum section 3.5mm. A24.2003. Sf 467 : 4224 : G1053 : Phase 10. (ID 118).

276 Lace chape fragment. Copper alloy. Sheet rolled, ends broken. Present length 10mm, section 3mm. A24.2003. Sf 1072 : 5182 : G1058 : Phase 13. (ID 253).

Textile Equipment

Vine Street produced four whorls from medieval contexts which have central perforations of the correct diameter to be used with a medieval spindle. The decorated bone example (no. 277) from a Phase 9.1 feature is an example of a type introduced about the time of the Norman conquest and continuing in use into the 13th century (MacGregor 1985, 187). The date of their introduction is very well illustrated at Coppergate in York which has produced a large assemblage textile equipment dating from the mid- Saxon period onwards. There the type only occurs in context of the later 11th century onwards (Walton Rogers 1997, 1743 fig. 809 nos. 6692-3). Very similar unperforated discs were used as counters with an example coming from Freestone Lane. It is of some interest to note that occasionally ones interpreted as counters are also perforated. An example from Winchester (Brown 1990, 702 no. 2225) has a central perforation of 2.5mm, far too small to have been used as a spindle whorl. It is possible, therefore, that the spindle

whorl examples might have been dual function items.

A squashed globular shape becomes the dominant shape for stone spindle whorls during the eleventh to 12th century as can be seen very clearly from the evidence at Coppergate where they are categorised as Type C (Walton Rogers 1997, 1736 -41, especially fig. 805). No. 278 from a Phase 9.1 pit is a typical example of one, as is no. 279 made of fired clay also from a Phase 9.1 pit.

The lead whorl no. 280 has a perforation that would acceptable for a post Roman spindle but comes from an unstratified context. Given that a similar lead whorl of uncertain function was recovered from a Roman context (no. 224), it is possible that this example is a residual Roman piece not an item of medieval spinning equipment.

Nos. 281 and 282 are both pickers-cum-beaters. These were the tools used to adjust the weft whilst weaving on the two beam loom which replaced the warp-weighted loom during the 9th to 10th century (Brown 1990, 227). They have a floruit that extends into the 14th century. Both of these examples came from Phase 8.2 pit fills. Where observed decoration like that seen on one face of 281 tends to be an early feature. The decorated examples from Northampton came from 10th and 11th century contexts (Oakley 1979, 313 nos. 52, 56, 58), whilst two from Winchester came from a late 9th to 10th century context and one described as a late Saxon soil layer respectively (Brown 1990, 231 no. 210; Rees *et al* 2008, 241 no. 241). Picker-cum-beaters were also found at Freeschool Lane, again in a Phase 8 context.

No. 283 is somewhat puzzling. It has the high gloss normally associated with having been used as a textile tool and is double-ended. It fulfils all the criteria for it being the sort of tool used to adjust the weft on a warp-weighted loom (a pin beater – see Brown 1990, 226). As already noted though, these were going out of use in the 9th to 10th century. This example comes from a garden soil accumulation assigned to Phase 10. From its context there would be no problem in considering this a residual item, but as already noted, the late Saxon/Norman assemblage of finds from this site is very small so this seems unlikely. It is perhaps best to regard this piece as a textile tool of uncertain date and function.

The final textile item is a copper alloy sewing needle from a Phase 10 garden soil context (no. 284). It has a round eye which is a feature of later medieval needles (Walton Rogers 1997, 1782) which would be appropriate for its context. Given its broken and bent state and the nature of its context, an accumulation over a Roman building, the possibility that this is a residual Roman piece cannot be ruled out.

277 Spindle whorl. Bone. Flat cylindrical disc retaining traces of cancellous tissue on underside; cylindrical perforation centrally with angular step down from upper surface. Three concentric grooves on upper face with band of ring and dots occupying space between outer two. Diameter 42.5mm, thickness 9mm, perforation diameter 11mm. A24.2003. Sf506 : 4245 : G228 : Phase 9.1. (ID27). Figure 72

278 Spindle whorl. Stone. Squashed globular with very slightly hour-glass perforation. Length 22.5mm, diameter 38mm, perforation diameter 9mm. A24.2003. Sf 565 : 4618 : G767 : Phase 9.1. (ID 375)

279 Spindle whorl. Fired clay appearing slightly pink-tinged cream. Half of squashed spherical whorl with cylindrical perforation. Diameter 37mm, length *c.* 24mm, perforation diameter 9mm. A22.2003. Sf 714 : 2271 : G637 : Phase 9.1.

280 Spindle whorl (?). Lead alloy. Disc with slightly rounded edges; cylindrical perforation. Diameter 29mm, thickness 8mm, perforation diameter 8mm, weight 39mm. A22.2003. Sf245 : Unstratified. (ID272). Figure 72

281 Picker-cum-beater. Bone. Rectangular-sectioned and slightly curved; one end squared, tapering to point. One face at upper end has one vertical and four transverse grooves forming a pattern of eight squares. Cancellous tissue visible at squared end. High gloss on all surfaces. Length 111mm, maximum section 9.5 x 7mm. A24.2003. Sf779 : 2653 : G562 : Phase 8.2. (ID 79). Figure 73

282 Picker-cum-beater. Bone. Oval-sectioned, one end tapering to rounded point, other flattened and blunt-ended. Length 127mm; maximum diameter 14 x 10mm. A24.2003. Sf 1094 : 5026 : G1043 : Phase 8.2 (ID49)

283 Pin beater (?). Bone. Approximately circular-sectioned tapering asymmetrically to either end; one point broken. High gloss on all surfaces. Present length 59mm, maximum section 4mm. A24.2003. Sf 2032 : 6905 : G1089 : Phase 10. (ID 2). Figure 73

284 Needle. Copper alloy. Circular-sectioned shank tapering point, other end flattened and broken across circular perforation; bent out of shape. Present length *c.* 120mm, section 4mm. A24.2003. Sf2014 : 6905 : G1089 : Phase 10. (ID256).

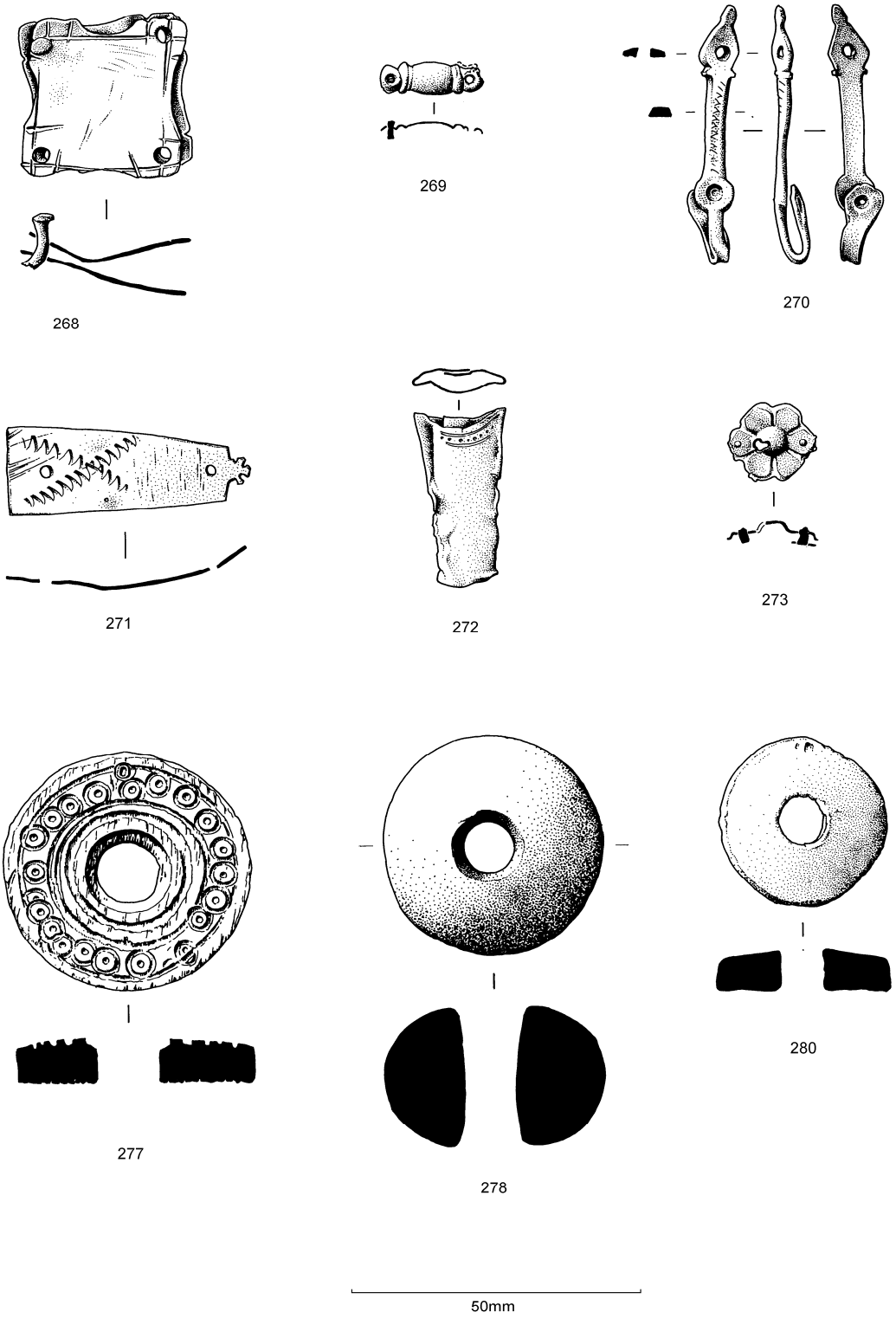


Figure 72: The Small Finds: the illustrated strap fittings and textile equipment, 268-73, 277-78, 280

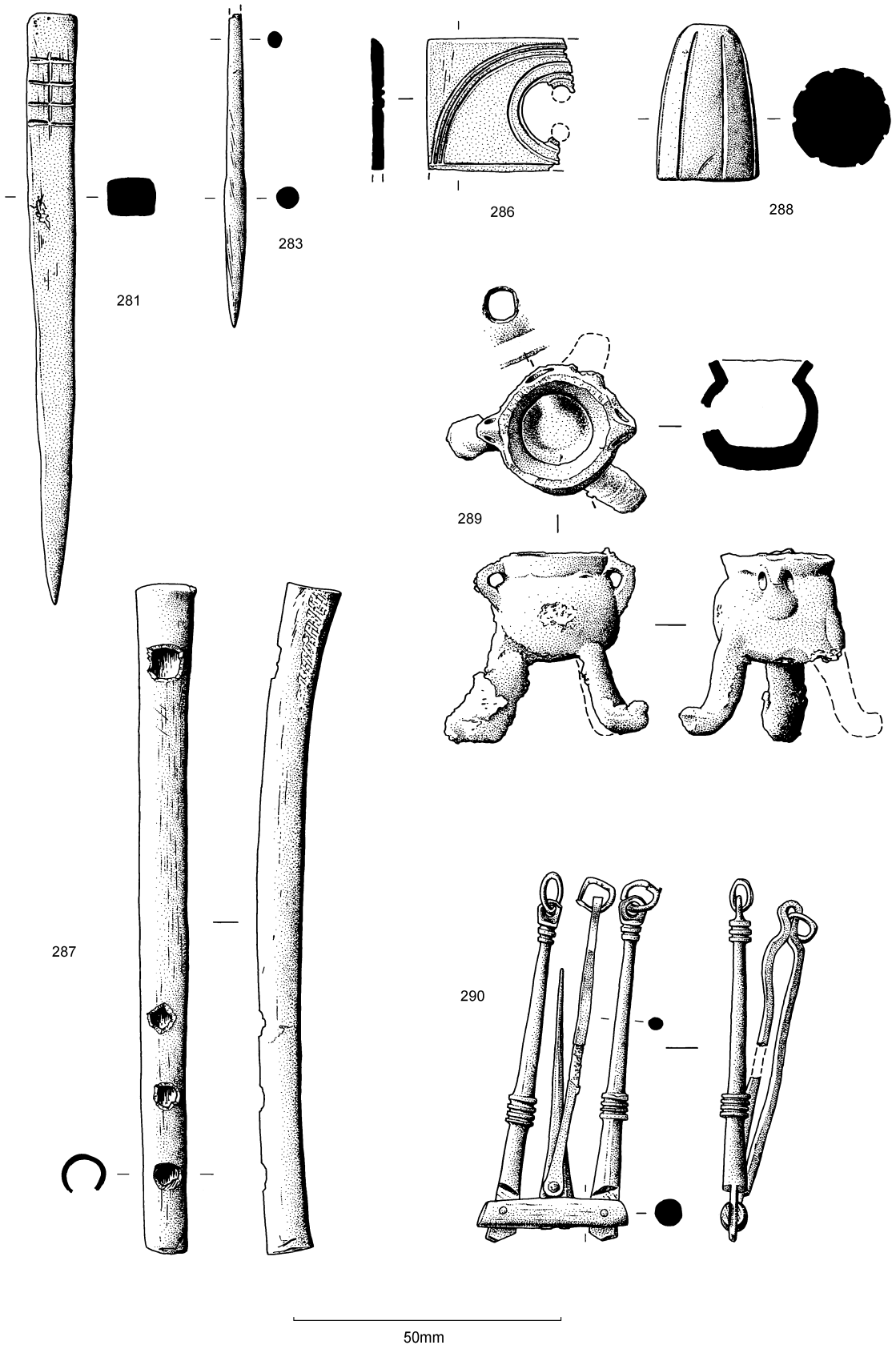


Figure 73: The Small Finds: the illustrate textile equipment continued, household equipment, recreational items and weighing equipment, 281, 283, 287-90

Household Equipment

Two items belong to this category. No. 285 may have been a shallow pan or hearth shovel but investigative conservation would have been needed to identify it further. No. 286 belongs is a piece of decorative inlay or veneer that would have been used on a box or casket with the openwork pattern revealing a coloured backing. In a box from Ludgershall Castle the backing was thought to be silver (MacGregor *et al* 1999, 1958-9, fig. 918), but stained leather or fabric would have provide an equally attractive contrast to the white of the bone.

285 Frying pan (?) or hearth shovel. Iron. Back of shallow pan with sloping sides; flat handle expanding out to back of pan. Present length *c.* 270, height 20mm. A24.2003. Sf 2031 : 4727 : G237 : Phase 8.1

286 Mount. Bone. End of rectangular strip; upper face has three concentric grooves forming a quarter circle from a half circle with another groove along the base centrally a pair of circles around a central perforation, possibly broken stumps from a scroll pattern internally. Present length 27mm, width 25mm, thickness 2.5mm. A24.2003. Sf583 : 4797 : G686 : Phase 9.1. (ID34). Figure 73

Recreation items

Of the three items catalogued here, only the function of the first, the flute no. 287, is secure. The suggested identifications of the two other pieces are more speculative. Simple instruments like no. 287, often made from a goose ulna, are not uncommon in medieval assemblages (McGregor 1985, 150; Megaw 1990). McGregor cites some from Saxon contexts but it would appear they were most popular from the 11th century onwards. Certainly in sites with large finds assemblages spanning the transition between the late Saxon/Norman and later medieval periods it is noticeable that they do not start to be found until the 11th century (MacGregor *et al* 1999, 1977; Megaw 1990, 721). This example would fit this pattern coming as it does from a Phase 9.1 context. A broken example of a similar flute was found at the Shires (forthcoming cat no. 156).

It seems most likely that no. 288 is a pawn from the earliest type of chess set that first appears in Britain in the 11th century and continued in use in the 12th century (see MacGregor 1985, 137-9; Egan 1998, 291-4). When made of bone or antler the cancellous tissue was frequently hollowed out and the piece plugged by solid bone or antler. This has not been done here, but the cancellous tissue is very compact and it may not have been thought necessary. What is atypical with this piece is the nature of the decoration. Normally on these pieces the decoration consists of horizontal lines, frequently combined with ring and dots. Here the decoration is vertical. Despite this, the high gloss from frequent handling does suggest it was a playing piece, and in general form it is very similar to the pawns in this type of set. It also comes from a pit dated to the 12th to mid- 13th century, and is thus contemporary with the early chess sets. On balance, therefore, its identification as a chess piece seems reasonable.

The miniature cauldron no. 289 from an unstratified context, though delightful, is something of a puzzle. It is a miniature of the typical copper alloy tripod cauldron that was in use by the later 12th century (Ward Perkins 1940, 205) and continued in use for several centuries. For example one was found in the galley of the Mary Rose which sank in 1545 (Weinstein 2005, 432). It would be tempting to see this as a toy as miniature vessels are known in medieval contexts and these appear to be the precursors of similar items that were certainly regarded as toys by the 17th century (see Egan and Pritchard 2002, 281-3 for discussion). Those tend to be made of a lead/tin alloy. From its weight this example seems likely to have been made from a leaded copper alloy, possibly the same alloy that the full size examples were made of (Blades in Egan and Pritchard 2002, 160). Possibly it should be regarded as functional but the amount of liquid that could have been heated in it would have been minute. It is very poorly made with one foot definitely malformed. The small hole may have had a separately attached spout but if so this has left little trace.

287 Flute; broken in two joining places. Modified long bone; both ends chopped across and cancellous tissue hollowed out. One square hole at top, three circular holes at other end. Length 127mm, diameter (top) 11 x 9.5mm, (bottom) 9 x 8mm. A24.2003. Sf 1015 : 4573 : G1086 : Phase 9.1. (ID24). Figure 73

288 Chess piece. Tip of antler tine with top rounded off and base flat; cancellous tissue visible top and bottom, but in both cases is very compact. Eight vertical lines cut onto the sides. Sides and base glossy. Length 34mm, maximum diameter 19.5 x 17mm. A22.2003. Sf 254 : 3117 : G994 : Phase 8.2. (ID80). Figure 73

289 Miniature cauldron. Copper alloy. Cast hemispherical body with out-turned rim; two separate legs with out-turned feet soldered on with scar from third, one foot bent back up the leg; circular hole in the side of the bowl; two curved handles bent from rim to upper body. Height 33mm, rim diameter 21mm. A22.2003. Sf400 : unstratified.

Weighing equipment

In discussing the Roman weighing equipment from Vine Street, attention was drawn to how exceptional it was to have three items from one site and it was pointed out that on Roman sites weighing equipment always forms a very small proportion of the assemblage. The same is not true of the medieval period when equal-armed balances are a regular find. In Leicester alone it is possible to point to examples from the Shires (folding balance only, forthcoming cat no. 96), from Freeschool Lane (folding balance and one pan), Vaughan Way (a damaged pan), and from Jewry Wall (the central suspension fork and pointer misidentified as part of a chatelaine – Kenyon 1948, 257 no. 5).

Such balances came in two versions, those with fixed arms and those where the arms folded up like no. 290 for easy transport, possibly in a small box like that from Roche Abbey which contained a complete set of balance, pans and weights (Rigold 1978). The type had come into use in the late Saxon period (see Oakley 1979, 258) and complete and fragmentary ones are regular finds from that point onwards. They were possibly most numerous in the late Saxon to Norman period. Certainly at Winchester over half of the pieces from closely dated contexts are of 12th century or earlier date, though there is a regular occurrence in contexts up to the 15th century (figures based on currently unpublished data). Though the context of Roche Abbey set was unknown the associated weights suggested it may well have been in use in the late 15th century. In discussing it Rigold also pointed out that balances of this type must still have been in use in the early 16th century given that the fixed arm version features in paintings of that period. Though they could have been used to weigh small quantities of precious substances such as spices, it has to be assumed that they are so ubiquitous an element of medieval assemblages because there was presumably justified suspicion of the coinage available and that there was a regular need to check its weight. This provides an interesting insight into the different nature of Roman and medieval commerce.

290 Equal-armed folding balance. Copper alloy. Beam in three parts; central part circular-sectioned with slot on either end, arms circular-sectioned and tapering towards flat perforated terminals each retaining loop of wire from chain, inner ends have narrow-rectangular bars which fit into slots on central part of arm and held in place by rivets which finish flush with surface; each outer arm has two ribs at junction with terminal and three ribs close to end. Triangular pointer made as separate piece and rivetted into beam. Complete rectangular-sectioned suspension fork still riveted in place through perforation in pointer; small loop of wire through suspension fork terminal. Small part of suspension fork missing. Arms vertical and beam was lost in a closed shape. Length 140mm, section of central beam 5mm, length of pointer 50mm, length of suspension fork 58mm. A24.2003. Sf756 : 2481 : G558 : Phase 8.1. (ID181). Figure 73

Writing equipment

The X-radiograph image of No. 291 is consistent with it being a stylus. As Ottaway (1992, 606-7) has pointed out iron stylii are rare in post Roman contexts though copper alloy ones were still being used in the late Saxon period (Biddle and Brown 1990, 729-32). This came from a Phase 8.1 pit but given the amount of Roman activity on the site, the possibility that it was a residual Roman piece cannot be ruled out. The shape is consistent with it being a Manning (1985) Type 1 Roman stylus.

291 Stylus (?) Iron. Eraser end tapering slightly, shank tapering to point. Length 130mm, width 15mm. A24.2003. - : 4232 : G235 : Phase 8.1. (ID 360)

Transport fittings

The majority of the transport fittings are associated with the use of the horse. The spur no. 292 (Figure 74) is an example of the latest type of medieval prick spur. The arms curving under the ankle were a fashion that was introduced during the 12th century, probably sometime in the second quarter of that century (Ellis 1991, 62 no.3). The pit fill this piece was found in must therefore date at the end of Phase 8 which has been assigned to the period 1100 - 1250.

There are also three copper alloy harness pendants (nos. 293-5). The fashion for decorating horse harness with such pendants started in the 12th century, becoming commoner in the 13th and was declining by the end of the 14th (Griffiths 2004, 62). The one example from a stratified context (no. 293) fits this date range nicely. The other two are unstratified but may be assumed to be of the same general date.

Figure 74: The Small Finds: iron prick-spur, 292

Fragments of three horseshoes were all found from stratified contexts. Though there are well-developed typologies of medieval horseshoes it does not seem appropriate to apply them to these fragments given they retain few of the features which would allow them to be assigned to one period or another. It is somewhat ironic that the one horseshoe that does retain sufficient features to allocate it to one of the established medieval types was actually found in a Roman context (see discussion of no. 148 above).

Shaped horse and cattle metapodials such as no. 299 are a common feature of late Saxon and Norman assemblages and a broad date range of the 8th to 13th centuries is appropriate for those from British sites. They often show fine longitudinal striations on the underside and this wear pattern, together with pictorial and literary evidence, has lead to them being identified as skates (MacGregor 1985, 141-4). Quite why people should need so many skates in a period that covered the climactic optimum of the 10th to 12th centuries (see Smith 2005, 55-6) is an interesting but, as far as I am aware, unaddressed question. The example from Vine Street is a particularly well-made example with holes for the straps in both toe and heal, and shows the typical longitudinal striations. The example from the Shires (forthcoming cat no.140) has the striations too. Another shaped metapodial was recovered from Vaughan Way but the wear pattern on that is different and there must be some caution in identifying that as a skate.

292 Prick spur. Iron. Straight neck pointing down with arms that curve under the ankle; figure of eight terminal plates. Length 135mm, width *c.* 100mm. A24.2003. Sf 1026 : 4983 : G1043 : Phase 8.2. (ID 358). Figure 74

293 Harness mount and pendant. Iron square-sectioned mount broken at one end with two loops at end articulating with perforated lug of copper alloy pendant. Pendant of four conjoined rings leaving a central ring. Present length 57mm, pendant - length 46mm, width 37mm.. A24.2003. Sf934 : 2448 : G563 : Phase 9.1. (ID 212). Figure 78

294 Harness mount and pendant. Copper alloy. Rectangular mount with curved end and two perforations, two projections at end articulating with solid perforated lug of shallow domed circular pendant. Total length 46mm, mount - length 30mm, width 9mm, diameter of pendant 17 x 16mm. A22.2003. Sf764 : unstratified. (ID211). Figure 78

295 Harness pendant. Copper alloy. Shallow domed circular pendant; solid perforated lug at right angles. Length 29mm, diameter of pendant 24 x 22mm. A24.2003. Sf 126 : unstratified. (ID 210)

296 Horseshoe fragment. Iron. Front to the web retaining rectangular countersunk nail hole on either side. Width web 18mm. A24.2003. Sf562 : 4605 : G254 : Phase 8.2. (ID 339)

297 Horseshoe. Iron. Part of one arm. A24.2003. - : 4392 : G1050 : Phase 9.1. (ID293)

298 Buckle. Iron. 'D'-shaped frame; tongue wrapped around cross bar. Length 36mm, width cross bar 30mm. A24.2003. Sf2023 : 6293 : G1453 : Phase 9.1. (ID289).

299 Skate, complete in four joining fragments. Metapodial bone; distal end trimmed to point with tip curved up; very smooth facet on anterior surfaces showing longitudinal striations; horizontal perforations through toe and heal end. Length 246mm. A24.2003. Sf 933 : 2448 : G563 : Phase 9.1. (ID 93). Figure 78

Knives and Tools

The evidence of both the handles and the knives themselves is that the knives in use on the site in the

medieval period were of the whittle tang variety. There is no evidence of scale tang knives that were introduced during the 13th century. The two handles from phase 9 contexts (nos. 300 and 301) were made of little modified antler tines. An implement from a Phase 8 robber trench over Building G had a wood handle.

The most interesting item in this category is the slicker no. 305 from a Phase 8 context. These were tools used in hide preparation, forcing the dirt out before shaving (Goodall 1990, 249 nos. 324-55). This is a particularly well-preserved example as it retains mineralised wood from the handles. A smiths' punch may also be represented by no. 306.

Three certain hones were recovered from Phase 8 and 9 contexts (nos. 307-9). They have not had their lithologies commented on by a competent geologist, but it can be suggested that nos. 307 and 308 were most likely imported as they could well be Norwegian Ragstone and purple phylite (for descriptions and references see Gaunt in Mainman and Rogers 2000, 2484-5). Such imports would not be unlikely at Leicester as evidence elsewhere suggests they were easily available in the East Midlands. Indeed it has been suggested that at Northampton Norwegian hones in these lithologies had a virtual monopoly in the town in the late Saxon and medieval periods (Moore and Oakley 1979. 283). The small size and perforations of nos. 307 and 308 suggest these might be what might be termed domestic or personal hones, i.e. for knives, razors etc rather than for larger tools. No. 309 would have been more suitable for sharpening the latter.

Handles

300 Handle. Antler and iron. Rectangular-sectioned iron tang; one piece handle made from antler tine with flat end. Present length 114mm, tang section 14mm, diameter 34 x 27mm. A24.2003. Sf 441 : 4102 : G688 : Phase 9.1. (ID 340).

301 Handle. Antler. Tine trimmed into square section with end trimmed flat, all surfaces polished; each side has series of five double ring and dots; base shows cancellous tissue with small perforation internally. Length 77mm, section 17mm. A24.2003. Sf 492 : 4377 : G835 : Phase 9.02. (ID 44).

302 Handle. Iron. Square-sectioned tang with expanded end; considerable amounts of mineralised wood. Length 105mm, width 6mm. A24.2003. Sf 1008 : 4554 : G745 : Phase 8.1. (ID 349).

Knives

303 Knife. Iron. Tang with stepped choil and shoulder, straight blade with concavity towards point; straight back curving down to point. Present length 10mm, length of blade 80mm, maximum width of blade 15mm. A24.2003. Sf 1048 : 5087 : G701 : Phase 8.1. (ID 351). Figure 75

304 Knife. Iron. Tang centrally, both back and blade tapering to rounded tip. Present length c90mm, length blade 69mm, width blade 17mm. A24.2003. Sf 571 : 4243 : G1481 : Phase 9.1. (ID 336). Figure 76

Craft tools

305 Slicker. Iron. Rectangular blade with smooth edge two projecting tangs, one broken at curve; both tangs retain mineralised wood. Width 60mm, length 50mm, depth blade 25mm. A24.2003. Sf 598 : 4719 : G1043 : Phase 8.2. (ID 342). Figure 77

306 Punch? Iron. Square-sectioned bar tapering to one end, with other end an expanded block. Length *c.* 140mm, width 25mm. A24.2003. Sf 446 : 4121 : G775 : Phase 10. (ID 341).

Sharpening stones

307 Hone. Micaceous schist. Flat rectangular bar with rounded top; circular perforation in top; faces ground very smooth. Length 79mm, section 29 x 8mm, perforation diameter 5.5mm. A24.2003. Sf 1054 : 5118 : G733 : Phase 8.1. (ID 372). Figure 78

308 Hone. Phyllite ? One end of flat rectangular bar with angled top; circular perforation in end. Present length 32mm maximum section 26 x 7mm. A24.2003. Sf 1393 : 4871 : G642 : Phase 9.1 (ID 373).

309 Hone. Very fine-grained dark grey siltstone with some mica. One end of flat rectangular bar with extant end gently rounded. One face worn very smooth. Present length 90mm, section 45 x 9mm. A24.2003. Sf 1996 : 4245 : G228 : Phase 9.1. (ID 374).

310 Sharpening stone? Burnt reddish sandstone. Rectangular block, truncated triangular section. Length *c.* 200mm, section 80 x 35mm. A24.2003. Sf 1394 : 5672 : G569 : Phase 8.2. (ID 382).

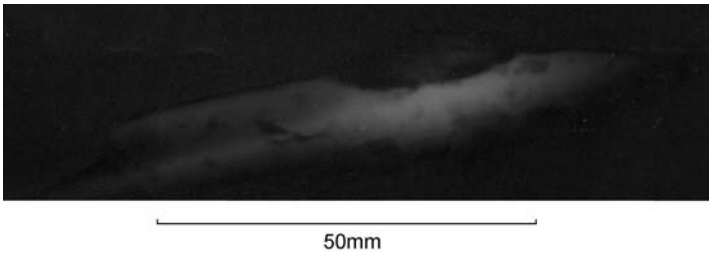


Figure 75: The Small Finds: X-radiograph of iron knife, 303

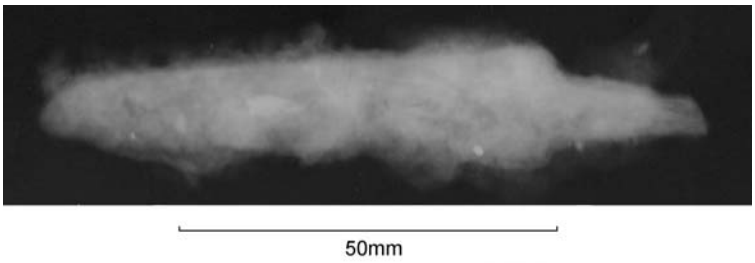


Figure 76: The Small Finds: X-radiograph of iron knife, 304

Figure 77: The Small Finds: iron slicker with mineralised wood, 305

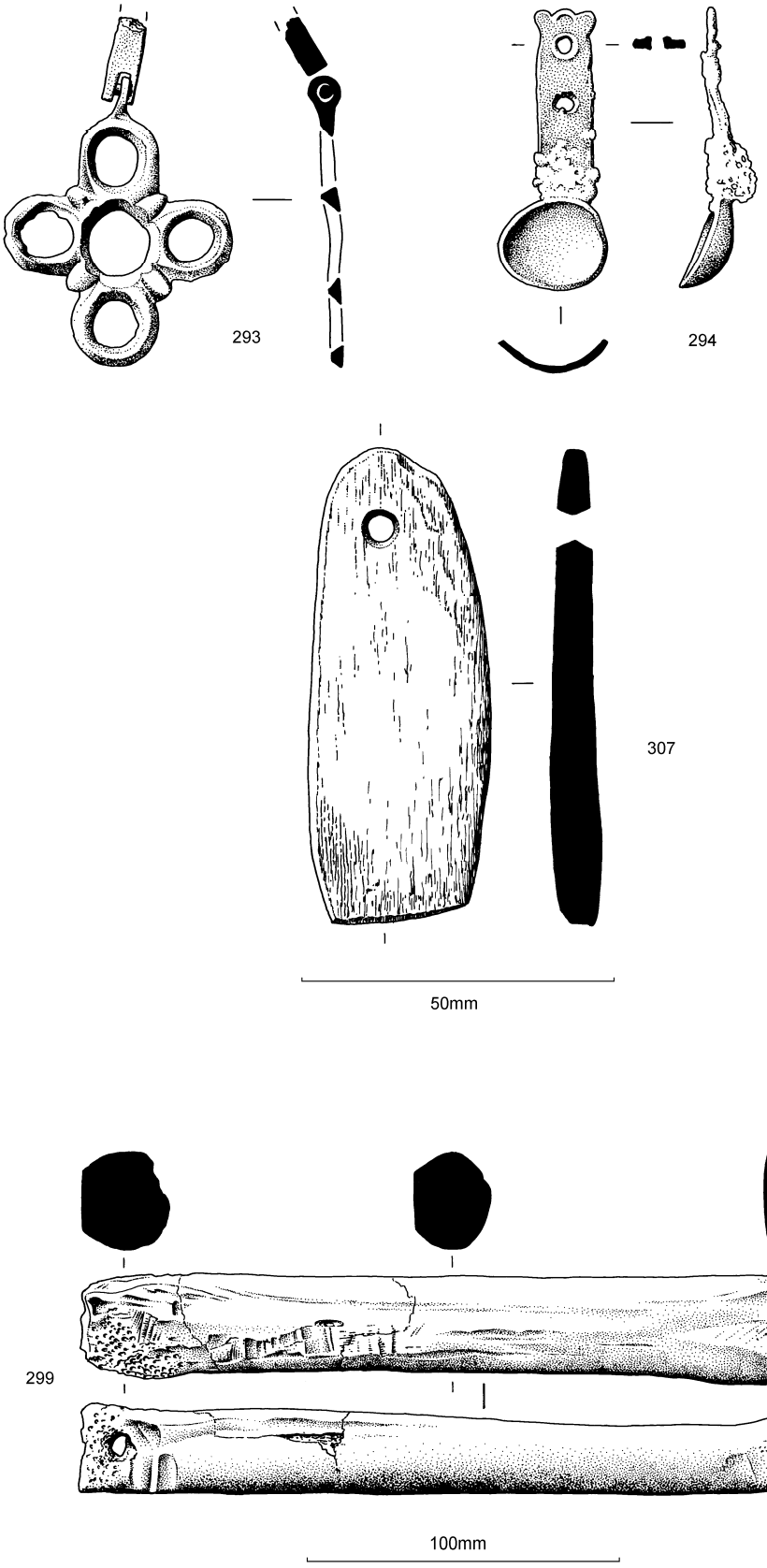


Figure 78: The Small Finds: the illustrated transport fittings, knives and tools, 293-94, 299, 307

Fasteners and fittings

Parts of two padlocks were found in Phase 8.2 pits associated with Plots 3 and 4. No. 311 was quite an elaborate small padlock not merely decorated with copper alloy bands, but also with copper alloy forming the end plates. This is Goodall's (1990, 1001) type B in use throughout the post-Conquest period. When complete it would have resembled the reconstruction prepared in connection with one of the Coppergate examples (Ottaway 1992, 667 fig. 285) and would have been opened by a key inserted through a 'T'-shaped slot. No. 312 is part of a lock mechanism which would have had barbs attached to the central bar (see Goodall 1990, 3658-64) and which would have been suitable for another barrel padlock of this type. Padlocks and their fittings are not uncommon finds in medieval assemblages so it is of some interest that this is the only site amongst the Highcross sites where they have been found.

Locks

311 Barrel padlock. Copper alloy and iron. Cylindrical lock casing with disc ends extant, one with broken aperture for lock bolt, other solid, sides now fragmentary; tube on the lower face. The whole much obscured by iron corrosion, X-radiograph shows copper alloy decorative bands applied around the circumference. Diameter casing 25mm, complete depth 38mm, present length 43mm. A24.2003. Sf 562 : 4605 : G254 : Phase 8.2. (ID 337). Figure 79

312 Padlock bolt and hasp. Iron. Part of 'U'-shaped hasp and central bar of bolt with part of closing plate between. Present length *c.* 60mm. A24.2003. - : 4983 : G1043 : Phase 8.2. (ID 301).

Other fittings

313 Hooked fitting. Copper alloy. Cast shield shape with concave sides; projecting curved bars on each straight end, one a shallow hook, other broken. Present length 58mm,, maximum section 48 x 7mm. A24.2003. Sf 2037 : 8404 : G1132 : Phase 8.1. (ID 265). Figure 81

314 Stopper. Copper alloy. Disc with slightly convex upper surface and central boss; cylindrical shank. Length 16mm, section head 19mm, section shank 8mm. A24.2003. Sf 1768 : 5838 : G1076 : Phase 8.1. (ID 266).

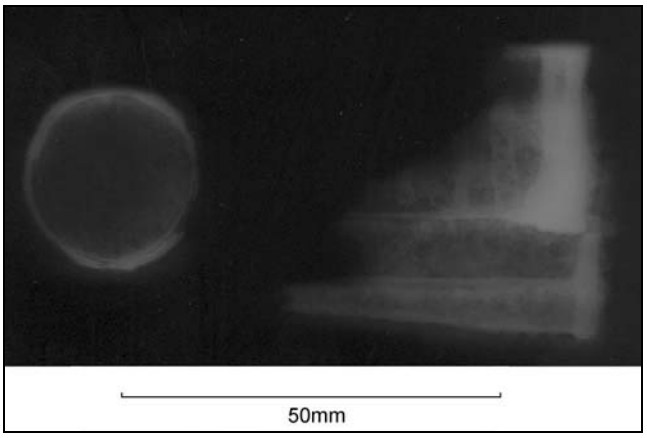


Figure 79: The Small Finds: X-radiograph of the barrel padlock, 311

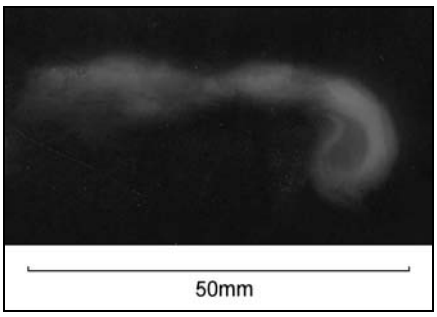


Figure 80: The Small Finds: X-radiograph of iron bell clapper, 315

Religious items

The outline seen on the X-radiograph is consistent with no. 315 being an iron clapper from a bell (see Ottaway 1992, 557-8 nos. 2751, 2755).

315 Bell clapper. Iron. Expanding bar with crozier-shaped terminal loop. Length 50mm, maximum width 7mm. A24.2003. - : 4558 : G929 : Phase 4.1. (ID359). Figure 80

Craft debris

Debris from iron-working, the cold-working of metal and of bone working were found in medieval contexts (see nos. 316-9). Whether they represent evidence of these crafts being practised at that time is open to question. All the types of debris were attested in Roman contexts in far greater quantities; and in the case of the Roman bone working, it was possible to show that some of the rough outs were residual in medieval contexts (see Table 101). There must be a distinct possibility therefore that some, if not all of these items are residual.

Iron working

316 Iron slag was recognised from X-radiographs in the following contexts

A24.2003. - : 4573 : G1046 : Phase 9.1. (ID 318)

A24.2003. - : 8473 : G900 : Phase 8.1. (ID 308)

Copper alloy working

317 Strip offcut. Copper alloy. Bent rectangular-sectioned strip, split in two lengthways for part of length. Length *c.* 70mm, maximum section 4 x 1mm. A24.2003. Sf 1995 : 8201 : G883 : Phase 8.2. (ID 110).

Bone working

318 Shank. Bone. Very slightly curved, one end has ? chuck mark, other end broken. All surfaces glossy. Length 63mm, section 3mm. A24.2003. Sf 2050 : 8415 : G1301 : Phase 8.2. (ID 16)

319 Off-cut. Bone. Rectangular strip, long edges cut, short edges broken. Natural oval perforation; back of piece retains cancellous tissue. Dimensions 36 x 12, thickness 5mm. A24.2003. Sf 1007 : 4568 : G734 : Phase 9.1. (ID 19).

Miscellaneous items

Three toggles made from modified phalanges were recovered from two different Phase 8 contexts (nos. 320 & 321), and a single Phase 9 context (no. 322). They have been placed here as there is no agreement as to what their function might have been, despite being a regular feature of late Saxon and medieval assemblages (see for example Oakley 1979, 313 and MacGregor *et al* 1999, 1980-81 for references). Similar items were found on all three of the Highcross sites and their distribution through time is shown in Table 106.

Table 106: The Small Finds: distribution of toggles from the Highcross sites

Phase	Vine	Freeschool	Vaughan	Total
7	-	2	-	2
8	2	-	-	2
9	1	2	-	3
10	-	1	-	1
Unstratified	-	-	1	1
Total	3	5	1	9

320 Toggle. Bone phalange with central perforation. Length 55mm. A22.2003. Sf943 : 2650 : G414 : Phase 8.1. (ID579)

321 Toggle. Bone phalange with central perforation. Length 60mm. A22.2003. Sf944 : 2577 : G562 : Phase 8.2. (ID83). Figure 81

322 Toggle. Bone phalange with perforation near one end. Length 53mm. A24.2003. Sf 1010 : 4568 : G734 : Phase 9.2

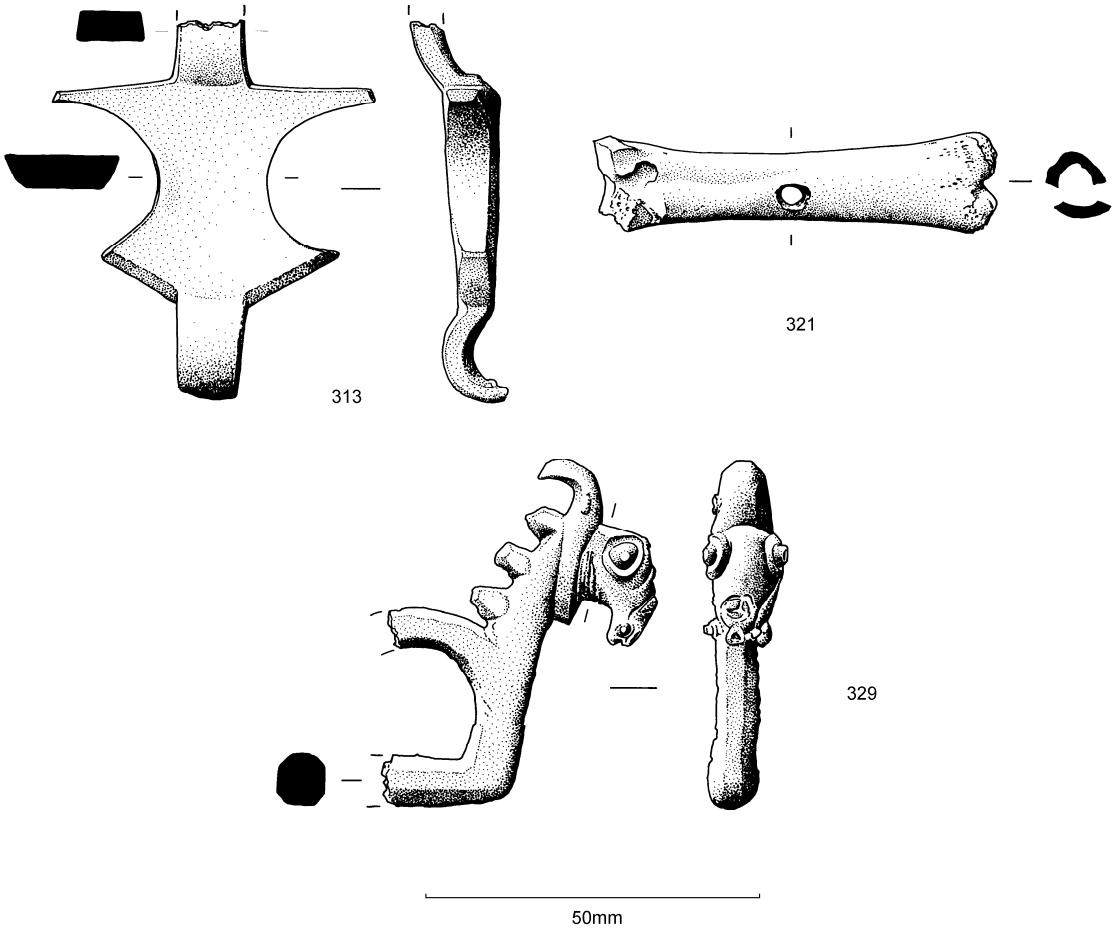


Figure 81: The Small Finds: the illustrated fittings, miscellaneous items and post medieval finds, 313, 321, 329

The Post Medieval and undated finds

Post medieval and modern material was relatively rare in the assemblage submitted to me for comment. The following items are catalogued here without comment as a record may be useful for future work on Leicester's material culture.

Post medieval items

323 Buckle frame. Copper alloy. Double frame consisting of two oval shapes with recessed cross bar and straight projecting outer edges. Surfaces coated with white metal. Length 37mm, maximum width 28mm, width cross bar 19.5mm. A22.2003. Sf248 : unstratified. (ID194).

324 Buckle frame. Copper alloy, heavy and with silvery surface, probably a leaded alloy. Rectangular frame. Bevelled 'D'-sectioned section with flat surface uppermost, cross bar integral but at level below the rest of the frame; groove across each end of frame above cross bar. Length 31mm, width 36mm. A22.2003. Sf249 : unstratified. (ID192).

325 Fitting. Section of a hollowed long bone, approximately one-quarter of the circumference extant. One end flat, fragment retains traces of a transverse perforation. Outer surface carved into two rounded ribs with a sunburst pattern centrally with two wedge-shaped depressions; the bridge between the depressions retains a polished edge. Present length 66mm, current width 24mm. A22.2003. Sf1002 : 2234 : G638 : Phase 9.1. (ID 94).

326 Musket ball. Lead alloy. Diameter 15mm, weight 19mm. A22.2003. Sf 227. unstratified. (ID 274)

Undated items

327 Pestle. Fine-grained cream stone. Cone with rounded short end; wide end ground very smooth. Length 65mm, maximum diameter 45mm. A22.2003. Sf1159 : 500 : unphased, from the initial evaluation. (ID383)

328 Finial. Copper alloy, D-sectioned acorn terminal above rectangular-sectioned leaf-shaped blade; broken rectangular-sectioned stem. Present length 72mm; maximum section 32 x 8.5mm. A24.2003. Sf 1058 : unstratified. (ID 248)

329 Zoomorphic fitting. Copper alloy. End of cast faceted circular-sectioned openwork fitting ('D'-shaped ?) with outward facing zoomorphic terminal, beaked beast with bulging eyes and a serrated crest. Height 50mm, section 7.5mm. A22.2003. Sf 226 : unstratified (ID249). Figure 81

Overview of the Small Finds

The way in which the Highcross sites are being published means that the full overview comparing all the sites and setting them in context is reserved for the letterpress volume. Here a brief summary of the key points of what the finds considered in this report are telling us about the occupation at Vine Street from the Roman to medieval periods is offered. It is structured according to the overall site phases and will consider both the material stratified from them and those items which must have been in use at a given time which are found residually or unstratified.

Phase 2 – the early Roman period

The range of evidence derived from the brooches would be consistent with occupation starting in the area in the third quarter of the 1st century. During the time covered by the phase there is what may be termed the normal background 'noise' of an urban site. The assemblage is dominated by personal ornaments with a good contribution from the toilet, textile, recreation and household categories. The profiles of the different types present are typical of what might be expected from a Leicester site. This is best shown in the brooches which, once allowance has been made for the chronological biases, show the normal range of types and preferences seen elsewhere in Leicester. Given the number of hairpins present in the assemblage as a whole, it is of some interest to note they appear to be absent at this period. The earliest stratified securely identified example (no. 48) comes from a make-up deposit of Phase 3.1. Two bone shank fragments (not catalogued here) from Phase 2 contexts might have come from pins, and it is always possible that the apparent absence might just be a quirk of what has been stratified in the small assemblage from Phase 2 contexts. Some of the earliest brooches, after all, came from later contexts. It might just suggest, though, that the women at Vine Street were not yet in the habit of dressing their hair in 'Roman' styles at this time. That at least some of the occupants of Vine Street were literate is suggested by the stylus no. 143. Of special note is the ox goad no. 185 which came from a context of this period and which might suggest that the boundaries between urban and rural life were still quite porous at this time. Finally the armilla no 186 may be noted. Though found in made-up ground of Phase 3.1, it would have been in use during this early phase and attests to the presence of a veteran involved in the early Roman campaigns in the province.

Phase 3 – the mid- Roman period

The Phase 3 contexts see a broadening out of the range of material in use with changes in fashion being observed. People start to wear hobnailed shoes (nos. 77-78 Phase 3.2-3.5 contexts) and women start dressing their hair with the aid of pins (nos. 34 and 38 both from Phase 3.5 made-up ground deposits) and some start to wear bracelets (no. 67 from a Phase 3.3 hearth complex). Table manners may be changing as well as spoons make their appearance (no. 106 from a Phase 3.2 pit). There is a range of craft and industrial activity. The earliest evidence of iron smithing taking place on the site is in a Phase 3.7 when there is also evidence for the hot working of copper alloy. Bone pins were also being manufactured in the vicinity of Building F by Phase 3.6 probably suggesting that this property had a commercial function.

In many functional categories the amount of material recovered and the specific types in use conform to what seems to be the normal profile for Leicester. Local types of hairpins for example are in good supply. In some categories though the pattern does appear to be unusual. As noted in discussing the locks and keys, the Vine Street assemblage in general seems to show a higher concern with security than is seen at other sites, and it is in a Phase 3.2 context that this is first seen (key no. 172 from ditch fill 5319). There is also an unusually large amount of weighing equipment and this too is concentrated in the Phase 3 contexts with one steelyard (no. 139) coming from a Phase 3.6 pit in the region of Building F and another from a Phase 3.7 one in Building G. It would be tempting to see the unusually large amount of items in both these categories as being connected, and relating to a specific function for the large courtyard house.

In addition to the unusual profiles amongst the security and weighing equipment, it is also during this period that the finds produce evidence for inhabitants that are not typical Leicester inhabitants. Most people in the town are no longer wearing brooches but some individuals at Vine Street are wearing and losing some unusual foreign forms (no. 20 Phase 3.3 surface, no. 21 Phase 3.8). There is evidence of a military presence represented by a belt plate (no. 187) from the Phase 3.6 infill of the plunge pool in Building F and a fragment of a similar belt fitting (no. 188) from Phase 3.9 floor surface in Room 6 of

Building G. Given the presence of the lead sealings (nos. 190-92) and the sling shot (no. 189) a military interest in this part of Leicester certainly seems indicated. The belt fittings could easily be worn by members of the ordinary British garrison but the brooches suggest the presence of some people from outside of Britain. One might also draw attention to the ivory box fitting no. 111 which though found in a later context is certainly an extremely exotic find which should possibly be viewed alongside these other finds. Given it is hard to imagine an officer in the Roman army numbering such a decorative trinket box amongst their possessions, are we possibly looking at the presence of wives and children as well?

Phase 4 – the late Roman period

The most conspicuous element of the Phase 4 finds assemblage at Vine Street is the apparent absence of females. As already discussed in the relevant sections females are normally very conspicuous in 4th-century assemblages because the fashionable ornaments at that time (hair pins, bracelets, bead strings) were worn and lost in large numbers. Here the relevant types are either rare or conspicuous by their absence. This is not the normal pattern for Leicester sites. It would appear that the change in use of the site was not just restricted to dividing up the property into different units.

Phase 5 and 6 – the early and mid- Saxon period

The finds assemblage contained no evidence of any activity on the site during this period.

Phase 7 – the Saxo-Norman period

Thought there are a few items which from a typological point of view would belong to the later part of this period, there is virtually no evidence of late Saxon occupation on the site. One aspect that argues very strongly against occupation at that time is the complete absence of fragments of bone and antler combs which normally dominate assemblages of that date.

Phase 8 – earlier medieval c.1100-1250

In Phase 8 a normal domestic urban assemblage can again be seen in the finds, though it should be noted that there is a considerable amount of residual Roman material in the contexts of this phase.

There are a small number of finds which tells us what people were wearing. The women were probably using diminutive pins to fasten their hair and veils (nos. 235 from a Phase 9.1 cess pit that may have started in the earlier phase). Some individuals may have been more fashion conscious than others as the Phase 8.2 pits include a number of items that become more common later. Here they were presumably being used by early adapters. These include a ring brooch (no. 232), a long dress pin (no. 238) and a spur (no. 292). Sewing pins also start to appear (no. 240 from a Phase 8.2 cess pit).

Spinning and weaving was obviously a regular occupation as weaving tools (nos. 281-2) came from Phase 8.2 pits and a fashionable spindle whorl (no. 277) came from a 9.1 context. Other craft activity included the preparation of hides as evidenced by the slicker (no.305 from a Phase 8.2 cess pit). For recreation it is possible that some people played chess as an item that was probably a pawn (no. 288) came from another Phase 8.2 pit.

Items that seemed indispensible aids for 11th- to 12th-century life such as balances to check coinage (no. 290 from an 8.1 robber trench) and padlocks to protect valuables (311-2 both from Phase 8.2 pits) were also present from an early stage.

Phase 9 – medieval – c.1250 – 1400

Roman material continues to occur in contexts of this date and generally there is far less material stratified in this period possibly reflecting the use of much of the site as a cemetery and the decline of neighbouring inhabited plots. There are though a considerable number of belt and strap fittings that belong to the second half of the 14th century and into the 15th century. One of these (no. 249) is recorded as coming from a grave fill. The majority of the rest are unstratified but in good condition and it seems distinctly possible that they were originally deposited with the bodies in graves.

Phase 10 – Late medieval c. 1400-1500

This phase produced relatively little in the way of stratified finds and what was present can often be shown to be residual. Equally there was nothing that had to be of 15th-century date from the typological viewpoint.

THE LEAD CURSE TABLETS *R S O Tomlin*

Introduction

Two inscribed lead tablets were found in 2005 during excavation of a large courtyard-house in the north-east quarter of Roman Leicester (*Ratae Corieltauvorum*).[2] They are obviously 'curse tablets', and like many found in Britain, they were prompted by theft.[3] The objects stolen are commonplace, a cloak (*sa(g)um*) and silver coins (*argentios*), but there are some interesting details of language and vocabulary. This is reproduced from Tomlin's published article in *Zetschrift Für Papyrologie und Epigraphik* (2008).

Tablet 1 (SF2, context 7003; Trench 3 A21.2006) - Figure 82

Rectangle, 78/75 by 201 mm, cut from sheet lead *c.* 1 mm thick. There is a small patch of severe corrosion at the beginning of lines 6 and 7, a crumpled corner and some dents, but otherwise it is in good condition. One line (22) has been deliberately erased by horizontal scoring. It was never folded. Neatly inscribed on one face in Old Roman Cursive (*c*. 150/250 in date) by a practised hand.

Literal transcript[4]

daeo maglo od euum qui frudum
fecit de padoio od elaeum qui
furtum de padaoium saum
qui saum seruandi invola
uit
s[..]uester riomandus
s[.]nilis uenustinus
uoruena
calaminus
felicianus
rufaedo
uendicina
ingenuinus
iuuentius
alocus
cennosus
germanus
senedo
cunouendus
regalis
niella
[[se2-3ianus]]
od antae nonum diem
illum tollat
qui saum inuolauit
seruandi

[2] For an interim report see *Britannia* 37 (2006), 407-10, with Fig. 16 (site-plan). I am grateful to Richard Buckley, Director of University of Leicester Archaeological Services, for information and the invitation to examine the tablets; also to Ian Cartwright of the Institute of Archaeology, Oxford, for photographing them, and to Prof. J.N. Adams for commenting on the text of Tablet 1. In the notes that follow, *Tab. Sulis* (cited by number of tablet) is R.S.O. Tomlin, *Tabellae Sulis: Roman Inscribed Tablets of Tin and Lead from the Sacred Spring at Bath* (Oxford 1988) = B. Cunliffe (ed.), *The Temple of Sulis Minerva at Bath, II, The Finds from the Sacred Spring* (Oxford 1988), 59-277.

[3] *Tab. Sulis*, pp. 59-63, 79-81.

[4] Letter by letter, and line by line, but separating words for the sake of clarity. There is no word-separation in the original, except after *padoio* in 2, and between the pairs of names in 6 and 7. Dotted letters are incomplete, but not seriously in doubt. [...]: letters lost by damage. [[abc]]: letters erased by the scribe.

Notes on the reading

6 and 7. The first name in each line is damaged by a patch of corrosion, but the restoration of *S[il]vester* and *S[e]nilis* is certain. The final stroke of the other two names is extended to mark the line-ending; there is something similar at the end of 23 and 25.

17. The scribe wrote the third letter as N (repeated in error from line 15), and then corrected it to R.

19. The scribe wrote A, and corrected it to D.

22. This line was deliberately, if unsuccessfully, erased by horizontal scoring. The restoration is not certain (it might be *Severianus*), but *Senicianus* / *Senecianus* is popular in Britain.

Reconstructed text[5]

d<a>eo Maglo (do) e<u>um qui frudum | fecit de padoio (do) el<a>eum qui | furtum (fecit) de padaoium <sa(g)um> | qui sa(g)um Servandi invola|vit. | S[il]vester Ri(g)omandus | S[e]nilis Venustinus | Vorvena | Calaminus | Felicianus | Ruf<a>edo | Vendicina | Ingenuinus | Iuventius | Alocus | Cennosus | Germanus | Senedo | Cunovendus | Regalis | Ni(g)ella | S[enic]ianus (deleted). | (do) ant<a>e nonum diem | illum tollat | qui sa(g)um involauit | Servandi.

'I give to the god Maglus him who did wrong from the slave-quarters; I give him who (did) theft <the cloak> from the slave-quarters; who stole the cloak of Servandus. Silvester, Ri(g)omandus, Senilis, Venustinus, Vorvena, Calaminus, Felicianus, Ruf<a>edo, Vendicina, Ingenuinus, Iuventius, Alocus, Cennosus, Germanus, Senedo, Cunovendus, Regalis, Ni(g)ella, Senicianus (*deleted*). I give (that the god Maglus) before the ninth day take away him who stole the cloak of Servandus.'

Commentary

1, *d<a>eo*. *ae* for *e* is a trivial hypercorrection, as in *el<a>eum* (2), *Ruf<a>edo* (11) and *ant<a>e* (23).

1, *Maglo*. Celtic **maglos* ('prince') is a frequent name-element, and might be a divine title here: compare the god Apollo Cunomaglus, to whom the Nettleton Shrub altar is dedicated.[6] But more likely it is the name of a god hitherto unattested, at least in Britain; in Aquitania there is a dedication *Maglo* | *Matonio* | *Atto* | *marmo*|*rarius* | *v(otum) s(olvit) l(ibens) m(erito)*.[7]

1, *(do)*. The scribe actually wrote *od*, and did so again in lines 2 and 23. It was evidently deliberate, but has no parallel. An abbreviated *od(i)* ('I hate') is possible, but the verb is hardly found in curse tablets, and never in Britain; it would make sense in 1 and 2, but would isolate *d<a>eo Maglo* and be redundant in 23. *od* is followed each time by a demonstrative pronoun and a relative clause which specifies the theft, and the third time also by the only verb (*tollat*) which specifies the action required of the god. It functions therefore like the verb of 'giving' or 'asking' which introduces many British curses.[8] If the scribe had only written *do* in 1 and 2, and *do ut* in 23, instead of *od*, his syntax would have been unexceptionable if (typically) repetitive. So – is *od* a reversal of *do*, or rather, a form of *ut*?

Reversing *od* provides a main verb, the introductory *do*, *dono* (etc.) which is so frequent.[9] It also integrates *d<a>eo Maglo* with what follows, and the lack of *ut* before *tollat* (24) is not a problem: *do*, *dono* (etc.) usually governs a final clause or indirect command introduced by *ut*, but some texts omit *ut*

[5] With capitalization of proper names. (abc): letters omitted or reversed by the scribe. < abc>: letters inserted erroneously by the scribe. [abc]: letters lost by damage.

[6] *JRS* 52 (1962), 191, No. 4 = *RIB* III, 3053.

[7] *CIL* xiii 915 = *ILS* 4681 (Agen).

[8] Tab. Sulis, pp. 63-67, s.vv. devoveo, dono (etc.), execro, queror, rogo.

[9] See the previous note; in Spanish curse tablets the verb is reinforced as *mando*, etc.

before a jussive present subjunctive in the second or third person singular.[10] To understand *(do)* reversed is a simple way of making sense of the tablet, but although whole texts are reversed in various ways, there is no instance of a single word being reversed like this. Anagram errors do occur, for example in *Tab. Sulis* 6, but not in such a selective way nor in a text so well-written.

In two Bath texts, after a statement of the theft, the curse itself is introduced by *ut* without an address to the god or any preliminary verb of 'giving' or 'asking'. The editor concluded that the verb was in ellipse, but Professor Adams has recognized 'the old use of free-standing *ut* introducing a wish (early Latin and sporadically later)'.[11] So he suggests (pers. comm.) that *od* is for *ut* in 23.[12] This would require *d<a>eo Maglo* (1) to be a 'heading' rather than part of the text; this format would be new, and seems rather forced with *tollat* (not *tollas*) in 24. Phonetically *od<ut* is possible, but until *u>o* and the voicing of *t* to *d* are both established in the Latin of Roman Britain, it is not an attractive solution.

od is a new formula, and its resolution may have to await another instance. For the moment the best hypothesis, one best in keeping with the formulation of other British curse tablets, is to regard it as a simple but unexplained reversal of the expected *do*.

1, *e<u>um*. The insertion of *u* after a front vowel (*e*) is most unusual, since it is a [w] glide, not the expected [j].[13]

1-2, *frudum | fecit.* The phrase *fraudem fecit*, explicitly of theft, not 'fraud' in general, is well attested at Bath and Uley.[14] The alternative form in *-u-* is occasionally found, and has occurred in Britain at Bath, *qui mihi frudem [f]ecit*.[15] The second-declension termination in *–um* may represent a confusion with *furtum* in 3.

2, *de padoio*. The scribe tried again in 3, with *de padaoium*. In view of his treatment of intervocalic *g* (see note to *saum* below), he must be locating the theft in a *pa(e)da(g)o(g)ium*. The meaning of this word is unclear. The phrase recalls a graffito *exit de paedagogio* often found scratched on the walls of the 'Paedagogium' on the Palatine at Rome, which probably marks the graduation of slaves from a training-school for domestic staff in the Palace.[16] But it is hard to find *paedagogium* used more widely in this sense, let alone to imagine such a 'school' in Roman Leicester. An easier parallel is provided by the younger Pliny's story of the mysterious haircut suffered by one of his slaves who was sleeping with others in the slave-quarters of his household: *puer in paedagogio mixtus pluribus dormiebat*.[17]

This is probably the sense here, but the provenance is no help: the tablet was found in a building near the courtyard-house, of which only the angle could be examined; and its immediate context was not original, since it was found in Roman demolition material containing a few sherds dating from the late 2nd or early 3rd century. However, the implication is that in Roman Leicester, one of almost twenty tribal 'capitals' in Britain, the slaves of a single household numbered no fewer than twenty persons, including the owner of the cloak, Servandus. No doubt he suspected all his colleagues, and by listing them provides this unique

[10] For example RIB 306+add. (Lydney), donavit ... no(n i)llis pe(r)mittas; Tab. Sulis 32, dono ... [nec p]ermittas; RIB 323 (Caerleon), do tibi ... non redimat.

[11] *Tab. Sulis* 5 and 31; for which see Adams' note in *Britannia* 23 (1992), 5-6. In both cases the 'wish' is that the thief should die, not that a god should kill him. Adams' third example, *Tab. Sulis* 97, does not apply since it is introduced by *donat*; and there is no other British example, given that the reading and the sense of *Britannia* 13 (1982), 408, No. 9 (Caistor St Edmund) are uncertain .

[12] After suggesting *od<aut* in 1 and 2, which would require the first two relative clauses to be alternatives; but they are repetitive almost word for word. Although o<*au* is easy phonetically, unlike *o<u*, it requires the inconsistency of *od* doing duty first for *aut* and then for *ut*. The voicing of *t* to *d* is also a problem.

[13] J.N. Adams, The Regional Diversification of Latin 200 BC – AD 600 (Cambridge 2007), 590.

[14] *Tab. Sulis* 35. A. Woodward and P. Leach, *The Uley Shrines: Excavation of a ritual complex on West Hill, Uley, Gloucestershire: 1977-9* (London 1993), 123, No. 3; *Britannia* 23 (1992), 310, No. 5 (Uley); and two unpublished texts from Uley, inv. no. 936 and 4714.

[15] *Tab. Sulis* 32. See further *TLL* s.v. *fraus*, citing especially the *lex repetundarum* of 123 or 122 BC (*CIL* I^2 583.lxiv), *frude sua*.

[16] V. Väänänen, *Graffiti del Palatino* (Helsinki 1966), I, pp. 72-6, collecting eight examples. Compare the epitaphs of young slaves who die before graduation, for example Halotus aged 12 and Phlegon aged 18, both *ex paedagogio Caesaris* (*CIL* vi 8965 = *ILS* 1825).

[17] Pliny, *ep.* 7.27.13.

roll-call of the household.[18] It is also noteworthy that he, or at least his scribe, handled a *stilus* with such expertise.[19] It is evident that 'literacy' in Britain extended beyond the army, the civil administration, and the local élite.

2, *el<a>eum*. Since this clause is equivalent to the next (with *eu<u>m*) and to that in 23-26 (with *illum*), the form must be a conflation of *illum* and *eum*, but it seems to be unparalleled.[20]

3, *furtum (fecit)*. The verb has been omitted by oversight. The phrase also occurs in the Brandon tablet, *furtum fecer(it)*.[21]

de padaoium. The accusative with *de* is also found in one of the Palatine graffiti, *exiit de pedagogiu(m)*.[22] In view of the handwriting, this 'Vulgar' usage must be earlier than the 4th-century.[23]

3-4, *sa(g)um ... sa(g)um*. The object of *involavit* was written twice in error. *sagum* is a Celtic loan-word long established in Latin, and refers to a square cloak worn by soldiers which is explicitly 'military' in an ink-tablet from Carlisle.[24] That slaves also wore it is confirmed by the Vindolanda order from Clodius Super for more than a dozen cloaks 'for the use of my boys' [his slaves].[25] In the Vindolanda tablets *sagum* and the derived *sagacia* are the standard terms, but *pallium* is more usual in British curse tablets; however, *sagum* is found once each at Bath and Uley.[26]

The form *saum<sagum* shows that the writer did not pronounce intervocalic *g*, as already seen twice in his *padoium<paedagogium*. *g* has also been lost from the names *Ri(g)omandus* (6) and *Ni(g)ella* (21), but not from *Regalis* (20).[27] It does not survive in the Romance reflexes of *sagum*, for example French *saie*.

6-22 is a long list of nineteen personal names, the last of which is deleted. Like other lists of names in curse tablets, for example the eighteen in *Tab. Sulis* 98, they are persons suspected of theft. Only three are women.[28] It has already been suggested that they were all slaves in a *paedagogium*. Their names, like those in the Bath curse tablets, are a mixture of 'Roman' and 'Celtic'.[29]

Silvester, Venustinus, Felicianus, Ingenuinus, Germanus and Ni(g)ella bear colourless Latin cognomina. *Iuventius* is formally a Latin nomen, but the derived cognomina *Iuventinus* and *Iuventianus* are already attested in Britain.[30] *Calaminus* and *Alocus* are not attested, but are probably developed from names

[18] The number is surprising only to modern susceptibilities. The household of the centurion Clodius Super must have been similar in size, if his 'boys' required more than a dozen cloaks (see below, n. 24), but both are small compared with that of Pedanius Secundus at Rome, which numbered 'four hundred' (Tacitus, *Ann.* 14. 43).

[19] In Bath at least, where there is a good sample, it can be argued that petitioners were expected to write their own curse tablets: see *Tab. Sulis*, pp. 98-101.

[20] Compare *illeus* (genitive) in *RIB* 7. It is uncertain whether *ell[a]* in *Tab. Sulis* 4 and *ella* in *RIB* II.4, 2447.28(c) are actually demonstratives.

[21] *Britannia* 25 (1994), 293, No. 1.

[22] Väänänen (see above, n. 15), No. 78.

[23] The date maintained by *TLL* v.1, 43 (s.v. *de*), lines 30ff.

[24] Tab. Luguval. 24 (Britannia 29 (1998), 66), decem saga m[i]litaria.

[25] Tab. Vindol. II, 255, ussibus puerorum meorum mittas mihi sagacias sex saga [... pallio]la septem tu[nicas se]x. For this sense of puer, see the commentary and Adams' note in CQ 53 (2003), 564-5.

[26] *Tab. Sulis* 62, *la[enam] [pa]lleum sagum paxsam*; *Britannia* 26 (1995), No. 1 (Uley), *[ma]teriam sagi*. For the cloaks stolen at Bath, see *Tab. Sulis*, p. 80.

[27] For *Ri(g)omandus* compare the divine name *Ri(g)ocalat(i)* in *RIB* 1017.

[28] Vorvena, Vendicina and Ni(g)ella. The gender of *Vorvena*, despite its termination, is not certain, since *Vena* is found as a masculine cognomen at Arles (*CIL* xii 647).

[29] *Tab. Sulis*, pp. 95-8.

[30] *RIB* 132; *RIB* II.5, 2491.78. Despite the informal context, they are both correctly spelt, unlike *Iventius Sabinus* in *RIB* 187, for which see Adams (above, n. 12), 595.

ultimately Greek.[31] The other names are 'Celtic'. *Senilis*, *Vendicina*, *Regalis* and *Senicianus* are formally Latin cognomina, but they 'conceal' Celtic name-elements.[32] *Senedo*, which embodies the same element as *Senilis* and *Senicianus*, is wholly Celtic and shares its suffix with the previously unattested *Ruf<a>edo*.[33] The Celtic *Cunovendus* is well attested in Britain.[34] *Ri(g)omandus* is not previously attested, but both its elements are frequent in Celtic names; *Vorvena* and *Cennosus* likewise are not previously attested, but can be related to known Celtic names.[35]

23, *ant<a>e nonum diem*. With the significant exception of Tablet 2 (see below), 'nine days' is the usual deadline in British texts.[36]

24, *tollat*. The subject, the god Maglus, must be understood from line 1 above. The verb also occurs at Uley, where it is more specific, 'taking away' blood and health from a glove-thief: *ut illi sanguem [e]t sanitatem tolla[t] qui ipsos manicili[o]s tulit*.[37]

Tablet 2 (SF1887, context 5201, G744; Building G Room 30 – see Phase 4.6) - Figure 83

Irregular oblong, 123 by 69 mm, of sheet lead *c.* 1 mm thick, complete except for cracking in the lower right corner and some minor fraying at the edges. It was prepared by hammering, which has left curved indentations. The top edge was cut with a knife, but the others are original. It was never folded. It is overall in good condition, with no loss of text to corrosion, but the letters were only shallowly incised.

Inscribed on one face in Old Roman Cursive similar to that of Tablet 1, but much less neatly and in letters more elongated and rather cramped. There are six lines of text, but the first has been obscured by the second being written on top of it. The first line conforms to the irregular upper edge, and to some extent this is reflected in the other lines, but on the whole their axis is different. They run more or less parallel to each other, with the exception of 4, which is irregular. The beginning of 4 is clipped by the beginning of 5.

In view of the virtual erasure of line 1 by 2, and because the content of 1 (so far as it can be determined) is independent of 2-6, it seems that the scribe deliberately wrote 2 over 1, as if to start again. Certainly lines 2-6 make entire sense without 1.

Literal transcript[38]

u *traces* abhereo ilis res ir | r
quu[..]rgentios sabiniani fura
uerunt id est similis cupitus lochita
hos deus siderabit in hoc septiso
5 nio et peto ut vitam suam per
dant ante dies septem

[31] *Calaminus* from *Calamus* (Greek, '(reed) pen'); in Britain, see *RIB* II.7, 2501.113, *Calam[...]*. *Alocus* is perhaps cognate with the rare name *Alogiosa* found at Bath (*Tab. Sulis* 94, with note).

[32] *Vendicina* (properly *Vindicina*) is not attested, but like *Vindicianus* (I. Kajanto, *The Latin Cognomina* (Helsinki 1965), 363) is developed from *Vindex* (compare **uindo-* 'white'). The 'Vulgarism' of short *e<i* is commonplace, but for this name in particular, compare *vendicas* in *Britannia* 18 (1987), 360, No. 1 (London Bridge).

[33] For *Senedo* see *CIL* v 4719. The first element is **seno-* 'old'.

[34] *RIB* II.5, 2491.78; *Britannia* 2 (1971), 291, No. 14 = *RIB* III, 3477; *JRS* 58 (1968), 208, No. 20 = *RIB* III, 3232, *C[uno]vinda*.

[35] *Vorvena* to *Venna* (*CIL* xii 95 (Brigantio)), but note that *Vena* is found as a masculine cognomen (see above, n. 27). *Cennosus* to names with the element *cen-*, notably *Concennus* (*CIL* xii 3932 (Nîmes)) and the tribal name *Cenomanni*.

[36] *Tab. Sulis* 62.3, *ante dies novem*; *Britannia* 18 (1987), 360, No. 1 (London Bridge), *ante q(u)od ven(iant) die(s) novem*; *Britannia* 25 (1994), 296, No. 2 (Weeting with Broomhill), *ante dies nov[e](m)*. Compare *AE* 1929, 228 (Carnuntum), *infra dies nove(m)*.

[37] *Britannia* 27 (1996), 439, No. 1, citing inv. no. 2169 (d) 1 (unpublished) for *tollas illi medullas, sanguem, animam*.

[38] Letter by letter, but with word separated for greater clarity. Except for the space after *siderabit* (4), there is no sign of word-separation in the original. Dotted letters are incomplete or admitting of doubt.

*Notes on the re*AD*ing*

1. V is 'crossed out' by Q (2), and the next few letters are badly worn, perhaps by erasure. After ABH, the letters underlie line 2, but they can be distinguished because the sequence of strokes is visible on close examination. The last four letters (ESIR) run clear of line 2, with an isolated R below them which has been 'crossed out' by extending the diagonal stroke of the last letter (A) in line 3.

2. There is no sign of the loop of Q, but no other letter is possible. The gap which follows is due to a dent left by the hammering, which was difficult to inscribe; illegible traces remain. The diagonal stroke of the final A is sinuous and extended, as if to 'cross out' S and R in line 1.

3. The O of *Lochita* (see below) is now incomplete, and the C and T are hardly differentiated; but they can be distinguished by a difference in the second (upward) stroke. The diagonal stroke of A is extended, not only to mark the line-ending (there is something similar in lines 5 and 6), but also to 'cross out' the earlier and redundant R.

4. The initial H, of exaggerated size, is written over an uncompleted letter. The last letter of the line, O, is incompletely formed.

5. The first letter (N) is written over H in the line above, and overlaps OC. At first sight this is confusing, but the sequence of strokes can be distinguished on close examination, as in lines 1 and 2. The letters PET are followed by a space in which there is no trace of AT (for *petat*); instead, there is a half-loop like the V of *ut* just above, which seems to be an incomplete O (a difficult letter to complete in this medium; compare those in *Lochita* (3) and at the end of line 5). Further on, the A of *suam* cuts the descender of L in the line above.

6. The diminutive half-loop of the second D (in *dies*) is widely separated from its diagonal second stroke, which itself is ligatured to I.

Reconstructed text (lines 2-6 only)[39]

qu[i a]rgentios Sabiniani fura|verunt, id est Similis Cupitus Lochita, | hos deus siderabit in hoc septiso|nio, et peto ut vitam suam per|dant ante dies septem.

'Those who have stolen the silver coins of Sabinianus, that is Similis, Cupitus, Lochita, a god will strike down in this *septisonium*, and I ask that they lose their life before seven days.'

Commentary

1-2. British curse tablets often begin with an address to the god (*deo Mercurio*, etc.) or a verb of 'devotion' (*dono*, etc.), but the traces of line 1 are sufficient to exclude either possibility. The meaningful text begins in 2 with *qui*, like some of the Bath tablets.[40] Its antecedent *hos* follows in line 4, and confirms that lines 2-6 are self-contained.

2, *[a]rgentios*. Some British curse tablets refer to the stolen money as *denarii*, but others likewise refer to 'silver coins'.[41]

2, *Sabiniani*. This colourless Latin cognomen was introduced by Romans serving in Britain and entered the local name-stock: one of the Uley tablets is directed against 'Varianus and Peregrina and Sabinianus'.[42]

[39] With capitalization of proper names. [abc]: letters lost by damage.

[40] *Tab. Sulis* 4, 39, 40, 49(?).

[41] Tab. Sulis 8, [arge]ntiolos sex; 54, argentiolos duo; 98, s(e)x argente[o]s; Britannia 1997, No. 1 (Hamble estuary), argenti[olo]s sex.

[42] *RIB* 429 (an *actarius*), 1262 (a tribune), 2132 (the Procurator); II.1, 2409.6 (a legionary). *Britannia* 20 (1989), 329, No. 3 (Uley).

2-3, *fura|verunt*. The verb *involare* is usual in British texts, as in Tablet 1, but other instances of *furare* in the active voice, instead of the Classical deponent, are found at Bath and Weeting with Broomhill.[43]

3, *id est*. This bureaucratic cliché is also found at Bath.[44]

3, *Similis*. This Latin cognomen and its cognates are typical of Lower Germany and Britain, but especially frequent in Cologne and its vicinity, the territory of the Ubii. It has been suggested that they 'concealed' a German personal name.[45]

3, *Cupitus*. This Latin cognomen is well attested in Britain, and notably common in Celtic-speaking provinces, so it probably 'conceals' a Celtic name-element.[46]

3, *Lochita*. The name seems to be unattested, but is presumably a feminine derivative of Greek *Lochus*, which is borne by a slave and a freedman.[47]

4, *deus*. The 'god' is not stated, and *deus* may be a collective reference to the seven gods of the *septisonium* (see below), without the writer specifying or even knowing which of them would strike the actual blow. It is also something of a cliché, as in the phrase *deus inveniat* found at Bath and Uley.[48]

4, *siderabit* is the first instance of the active voice of the verb *siderare*, defined by the Oxford Latin Dictionary as 'to afflict with sudden paralysis'; hitherto it has occurred only in the past participle passive, *sideratus*. Medical and veterinary writers prescribe treatments for a paralytic stroke, *sideratio*, which the Dictionary defines as 'paralysis attributed to the influence of constellations' (*sidera*). When Ammianus Marcellinus describes the massive stroke suffered by the emperor Valentinian as being like a blow from heaven, he surely had this belief in mind.[49] So the seven 'stars' or planets of the *septisonium* (see below) are the natural agents of being 'struck by a star'. This seems to be the first instance of such a curse, although a violent love-charm from Hadrumetum invokes 'the seven stars' (*septem stellas*).[50]

The future indicative is not so much a prediction as a polite imperative, like *dabis* in the address of a letter, but in the third person; it is the only instance among British curse tablets, which usually address the deity more formally by means of the jussive present subjunctive.

4-5, *in hoc septiso|nio*. The meaning of this word, properly *septizonium* or *septizodium*, has been elucidated for the *septizonium* of Septimius Severus on the Palatine at Rome.[51] The best parallel is provided by an inscription from Lambaesis which records the restoration of a *septizonium* with statues, aqueduct and *nymphaeum*.[52] Two others are attested as public monuments, in an unnamed town of Africa

[43] Tab. Sulis 98, s(e)x argente[o]s furaverit; Britannia 25 (1994), 296, No. 2, [f]uravit su[st]ulit.

[44] *Tab. Sulis* 34. It should perhaps be restored in *Britannia* 30 (1999), 378, No. 3 (Marlborough Downs).

[45] A. Deman, 'A propos du nom *Similis*', in M. Dondin-Payre and M.-Th. Rapsaet-Charlier (eds.), *Noms, Identités culturelles et Romanisation sous le Haut-Empire* (2001), 649-65. For Britain in particular, see *ZPE* 149 (2004), 265-6, with a contribution by Lothar Schwinden.

[46] A. Holder, *Alt-celtischer Sprachschatz* (1896 -), s.v. *Cupitus* (etc.). Kajanto (see above, n. 31), 296, notes 79 examples out of 118 'in Celtic areas, (*CIL*) III V XII XIII', to which may be added the eight from Britain, including cognates: *RIB* 344 and 1988; *Britannia* 12 (1981), 369, No. 4 = *RIB* III, 3045; *Tab. Sulis* 77; *RIB* II.5, 2491.78; II.7, 2501.152; II.8, 2503.142; *Britannia* 38 (2007), 361, No. 28.

[47] *CIL* iii 1994 = *ILS* 1508 (Salonae); *AE* 1971, 58 (Rome).

[48] *Tab. Sulis* 44 and 99; *Britannia* 10 (1979), 344, No. 4 with *Britannia* 22 (1991), 307 (a) = Woodward and Leach (see above, n. 13), 123, No. 3.

[49] 30.6.3, tamquam ictus e caelo.

[50] A. Audollent, *Defixionum Tabellae* (Paris 1904), No. 270 (Hadrumetum). The belief is denounced by the Christian poet Commodianus, probably third-century and African, in *de septizonio et stellis* (*Instructiones* i 7, in *CCSL* 128 (ed. Martin), pp. 7-8), but he is not very informative.

[51] T. Dombart, s.v. *septizonium* in *Pauly-Wissowa RE* IIA, 1578ff. S.S. Lusnia, 'Urban Planning and Sculptural Display in Severan Rome: Reconstructing the Septizodium and Its Role in Dynastic Politics', *American Journal of Archaeology* 108 (2004), 517-44. Severus' younger contemporary Dio Cassius notes (37.18-19) that the Romans had 'recently' adopted the Egyptian practice of naming the days after the seven planets.

[52] *CIL* viii 2657 = *ILS* 5626.

Proconsularis, and in Sicily at Lilybaeum.[53] A *septizonium* was apparently a monumental façade incorporating statues of the seven planetary deities who gave their names to the days of the week: Sun and Moon, Mars, Mercury, Venus, Jupiter and Saturn. At Lambaesis, and probably elsewhere, it graced a public fountain.

So perhaps the tablet was written to be thrown into water, like those found in the Sacred Spring at Bath, but this cannot be deduced from the provenance. It was actually found in the backfill of a Roman robber trench associated with the 4th-century demolition of the courtyard-house and its gradual conversion into workshops and commercial units. The location of the Leicester *septisonium* is unknown, but since the town's water-supply entered from the opposite quarter, the south-east, it was probably quite near the central forum and the adjoining public baths.[54]

6, *ante dies septem*. 'Seven days' is also found in a curse from Carthage, *intra dies septe(m)*.[55] In Britain at least, the usual deadline was nine days: compare Tablet 1 above (where parallels are noted). But in the context of the *septisonium* and its seven deities who symbolised a week, 'seven days' was entirely appropriate.

[53] *CIL* viii 14372 = *ILS* 5076 (a gift to the town). *AE* 1964, 182 (the paving of 'Septizodium Square' at Lilybaeum, *plataea vici Septizodi*).

[54] J. Wacher, *The Towns of Roman Britain* (London 1995), 349-52.

[55] Audollent (see above, n. 49), No. 250.

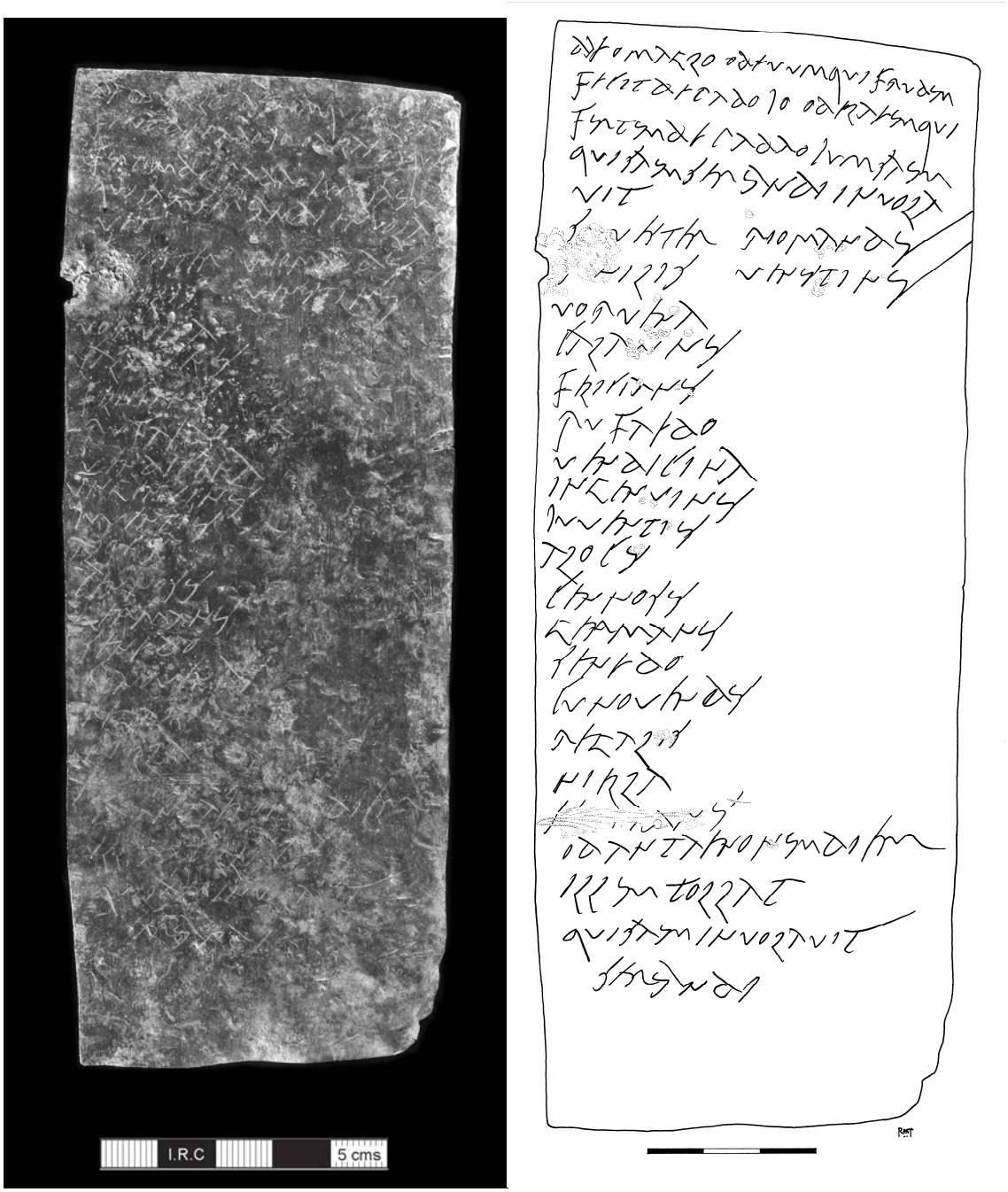


Figure 82: The Lead Curse Tablets: Tablet 1

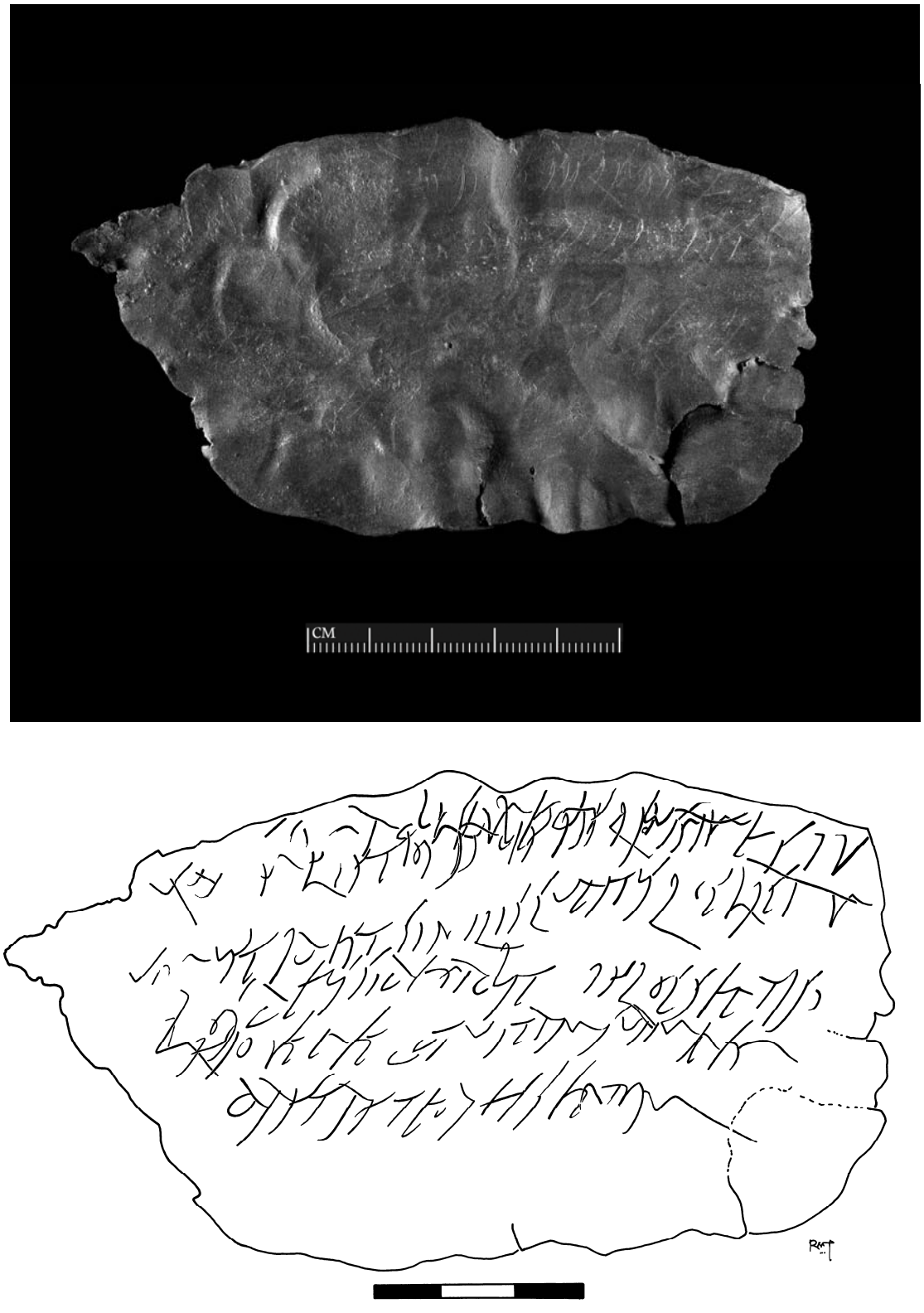


Figure 83: The Lead Curse Tablets: Tablet 2

THE ROMAN COINS *John A Davies*

Introduction

A total of 373 items from the four archaeological sites associated with the Highcross Leicester Retail Development Project and an adjacent site (Sanvey Gate) were inspected and studied for this report. Of these, 364 are Roman coins, 11 are post-Roman numismatic items and 3 are non-numismatic fragments. This excluded the 542 items recovered from the Vine Street Hoard which are treated separately.

Coin groups from the individual sites are summarised in Table 107. This shows the respective sizes of the groups and the Roman coins in each case.

Table 107: The Roman Coins: summary of number of items recorded on each site

	Roman Coins	Post-Roman items	Non-numismatic items
Vaughan Way (A2.2003)	34	1	0
East Bond Street (A5.2006)	7	2	1
Freeschool Lane (A8.2005)	87	3	0
Sanvey Gate (A21.2003)	16	1	0
Vine Street (A22/A24.2003)	220	4	2

Overview of the Vine Street collection (A22/A24.2003)

This is the largest individual site group (Table 108). It contains coins from the very early post-conquest period through to the end of Roman Britain (early 5th century) – see Table 112. The collection has some interesting features which distinguish it from the other sites.

The list starts with a strong group of early coins of the 1st and 2nd centuries. These include 17 *asses*, 5 *dupondii*, 3 *sestertii* and 5 *denarii*, which include 3 base examples. All of these earliest coins show a high degree of wear. The very earliest types are six regular and irregular *asses* and *dupondii* of the Claudian period. Such types are not common on all Romano-British sites and are frequently associated with an early military presence. The early bronzes also cover the reigns of Nero, Vespasian, Domitian, Nerva, Trajan, Hadrian and Faustina I.

One *denarius*, an issue of Manlia Scantilla (Cat. 31; SF 137), is of particular interest. Manlia Scantilla was wife of the emperor Didius Julianus, who ruled for just two full months in AD 193. Her coinage, all of which was produced at the mint of Rome, is excessively rare as site finds in Britain.

Another uncommon site find is the radiate of Valerian II (Cat. 13; SF 204). The later 3rd century coins present an interesting group overall, including a strong presence of thirteen Gallic Empire radiates and sixteen barbarous radiates.

Another strong episode of coin loss occurred in the mid- Constantinian period, between 330 and 348. Loss then remained strong through to the final years of the 4th century. Attention should be drawn to the irregular coinages of these later years. There are nine irregular *folles*, of the period from 341-6. There is then a notable presence of 'falling horseman' type irregular coins of 354-64. There are fourteen examples. These types are not always found in high numbers on Romano-British sites and it is noted that there were another eleven examples on site A8 2005.

The Valentinianic coinage is strongly represented, although many of the examples are very worn and only partly legible. The assemblage then exhibits a strong finish, through the 380s and 390s.

All together, this assemblage exhibits a high degree of wear. There is a high number of 22 very worn third or 4th century issues which cannot be closely identified at all. There are four post-Roman items. One is a possible post-medieval jetton. The others are halfpennies/farthings, also of the post-medieval period. Two of the items included for study are not coins.

Table 108: The Roman Coins: chronological distribution for Vine Street (A22/24.2003)

Issue	Period	No.	%
1	To AD 41	0	0
2a	41-54	1	0.5
2b	54-69	8	4.1
3	69-96	7	3.6
4	96-117	7	3.6
5	117-138	4	2.1
6	138-161	2	1.0
7a	161-180	1	0.5
7b	180-193	0	0
8	193-222	1	0.5
9a	222-238	0	0
9b	238-259	1	0.5
10	259-275	19	9.7
11	275-294	20	10.3
12	294-317	3	1.5
13a	317-330	7	3.6
13b	330-348	41	21.0
14	348-364	20	10.3
15a	364-378	39	20.0
15b	378-388	3	1.5
16	388-402	11	5.6
Total		195	
1st – 2nd century		3	
3rd – 4th century		22	
Post-Roman		4	
Non-numismatic		2	

Discussion

The five groups of coins from the Highcross Leicester sites comprise a substantial assemblage of 364 Roman coins. These can be added to the growing body of excavated coinage from the Roman town. Other substantial coin assemblages have come from Jewry Wall, with 762 (Pearce 1948) and The Shires, with 155.

Some common features can be seen across all five sites under consideration. Early Claudian coins are present at Vine Street (A22/24.2003) in common with both Jewry Wall and The Shires. A summary of the early coins of the Augustan coinage system, which lasted until AD 260, is presented in *Table 109*. *Asses* are shown to be the main early denomination deposited across the sites.

A strong late-3rd century presence is also observed across the sites. These coins include a high number of the irregular types, known as 'barbarous radiates'. There are also several British Empire radiates of Carausius and Allectus on A8 2005, A2 2003 and Vine Street (A22/24.2003).

The generally strong later 4th-century coin presence is strongest on A8 2005. Notable across the sites is the presence of a high number of 'falling horseman' irregular issues of the years 354-64. The Valentinianc coinage of the period 364-78 is also strongly represented. Coin loss continues strongly right through to the end of the 4th century on all of the sites.

The broad trends in the coin deposition on each of the sites can be compared by summarising them in four chronological phases. The phases in question are A (to AD 260), B (260-296), C (296-330) and D (330-402). The results are shown in Table 111. A breakdown of the identifiable mints represented within the late Roman coinage has been shown in Table 111. Nine mints have been recognised, with the dominant ones being Lyons, Trier and Arles.

Table 109: The Roman Coins: denominations of coins of the Augustan system present across the Highcross Leicester sites (combined)

Issue	Den	Sest	Dup	As	Dup/as
1	0	0	0	0	0
2a	0	0	1	0	0
2b	1	0	1	7	0
3	1	2	3	6	0
4	2	2	3	4	0
5	0	2	0	5	0
6	3	0	0	0	2
7a	2	1	0	0	0
7b	0	0	0	0	0
8	1	0	0	0	0
Total	10	7	8	22	2

Table 110: The Roman Coins: coin deposition as summarised by chronological phase

Phase	A2.2003	A5.2006	A8.2005	A21.2003	A22/A24.2003
Closely identifiable	31	6	64	15	195
	%	%	%	%	%
Phase A: Before AD 260	25.8	0	9.4	20.0	16.4
Phase B: 260-296	19.4	33.3	9.4	13.3	20.0
Phase C: 296-330	3.2	0	3.1	0	5.1
Phase D: 330-402	51.6	66.7	78.1	66.7	58.5

Table 111: The Roman Cons: sources of 4th-century coin found on the Highcross Leicester sites (Note: percentages are of identifiable mints, not of all coins)

Mint	294-317		317-330		330-348		348-364		364-378		378-388		388-402	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
London	2	40.0	0	0	0	0	0	0	0	0	0	0	0	0
Lyons	0	0	0	0	4	7.4	3	37.5	4	5.6	0	0	0	0
Trier	1	20.0	6	66.7	22	40.7	2	25.0	1	1.4	0	0	2	12.5
Arles	0	0	1	11.1	3	5.6	1	12.5	25	34.7	2	40.1	1	6.3
Rome	0	0	0	0	1	1.9	0	0	0	0	0	0	0	0
Ticinum	0	0	1	11.1	0	0	0	0	0	0	0	0	0	0
Aquileia	0	0	0	0	0	0	0	0	4	5.6	0	0	1	6.3
Siscia	0	0	0	0	1	1.9	0	0	2	2.8	0	0	0	0
Thessalonica	0	0	0	0	1	1.9	0	0	0	0	0	0	0	0
Uncertain	2	40.0	1	11.1	22	40.7	2	25.0	36	50.0	3	60.0	12	75.0
Total	**5**		**9**		**54**		**8**		**72**		**5**		**16**	
Irregular					11		27							

Table 112: The Roman Coins: catalogue of Roman coins from Vine Street. Listed by phase

Phase 2.2: Late 1st to early 2nd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
2	1766	G0787	Claudius	Irregular dupondius	AD 50-64	Obv Illeg.	Rev CERES AVGVSTA; SC	As RIC 1: 110	Rome		

Phase 2.4: Mid- 2nd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
4	1986	G0123	Claudius	Irregular as	AD 50-64	Obv [TI CLAV]DIVS CAE[SAR AVG PM TR P IMP]	Rev SC; Minerva				26mm
20	1965	G0100	Trajan	Sestertius	AD 98-99	Obv IMP CAES NERVA TRAIAN AVG GERM PM	Rev TR POT COS II; SC	RIC 2: 392			

Phase 2.5: Mid- 2nd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
7	1805	G1212	Nero	As	c.AD 66	Obv IMP NERO CAESAR AVG P MAX TR PP	Rev SC; Victory with shield	RIC 1: 542	Lugdunum		

Phase 3.1: Mid- to late 2nd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
10	1922	G1234	Vespasian	As	AD 71	Obv IMP CAESAR VESPASIAN AVG COS III	Rev SEC[VRITAS AVGVSTI]; SC in exergue	RIC 2: 500	Rome		
173	1085	G0789	Valentinian I	AE3	AD 364-78	Obv DN VALENTINIANVS PF AVG	Rev GLORIA ROMANORVM			G789 – contamination from G816 (Phase 4.7)	
193	1087	G0789	House of Theodosius	AE4	AD 388-93	Obv Illegible	Rev SALVS RE[IPVBLICAE]				

Phase 3.3: Late 2nd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
5	890	G0313	Claudius	Irregular as	AD 50-64	Obv IMP----; Bust r.	Rev Illeg.				23mm

Phase 3.5: Late 2nd to early 3rd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
197	588	G1388	Illegible and corroded	Sestertius/as	1st-2nd century						

Phase 3.6: Early 3rd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
19	1888	G0947	Nerva	As	AD 96-8	Obv Illeg.	Rev Illeg.				
147	1775	G0947	Valentinian I	AE3	AD 364-7	Obv DN VALENTINIANVS PF AVG	Rev GLORIA ROMANORVM	RIC 9: 7a	Arles	Contamination	

Phase 3.7: Early 3rd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
15	1791	G1063	Domitian	Dupondius	AD 86	Obv IMP CAES DOMIT AVG GERM COS XII CENS PER PP	Rev SC; Mars	RIC 2: 328	Rome		

Phase 3.8: Early to mid- 3rd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
3	1943	G1131	Claudius	Irreguar as	AD 50-64	Obv Illeg. Heavily corroded	Rev Minerva; SC				24mm
40	1941	G1127	Victorinus	Radiate	AD 268-70	Obv IMP C VICTORINVS [PF AVG]	Rev SALVS AVG	Elmer 697	Cologne		

Phase 3.9: Early to mid- 3rd century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
25	326	G0505	Hadrian	As	AD 117-38	Obv HADRIANVS AVGVSTVS	Rev Illeg; SC. Virtus standing right				

Phase 4.1: Late 3rd to early 4th century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
199	309	G0526	Illeg. and corroded	AE2	3rd-4th century	Incomplete coin					
200	320	G0526	Illeg. and heavily corroded	AE3	3rd-4th century						

Phase 4.6: Mid- 4th century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
1	1116	G1288	Claudius	Dupondius	AD 50-64	Obv TI CLAVDIVS CAESAR AVG PM TR [P IMP PP]	Rev [CERES AVGVST]A; [SC]	RIC 1: 110	Rome		
27	803	G0514	Hadrian	As	AD 117-38	Obv Illeg. Almost smooth.	Rev Illeg. Smooth.				
29	1510	G0224	Faustina I, deified	Denarius	AD 141-61	Obv DIVA FAVSTINA	Rev AETERNITAS; Providentia stg l., holding globe		Rome	Non-hoard coins within backfill above	

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
38	1373	G0224	Quintillus	Radiate	AD 270	Obv [IMP Q]VINTILLVS AVG	Rev S---- AVG		Rome	coin hoard, possible evidence of disturbance of hoard	
44	1142	G0224	Tetricus I	Radiate	AD 270-4	Obv Illeg.	Rev [P]AX AV[G]; vert. sc.				
79	1104	G0224	Constantine II	Follis	AD 326	Obv [CONSTAN]TINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 479	Trier		
105	1392	G0732	Constantine II	Follis	AD 317-40	Obv [CONSTAN]TINVS IVN NOB C; partly corroded	Rev Heavily corroded				
159	1112	G0224	Valens	AE3	AD 375-8	Obv DN VALENS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 18b	Arles	Non-hoard coins within backfill above coin hoard	
209	1509	G0224	Illegible	AE4	AD 270-400						

Phase 4.7: Mid- to late 4th century AD

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
17	1101	G1276	Nerva	Plated denarius	AD 97	Obv ----AVG PM----	Rev Illeg. Sacrificial implements	As RIC 2: 23	Rome		
61	1441	G1035	Tetricus II	Barbarous radiate	AD 270-84	Obv Illeg.	Rev [PIETAS AV]GG; Ewer				15mm
67	1440	G1035		Barbarous radiate	AD 270-84		Rev Mars			Angular flan	16mm
113	1857	G0816	House of Constantine	Irregular follis	AD 341-6	Obv Illegible	Rev GLORIA EXERCITVS; 1 st.		As Lyons		13mm
114	1077	G1015	House of Constantine	Irregular follis	AD 341-6	Obv Illegible	Rev GLORIA EXERCITVS; 1 st.				11mm
190	1872	G0816	House of Theodosius	AE4	AD 388-95	Obv Illegible	Rev [VICTORIA AVGGG]				
191	1854	G0816	House of Theodosius	AE4	AD 388-95	Obv ----PF AVG	Rev [VICTORIA AVGGG]				
194	1858	G0816	Arcadius	AE4	AD 392-95	Obv DN ARC----	Rev VICTORIA AVGGG	RIC 9: 107b	Trier		
216	1096	G0816	Illegible	AE4	AD 335-400						
217	1439	G1035	Illegible	AE4	AD 330-400						
218	1758	G1031	Illegible	AE4	AD 340-400						
219	1911	G0816	Illegible	AE4	AD 354-400						

Phase 8.1: AD *c.*1100-1200 (Roman coins redeposited in medieval contexts)

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
11	355	G0614	Vespasian	As	AD 72	Obv IMP CAESAR VESPASIAN AVG COS IIII	Rev SC; eagle on globe	BMC 2: 822	Lugdunum		
65	795	G0414		Barbarous radiate	AD 270-84						12mm
85	503	G0234	Constantius II	Follis	AD 324-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 290	Arles		
91	501	G0234	Constantine II	Follis	AD 330-5	Obv CONSTANTINVS IVN NOB C	Rev [CLOR]IA EXERCITVS; 2 st.				

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
120	507	G0234	House of Constantine	Follis	AD 347-8	Obv Illegible	Rev VICTORIAE DD AVGG Q NN	As RIC 8: 65	Lyons		
122	503	G0234	Constans	Follis	AD 347-8	Obv CONSTANS PF AVG	Rev VICTORIAE [DD AVGG Q NN]				
148	449	G0738	Gratian	AE3	AD 367-75	Obv DN G[RATIANVS AVGG A]VG	Rev GLORIA [NOVI SAECVLI]	RIC 9: 15	Arles		
149	450	G0738	Gratian	AE3	AD 367-75	Obv DN GRATIAN[VS AVGG AVG]	Rev GLORIA NOVI SAECVLI	RIC 9: 15	Arles		
170	710	G0556	Valentinian I	AE3	AD 364-78	Obv DN VALE[NTINIANVS PF AVG]	Rev [GLORIA ROMANORVM]				
188	794	G0414	House of Theodosius	AE4	AD 388-95	Obv Illeg.	Rev VIC[TORIA AVGGG]				
202	765	G0565	Illeg. and corroded coin fragment.	3rd-4th century							

Phase 8.2: AD *c.*1100-1250 (Roman coins redeposited in medieval contexts)

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
58	304	G0666	Tetricus I	Barbarous radiate	AD 270-84	Obv ----TETRICVS----	Rev SA[LV]S AVG				19mm
59	897	G0562	Tetricus I	Barbarous radiate	AD 270-84	Obv ----ESTE---CVS	Rev Spes				19mm
180	1105	G1043	Valens	AE3	AD 364-78	Obv DN VALEN[S PF AVG]	Rev SECVRITAS REIPVBLICAE				
181	1764	G0260	Gratian	AE3	AD 364-78	Obv DN GRATIANVS PF AVG	Rev SECVRITAS REIPVBLICAE				
195	1995	G0883	House of Theodosius	AE4	AD 390-400	Obv Draped, helmeted bust of Roma l.	Rev XV in wreath	As RIC 9: 110 but bronze	Trier		
210	1924	G0664	Illegible and corroded.	AE3/4	AD 270-400						

Phase 9.1: AD *c.*1250-1400 (Roman coins redeposited in medieval contexts)

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
30	1091	G0642	Faustina II	Base denarius	AD 161-76	Obv FAVSTINA AVGVSTA	Rev IVNONI REGINAE	As RIC 3: 694			
47	760	G0563	Tetricus I	Radiate	AD 270-4	Obv Illeg. and corroded	Rev LA[ETITIA AVG]G	Elmer 787	Trier		
66	542	G0753		Barbarous radiate	AD 270-84		Rev Faint figure			Thin, sub-oval flan.	17mm
71	442	G0837	Carausius	Radiate	AD 287-93	Obv ----G	Rev SE----; otherwise illegible.				
111	2026	G1292	House of Constantine	Irregular follis	AD 341-6	Obv VRBS ROMA	Rev Wolf and twins				13mm
142	935	G0563	Illeg.	AE4	AD 335-364						
151	719	G0642	Gratian	AE3	AD 367-75	Obv DN GRATIANVS AVGG AVG	Rev GLORIA NOVI SAECVLI	RIC 9: 15	Arles		
161	936	G0563	Valens	AE3	AD 364-78	Obv [DN VA]LENS PF AVG	Rev GLORIA ROMANORVM		Arles		

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
198	1034	G1050	Illegible	As	1st-2nd century						

Phase 9.2: AD *c.*1300-1400 (Roman coins redeposited in medieval contexts)

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
182	1010	G0734	Gratian	AE2	AD 378-83	Obv DN GRATIAN[VS PF AVG]	Rev REPARATIO REIPVB	RIC 9: 20a	Arles		
211	2016	G0885	Illegible. Very thin and worn.	AE4	AD 275-400						

Phase 13: AD *c.*1750-1900 (Roman coins redeposited in early modern contexts)

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
68	603	G0633	Probus	Radiate	AD 276-82	Obv IMP C PROBVS PF AVG	Rev TEMPORVM FELICITAS	RIC 5: 53	Lyons		
178	491	G0689	House of Valentinian	AE3	AD 364-78	Obv Illeg. and corroded	Rev [SECVRITAS REIPVBLICAE]				

Phase 14: AD *c.*1900- present (Roman coins redeposited in 20th-century contexts)

Cat.	Small find	Group number	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
24	258	G1414	Hadrian	Sestertius	AD 117-38	Obv Illeg.	Rev Illeg. Smooth.				
96	256	G1414	Constans	Follis	AD 335-6	Obv [CONSTANS] PF AVG	Rev GLORIA EXERCITUS; 1 st.	RIC 8: 57	Thessalonica		

Unstratified coins recovered from above Areas 1 and 2 during the general site strip

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
12	121	Vespasian	As	AD 69-79	Obv ----ASIANVS AVG----	Rev [PROVIDEN] SC; altar				
14	159	Domitian	Sestertius	AD 81-96	Obv Illeg.	Rev Illeg. Very worn.				
18	100	Nerva	Dupondius	AD 96-8	Obv [IMP NERVA C]AES AVG PM TR----	Rev Illeg. and smooth. Female figure standing left; SC				
23	191	Trajan	As	AD 98-117	Obv Illeg. Smooth	Rev Illeg. Female figure standing left.				
31	137	Manlia Scantilla	Denarius	AD 193	Obv [MANL SCANTIL]LA AVG	Rev IVNO REGINA	As RIC 4: 7a	Rome		
33	143	Gallienus	Radiate	AD 260-8	Obv GALLIENVS AVG	Rev [IOVI CO[NSER[VAT]	RIC 5: 210	Rome		
35	133	Claudius II	Radiate	AD 268-70	Obv Illeg.	Rev [VIRTVS] AVG				
43	139	Tetricus I	Radiate	AD 270-4	Obv [IMP C TETRICVS PF AVG]	Rev [PAX AVG]	Elmer 771	Cologne		

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
46	169	Tetricus I	Radiate	AD 270-4	Obv IMP C TETRICVS PF AVG	Rev [SALVS AVGG]	Elmer 779	Cologne		
48	128	Tetricus I	Radiate	AD 270-4	Obv ----VS PF AVG	Rev Illeg.				
49	102	Tetricus II	Radiate	AD 270-4	Obv C PIV ESV TETRICVS CAES	Rev SPES A[VGG]	Elmer 791	Trier		
50	190	Tetricus II	Radiate	AD 270-4	Obv Illeg.	Rev [SPES ----]				
55	138	Tetricus I	Barbarous radiate	AD 270-84	Obv IM[P C TETRICV]S PF AVG	Rev. [PAX] AVG				18mm
62	129	Tetricus II	Barbarous radiate	AD 270-84	Obv ----CVS CAV	Rev Very faint figure.				17mm
63	116		Barbarous radiate	AD 270-84		Rev Crude Virtus derivative				12mm
64	123		Barbarous radiate	AD 270-84						17mm
72	179	Constantine I	Follis	AD 310	Obv IMP CONSTANTINVS PF AVG	Rev SOLI INVICTO COMITI	RIC 6: 121a	London		
80	168	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier		
82	134	Constantine I	Follis	AD 330-1	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 525	Trier		
84	109	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier		
88	110	Constantius II	Follis	AD 330-5	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.				
89	130	House of Constantine	Follis	AD 330-5	Obv Illeg.	Rev GLORIA EXERCITVS; 2 st.				
94	141	Constantine II	Follis	AD 335-7	Obv CONSTANTINVS IVN NC	Rev GLORIA EXERCITVS; 1 st.	RIC 7: 591	Trier		
97	142	House of Constantine	Follis	AD 335-40	Obv Illeg.	Rev [GLORIA EXERCITVS]; 1 st.				
98	144	House of Constantine	Follis	AD 335-40	Obv Illeg.	Rev GLORIA EXERCITVS; 1 st.				
99	145	Constantine II	Follis	AD 335-40	Obv CONSTAN[TINVS IVN] NOB C	Rev [GLORIA EXERCITVS]; 1 st.				
100	171	Constantine II	Follis	AD 335-40	Obv CONSTANTINVS IV----	Rev [GLORIA] EXER[CITVS]; 1 st.				
103	101	Helena	Follis	AD 337-40	Obv FL IVL HELENAE AVG	Rev PAX PVBLICA				
104	178	Helena	(Incomplete) Follis	AD 337-40	Obv FL IVL H[ELENAE AVG]	Rev [PAX PVBLICA]				
106	111	Constantine I	Irregular follis	AD 341-6	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	As RIC 7: 518	Trier		15mm
108	125	VRBS ROMA	Irregular follis	AD 341-6	Obv ----STAN----	Rev Wolf and twins	Rev as RIC 7: 524	Trier		15mm
109	146	House of Constantine	Irregular follis	AD 341-6	Obv [VRBS ROMA]	Rev Wolf and twins				14mm
116	132	Constantius II	Follis	AD 347-8	Obv [CONSTANTI]VS PF AVG	Rev [VICTO]RIAE DD AVGG Q NN	RIC 8: 194	Trier		
117	154	Constans	Follis	AD 347-8	Obv CONSTANS PF AVG	Rev VICTORIAE DD AVGG Q NN	RIC 8: 195	Trier		
123	122	Constans	AE2	AD 348-50	Obv DN CONSTANS PF AVG	Rev FEL TEMP REPARATIO; hut	RIC 8: 86	Lyons		

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
125	108	Magnentius	Irregular AE2	AD 350-3	Obv DN MAGNENTIVS FP AVG	Rev SALI DD NNN AVG ET [CAES]; Chi Rho	As RIC 8: 318	Trier	Good style but legends blundered and small	22mm
128	106	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				14mm
129	117	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				12mm
130	120	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				13mm
131	124	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				17mm
132	135	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				16mm
133	160	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				12mm
134	161	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				12mm
144	103	Valens	AE3	AD 367-75	Obv DN VALEN[S PF AVG]	Rev GLORIA ROMANORVM	RIC 9: 20b	Lyons		
152	170	Valentinian I	AE3	AD 367-75	Obv DN VALENTINIANVS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC : 17a	Arles		
156	182	Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 17b	Arles		
165	107	Valentinian I	AE3	AD 364-78	Obv DN VALENTINIANVS PF AVG	Rev [GLORIA ROMANORVM]				
166	189	Valens	AE3	AD 364-78	Obv DN VALENS PF AVG	Rev GLORIA ROMANORVM				
174	104	House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev SECVRITAS REIPVBLICAE				
175	131	House of Valentinian	Incomplete AE3	AD 364-78	Obv Legend missing	Rev [SECVRITAS REIPVBLICAE]				
176	140	Valens	AE3	AD 364-78	Obv DN VALENS PF AVG	Rev SECVRITAS REIPVBLICAE		Arles		
196	136	Illegible. Very worn base	Denarius.	1st-2nd century						
203	119	Illeg. and corroded	AE3	AD 260-400						
205	153	Illeg.	AE4	AD 270-400						

Unstratified coins recovered from Area 2

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
51	773		Radiate	AD 270-4	Obv ----TRICVS----	Rev ----G				
140	738	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				10mm
160	705	Valentinian I	AE3	AD 375-78	Obv DN VALENTINIANVS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 18c	Arles		
169	706	Valentinian I	AE3	AD 364-78	Obv [DN VAL]ENTINIANVS PF AVG	Rev GLORIA ROMANORVM				
177	877	House of Valentinian	AE3	AD 364-78	Obv DN VALEN----	Rev [SECVRITAS REIPVBLICAE]				

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
183	876	Gratian	AE4	AD 378-83	Obv [DN] GRA[TIAN]VS PF AVG	Rev VOT/XV/MVLT/XX				
201	729	Illeg.	Very corroded AE3	3rd-4th century						
213	708	Illegible	AE4	AD 275-400						

Unstratified coins recovered from above Area 3 during the general site strip

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
13	337	Vespasian	As	AD 69-79	Obv ----IAN----	Rev Illeg. and smooth. Female figure standing left.; SC				
26	360	Hadrian	As	AD 117-38	Obv Illeg.	Rev Illeg.; figure stg. left.				
32	204	Valerian II	Radiate	AD 253-60	Obv Illeg.	Rev [CONSECRATIO]; altar	As RIC 5: 24	Rome	Third of flan missing.	Pierced
37	208	Claudius II, deified	Radiate	AD 270	Obv DIVO CLAV[DIO]	Rev CONSECRATIO; altar	RIC 5: 257			
42	215	Tetricus II	Radiate	AD 270-4	Obv [C PIV ESV TET]RICVS CAES	Rev [SPES PVBL]ICA	Elmer 769	Cologne		
56	236	Tetricus I	Barbarous radiate	AD 270-84		Rev ITX --- (Pax Aug)				17mm
57	240	Tetricus I	Barbarous radiate	AD 270-84					Very thin flan.	23mm x 18mm
74	340	Constantine I	Follis	AD 313-17	Obv CONSTANTINVS PF AVG	Rev SOLI INVICTO COMITI				
76	241	House of Constantine	Follis	AD 320	Obv CONSTA----	Rev CONSTANT----IC; VOT/XX		Trier		
83	219	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 527	Trier		
86	218	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 337	Rome		
87	209	Constantine II	Follis	AD 334-5	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERC[ITVS]; 2 st.	RIC 7: 236	Siscia		
90	341	Constantine II	Follis	AD 330-5	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.				
93	222	Constantine II	Follis	AD 335	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCI[TVS]; 1 st.	RIC 7: 271	Lyons		
101	220	House of Constantine	Follis	AD 335-40	Obv CONSTANTI----	Rev [GLORIA] EXERCITVS; 1 st.				
102	235	House of Constantine	Follis	AD 335-40	Obv Illeg.	Rev [GLORIA EXERCITVS]; 1 st.				
107	212	House of Constantine	Irregular follis	AD 341-6	Rev GLORIA EXERCITVS; 2 st.	14mm				
115	211	Constans	AE3	AD 347-8	Obv [CONSTAN]S PF AVG	Rev VICTORIAE DD AVGG Q NN	RIC 8: 186	Trier		
118	214	Constans	Follis	AD 347-8	Obv CONSTANS PF AVG	Rev VICTORIAE DD AVGG Q NN	RIC 8: 196	Trier		
124	216	Magnentius	AE2/3	AD 350-3	Obv [DN M]AGNENTIVS PF AVG	Rev GLORIA ROMANORVM	RIC 8:109	Lyons		19mm
135	210	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				12mm
136	243	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				14mm

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
137	244	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				15mm
138	311	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				14mm
139	361	House of Constantine	Irregular	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman				13mm
141	207	Illeg.	AE2	AD 350-64						
143	224	Valens	AE3	AD 364-7	Obv DN VALENS [PF AVG]	Rev GLORIA ROMANORVM	As RIC 9: 10b	Lyons		
145	203	Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 21a	Lyons		
157	221	Valens	AE3	AD 367-75	Obv DN [VALEN]S PF AVG	Rev GLORIA ROMANORVM	RIC 9: 17b	Arles		
164	312	Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev GLORIA ROMANORVM	RIC 9: 11b	Aquileia		
167	223	Valentinian I	AE3	AD 364-78	Obv DN VALENTINIANVS PF AVG	Rev [GLORIA ROMANORVM]				
168	359	Gratian	AE3	AD 364-78	Obv DN [GRATIANVS] AVGG AVG	Rev GLORIA ROMANORVM				
185	343	Honorius	AE4	AD 388-93	Obv DN HONORIVS PF AVG	Rev SALVS REIPVBLICAE	RIC 9: 58d	Aquileia		
187	213	House of Theodosius	AE4	AD 388-95	Obv Illeg.	Rev VICTORIA AVGGG				
192	217	House of Theodosius	AE4	AD 388-94	Obv Illeg.	Rev SALVS REIPVBLICAE				
204	342	Illeg.	AE3	AD 260-400						

Unstratified coins recovered from above Area 4 during the general site strip

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
6	1793	M. Agrippa	Irregular as	AD 50-64	Obv [M AGRIPPA L F COS III]	Rev SC; Neptune	As RIC 1: 58	Rome		24mm
8	403	Nero	As	AD 54-68	Obv ----D CAESAR----	Rev Illeg.				
9	1970	Nero	As	AD 54-68	Obv ----NERO CAESAR----	Rev Illeg.; SC; standing figure visible				
16	1876	Domitian	Plated denarius	AD 81-96	Obv Illeg. and corroded	Rev Illeg. and corroded				
21	444	Trajan	Dupondius	AD 98-117	Obv ----NERVA TRAIAN AVG G----	Rev Illeg. Smooth reverse				
22	427	Trajan	As	AD 98-117	Obv Illeg.	Rev Illeg. Very worn – almost smooth.				
28	432	Faustina I	Dupondius/as	AD 141-61	Obv DIVA [FA]VSTINA	Rev [AETER]NITAS; SC	BMC 4: 1542	Rome		
34	1029	Gallienus	Radiate	AD 260-8	Obv [GALLIENVS AVG]	Rev [IOVI CO]NSE[RVAT]	RIC 5: 210	Rome		
36	1878	Claudius II	Radiate	AD 268-70	Obv ----LAVD----	Rev ----AVG; figure with staff/sceptre				
39	410	Victorinus	Radiate	AD 268-70	Obv IMP C VICTORINVS PF AVG	Rev PAX AVG	Elmer 682	Cologne		

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
41	408	Victorinus	Radiate	AD 268-70	Obv [IMP] C VICTO[RINVS PF AVG]	Rev VIRTVS AV[G]	Elmer -	Cologne		
52	433	Victorinus	Barbarous radiate	AD 270-84	Obv Illeg. Radiate bust	Rev Invictus			Peardrop shaped flan.	18mm x 13mm
53	1046	Victorinus	Barbarous radiate	AD 270-84	Obv Illeg.	Rev [PA]X A[VG]				17mm
54	1792	Victorinus	Barbarous radiate	AD 270-84	Obv IMP C VICTORINVS [PF AVG]	Rev PIE[TAS] AVG				18mm
60	1391	Tetricus II	Barbarous radiate	AD 270-84	Obv Illeg. Beardless portrait	Rev [SA]LVS AVG[G]				19mm
69	1875	Carausius	Radiate	AD 287-93	Obv IMP CARAVSIVS----	Rev PAX AVG	As RIC 5: 101	London		
70	406	Carausius	Radiate	AD 287-93	Obv Illegible and corroded	Rev Illegible and corroded. Pax holding vertical sceptre.				
73	1082	Constantine I	Follis	AD 310	Obv [IMP] CONSTANTINVS AVG	Rev SOLI INVICTO COMITI	As RIC 6: 125	London		
75	1757	Constantine I	Follis	AD 318-19	Obv IMP CONSTANT[INVS AVG]	Rev [VICTORIAE LAETAE PRINC PERP]	RIC 7: 83	Ticinum		
78	579	Helena	Follis	AD 324-5	Obv [FL HELENA] AVGVSTA	Rev [SECVRITAS] REIPVBLICE	RIC 7: 458	Trier		
92	435	House of Constantine	Follis	AD 330-5	Obv [VRBS ROMA]	Rev Wolf and twins				
95	576	House of Constantine	Follis	AD 336	Obv Illegible	Rev [GLORIA EXERCITVS]; 1 st.	As RIC 7: 394	Arles		
110	434	House of Constantine	Irregular follis	AD 341-6	Obv VRBS ROMA	Rev Wolf and twins				10mm
112	1056	House of Constantine	Irregular follis	AD 341-6	Obv CONSTANTINOPOLIS	Rev Victory on prow				15mm
121	416	Constans	AE3	AD 347-8	Obv CONSTANS PF AVG	Rev [VICTORIAE] DD A[VGG Q NN]; Faint strike				
126	1061	Constantius II	AE3	AD 353-55	Obv DN CONSTANTIVS [PF AVG]	Rev FEL TEMP REPARATIO; falling horseman	RIC 8: 189	Lyons		
146	1106	Valentinian I	AE3	AD 364-7	Obv DN VALENTINIANVS PF AVG	Rev GLORIA RO[MANORVM]	RIC 9: 7a	Arles		
153	412	Valentinian I	AE3	AD 367-75	Obv DN VALENTINIANVS PF AVG	Rev SECVRITAS REIPVBLICAE	As RIC 9: 17a	Arles		
154	1055	Valentinian I	AE3	AD 367-75	Obv DN VALENTINIANVS PF AVG	Rev SECVRITAS REIPVBLICAE	As RIC 9: 17a	Arles		
162	1060	Valens	AE3	AD 364-78	Obv DN VALENS [PF AVG]	Rev SECVRITAS REIPVBLICAE		Lyons or Arles		
163	414	Valentinian I	AE3	AD 367-75	Obv DN VALENTINI[ANVS PF AVG]	Rev GLORIA ROMANORVM	RIC 9: 14a	Siscia		
171	407	Valentinian I	AE3	AD 364-75	Obv [DN] VALENTINIANVS [PF AVG]	Rev [GLORIA ROMANORVM]				
172	415	Valens	AE3	AD 364-78	Obv ---VAL---	Rev GLORIA RO[MANORVM]				
179	523	House of Valentinian	AE3	AD 364-78	Obv Illegible	Rev [SECVRITAS REIPVBLICAE]				
184	1057	Illegible	AE4	AD 378-83	Obv Illegible	Rev VOT/XV/MVLT/XX				
189	409	House of Theodosius	AE4	AD 388-95	Obv DN ----	Rev VICTORIA AVGGG				
206	404	Illegible. Worn smooth.	AE3	AD 270-400						
207	436	Illegible and heavily corroded.	AE3	AD 260-400						

Cat.	Small find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
208	1103	Illegible and corroded.	AE2	AD 260-400						
214	411	Illegible	AE4	AD 335-400						
215	413	Illegible	AE4	AD 335-400						
220	405	Illegible	AE3	3rd-4th century						

Unstratified coins recovered from the Burgess Street evaluation

Small find	Tr.	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Note	Size
3	1A	Illegible	Unknown	Late 4th century	4th century bust right	Irregular copy - ??Fel Temp Reparatio fallen Horsemen				
4	4A	Illegible	As or Dupondius	1st/2nd century	Bust right	Illegible				
6	1A	Diocletian	Antoninianus	AD 284-294	]DIOCLET[ ] Radiate bust right	Illegible				
7	1A	Illegible	Unknown	Unknown	Illegible. Bare-headed bust right?	Illegible				
8	1A	Illegible	Antoninianus	Late 3rd century	Radiate bust right	Illegible				
12	1A	Valentinian I or Valens	Unknown	AD 364-367	DN VALEN[] bust right	SECVRITAS REPVBLICAE				
14	1B	?Tetricus II	Unknown	AD 270-273	Radiate bust right	Illegible ?figure standing				

Non-coins

Cat.	Small find	Group	Phase	Description
-	177	Unstratified (Area 1/2)		Not a Roman coin. Broken Copper alloy disc
-	310	G526	4.1	Not a Roman coin. Thick corroded disc. Very light. Button?

THE ROMAN COIN HOARD *John A Davies*

Introduction

The Vine Street hoard (G224 – Phase 4.6) coins seen number 525. They have a chronological range of between AD 320 and the early 330s. A full catalogue of identifications accompanies this report (Table 115). To these can be added 17 hoard coins that were given basic identifications during the assessment stage but which have not been available for more detailed study at the report stage (Table 116). Their assessment identifications have also been provided in the catalogue. The complete hoard total stands at 542 coins.

Composition of the hoard

The coins consist of 542 *folles*. The earliest issues were minted in AD 320 and the latest that can be dated belong to AD 332-3. The overall condition of the coins is good, allowing all but 18 (3.3%) to be closely identified to their mint of origin.

The majority of the coins were minted in the earlier part of the thirteen year period, as shown in Table 113, where the coins have been separated into three chronological phases. This shows that 49.1% were produced from 317-324, 33.7% from 324-330 and 17.2% from 330-335.

Table 113 also provides an examination of the mint distribution, broken down into the three phases. Ten mints are represented overall. Trier is the dominant mint throughout, providing 64.9% of all coin in the hoard. In the earliest phase, Trier was followed by Lyons, London and Arles. In the second phase, London and Arles were second and third, with Lyons dropping down in importance. In the third period, Lyons and Arles are second and third.

Table 114 provides a breakdown of coin numbers allocated to each of the eight rulers represented, mint by mint. Most coins were minted under Constantine I, followed by Constantine II and then Crispus.

Date of burial

The latest coins in the hoard which can be securely dated were minted in AD 332-3, of which there are 39. It must be noted that there are nine partly legible coins that have been dated more broadly to the period AD 330-5. However, it seems reasonable to suggest that the hoard was deposited around AD 333, or shortly thereafter.

Some sixty hoards are known from across Britain which were buried between the years AD 330-337 (Robertson 2000). These come from right across the country, with no significant geographical clusters. The Leicester Vine Street hoard can be added to this corpus of mid- 4th-century British hoards.

Note: There are 9 coins contained within G224 which must be considered intrusive to the hoard. These coins are listed separately, at the end of the hoard catalogue, as an *addendum* (Table 117). The hoard itself is a tight, cohesive, group of coins. The other 9 issues span the period from AD 141 to the end of the 4th century.

Table 113: The Roman Coin Hoard: geographical distribution of the identified mints

Mint	AD 317-324		AD 324-330		AD 330-335		All	
	No.	%	No.	%	No.	%	No.	%
London	25	59.5	17	40.5	0	0	42	8.3
Lyons	43	61.4	5	7.1	22	31.4	70	13.8
Trier	148	45.0	121	36.8	60	18.2	329	64.9
Arles	17	44.7	16	42.1	5	13.2	38	7.5
Rome	6	85.7	1	14.3	0	0	7	1.4
Ticinum	5	83.3	1	16.7	0	0	6	1.2
Aquileia	1	100.0	0	0	0	0	1	0.2
Siscia	4	57.1	3	42.9	0	0	7	1.4
Thessalonica	0	0	4	100.0	0	0	4	0.8
Heraclea	0	0	3	100.0	0	0	3	0.6
Total	**249**	**49.1**	**171**	**33.7**	**87**	**17.2**	**507**	

Table 114: The Roman Coin Hoard: distribution of coins by depicted ruler and mint

Ruler	London	Lyons	Trier	Arles	Rome	Tricinum	Aquileia	Siscia	Thessalonica	Heraclea	Uncertain	Total
Constantine I	8	26	143	12	4	4	0	5	2	1	8	213
Constantine II	19	9	67	13	0	0	0	1	1	1	2	113
Crispus	13	16	37	5	3	1	1	0	1	0	6	83
Constantius II	0	6	22	2	0	0	0	0	0	1	0	31
Fausta	1	0	9	0	0	1	0	0	0	0	1	12
Helena	0	1	13	1	0	0	0	0	0	0	1	16
Licinius	0	0	0	2	0	0	0	0	0	0	0	2
Licinius II	0	0	0	0	0	0	0	1	0	0	0	1
House of Constantine	1	12	38	3	0	0	0	0	0	0	17	71

Table 115: The Roman Coin Hoard: catalogue of Roman coins from the primary hoard spreads within G224 (Phase 4.6).

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
1	1684	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev VIRTVS EXERCIT; VOT/XX	RIC 7: 191	London	
2	1607	Constantine II	Follis	AD 320-1	Obv CONSTANTINVS IVN NC	Rev VIRTVS EXERCIT	RIC 7: 198	London	
3	1694	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 219	London	
4	1380	Crispus	Follis	AD 321-2	Obv CRISPVS NOBIL C	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 230	London	
5	1674	Constantine II	Follis	AD 321-2	Obv CONSTANTINVS IVN NC	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 237	London	
6	1491	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 255	London	
7	1739	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 255	London	
8	1168	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NC	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 257	London	
9	1577	Constantine II	Follis	AD 322-23	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS	RIC 7: 259	London	
10	1712	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NC	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 259	London	
11	1407	House of Constantine	Follis	AD 323-4	Obv Illeg.	Rev BEAT TRANQLITAS; VOT/IS/XX	As RIC 7: 261	London	
12	1592	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AG	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 269	London	
13	1709	Crispus	Follis	AD 323-4	Obv CRISPVS NOBIL C	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 274	London	
14	1625	Crispus	Follis	AD 323-4	Obv CRISPVS NOBIL C	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 275	London	
15	1725	Crispus	Follis	AD 323-4	Obv CRISPVS NOBIL C	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 279	London	
16	1703	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS IVN NC	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 286	London	
17	1522	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NC	Rev BEAT TRANQLITAS; VOT/IS/XX	RIC 7: 287	London	
18	1657	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 289	London	
19	1438	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 291	London	
20	1446	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 291	London	
21	1580	Crispvs	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 291	London	
22	1646	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 291	London	
23	1695	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 291	London	
24	1696	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 292	London	
25	1700	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 292	London	
26	1536	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 293	London	
27	1534	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 293	London	
28	1547	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 293	London	
29	1634	Constantine I	Follis	AD 324-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 293	London	
30	1193	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AG	Rev PROVIDENTIAE CAESS	As RIC 7: 294	London	
31	1283	Crispvs	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 295	London	
32	1462	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 295	London	
33	1733	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 295	London	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
34	Bag 1 B	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 295	London	
35	1275	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 296	London	
36	1329	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 296	London	
37	1331	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 296	London	
38	1557	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 296	London	
39	1624	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 296	London	
40	1464	Constantius II	Follis	AD 324-5	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 298	London	
41	1504	Fausta	Follis	AD 324-5	Obv FLAV MAX FAVSTA AG	Rev SALVS REIPVBLICAE	RIC 7: 300	London	
42	1693	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	London	
43	1366	Constantine I	Follis	AD 320	Obv CONSTANTINVS AVG	Rev VIRTVS EXERCIT	RIC 7: 102	Lyons	
44	1618	Constantine I	Follis	AD 321	Obv CONSTANTINVS PF AVG	Rev BEATA TRANQVILLITAS	RIC 7: 125	Lyons	
45	1203	Constantine I	Follis	AD 321	Obv CONSTANTINVS PF AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 126	Lyons	
46	1465	Constantine I	Follis	AD 321	Obv CONSTANTINVS PF AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 126	Lyons	
47	1304	Constantine I	Follis	AD 321	Obv CONSTANTINVS P AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 128	Lyons	
48	1448	Constantine I	Follis	AD 321	Obv CONSTANTINVS P AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 128	Lyons	
49	1644	Constantine I	Follis	AD 321	Obv CONSTANTINVS P AVG	Rev BEATA TRANQVILLITAS	RIC 7: 128	Lyons	
50	1379	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 129	Lyons	
51	1476	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 131	Lyons	
52	1677	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS;VO/TIS/XX	RIC 7: 131	Lyons	
53	1253	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	As RIC 7: 132	Lyons	
54	1496	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 132	Lyons	
55	1539	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 132	Lyons	
56	1599	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS	RIC 7: 132	Lyons	
57	1610	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS	RIC 7: 132	Lyons	
58	1628	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS	RIC 7: 132	Lyons	
59	1708	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 132	Lyons	
60	1710	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 132	Lyons	
61	1720	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS	RIC 7: 132	Lyons	
62	1344	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 133	Lyons	
63	1346	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 133	Lyons	
64	1436	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 133	Lyons	
65	1531	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 133	Lyons	
66	1402	Crispus	Follis	AD 321	Obv CRISPVS NC COS II	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 137	Lyons	
67	1330	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VO/blank/XX	RIC 7: 148	Lyons	
68	1348	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 148	Lyons	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
69	1437	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 148	Lyons	
70	1490	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 148	Lyons	
71	1632	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NC	Rev BEATA TRANQVILLITAS	RIC 7: 148	Lyons	
72	1170	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITASVO/TIS/XX	RIC 7: 153	Lyons	
73	1328	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev. BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 155	Lyons	
74	1323	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 197	Lyons	
75	1169	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 198	Lyons	
76	1244	Crispus	Follis	AD 323	Obv DN CRISPO NOB CAES	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 202	Lyons	
77	1414	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 209	Lyons	
78	1424	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	As RIC 7: 209	Lyons	
79	1354	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 214	Lyons	
80	1655	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 214	Lyons	
81	1375	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 217	Lyons	
82	1167	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 222	Lyons	
83	1469	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 222	Lyons	
84	1692	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 222	Lyons	
85	1550	Crispus	Follis	AD 323-4	Obv FL IVL CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 223	Lyons	
86	1165	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 225	Lyons	
87	1306	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 225	Lyons	
88	1472	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 225	Lyons	
89	1209	Helena	Follis	AD 324-5	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 234	Lyons	
90	1487	Constantine I	Follis	AD 324-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: -	Lyons	
91	1553	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 238	Lyons	
92	1587	Constantine I	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS, 2 st.	RIC 7: 238	Lyons	
93	1719	Constantine I I	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 238	Lyons	
94	1428	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS, 2 st.	RIC 7: 240	Lyons	
95	1458	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 240	Lyons	
96	1461	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 240	Lyons	
97	1163	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 241	Lyons	
98	1185	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 241	Lyons	
99	1200	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 241	Lyons	
100	1225	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 241	Lyons	
101	1558	House of Constantine	Follis	AD 330-1	Obv CONSTANTIOPOLIS	Rev Victory on prow	RIC 7: 241	Lyons	
102	1738	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 241	Lyons	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
103	1724	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 245	Lyons	
104	1722	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 246	Lyons	
105	1672	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 247	Lyons	
106	1576	House of Constantine	Follis	AD 332	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 251	Lyons	
107	1450	Constantine II	Follis	AD 332	Obv CONSTANTINVS IVN NOB C	Rev. GLORIA EXERCITVS; 2 st.	RIC 7: 254	Lyons	
108	1218	Constantius II	Follis	AD 332	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS, 2 st.	RIC 7: 255	Lyons	
109	1727	Constantius II	Follis	AD 332	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 255	Lyons	
110	1159	House of Constantine	Follis	AD 332	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 256	Lyons	
111	1422	House of Constantine	Follis	AD 332	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 257	Lyons	
112	1713	House of Constantine	Follis	AD 332	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 257	Lyons	
113	1423	House of Constantine	Follis	AD 320	Obv House of Constantine	Rev VIRTVS EXERCIT	As RIC 7: 258	Trier	
114	1456	Constantine I	Follis	AD 320	Obv CONSATNTINVS AVG	Rev VIRTVS EXERCIT	RIC 7: 258	Trier	
115	1224	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	
116	1357	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	
117	1449	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	
118	1484	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	
119	1488	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	
120	1593	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	*Traces of silvering on surfaces.*
121	1645	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 303	Trier	
122	1669	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 303	Trier	
123	1192	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 305	Trier	
124	1278	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 305	Trier	
125	1341	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 305	Trier	
126	1620	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 305	Trier	
127	1647	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 305	Trier	
128	1716	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 305	Trier	
129	1736	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 305	Trier	
130	1206	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 306	Trier	
131	1273	Crispus	Follis	AD 321	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 308	Trier	
132	1483	Crispus	Follis	AD 321	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 308	Trier	
133	1470	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 317	Trier	
134	1316	Crispus	Follis	AD 321	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 320	Trier	
135	1180	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
136	1249	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS;VO/TIS/XX	RIC 7: 341	Trier	
137	1409	Constantine I	Follis	AD 322	Obv CONSATNTINVS AVG	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 341	Trier	
138	1480	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
139	1525	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev. BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
140	1579	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
141	1600	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
142	1661	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 341	Trier	
143	1673	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
144	1687	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
145	1717	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS /XX	RIC 7: 341	Trier	
146	1740	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 341	Trier	
147	1403	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 342	Trier	
148	1408	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 342	Trier	
149	1613	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 342	Trier	
150	1622	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 342	Trier	
151	1680	Constantine I	Follis	AD 322	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 342	Trier	
152	1124	Crispvs	Follis	AD 322	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS	RIC 7: 346	Trier	
153	1182	Crispus	Follis	AD 322	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 347	Trier	
154	1324	Crispus	Follis	AD 322	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 347	Trier	
155	1477	Crispus	Follis	AD 322	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 347	Trier	
156	1479	Crispus	Follis	AD 322	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 347	Trier	
157	1181	Crispus	Follis	AD 322	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VOT/IS/XX	RIC 7: 348	Trier	
158	1272	Constantine II	Follis	AD 322	Obv CONSTANTINVS IVN NOB C	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 353	Trier	
159	1377	Constantine II	Follis	AD 322	Obv CONSTANTINVS IVN NOB C	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 353	Trier	
160	1201	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
161	1221	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
162	1251	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
163	1276	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
164	1312	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
165	1317	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
166	1374	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
167	1429	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
168	1499	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
169	1546	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
170	1567	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
171	1568	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
172	1571	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
173	1574	Constantine I	Follis	AD 322-23	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
174	1609	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 368	Trier	
175	1698	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 368	Trier	
176	1215	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 369	Trier	
177	1290	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 369	Trier	
178	1639	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 369	Trier	
179	1730	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 369	Trier	
180	1234 or 1134?	Crispus	Follis	AD 322-3	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 372	Trier	
181	1261	Crispus	Follis	AD 322-3	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 372	Trier	
182	1264	Crispus	Follis	AD 322-3	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 372	Trier	
183	1552	Crispus	Follis	AD 322-3	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 372	Trier	
184	1119	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NOB C	Rev BEATA TRANQVILLITAS; VO/TIS/XX	As RIC 7: 380	Trier	
185	1302	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NOB C	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 385	Trier	
186	1174	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
187	1229	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
188	1259	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
189	1383	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
190	1388	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
191	1411	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
192	1670	Constantine I	Follis	AD 323	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 389	Trier	
193	1223	Crispus	Follis	AD 323	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 399	Trier	
194	1427	Crispus	Follis	AD 323	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 399	Trier	
195	1596	Crispus	Follis	AD 323	Obv IVL CRISPVS NOB CAES	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 400	Trier	
196	1728	Constantine II	Follis	AD 323	Obv CONSTANTINVS IVN NOB C	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 412	Trier	
197	1658	Constantine I	Follis	AD 321-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS	RIC 7: 416	Trier	
198	1252	Constantine I	Follis	AD 321-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: 423	Trier	
199	1176	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
200	1358	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
201	1364	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
202	1365	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
203	1518	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
204	1590	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
205	1667	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
206	Bag 1 E	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 429	Trier	
207	1555	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 430	Trier	
208	1183	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 431	Trier	
209	1241	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 431	Trier	
210	1447	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 431	Trier	
211	1195	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
212	1217	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
213	1250	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
214	1263	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
215	1268	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
216	1271	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
217	1338	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 433	Trier	
218	1153	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
219	1178	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
220	1281	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
221	1285	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
222	1382	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
223	1420	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
224	1466	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
225	1544	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
226	1563	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
227	1626	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
228	1735	Constantine I	Follis	AD 323-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 435	Trier	
229	1152	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 438	Trier	
230	1172	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
231	1179	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
232	1184	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
233	1243	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
234	1326	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
235	1404	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
236	1455	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
237	1471	Crispus	Follis	AD 323-24	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM	RIC 7: 440	Trier	
238	1523	Crispvs	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
239	1538	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
240	1683	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
241	1688	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
242	1704	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 440	Trier	
243	1177	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
244	1214	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
245	1248	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
246	1267	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
247	1274	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
248	1385	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
249	1399	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
250	1405	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
251	1412	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
252	1413	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
253	1485	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
254	1489	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
255	1524	Constantine II	Follis	AD 324-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 441	Trier	
256	1569	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
257	1627	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
258	1691	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
259	Bag 1 C	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
260	Bag 1 D	Constantine II	Follis	AD 323-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 441	Trier	
261	1157	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
262	1162	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
263	1164	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
264	1233 (or 1133?)	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE CAESS	RIC 7: 449	Trier	
265	1256	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
266	1260	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
267	1314	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
268	1376	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	As RIC 7: 449	Trier	
269	1453	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
270	1540	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
271	1545	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 449	Trier	
272	1566	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 450	Trier	
273	1191	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 451	Trier	
274	1265	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 451	Trier	
275	1287	Crispus	Follis	AD 324-5	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 451	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
276	1219	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 454	Trier	
277	1492	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 454	Trier	
278	1537	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 454	Trier	
279	1652	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 454	Trier	
280	1664	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 454	Trier	
281	1435	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	As RIC 7: 455	Trier	
282	1604	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 455	Trier	
283	1467	Constantius II	Follis	AD 324-5	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 456	Trier	
284	1662	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB C	Rev. PROVIDENTIAE CAESS	RIC 7: 456	Trier	
285	1279	Helena	Follis	AD 324-5	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 458	Trier	
286	1360	Helena	Follis	AD 324-5	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIBVBLICE	RIC 7: 458	Trier	
287	1621	Helena	Follis	AD 324-5	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 458	Trier	
288	1459	Fausta	Follis	AD 324-5	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 460	Trier	
289	1211	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 461	Trier	
290	1282	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 461	Trier	
291	1325	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 461	Trier	
292	1434	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 461	Trier	
293	1660	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 461	Trier	
294	1723	Crispus	Follis	AD 325-6	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: 462	Trier	
295	1149	Constantine II	Follis	AD 325-6	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 463	Trier	
296	1125	Constantine II	Follis	AD 325-6	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 463	Trier	
297	1286	Constantine II	Follis	AD 325-6	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 463	Trier	
298	1737	Constantine II	Follis	AD 325-6	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 463	Trier	
299	1659	Constantius II	Follis	AD 325-6	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 464		
300	1210	Helena	Follis	AD 325-6	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 465	Trier	
301	1212	Helena	Follis	AD 325-6	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 465	Trier	
302	1701	Fausta	Follis	AD 325-6	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 466	Trier	
303	1226	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
304	1231	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
305	1235	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
306	1303	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
307	1565	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
308	1570	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
309	1617	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	
310	1640	Constantine I	Follis	AD 326	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 475	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
311	1257	Constantine II	Follis	AD 326	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 479	Trier	
312	1478	Constantine II	Follis	AD 326	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 479	Trier	
313	1529	Constantine II	Follis	AD 326	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 479	Trier	
314	1715	Constantine II	Follis	AD 326	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 479	Trier	
315	1190	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 480	Trier	
316	1204	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 480	Trier	
317	1277	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE AVGG	RIC 7: 480	Trier	
318	1327	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 480	Trier	
319	1345	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 480	Trier	
320	1425	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 480	Trier	
321	1562	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 480	Trier	
322	1205	Helena	Follis	AD 326	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 481	Trier	
323	1284	Helena	Follis	AD 326	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 481	Trier	
324	1337	Helena	Follis	AD 326	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 481	Trier	
325	1648	Helena	Follis	AD 326	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 481	Trier	
326	1705	Helena	Follis	AD 326	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 481	Trier	
327	1280	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SALVS REIPVBLICAE	RIC 7: 483	Trier	
328	1729	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SALVS REIPVBLICAE	RIC 7: 483	Trier	
329	1237	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 484	Trier	
330	1242	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 484	Trier	
331	1451	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 484	Trier	
332	1519	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 484	Trier	
333	1520	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTS AVG	Rev SPES REIPVBLICAE	RIC 7: 484	Trier	
334	1154	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
335	1160	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
336	1171	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
337	1173	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
338	1188	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
339	1207	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
340	1232	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
341	1238	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVENTIAE AVGG	RIC 7: 504	Trier	
342	1258	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
343	1309	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
344	1315	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
345	1351	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
346	1397	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
347	1406	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
348	1564	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
349	1601	Constantine I	Follis	AD 324-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
350	1606	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
351	1611	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 504	Trier	
352	1615	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
353	1633	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
354	1642	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
355	1656	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
356	1671	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
357	1689	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
358	1711	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 504	Trier	
359	1143	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
360	1222	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
361	1353	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
362	1400	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
363	1454	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
364	1583	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
365	1605	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
366	1635	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
367	1651	Constantine II	Follis	AD 327-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 505	Trier	
368	1166	Constantius II	Follis	AD 327-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 506	Trier	
369	1322	Constantius II	Follis	AD 327-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 506	Trier	
370	1416	Constantius II	Follis	AD 327-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 506	Trier	
371	1551	Constantius II	Follis	AD 327-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 507	Trier	
372	1619	Constantius II	Follis	AD 324-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 507	Trier	
373	1726	Constantius II	Follis	AD 327-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 507	Trier	
374	1636	Helena	Follis	AD 327-8	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 508	Trier	
375	1156	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 509	Trier	
376	1255	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 509	Trier	
377	1588	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 509	Trier	
378	1707	Constantine I	Follis	AD 327-8	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 509	Trier	
379	1591	Constantius II	Follis	AD 327-8	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 514	Trier	
380	1597	Helena	Follis	AD 327-8	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 515	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
381	1682	Helena	Follis	AD 327-8	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 515	Trier	
382	1559	Constantine I	Follis	AD 330-1	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 518	Trier	
383	1386	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 521	Trier	
384	1530	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 521	Trier	
385	1589	Constantius II	Follis	AD 330-1	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 521	Trier	
386	1526	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 524	Trier	
387	1643	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	As RIC 7: 524	Trier	
388	1343	Constantine I	Follis	AD 330-1	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 526	Trier	
389	1187	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	As RIC 7: 527	Trier	
390	1199	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 527	Trier	
391	1313	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st	RIC 7: 527	Trier	
392	1612	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 527	Trier	
393	1681	Constantine II	Follis	AD 330-1	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 527	Trier	
394	1194	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
395	1308	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
396	1347	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
397	1361	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
398	1629	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
399	1631	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
400	1641	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 529	Trier	
401	1649	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
402	1654	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 529	Trier	
403	1663	House of Constantine	Follis	AD 330-1	Obv VRBS ROMA	Rev. Wolf and twins	RIC 7: 529	Trier	
404	1307	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
405	1359	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
406	1387	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
407	1614	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
408	1616	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
409	1630	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
410	1721	House of Constantine	Follis	AD 330-1	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 530	Trier	
411	1197	Constantine I	Follis	AD 332-3	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 537	Trier	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
412	1401	Constantine I	Follis	AD 332-3	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 537	Trier	
413	1444	Constantine I	Follis	AD 332-3	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 538	Trier	
414	1521	Constantine II	Follis	AD 332-3	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 538	Trier	
415	1623	Constantine I	Follis	AD 332-3	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 538	Trier	
416	1460	Constantine II	Follis	AD 332-3	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 539	Trier	
417	1650	Constantine II	Follis	AD 332-3	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 539	Trier	
418	1665	Constantine II	Follis	AD 332-3	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 539	Trier	
419	1685	Constantine II	Follis	AD 332-3	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 539	Trier	
420	1161	Constantius II	Follis	AD 332-3	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 540	Trier	
421	1349	Constantius II	Follis	AD 332-3	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 540	Trier	
422	1608	Constantius II	Follis	AD 332-3	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 540	Trier	
423	1638	Constantius II	Follis	AD 332-3	Obv FL IVL CONSTANTIVS NOB C	Rev GLORIA EXERCITUS; 2 st.	RIC 7: 540	Trier	
424	1145	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
425	1208	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
426	1305	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
427	1342	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
428	1350	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
429	1363	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
430	1431	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
431	1497	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
432	1556	House of Constantine	Follis	AD 332-3	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: 542	Trier	
433	1146	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
434	1148	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
435	1186	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
436	1198	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
437	1419	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
438	1554	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
439	1702	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
440	1718	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
441	1731	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 543	Trier	
442	1196	Licinius	Follis	AD 321	Obv IMP LICINIVS AVG	Rev DN LICINI AVGVSTI; VOT/XX	RIC 7: 224	Arles	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
443	1189	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 228	Arles	
444	1236	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM;VOT/V	As RIC 7: 230	Arles	
445	1288	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/V	RIC 7: 235	Arles	
446	1675	Licinius	Follis	AD 321	Obv IMP LICINIVS AVG	Rev DN LICINI AVGVSTI; VOT/XX	RIC 7: 240	Arles	
447	1352	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	As RIC 7: 241	Arles	
448	1549	Constantine II	Follis	AD 321	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	As RIC 7: 245	Arles	
449	1493	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 252	Arles	
450	1734	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 252	Arles	
451	Bag 1 A	Constantine II	Follis	AD 322-3	Obv CONSTTNTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 252	Arles	
452	1239	Crispus	Follis	AD 322-3	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 254	Arles	
453	1433	Crispus	Follis	AD 322-3	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 254	Arles	
454	1594	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 255	Arles	
455	1686	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 255	Arles	
456	1220	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 256	Arles	
457	1369	Constantine II	Follis	AD 322-3	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	As RIC 7: 256	Arles	
458	1410	Constantine I	Follis	AD 322-3	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 257	Arles	
459	1398	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/X	RIC 7: 264	Arles	
460	1598	Constantine II	Follis	AD 324-5	Obv CONSTANTINVS IVN NOB	Rev PROVIDENTIAE AVGG	As RIC 7: 264	Arles	
461	1158	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: 265	Arles	
462	1269	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 286	Arles	
463	1463	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 286	Arles	
464	1595	Constantine I	Follis	AD 325-6	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 289	Arles	
465	1311	Helena	Follis	AD 325-6	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: 299	Arles	
466	1356	Constantine II	Follis	AD 327	Obv CONSATNTINVS IVN NOB C	Rev VIRTVS CAESS	RIC 7: 315	Arles	
467	1706	Constantius II	Follis	AD 327	Obv FL IVL CONSTANTIVS NOB C	Rev VIRTVS CAESS	RIC 7: 316	Arles	
468	1228	Constantine II	Follis	AD 328	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 319	Arles	
469	1445	Constantine II	Follis	AD 328	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 319	Arles	
470	1668	Constantine I	Follis	AD 328	Obv CONSTANTINVS AVG	Rev VIRTVS AVGG	RIC 7: 321	Arles	
471	1216	Constantine II	Follis	AD 328	Obv CONSTANTINVS IVN NOB C	Rev VIRTVS CAESS	RIC 7: 322	Arles	
472	1457	Constantine II	Follis	AD 328	Obv CONSTANTINVS IVN NOB C	Rev VIRTVS CAESS	RIC 7: 322	Arles	
473	1321	Constantius II	Follis	AD 324-8	Obv FL IVL CONSTANTIVS NOB C	Rev VIRTVS CAESS	RIC 7: 323	Arles	
474	1486	Constantine I	Follis	AD 329	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 326	Arles	
475	1523	House of Constantine	Follis	AD 330	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 344	Arles	
476	1532	House of Constantine	Follis	AD 330	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 344	Arles	
477	1362	Constantine I	Follis	AD 330	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 345	Arles	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
478	1653	Constantius II	Follis	AD 331	Obv FL IVL CONSTANIVS NOB C	Rev GLORIA EXERCITVS; 2 st.	RIC 7: 355	Arles	
479	1535	House of Constantine	Follis	AD 332-3	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: 369	Arles	
480	1266	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 232	Rome	
481	1498	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 232	Rome	*Patches of silvering on surface.*
482	1548	Constantine I	Follis	AD 321	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 232	Rome	
483	1240	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 238	Rome	
484	1332	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 238	Rome	
485	1384	Crispus	Follis	AD 321	Obv CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 238	Rome	
486	1227	Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 264	Rome	
487	1254	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 140	Ticinum	
488	1270	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 140	Ticinum	
489	1561	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 140	Ticinum	
490	1676	Constantine I	Follis	AD 322-5	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 167	Ticinum	
491	1678	Crispus	Follis	AD 322-5	Obv CRISPVS NOB CAES	Rev DN CONSTANTINI AVG; VOT/XX	As RIC 7: 167	Ticinum	
492	1262	Fausta	Follis	AD 326	Obv FLAV MAX FAVSTA AVG	Rev SPES REIPVBLICAE	RIC 7: 204	Ticinum	
493	1585	Crispus	Follis	AD 320	Obv CRISPVS NOB CAES	Rev VIRTVS EXERCIT	RIC 7: 41	Aquileia	
494	1415	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 159	Siscia	
495	1355	Licinius II	Follis	AD 320-1	Obv LICINIVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/V	RIC 7: 162	Siscia	
496	1732	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 174	Siscia	
497	1690	Constantine I	Follis	AD 321-4	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 180	Siscia	
498	1378	Constantine I	Follis	AD 326-7	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 200	Siscia	
499	1475	Constantine I	Follis	AD 326-7	Obv CONSTANTINVS AVG	Rev PROVIDENTIAE AVGG	RIC 7: 200	Siscia	
500	1560	Constantine II	Follis	AD 328-9	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 216	Siscia	
501	1155	Constantine I	Follis	AD 324	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 123	Thessalonica	
502	1602	Constantine I	Follis	AD 324	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 123	Thessalonica	
503	1473	Crispus	Follis	AD 324	Obv FL IVL CRISPVS NOB CAES	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 125	Thessalonica	
504	1468	Constantine II	Follis	AD 324	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: 128	Thessalonica	
505	1679	Constantine I	Follis	AD 324	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: 60	Heraclea	
506	1637	Constantine II	Follis	AD 325-6	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 77	Heraclea	
507	1147	Constantius II	Follis	AD 326	Obv FL IVL CONSTANTIVS NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 84	Heraclea	
508	1528	Constantine I	Follis	AD 320-1	Obv CONSTANTINVS AVG	Rev DN CONSTANTINI MAX AVG; VOT/XX	RIC 7: -	Uncertain	
509	1417	Constantine I	Follis	AD 320-3	Obv CONSTANTINVS AVG	Rev BEATA TRANQVILLITAS; VO/TIS/XX	RIC 7: -	Uncertain	
510	1289	Constantine II	Follis	AD 321-4	Obv CONSTANTINVS IVN NOB C	Rev CAESARVM NOSTRORVM (retrograde legend); VOT/X	RIC -	Uncertain	

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
511	1443	Constantine I	Follis	AD 322-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: - (exergue missing)	Uncertain	
512	1494	Constantine I	Follis	AD 322-4	Obv CONSTANTINVS AVG	Rev SARMATIA DEVICTA	RIC 7: -	Uncertain	
513	1474	Crispus	Follis	AD 323-4	Obv IVL CRISPVS NOB C	Rev Brockage (carries impression of another obverse)	RIC 7: -	Uncertain	
514	1291	Helena	Follis	AD 324-6	Obv FL HELENA AVGVSTA	Rev SECVRITAS REIPVBLICE	RIC 7: -	Uncertain	
515	1527	Constantine I	Follis	AD 320-4	Obv CONSTANTINVS AVG	Rev CAESARVM NOSTRORVM; VOT/X	RIC 7: -	Uncertain	
516	1175	Constantine II	Follis	AD 324-8	Obv CONSTANTINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: -	Uncertain	
517	1421	Crispus	Follis	AD 324-8	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: -	Uncertain	
518	1714	Crispus	Follis	AD 324-8	Obv FL IVL CRISPVS NOB CAES	Rev PROVIDENTIAE CAESS	RIC 7: -	Uncertain	
519	1666	Constantine I	Follis	AD 330-5	Obv CONSTANTINVS MAX AVG	Rev GLORIA EXERCITVS; 2 st.	RIC 7: -	Uncertain	
520	1699	House of Constantine	Follis	AD 330-5	Obv Illeg.	Rev GLORIA EXERCITVS, 2 ST.	RIC 7: -	Uncertain	
521	1118	House of Constantine	Follis	AD 330-5	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: -	Uncertain	
522	1426	House of Constantine	Follis	AD 330-5	Obv VRBS ROMA	Rev Wolf and twins	RIC 7: -	Uncertain	*Patches of silvering on surface*
523	1418	House of Constantine	Follis	AD 330-5	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: -	Uncertain	
524	1430	House of Constantine	Follis	AD 330-5	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: -	Uncertain	*Patches of silvering on surface*
525	1697	House of Constantine	Follis	AD 330-5	Obv CONSTANTINOPOLIS	Rev Victory on prow	RIC 7: -	Uncertain	

Table 116: The Roman Coin Hoard: the Roman catalogue of primary hoard coins not-seen

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
526	1159	Fausta	Follis	AD 324-5		Rev SALVS REIPVBLICAE		Trier	
527	1495	Crispus	Follis	AD 320-3		Rev BEATA TRANQVILLITAS			
528	1500	Constantine I	Follis	AD 322-4		Rev SARMATIA DEVICTA			
529	1501	House of Constantine	Follis	AD 323-4		Rev Wreath; VOT/XX			
530	1502	Constantine I	Follis	AD 323-4		Rev SARMATIA DEVICTA		Trier	
531	1503	House of Constantine	Follis	AD 324-5		Rev PROVIDENTIAE AVGG		Trier	
532	1505	House of Constantine	Follis	AD 324-8		Rev PROVIDENTIAE AVGG/CAESS			
533	1506	House of Constantine	Follis	AD 330-5	Obv CONSTANTINOPOLIS	Rev Victory on prow			
534	1507	House of Constantine	Follis	AD 324-8		Rev PROVIDENTIAE AVGG			
535	1508	House of Constantine	Follis	AD 324-8		Rev PROVIDENTIAE AVGG/CAESS		Trier	
536	1511	House of Constantine		AD 320-3		Rev BEATA TRANQVILLITAS			
537	1515	House of Constantine	Follis	AD 324-5		Rev PROVIDENTIAE AVGG		Trier	
538	1516	House of Constantine	Follis	AD 330-5	Obv CONSTANTINOPOLIS	Rev Victory on prow			
539	1517	Crispus	Follis	AD 320-3		Rev BEATA TRANQVILLITAS			

Hoard Cat.	Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
540	1540	House of Constantine	Follis	AD 323-4		Rev SARMATIA DEVICTA		Trier	
541	1544	House of Constantine	Follis	AD 320-4		Rev Wreath			
542	1546	Crispus	Follis	AD 320-3		Rev BEATA TRANQVILLITAS			

Table 117: The Roman Coin Hoard: catalogue of coins present within the upper fills of G224 (Phase 4.6). These are unlikely to be from the hoard itself but may provide a date for its disturbance

Small Find	Emp/type	Denom	Date	Obverse	Reverse	Ref.	Mint	Notes
1510	Faustina I, deified	Denarius	AD 141-61	Obv DIVA FAVSTINA	Rev AETERNITAS; Providentia stg l., holding globe		Rome	
1373	Quintillus	Radiate	AD 270	Obv [IMP Q]VINTILLVS AVG	Rev S---- AVG		Rome	
1142	Tetricus I	Radiate	AD 270-4	Obv Illeg.	Rev [P]AX AV[G]; vert. sc.			
1104	Constantine II	Follis	AD 326	Obv [CONSTAN]TINVS IVN NOB C	Rev PROVIDENTIAE CAESS	RIC 7: 479	Trier	
1452	House of Constantine	Follis	AD 335-40	Obv CONSTANT----	Rev [GLORI]A EXERC[ITUS]; 1 st.	RIC -		
1123	Constantine I	Irregular follis	AD 341-6	Obv CONSTANTINVS AVG	Rev GLORIA EXERCITVS; 2 st.	As RIC 7: 248	Lyons	
1230	House of Constantine	Irregular AE4	AD 354-64	Obv Illeg.	Rev [FEL TEMP REPARATIO]; falling horseman			12mm - 16mm (small module)
1112	Valens	AE3	AD 375-8	Obv DN VALENS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 18b	Arles	
1509	Illegible	AE4	AD 270-400					

CATALOGUE OF THE MEDIEVAL AND POST-MEDIEVAL COINS

Table 118: The Medieval and Post-Medieval Coins: catalogue of coins from Vine Street

Small Find	Group	Phase	Monarch	Denom	Date	Obverse	Reverse	Note
105	Unstratified (Area 1/2)	-	Edward I	penny	AD 1272-1307	Bust facing forward	Long-cross fragment	
118	Unstratified (Area 1/2)	-	unknown	unknown	AD *c.*1300-1500		Cross, pellets in corners but very broad cross arms.	Continental European silver coin
147	Unstratified (Area 1/2)	-	George III	penny	AD 1806/7		Brittania	Broken and defaced
155	Unstratified (Area 1/2)	-	Henry II/III	penny	AD 1180-1272		Short cross type	Cut quarter of medieval penny - I.e. a farthing
180	Unstratified (Area 1/2)	-	George III	penny	AD1806	Bust facing right	Brittania	
225	Unstratified (Area 4)	-	Unknown	Farthing	Post *c.*AD 1760			
283	G660	13	unknown	unknown	18/19th *c.*			Foreign European silver coin
439	Unstratified (Area 4)	-	Victoria	sixpence	AD 1840			Silver, poor condition
479	G1055	12	unknown	Jetton?		Illegible copper alloy disc		Possibly a post-medieval jetton
526	Unstratified (Area 4)	-	Victoria	sixpence	AD 1890			Silver, poor condition
527	Unstratified (Area 4)	-	Unknown	Halfpenny	Post *c.*AD1700			Corroded
528	Unstratified (Area 4)	-	Victoria	Farthing	1897			Old Head issue
529	Unstratified (Area 4)	-	Victoria	penny	AD 1837-1901			Bronze, poor condition
530	Unstratified (Area 4)	-	Victoria	sixpence	AD 1892			Silver, poor condition
540	G771	9.1	Stephen or Matilda	farthing	AD 1135-1154		Cross moline with lis in angles	Cut silver farthing
574	G230	8.1	Stephen	penny	AD 1135-1154	Bust facing right	Cross moline with lis in angles	Broken
1023	Unstratified (Area 4)	-	unknown	jetton	15/16th *c.*	Fleur de lis pattern		copper alloy, french
1079	G748	8.2	Henry I	penny	AD 1100-1135	Bust facing forward?	Quadrilateral on cross fleury type	Silver
1541	G1006	4.6	unknown			Illegible	Illegible	Corroded
1925	G1128	8.1	unknown	token		Cross diamond pattern with pellets	Blank	Lead
2017	G885	9.02	unknown	jetton	15/16th *c.*	Fleur de lis pattern		copper alloy, french

THE ROMAN GLASS *H.E.M. Cool*

Introduction

The excavations produced a total of 458 fragments of vessel glass with an EVE value of just under 18. The assemblage is summarised according to the colour of the glass and site phasing in

Table 119. As can be seen this is a predominantly blue/green and colourless assemblage. The strong colours such as deep blue and dark yellow/brown and vessels made by casting are rare. This indicates that there is very little 1st century material in it, and the focus of the assemblage is on second and 3rd-century vessels. There is also a small amount of 4th-century material.

Table 119: The Roman Vessel Glass: glass by colour and site phasing (fragment count)

Phase	Cast	Black	Dark Yellow Brown	Deep blue	Pale Green shades	Colour-less	Blue/ green	Blue/ green bottle	C4 green	Total
2	-	-	-	-	-	-	6	45	-	51
3	1	1	-	1	5	58	37	64	-	167
4	-	-	-	-	2	71	15	30	15	133
8	-	-	1	-	-	2	5	51	3	62
9	-	-	-	-	1	4	3	2	-	10
10	-	-	-	-	-	2	1	1	-	4
11	-	-	-	-	-	-	1	-	-	1
13	-	-	1	-	-	-	-	9	-	10
14	-	-	-	-	-	-	-	3	-	3
0	-	-	-	-	-	2	11	4	1	18
Total	1	1	2	1	8	139	79	209	19	459

In what follows, only the diagnostic pieces are presented in the printed catalogue. The less diagnostic ones are catalogued in archive. As in the discussion of the small finds an attempt will be made to place the assemblage within the context of the glass that has been found in Leicester before. This includes material in the Jewry Wall Museum that has been inspected by the author previously. Of the material from the earlier excavations, few groups have been subject to specialist examination and so the range of assemblages available for comparison are smaller than has been the case for the small finds.

1st-century tablewares

As already noted, 1st-century material is scarce in this assemblage. There is one fragment from a blue/green pillar moulded bowl (no. 1). These had generally gone out of use by the end of the century (Price and Cottam 1998, 44-6). They are a very common form as can be seen by the number recorded from Leicester itself. At Causeway Lane they were represented by one polychrome example of the mid-1st century and two rim fragments from blue/green examples (Davies 1999, 287 nos. 1-3). The Jewry Wall museum preserves at least eight blue/green examples from earlier excavations (LJP 16.5; 2393H, 34.1969, 267-280.1896). There are no other forms that occur only in the 1st century and the strong coloured glass that is often a feature of mid- to late 1st century assemblages is rare and only represented by three items (nos. 2-3 and a deep blue body fragment). Only one of the dark yellow/brown pieces is closely identifiable to type (nos. 2). No. 2 is from a tubular-rimmed bowl. These are a common form in use from the mid- 1st century to the mid- 2nd century (Price and Cottam 1998, 78-9), but a strong coloured example such as this would have been in use during the late Neronian/Flavian period.

Later 1st to mid- 2nd-century tablewares

The common range of tubular-rimmed bowls, globular and conical jugs and collared jars is well represented in the assemblage. As already noted in connection with no. 2 the bowls are a mid- 1st to mid-2nd-century form. The globular jugs (Price and Cottam 1998, 150-52) and collared jars (Price and Cottam 1998, 137-8) had a shorter lifespan, disappearing in the early 2nd century. Ones in lightly

coloured glass and blue/green glass can be of mid- 1st century but given the rarity of mid- 1st century glass in this assemblage generally, they will all be discussed here. The bowls are represented by no. 46, globular jugs by no. 5 and collared jars by nos. 10 and 47. The globular jugs and collared jars have the same lower body and base form represented here by nos. 48 and 49. Nos. 6 and 52 are most likely to be rim and neck fragment from jugs of this range, and the ribbed body fragments nos. 7, 9, 50 and 51 are also likely to come from the broad range of these vessels as such decoration was very common on them. This is a suite of vessels that has often been found in Leicester before. Tubular rimmed bowls, globular jugs and collared jars were all found at Causeway Lane (Davies 1999, 284) and the Forum site produced a similar range (Charlesworth 1973, 54). Fragments from the jugs and bowls were recovered from High Street / Silver Street ((Jewry Wall Museum 3316; 33173319'87). Handles most probably from this sort of globular jug were found at Cart's Lane, Orton Street, High Street/ (Jewry Wall museum 116.1962/313 and 322 respectively), whilst conical jug fragments were found at Church Lane (Jewry Wall no number). Collared jars have been found before at Bath Lane (Clay 1985, 70 no 28) and at Freeschool Lane.

No. 45 is a small rim fragment has many features that happily identify it as a large tubular-rimmed bowl of the sort discussed in connection with no. 2 and 46, but the small additional chip on the rim would appear to come from a handle which is most unusual. Glass trulla are known but they tend to be of the later 2nd to 3rd centuries and to have fire rounded rims (see for example Fremersdorf 1959, 50-54 Tafn. 51-4, 60-61).

Drinking vessels of this date are rare here. Nos. 11 and 12 are both most likely to come from the range of wheel-cut beakers most common in the early to mid- 2nd century (Price and Cottam 1998, 91-2). Insufficient of no. 12 remains for a firm identification to be made but the features retained are consistent with it being of this type despite coming from a 4th-century context when both the rim finish and colour would be much less to be expected.

Later 2nd to early 3rd century tablewares

Plain cylindrical cups with fire rounded rims such as nos. 13 and 14 are normally very common in assemblages of this date (Price and Cottam 1998, 99-101). Here they are outnumbered by fragments of the form with trailed decoration (nos. 15-20; Price and Cottam 1998, 101-2), which is slightly unusual. At Causeway Lane the more normal pattern of recovery was followed with plain cups out-numbering the trailed form (Davies 1999, 289 nos. 31-7). Plain cups were also found at the forum (Charlesworth 1973, 53) and the Shires and Freeschool Lane (unpublished).

The commonest jug form of this period is a globular form with a funnel-mouth. The rims can either be pulled up to form a spout (Price and Cottam 1998, 157-61) or can have a circular rim (*ibid*, 161-3). They continue in use throughout the 3rd century. Here all the examples are made in blue/green glass. No. 53 comes from the spouted form but insufficient of the rim circumference is preserved on nos. 55 and 56 for see whether it was spouted or circular. The one with the greatest amount preserved is no. 53 which has a spout opposite the handle. It was found in made-up ground assigned to Phase 2.5. An early 2nd-century date would be exceptionally early for such a vessel and it seems likely to indicate later contamination of this context. Again this is a common type at Leicester. Several were identified at Causeway Lane, including a spouted example (Davies 1999, 289 nos. 41-5). The Jewry Wall museum collection includes the substantial upper part of a spouted example in colourless glass from St. Martins (Acc. No. 116.1962.135).

Cylindrical colourless bottles with funnel mouths and wheel-cut decoration (Price and Cottam 1998, 202) are very well represented in the assemblage (nos. 24-32). They are a regular feature of late 2nd to 3rd-century assemblages but it is rare for the EVE value for them to be larger than that of the plain cylindrical cup as it is here. The form is also represented amongst the Jewry Wall Museum Collection (Opera house pit 1961 560.61).

The other colourless fragments, nos. 33-43, may be dated in general to the 2nd to 3rd century on the basis of their colour, but are not sufficiently diagnostic to assign to particular forms. Of especial interest is no. 41 from a Phase 4.1. It has five oval facets which are shallow and reminiscent of the sort of cutting that occurs on late Roman vessels. It appears to be coming from a cylindrical vessel but the curvature of the piece is so slight that a vessel such as a cylindrical bottle seems to be ruled out. Possibly the fragment came from a very large bowl. Currently it appears to be unparalleled in Britain.

Glass appearing black such as the beaker no. 4 was a relatively rare product within the Roman industry. It occasionally occurs in early 1st-century vessels but generally is most likely to found in late 2nd to early 3rd century assemblages (Cosyns and Hanut 2005). The rim form on this fragment would be most appropriate for a vessel of this date. 'Black' tablewares can be seen as a luxury item and so the presence of the fragment here is another strand of the evidence that points to elite occupation on the site in the middle Roman period. This is the second 'black' vessel recorded from Leicester as the rim of a wheel-cut bowl is amongst the glass in the Jewry Wall Museum (LP.230.4)

3rd-century tablewares

Three fragments can be assigned to 3rd century drinking vessels. Cylindrical colourless cups such as no. 21 with cracked off rims are not particularly common (see Cool 2004, 368 no. 310.8; Price and Cottam 1998, 114-5). The other drinking vessels are only represented by base fragments (nos. 22-3). Though it is often difficult to assign small base fragments to particular vessels, a thickened base as here is typical of that used on the range of cups that seem to be dominant in the mid- to later 3rd century and the colour would also be appropriate for this form (Price and Cottam 1998, 112-3; Cool 2004, 368). No, 23 unfortunately breaks before the centre of the base where the pontil scar would have been and which would have helped to confirm the identification. On no. 22 this feature is present. The form was also identified at Causeway Lane (Davies 1999, 289 nos. 29-30).

4th-century tablewares

The commonest drinking vessels in the 4th century were hemispherical cups and conical beakers, both with cracked off rims and abraded decoration (Price and Cottam 1998, 117-9, 121-3). No. 93 is an example of the former and no. 95 of the latter. The body fragments nos. 95 to 97 almost certainly belong to these types of cups and beakers as well. They came into use during the very late 3rd century and continued in use until at least the end of the 4th century. In the later 4th century, cups and beakers of similar shapes with fire-rounded rims and plain bodies started to be made and these definitely continued in use into the fifth century (Price and Cottam 1998, 129-31). No. 98 is an example of the cup form. Other vessels that indicate late 4th-century activity are the indented truncated conical bowl no. 99 (Price and Cottam 1998, 128-9) and the segmental bowl no. 100 (Price and Cottam 1998, 128-9).

All of the 4th-century vessels discussed so far are common forms. No. 44 is slightly less common. The colour would suggest a 1st- to 3rd-century date but the combination of shape, rim finish and decoration is the same as is found on a very late form of bowl that comes into use at the end of the 4th century (Cool 1995, 13, fig. 5 no. 6). Those, however, tend to be larger and to be made in the typical greenish bubbly glass of the 4th century. Blue/green glass does continue to be used to make some 4th-century vessels so a 4th-century date cannot be ruled out. Faint optic blowing like this is much more typical of 4th-century vessels than earlier ones which would also suggest that a 4th-century date is also most likely

Though this is a small assemblage, it is one of the larger 4th century ones to have been recorded from Leicester. Several of the forms have been found before. An indented truncated conical bowl was found at Causeway Lane together with a beaker with a fire rounded rim (Davies 1999, 289 nos. 15 and 26). Davies also notes the particularly fine beaker with fire-rounded rim and trailed decoration from a grave at Gallowtree Gate.

1st- to 3rd-century containers

Blue/green bottle fragment dominate many Roman glass assemblages as they were the main glass container from the later 1st to early 3rd centuries (see Price and Cottam 1998, 191-201). The number and range from this site, though, is quite exceptional and includes some which are substantially complete, an unusual state of affairs on a domestic site. In the catalogue only the pieces where substantive measurements can be made (Rim or base diameter etc) are itemised. The other fragments are catalogued in archive and their EVE measurements are included in the tables presented here.

No. 74 is the upper part of a very large cylindrical bottle found in a modern refuse pit near building 7, and possibly originally more may have been preserved. Cylindrical bottles went out of use early in the 2nd century and so this bottle would have been used by the Phase 2 occupants of the site.

Two hexagonal bottles are represented by nos. 75 and 76. Again a large part of no. 75 is preserved, though unfortunately only a relatively small part of the base. No. 76, a lower body and base fragment, comes from the same Phase 2.4 refuse pit. Whilst it is possible that it is another part of no. 75, this seems unlikely as no 76 has a moulded pellet in the corner but the extant corners of no. 75 does not, and generally such pellets will be present in each corner or will not be present at all. In neither case can the full base design be reconstructed, but no 75 retains sufficient to show that it may not be a simple pattern of concentric circles as the second moulding is not concentric with outer one.

The square bottles have a variety of base designs. No. 77 has two concentric circles with corner pellets. It also has a pontil scar centrally which places it late in the production of these bottles as pontils do not appear to have been used in the manufacture of bottles prior to the late 2nd century. The other two bottles have base patterns consisting of a central diagonal cross moulding with in the case of no. 78 an L-shaped corner moulding and in no. 79 within a circular moulding. Diagonal cross mouldings are also present on two base fragments where the shape of the bottle (square or hexagonal) cannot be identified. On no. 81 it is combined with at least one circular moulding and on no. 82 a small central cross was combined with a moulding parallel to the edge of the bottle. To have four bottles from the same site with cross designs is exceptional as by far the majority of these bottles had simple concentric circle patterns on the base (represented here by nos. 77, 83 and possibly nos. 84-6). Other bottles with cross designs from sites in Leicester include a bottle of unknown shape with a small cross and at least one circular moulding from Causeway Lane (Davies 1999, 292 no. 79) and a square bottle with a central diagonal cross and three concentric circles from Hight Street/Silver Street (Jewry Wall Museum Acc. No. 3313 '87). Unfortunately we lack any comprehensive survey of bottle base designs that would allow us to put clusters like this into context. Evidence for the glass blowing industry at Leicester was found at Blue Boar Lane (Price and Cool 1991) and was probably dated to the 3rd century. This would be a little late to postulate the production of these bottles there, but the industry was probably in place earlier in the city and it was not restricted to Blue Boar Lane as evidence by the moile found during these excavations (see above). The number of cross-decorated bases now known from Leicester opens up the intriguing possibility that these may have been associated with local production.

Other blue/green containers are much less common in this assemblage. There is a handle that would have come from a bath-flask (no. 61). These became popular in the late 1st century and continues in use in the 2nd and 3rd century (Price and Cottam 1998, 188-90). They were the preferred vessel type for transporting oil to the baths when visiting them to make one's ablutions, but unfortunately this piece was found unstratified and so its relationship with the baths on the site, if any, is unknown. There are several examples in the Jewry Wall museum (Acc nos. LP.132.3; 123.3.a; 225.5, 132.30; 228.7) No. 62 is most likely to come from a conical-bodied unguent bottle (Price and Cottam 1998, 172-3) and if so a late first to early 2nd century is most appropriate.

Overview

This is a modestly sized assemblage. By fragment count it is less than half the size of that at Causeway Lane, for example where 1241 fragments were found (Davies 1999, 283). Table 120 shows the vessel glass quantified by EVEs according to phase and broad functional groupings. Given that the strength of the assemblage lies in the 2nd and 3rd centuries, the functional composition is slightly unusual. The bottle category includes all the utilitarian blue/green examples with the colourless ones having been placed with the jugs as they were tablewares. The blue/green bottles would have been residual by Phase 4 and so most would have been in use in Phase 3. They are thus as strongly, if not more stongly represented than drinking vessels. The late 2nd century is a period which sees a large expansion in the use of glass drinking vessels, but this is not really seen here. Given the nature of the occupation at Vine Street at the time, this is really rather surprising.

Another unusual feature is that the late 2nd to 3rd century assemblage is a fairly standard one. There are few examples of the more normal exotic types. There is no snake thread glass, for example, nor are there any examples of facet-cut glass with the exception of the very strange body fragment no. 41. The one piece of exotic glass, the black beaker no. 4, is however a very rare form.

Given that the small find assemblage from the site produced numerous exotic items, the under-representation of glass drinking vessels and the generally mundane nature of the assemblage in the 2nd to 3rd centuries is unexpected. It is tempting to suggest that the pattern observed is the result of some aspects of the the tableware assemblage on this site which on most British sites would be fulfilled by

glass vessels, were here being supplied by vessels in metal, the next stage up of the hierarchy of materials as perceived by the Romans themselves.

Table 120: The Roman Vessel Glass: the glass vessels quantified by functional groupings and site phase.

Phase	Drinking	Bowls	Jugs	Bottles	Other containers	Total
2	-	-	0.68	1.28	-	1.96
3	2.20	0.92	0.84	2.24	0.20	6.40
4	2.00	0.60	0.56	1.54	-	4.7
8	0.90	0.40	-	0.42	-	1.72
9	0.40	-	0.42	0.14	-	0.96
10	-	-	-	-	-	-
11	-	-	-	-	-	-
13	-	-	-	0.70	-	0.7
14	-	-	-	-	-	-
0	0.80	-	0.28	0.28	0.17	1.53
Total	6.30	1.92	2.78	6.60	0.37	17.97

Catalogue

Cast

1 Pillar moulded bowl; rim fragment. Blue/green. Retaining upper part of one rib. Present height 31mm. EVE 0.4. A24.2004. 5621 :G805 : - : IDG 76. Phase. 3.7.

Dark Yellow/brown

2 Tubular rimmed bowl; base fragment. Wide lower body; applied true base ring put on asymmetrically sloping in to interior; post technique scars. Base diameter 70mm, wall thickness 3.5mm. EVE 0.4. A24.2004. 5373 : - : IDG 64. Phase 8.

3 Jug; neck fragment. Cylindrical neck; one edge may be deliberately ground down but the area is much strain cracked. Diameter 17mm, present length 40mm. EVE 0.14. A22.2003. 1128 : G633 : sf2591 : IDG 238. Phase 13.

Black

4 Beaker; rim fragment. Colour not ascertainable but appearing black. Out-curved rim, edge fire rounded; side sloping in. Rim diameter 75mm, wall thickness 1mm, wall thickness 17mm. EVE 0.2. A24.2004. 6736 : G947 : - : IDG 77. Phase 3.6. Figure 84

Yellow/green

5 Globular jug; handle and side fragment. Lower part of ribbon handle with three central narrow sharp ribs; simple lower attachment retaining part of convex-curved body with very shallow optic blown vertical ribs. Handle section 38 x 5mm, wall thickness 1.5mm. EVE 0.28. A22.2003. 2053 : G415 : sf880 : IDG 233. Phase 3.8.

6 Jug (?) chip from neck, retaining three narrow slightly diagonal ribs. Yellow/green. Dimensions 21 x 10mm.. A24.2004. 5461 : G719 : - : Phase 3.7.

7 Body fragment. Heat affected. Two ribs. Dimensions 21 x 21mm, wall thickness 2mm. A24.2004. 5669 : G997 : - : IDG 108. Phase 4.6.

Light and pale green etc

8 Base fragment. Pale green. Side sloping into open pushed-in base ring, most of concave base missing. Base diameter 35mm, wall thickness 10mm, wall thickness 2mm. A24.2004. 6543 : G163 : sf1975 : IDG 250. Phase 3.3.

9 Body fragment. Light green. Slightly convex-curved side. Shallow vertical optic blown ribs. Dimensions 30 x 21mm, wall thickness 1.5mm. A24.2004. 5428 : G224 : sf1755 : ID G8. Phase 4.6.

Light yellow/brown

10 Collared jar; rim fragment. Light yellow/brown with greenish tinge. Rim first rolled-in, then out and down, upper part bent out. Rim diameter 100mm, present height 17mm. EVE 0.17. A24.2004. 6526 : G129 : sf1968 : IDG 246. Phase 3.2. Figure 84

Colourless

11 Carinated wheel-cut beaker ?; body fragment. Colourless with enamel-like weathering. Straight side broken at carination. Two wheel-cut lines. Dimensions 38 x 23mm, wall thickness 3mm. A24.2004. 5990 : G1200 : - : IDG 98. Phase 3.5.

12 Beaker or cup; rim fragment. Curved rim edge cracked off and ground. Present height 15mm, wall thickness 2mm. A24.2004. 5529 : G1073 : - : IDG 96. Phase 4.6.

13 Cylindrical cup, rim fragment. Very slightly green-tinged colourless. Vertical rim , edge fire-rounded with marked thickening on outer side; straight side. Rim diameter 100mm, wall thickness 2mm, present height 30mm. EVE 0.4. A22.2003. 2245 : G1050 : sf711 : ID 234. Figure 84

14 Cylindrical cup; rim fragment. Vertical rim, externally fire-thickened; straight side. Rim diameter 85mm, wall thickness 1.5mm, present height 28mm. EVE 0.4. A24.2004. 5542 : G1075 : - : IDG 68. Phase 4.6.

15 Cylindrical cup; rim fragment. Out-turned rim, edge fire rounded; straight side. Narrow trail on upper body. Rim diameter 90mm, wall thickness 1mm, present height 21mm. EVE 0.4. A24.2004. 5522 : G719 : - : IDG 70. Phase 3.7. Figure 84

16 Cylindrical cup; rim fragment. Clouded iridescent. Out-turned rim, edge fire-rounded; vertical side; narrow horizontal trail on upper body. Rim diameter 95mm, wall thickness 1mm, present height 28mm. EVE 0.4. A24.2004. u/s : sf 1033. ID G3.

17 Cylindrical cup. 2 rim fragments and 16 small body fragments and chips. Colourless. Out-turned rim, edge fire rounded, one body fragment retains a thin trail, possibly an edge of a base ring. Fragments too small for useful measurement. A24.2004. 5990 : G1200 : - ; IDG 83. Phase 3.5.

18 Cylindrical cup; base fragment. Wide lower body; tubular pushed-in base ring; flat base broken at edge of concavity. Horizontal trail on lower body. Base diameter 60mm, wall thickness 2mm, EVE 0.4. A22.2003. 3461 : G500 : sf300. ID 357. Phase 4.1.

19 Cylindrical cup; lower body and base fragment. Wide lower body, trailed base ring; thickened flat base. Base diameter 35mm. EVE 0.4. A24.2004. 5240 : G1277 : - : IDG 151. Phase 3.7.

20 Lower body fragment (3 joining). Very slightly convex-curved curving up to side; narrow trail. Dimensions 32.5 x 18mm, wall thickness 1mm. A22.2003. 5956 : G1202 : - : IDG 241. Phase 3.2.

21 Cylindrical cup; rim fragment. Vertical rim, edge cracked off and probably ground; straight side. Present height 18mm, wall thickness 1.5mm. EVE 0.2. A24.2004. 6501 : G1108 : - : IDG 150. Phase 3.2.

22 Cup; lower body and complete base. Green-tinged colourless. Concave-sided lower body sloping into thickened base; fragments of additional glass from pontil scar on underside. Base diameter 28mm, wall thickness 1.5mm, present height 9mm. EVE 0.4 A24.2004. 5669 : G997 : - : IDG 80. Phase 4.6. Figure 84

23 Carinated cup? Lower body fragment. Green-tinged colourless; Fragment broken at carination, slightly concave-sided lower body sloping into thick, very slightly concave base. Dimensions 33 x 24mm, wall thickness 2mm, present height 10mm. A24.2004. 4982 : G947 : sf1024 : ID G34. Phase 3.6.

24 Funnel-mouthed bottle; rim fragment. Funnel mouth with rim edge bent out and down, up and in; curving over to top of cylindrical neck. Rim diameter 80mm, wall thickness 3.5mm, present height 14mm. EVE 0.14. A24.2004. 6142 : G935 : sf2022 : ID G1. Phase 3.3. Figure 84

25 Funnel-mouthed bottle; rim fragment. Funnel mouth with rim edge bent out and down, up and in; broken at top of cylindrical neck. Rim diameter 70mm, wall thickness 3mm, present height 9mm. EVE 0.14. A24.2004. 6142 : G935 : sf1883 : ID G24. Phase 3.0

26 Funnel-mouthed bottle; rim fragment. Funnel mouth, edge bent out and down and up and in. Rim diameter 65mm, neck thickness 3.5mm. EVE 0.14. A24.2004. 5018 : G686 : sf1036 : ID G17. Phase 9.1.

27 Cylindrical bottle; handle fragment. Lower part of reeded handle, simple lower attachment retaining part of shoulder. One side of handle missing. Present length 34mm. EVE 0.28. A24.2004. 5961 : G208 : - : ID G35. Phase 3.3.

28 Cylindrical bottle; 3 body fragments. Straight side, slight concavity below shoulder, two wheel-cut lines on upper body. One fragment might be from shoulder. Dimensions largest 48 x 56mm, body diameter *c.* 150mm. EVE 0.14. A24.2004. 8294 : G1098 : - : IDG 56. Phase 3.9.

29 Cylindrical bottle; handle fragment. One side of lower part of angular reeded handle. EVE 0.14. A24.2004. 4716 : G686 : - : IDG 153. Phase 9.1.

30 Cylindrical bottle; handle fragment. One side of upper part of angular reeded handle and part of upper attachment. EVE 0.14. A24.2004. 4716 : G686 : - : IDG 146. Phase 9.1.

31 Cylindrical bottle; handle fragment. Edge of straight reeded handle. Present length 28mm. EVE 0.14. A24.2004. 5479 : G936 : sf1111 : ID G14. Phase 3.6.

32 Cylindrical bottle; shoulder fragment. EVE 0.14. Dimensions 48 x 29mm, wall thickness 2.5mm. A24.2004. 5529 : G1073 : - : IDG 94. Phase 4.6.

33 Jug or bottle; cylindrical neck fragment. Neck diameter 30mm. A24.2004. 4881 : G230 : - : IDG 149. Phase 8.1.

34 Bottle, flask or jug; neck fragment. Pale greenish colourless; Cylindrical neck fragment. Present length 38mm, wall thickness 3.5mm. A24.2004. 6142 : G935 : sf2022 : IDG 2. Phase 3.3.

35 Body fragments (8). Straight side. Two wheel-cut lines. Largest fragment (dimensions) 19 x 19mm, wall thickness 1mm. A24.2004. 4439 : G1019 : - : IDG 242. Phase 4.7

36 Base fragment. Tubular-pushed in ring retaining small part of base; side grozed. Base diameter *c.* 45mm, wall thickness 1mm. A22.2003. 2661 : G399 : sf 1170. IDG 305. Phase 3.6

37 Base fragment. Solid base ring; most of side and base missing. Base diameter 55mm. A24.2004. 4134 : G1278 : - : IDG 51. Phase 4.7.

38 Base fragment. Tubular pushed-in base ring, flat base, side broken at base ring - possibly deliberately grozed. Base diameter 45mm. A22.2003. 2660 : G399 : sf787 : IDG 235. Phase 3.6.

39 Base fragment. Green-tinged colourless. Central part of slightly concave base; broken at edge of base ring. Dimensions 32 x 18mm. A24.2004. 4809 : G1387 : sf594 : ID G21. Phase 3.5.

40 Body fragment. Convex-curved with trailed and tooled curved rib. Dimensions 30.5 x 19.5mm, wall thickness 1mm. A24.2004. 5319 : G790 : - : ID170. Phase 3.2

41 Body fragment. Straight side with very slight curvature. Parts of five oval facets in irregular band. Dimensions 32 x 62mm, wall thickness 2mm. A22.2003. 3440 : G499 : sf1139 : IDG 351. Phase 4.1. Figure 84

42 Body fragment. Convex-curved with edge of curved shallow rib. Dimensions 18 x 17mm, wall thickness 1mm. A24.2004. 4224 : G1053 : - : IDG 181. Phase 10.

43 Body fragments (46). Straight-sided body. Two fragments retain trace of narrow abraded band; one bending through curve - either from carination or to base. Largest fragment dimensions 31 x 14mm, wall thickness 1mm. A24.2004. 4949 : G731 : - : IDG 240. Phase 4.7.

Blue/green

44 Cylindrical cup; rim and joining body fragment. Out-turned rim, edge fire-rounded; straight side. Very shallow diagonal optic blown ribs. Rim diameter 70mm, wall thickness 1mm, present height 31mm. EVE 0.4. A24.2004. 5428 : G224 : sf1115 : IDG 45. Phase 4.6. Figure 84

45 Tubular rimmed bowl (?), rim fragment. Rim first rolled in, then bent out and down to form a tubular edge; outer edge marvered smooth so that the first roll is only now visible as a line along the outer face of the rim; straight side; small chip from handle attachment on top of rim. Rim diameter *c.* 160-170mm, wall thickness 1mm, present height 15mm. EVE 0.14. A24.2004. 5352 : G1063 : - : IDG 89. Phase 3.7. Figure 84

46 Tubular-rimmed bowl; rim fragment. Slightly out-bent rim, edge bent out and down. Rim diameter *c.* 130mm, wall thickness 2mm, present height 13mm. EVE 0.2. A22.2003. 3536 : G448 : sf332 : IDG 358. Phase 3.6.

47 Collared jar; rim fragment. Rim edge first rolled in, then out and down. Present 9mm. EVE 0.19 A24.2004. 4888 : G928 : - : IDG 79. Phase 3.5.

48 Globular jug or jar; lower body and base fragment. Convex-curved lower body, open pushed-in base ring; base missing. Base diameter 80mm, wall thickness 2mm, present height 19mm. EVE 0.28. A22.2003. 2784 : G411 : sf814 : IDG237. Phase 3.4.

49 Globular jug or jar; two body fragments. Lower convex-curved body fragment with edge of open pushed-in base ring; convex-curved body fragment with parts of three vertical ribs. Abraded band of wear above base ring. Present height 24mm, wall thickness 2mm. A24.2004. 4514 : G753 : sf 567 : ID G22. Phase 9.1.

50 Body fragment. Convex-curved with optic blown rib. Dimensions 29 x 24mm, wall thickness 1.5mm. A24.2004. 5319 : G790 : - : IDG 155. Phase 3.2.

51 Body fragment. Slightly convex-curved body with two vertical ribs. Dimensions 28 x 23mm, wall thickness 1mm. A24.2004. 8370 : G1147 : - : IDG 143. Phase 11.

52 Jug, rim fragment. Blue/green. Rim bent out and down, up and in; cylindrical neck. Rim diameter 33mm, present height 15mm, neck thickness 2mm. EVE 0.14. A24.2004. 5050 : G1313 : sf - : IDG 71. Phase 4.6.

53 Spouted jug, rim and neck lacking back of rim; complete handle (not joining). Blue/green. Funnel mouth, edge rolled in, rim edge pulled out and slightly up to form spout opposite the handle; cylindrical neck curving out to globular body. Ribbon handle with pronounced side ribs; upper attachment retains small fragment of funnel mouth with rim edge probably rolled in, handle applied to upper edge of rim, trailed down neck, then back up to form a looped thumb rest pinched flat; simple lower attachment has side ribs drawn out to form prongs; lower attachment retains part of convex-curved body with very fine spiral trails, parts of three remaining. Present height 43mm, diameter of neck 28mm, wall thickness 2mm, handle width 11mm. EVE 0.68. A22.2003. 3264 : G361 : sf1157 : IDG 231. Phase 2.5. Figure 84

55 Funnel-mouthed jug, rim and handle fragment. Funnel mouth with rim edge rolled in. Ribbon handle with pronounced side ribs; upper attachment applied to upper edge of rim, trailed down neck, then back up to form a looped thumb rest pinched flat; handle broken as it changes angle. Handle width 19mm. EVE 0.14. A22.2003. 2565 : G1346 : sf 767 : IDG 232. Phase 4.6

56 Funnel mouthed jug; rim fragment. Funnel mouth, rim edge rolled in; small chip of handle attachment. Rim diameter 40mm, wall thickness 2mm, present height 23mm, EVE 0.14. A24.2004. 6839 : G1069 : sf1963 : ID G32. Phase 3.8.

57 Jug, handle fragment. Part of pulled out lower handle attachment, retaining part of convex-curved shoulder. Dimensions 25 x 18mm. A24.2004. 4568 : G734 : - : IDG 134. Phase 9.02.

58 Jug or bottle; handle fragment. Edge of straight handle with very thick rib. Present length 33mm. A22.2003. 4982 : G947 : sf1025 : IDG 247. Phase 3.6.

59 Handle fragment. D-sectioned rod handle broken at angle, lower part straight; expanded simple lower attachment retaining convex-curved side. Present length 30mm, handle section 5.5 x 4mm. EVE 0.28. A24.2004. U/S : sf 1120 : ID G36.

60 Handle fragment. Small chip from edge of straight ribbon handle. Dimensions 11 x 4mm, thickness 4mm. A24.2004. 5063 : G1476 : sf 2038 : G ID 43. Phase 4.7.

61 Bath flask; neck and handle fragment. Cylindrical neck, curving out to convex-curved body. Ring handle applied to shoulder, trailed up the neck, under the (missing) rim, looped down to the lower attachment and trailed up to rim. Upper part of loop retains chip from rim. Present height 21mm. EVE 0.17.

62 Unguent bottle; lower body fragment. Side sloping out and broken as it curves into base. Maximum body diameter 30mm, wall thickness 4mm. A24.2004. 4649 : G1249 : sf589 : ID G25. Phase 3.5.

63 Jug or bottle; neck fragment. Cylindrical neck with scar from handle attachment. Length 14mm. A22.2003. 3449 : G498 : sf1144 : IDG356. Phase 4.1.

64 Flask or jug; rim fragment. Outbent rim, edge rolled in; cylindrical neck. Rim diameter 35mm, neck thickness 3mm, present height 16mm. EVE 0.14. A24.2004. 5428 : G224 : sf1755 : ID G7. Phase 4.6.

65 Flask or jug; neck and body fragment. Cylindrical neck curving out to globular body. Present height 49mm, neck diameter 28mm, wall thickness 1.5mm. A24.2004. 4888 : G928 : - : IDG 152. Phase 3.5.

66 Flask or jug; neck fragment. Cylindrical neck curving out to shoulder. Dimensions 24 x 19mm, wall thickness 2mm. A24.2004. 5628 : G1308 : - : IDG 159. Phase 3.7

67 Jar or bottle rim fragment. Narrow rim bent out, up, in and flattened. Rim diameter 55mm, width of rim 9mm. A24.2004. 5479 : G936 : sf1111 : ID G29. Phase 3.5.

68 Jar or flask; rim fragment. Edge turned out, rim edge rolled in. Rim diameter 40mm, wall thickness 1mm. A24.2004. 4573 : G1086 : sf546 : ID G31. Phase 9.1.

69 Base fragment. Broken side, open pushed-in base ring, flat base with slight central thickening. Base diameter 61mm. A24.2004. 5628 : G1308 : - : IDG 158. Phase 3.7.

70 Base fragment. Tubular pushed-in base ring; edge grozed; small area of base. Base diameter 75mm. A24.2004. 6905 : G1089 : - : IDG 65. Phase 10.

71 Base fragment. Outsplayed tubular pushed-in base ring; concave base; edge grozed. Base diameter 60mm, A24.2004. 5284 : G947 : - : IDG 121. Phase 3.

72 Base fragment. Tubular pushed-in base ring; side and base missing. Dimensions 12 x 11mm. A24.2004. 5570 : G677 : - : IDG 120. Phase 8.03.

73 Body fragment, 2 joining. Convex-curved side curving through carination; two abraded bands above carination. Dimensions 55 x 33m, wall thickness. A22.2003. 3536 : G448 : sf332 : IDG 359. Phase 3.6.

74 Cylindrical bottle; complete rim, neck and handle, large parts of shoulder and parts of upper body (9 fragments, most joining). Rim bent out, up and in; cylindrical neck with horizontal scratches around lower part; horizontal shoulder bending over to cylindrical side. Angular reeded handle applied to shoulder, bent down and applied to neck, bent back along handle, looped back and then trailed up underside of rim. Rim diameter 405mm, present height *c.* 120mm, handle section 65 x 9mm. EVE 0.7. A22.2003. 2340 : sf1151 : IDG 252. Phase 13. Figure 85

75 Hexagonal bottle; 37 large neck, shoulder, body and base fragments; 10 joining in five groups of two, a group each of three and four fragments joining, also eight joining to give large part of side with part of base. Cylindrical neck retaining parts of folded upper handle attachment and sliver from underside of rim; horizontal wear marks on side of neck and light tooling marks on neck/ shoulder junction. Angular reeded handle, lower attachment only very lightly attached to the shoulder originally as the lower attachment has become detached leaving only the scars of the attachment on the shoulder with the attachment itself (including the very thin spines from the reeded decoration) still attached to the handle. Very large pieces from the sides extant but the majority of the sides are missing. Base approximately one-third extant, slightly concave. Base design - part of one circular moulding, part of one curved moulding internally, not concentric with outer moulding. Maximum joined height 145mm, width of one side 90mm; width of bottle 150mm, diameter of neck 75mm. Side thickness 3-5mm. Diameter of outer base moulding 118mm. EVE 0.86. A22.2003. 2633 : G784 : sf778 : IDG 223. Phase 3.1. The upper and lower parts do not join and the upper part may be part of the vessel represented by no 76 below. Figure 85

76 Hexagonal bottle. Lower body and base fragment. Corner of base with moulded pellet. Dimensions 35 x 16mm, present height 17mm. EVE 0.14 A22.2003. 2633 : G784 : sf778 : IDG 224. Phase 3.1. Figure 85

77 Square bottle; complete base and parts of lower body on each side. Concave base. Base design - two concentric circular mouldings with hemispherical pellet in each corner. Pontil scar overlying central moulding. Width of bottle 89mm, Diameter of outer moulding 75mm, present height 82mm. EVE 0.42. Also one angle fragment, possibly from the same vessel. A22.2003. 3489 : G526 : sf319 : IDG 228. Phase 4.1. Figure 85

78 Square bottle; base fragment. Broken at edge of base, slightly concave base. Base design - St Andrew's cross moulding centrally, 'L'-shaped moulding in corner. Dimensions 35 x 31mm. A24.2004. 5780 : G1260 : - : IDG 104. Phase 3.7. Figure 85

79 Square bottle; base fragment. Base slightly concave centrally. Base design - distorted circular moulding with diagonal central cross moulding with expanded ends. Width of bottle *c.* 65mm. EVE 0.28. A22.2003. 2411 : G377 : sf748 : IDG239. Phase 3.9. Figure 85

80 Square bottle, lower body and base fragment, also one other body fragment. Base broken at edge of moulding. Bottle width *c.* 80mm, present height 97mm. EVE 0.28. A22.2003. 3264 : G361 : sf1157 : IDG 230. Phase 2.5.

81 Prismatic bottle, base fragment. Base design - circular moulding with diagonal cross with expanded ends centrally. Dimensions 63 x 16mm. Width of bottle *c.* 70mm. EVE 0.28. A24.2004. U/S. IDG 192. Figure 85

82 Prismatic bottle; base fragment. A sliver through the centre of the base retaining a central cross moulding, at side part of a straight moulding turning through an angle either 90 or 120 degrees. Dimensions 36 x 12mm. A24.2004. 5614 : G1261 : - : IDG 105. Phase 3.8. Figure 85

82a Prismatic bottle; lower body and base fragment. Base design – part of one circular moulding with small parts of a probably concave moulding internally meeting the outer circle. Bottle width *c.* 84mm, present height 39mm. EVE 0.28. A24.2003 8053 : G718 : IDG. Phase 3.2.

83 Prismatic bottle; base fragment. Base design - parts of two concentric mouldings. Dimensions 33 x 26mm. EVE 0.14. A24.2004. 5479 : G936 : sf 1111 : ID G30. Phase 3.5

84 Prismatic bottle; lower body and base fragment. Pale blue/green. Base design - small part of circular moulding. Present height 40mm. EVE 0.28. A24.2004. 4611 : G1187 : - : IDG 63. Phase 3.3.

85 Prismatic bottle; base fragment. Broken at edge of side, base slightly concave. Base design - a circular moulding. Dimensions 29 x 22mm. Diameter of base moulding 40mm, base width *c.* 60mm. EVE 0.28. A24.2004. 5783 : G1257 : - : IDG 81. Phase 3.6.

86 Prismatic bottle; lower body and base fragment. Base design - part of one circular moulding diameter *c.* 80mm, width of base *c.* 97mm. Present height 42mm. EVE 0.28. A24.2004. 5050 : G1313 : - IDG 191. Phase 4.6.

87 Bottle, rim fragment. Rim bent out, up, in and flattened; inner edge of rim broken off. Rim diameter 55mm, EVE 0.14. A24.2004. 6349 : G665 : sf1919 : ID G28. Phase 8.03.

88 Bottle; rim fragment. Rim bent out, up, in and flattened. Rim diameter 60mm. EVE 0.14. A24.2004. 4129 : G1046 : - : IDG 57. Phase 8.2.

89 Bottle; rim and neck fragment. Rim bent out, up, in and flattened with inner edge tooled down inside cylindrical neck; small area of upper handle still attached to upper part of neck. Rim diameter 53mm, neck thickness 4mm, present height 28mm. EVE 0.14. A24.2004 : 5953 : G1382 : sf1779. ID G4. Phase 3.6.

90 Bottle; rim and separate neck fragment. Rim bent out, up, in and flattened. Cylindrical neck possibly from then same vessel. Rim diameter 45mm. A24.2004. 4622 : G1278 :- : IDG 97. Phase 4.7.

91 Bottle; rim fragment. Blue/green. Rim bent, out, up, in and flattened; small part of cylindrical neck. Rim diameter 55mm. EVE 0.14. A24.2004. 4879 : G1310 : - : IDG 53. Phase 3.5.

92 Bottle; neck fragments (2). Blue/green. Cylindrical neck curving out to shoulder; vertical scratch marks. Neck diameter 60mm. A24.2004. 6021 : G1215 : sf 1992 : ID G42. Phase 2.4.

Fourth century green glass

93 Hemispherical cup, rim fragment. Pale yellow/green with small bubbles. Curved rim, edge cracked off and not ground; convex-curved side. Abraded band below rim and another on body. Rim diameter 95mm, wall thickness 1.5mm, present height 28mm. EVE 0.4. A24.2004. 4397 : G1043 : - : IDG 129. Phase 8.2. Figure 84

94 Conical beaker; rim fragment. Pale greenish with small bubbles. Curved rim, edge cracked off and not ground; straight side sloping in. Rim diameter 70mm, wall thickness 1mm, present height 26mm. EVE 0.4. A24.2004. 4221 : G253 : sf460 : IDG 49. Phase 4.7. Figure 84

95 Beaker; body fragment. Green-tinged colourless with small bubbles. Straight side. Two abraded bands. Dimensions 28 x 27mm, wall thickness 1mm. A24.2004. 5669 : G997 : - : IDG 110. Phase 4.6.

96 Beaker or cup (?), two body fragments. Pale green with small bubbles; very heavily pitted corrosion. Abraded band. Dimensions (largest) 19 x 13mm, wall thickness 1mm. EVE 0.2. A24.2004. 5675 : G664 : - : IDG 244. Phase 8.2.

97 Beaker or cup; lower body fragment. Pale green-tinged colourless; small bubbles. Side sloping into edge of base. Abraded band. Dimensions 26 x 23mm, wall thickness 1mm. A24.2004. 5428 : G224 : sf1115 : IDG50. Phase 4.6.

98 Hemispherical cup; rim fragment. Pale green with small bubbles. Out-turned rim, edge fire-rounded; slightly convex-curved side. Rim diameter 75mm, wall thickness 1mm, present height 29mm, EVE 0.4. A24.2004. 5266 : G1037 :- : IDG 55. Phase 4.7. Figure 84

99 Indented truncated conical bowl, 3 body fragments retaining parts of several indentations. Diameter (largest) 37 x 25mm, wall thickness 1.5mm. A24.2004. 5096 : G227 : - : IDG 122. Phase 4.4.

100 Segmental bowl, three rim and three body fragments, four joining. Yellow/green with small bubbles. Curved rim, edge cracked off and not ground; convex-curved side. Rim diameter 100mm, wall thickness 2mm, present height 28mm. EVE 0.4. A24.2004. 5530 : G227 : - : IDG 117. Phase 4.4. Figure 84

101 Hemispherical cup or globular flask lower body fragment. Pale yellow-tinged colourless, many small bubbles. Convex-curved side broken at edge of shallow concave base. Dimensions 43 x 25mm, wall thickness 2mm. A24.2004. 5529 : G1073 : - : IDG 95. Phase 4.6

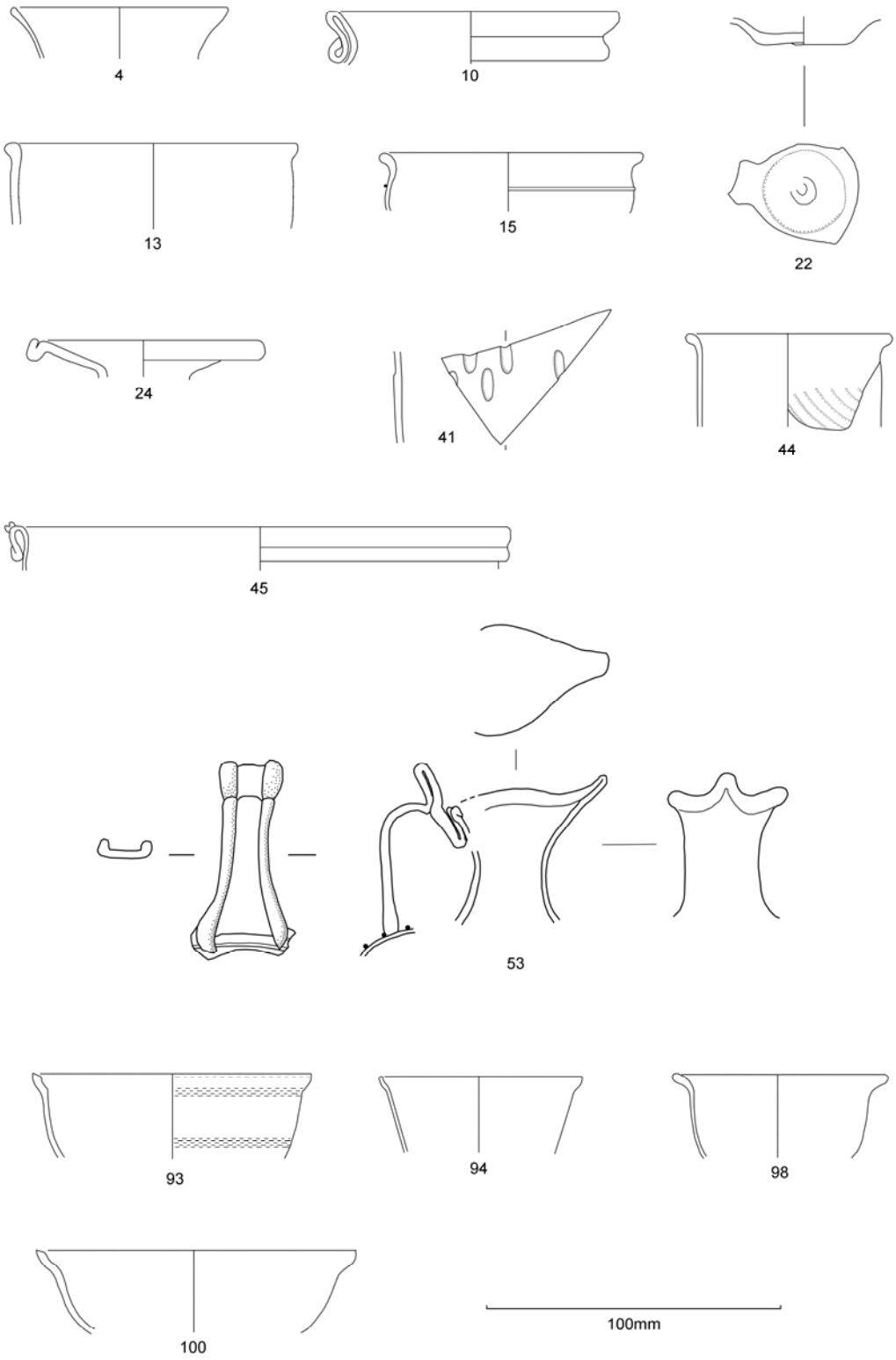


Figure 84: The Roman Glass: the illustrated Roman glass fragments, 4, 10, 13, 15, 22, 44-5, 53, 93-4, 98, 100

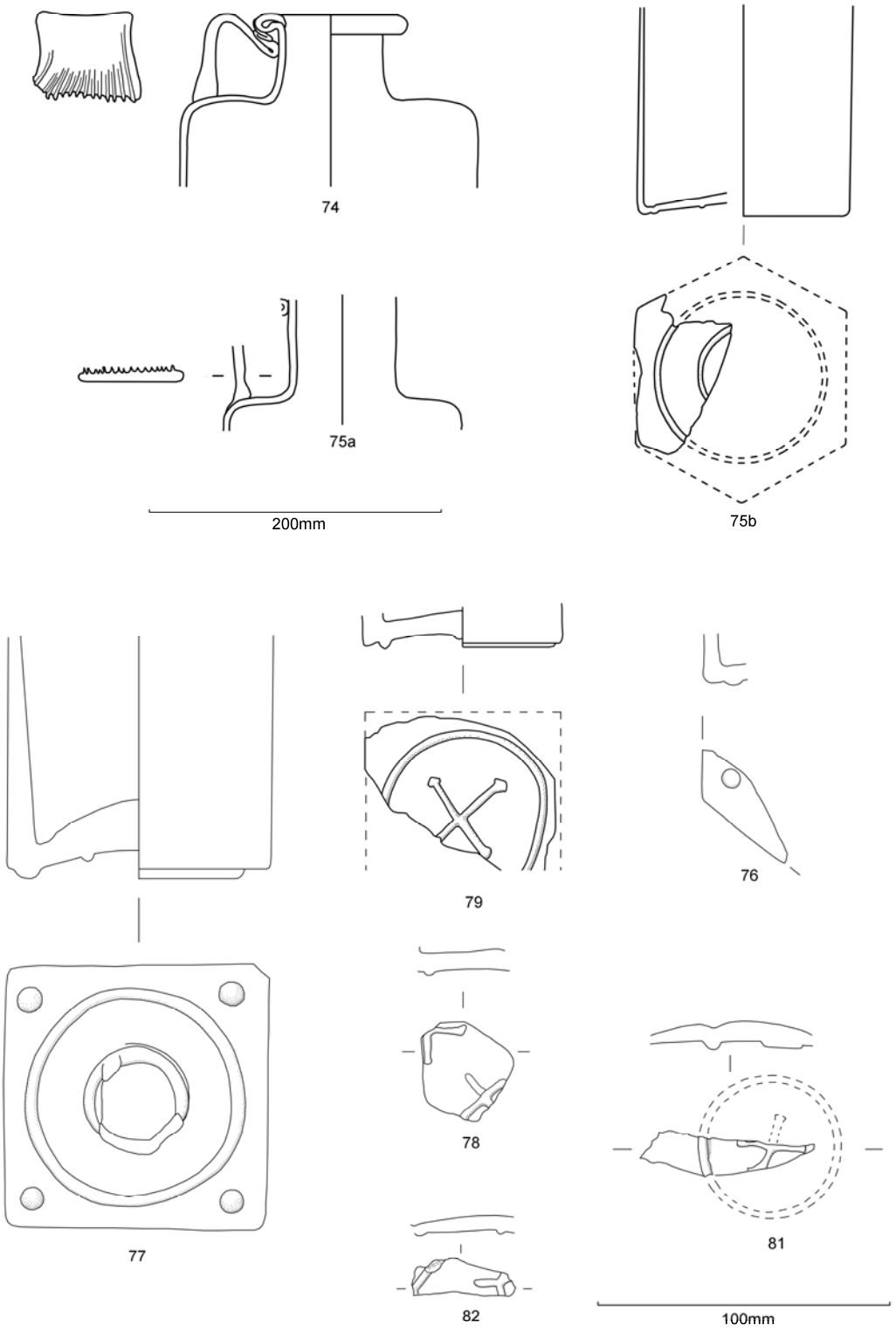


Figure 85: The Roman Glass: the illustrated Roman glass fragments, 74-79, 81-2

A note on the Roman window glass

The Roman window glass is summarized in Table 121. Approximately two-thirds (measured by area) was made by casting. It is blue/green and has the typical combination of matt and glossy surfaces. This was the typical glazing of the first to third centuries. Spatially the fragments from Phases 3 and 4 are widely scattered across the site and show no special concentrations occurring in and around both Buildings F and G. In some cases the demolition deposits of bath-houses produce considerable amounts of window glass because glazed windows were an integral part of their architecture. Cast window glass was found in the demolition deposits associated with Building F and its bath-suite (contexts 2787 and 2396, both G514 – Phase 4.6) but only in modest amounts.

Blown window glass is normally a feature of 4th-century assemblages and so the presence of fragments in three Phase 3 contexts 5269 (G790, Phase 3.2), 5427 (G931, Phase 3.5) and 5453 (G730, Phase 3.7) is noteworthy and possibly hints at early blown glazing at Leicester.

Table 121: The Roman Glass:Roman window glass at Vine Street (cm^2)

Phase	*Cast*	*Blown*	*Total*
3	65.0	10.5	75.5
4	55.5	13.5	69.0
5	-	3.0	3.0
7	-	2.0	2.0
8	2.5	13.0	15.5
9	-	5.5	5.5
11	-	-	-
13	7.0	-	7.0
0	9.0	5.0	14.0
Total	139.0	52.5	191.5

THE MEDIEVAL GLAZING *H.E.M. Cool*

A small amount of medieval painted window glass was found in Phase 9 contexts (nos.1-2). No 1 has a painted line in a spiral and most probably comes from a grisaille design. Both of these pieces would have been broadly contemporary with the contexts they were found in and the unstratified no. 3 would have been of the same date. No. 4, also from an unstratified context, is decorated with yellow stain and is of a better quality thin glass. Such features suggest it would have been most likely to be of 15th-century date. Two edges appear to have been cut rather than grozed which would suggest a date late in the century or in the 16th century.

Both stratified pieces of glass, nos. 1-2, can from material within St Michael's Churchyard (Plot Seven). No. 1 came from the backfill of a quarried Roman wall footing on the southern edge of the plot, whilst no. 2 came from a soil deposit on the northern edge, immediately north of the putative church location.

1 Window glass, fragment with two edges grozed at 90^0. Pale green glass with surfaces corroded. Painted line forming a large spiral. Dimensions 55 x 55mm, area 23cm^2. Sf330 : 3591 : G573 : Phase 9.1.

2 Window glass, three small fragments with broken edges; potash glass entirely corroded. One fragment retaining traces of painting, two pairs of lines meeting in a point. Total area 5cm^2. sf1961 : 6667 : G895 : Phase 9.1.

3 Window glass, two fragments one with one grozed edge. Highly corroded, possibly with traces of painting. Area 19cm^2. sf 205 : U/S Area 3 machining.

4 Window glass, one fragment with two edges cut at approximately 60^0. Thin pale green glass surfaces corroded. Traces of yellow stain decoration. Dimensions 54 x 46mm, area 11cm^2. sf239 : U/S Area 3 machining.

THE ROMAN PAINTED WALL PLASTER *Susan Ripper*

(with contributions from G. Morgan and R. Buckley)

Introduction

The painted plaster gives a tantalising hint at the variation and vivacity of decorative styles used in the principal Roman buildings at Vine Street. A moderate quantity of mostly very fragmentary plaster was found from across the site, with examples from all Roman phases. Fragments representing a wide range of designs in assorted colours, both commonplace and rare, were achieved using a variety of techniques (*fresco, tempera*, burnishing etc.). However, none of the plaster was found *in situ* and insufficient joins between fragments were found to enable the recreation of schemes or even elements of designs. Most fragments were small and heavily abraded, and some may even have been transported to the site as rubble hard core. Groups of colours or designs could not therefore be appointed to particular paintings with any certainty, and it is not known how many rooms were painted or even precisely which buildings! Notable colours or designs have been grouped, in this report, by sub-phase in order to record the chronological sequence of styles. Using comparisons from elsewhere in Britain, and more particularly from other Roman buildings in Leicester, is has been possible to extrapolate some likely design elements, and propose a framework for when they are likely to have been in use.

In total, 4043 fragments of painted wall plaster were recovered from 261 different contexts across the Vine Street excavations. The earliest contexts were dated to the late 1st century but, as debris from demolished walls, they allude to a building either pre-dating the known buildings on site or, more likely, transported to the site from a building reasonably near the site. No evidence for a 1st-century building was found at Vine Street but the painted plaster suggests it was both near enough to be worth transporting building debris from and formerly of some importance. The next group of plaster may have come from the mid- to late 2nd-century phase of building, suggesting even the simplest of timber structures were plastered, although it is also possible that this group was residual and originated in the building of the earlier group. Further examples were recovered from the modification and then demolition of the stone-built 'strip buildings' phase (mid- 2nd-early 3rd century) and a group which included painted *opus signinum,* most likely originating from the 'failed' bath house (Building F, phase 3.4). Finally, a large quantity of plaster was recovered from the demolition debris of the Courtyard House and Building F (mid- 4th century). No post-Roman wall painting was identified.

Results by Phase

The results in this report are presented chronologically, by phase, with sub-phase tables describing the painted fragments by group and contexts. Weights of plaster have been recorded in the archive database but within this report quantities are discussed as fragment numbers. Paintings or techniques of note from sub-phases are described below each table, with selected photographs to illustrate (database reference '101-' followed by the context number). All photographic scales are in centimetre sub-divisions.

Phase 2

Phase 2.1 (late 1st to early 2nd-century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
429 (Made up ground beneath *Insula V* subsoil)	2384	1	Red line separating grey and green

The town's grid street is thought to have been established during the late 1st-early 2nd century (Figure 86). The ground within *Insula V* was landscaped and levelled prior to the streets being laid out and in this levelling layer, a single fragment of painted plaster was recovered. Possible contamination of this layer with a small quantity of late 2nd-early 3rd century pottery, along with the very small quantity of plaster found, means the painted plaster cannot be considered as evidence of an early, pre-street grid building

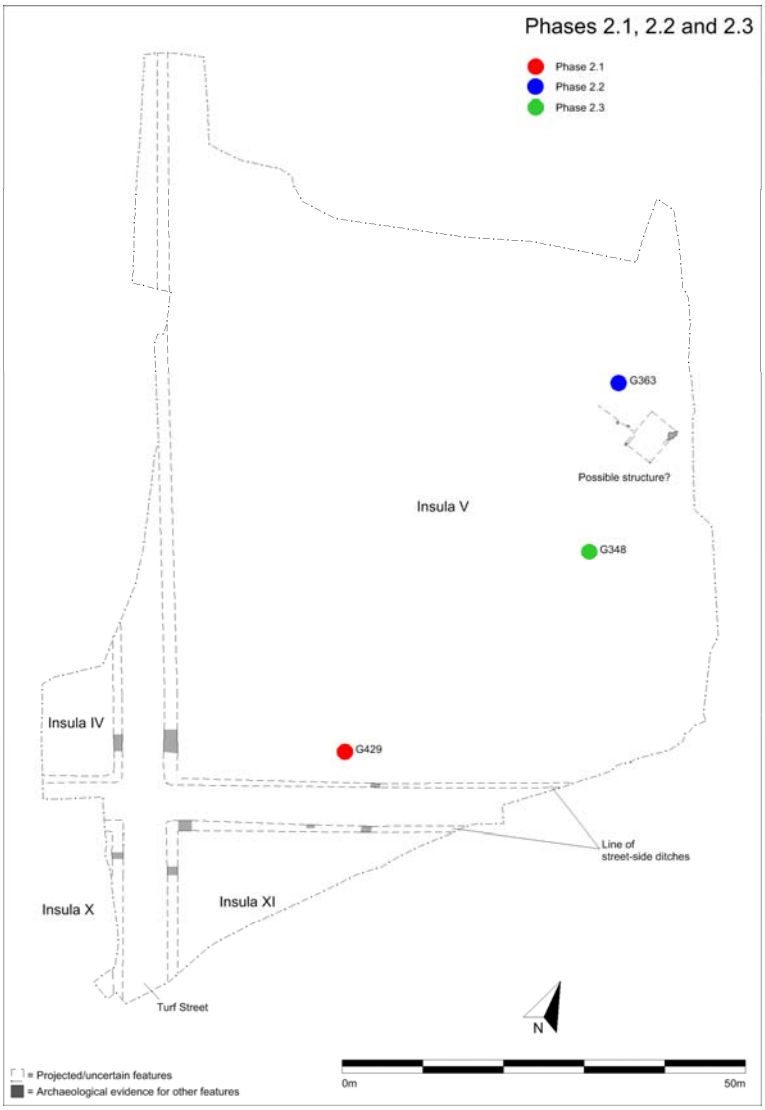


Figure 86: The Roman Painted Wall Plaster: distribution of wall plaster in phases 2.1, 2.2 and 2.3

Phase 2.2 (late 1st- early 2nd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
363 (pit within *Insula V*)	3501	9	Pink/orange, white and yellow. Some polished

Nine fragments of plaster were recovered from a possible small quarry pit, deliberately backfilled to consolidate ground prior to the construction of the first phase of building, but after the establishment of the street grid (Figure 86). The wall plaster must have originated from an early building, presumably located outside the excavated area, but of sufficient status to be decorated.

The sheen produced by polishing wall paintings is thought to characterise the better quality murals. The polishing of some of the pieces in Group 363 indicates a degree of skill and technical competence that supports the proposal of a building of status.

Phase 2.3 (early 2nd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
348 (made up ground within Insula V)	3736	34	Many pink with white tramlines. Some multi coloured stripes. Some free-hand lines and some figurative. (not photographed)

During Phase 2.3 the street grid appears to have been turfed (Figure 86). The interior of *Insula V* continued to be landscaped in preparation for development. The 34 painted plaster fragments recovered again allude to an unknown demolished early building.

Some fragments included multi-coloured stripes of brown and shades of pink. When viewed from a distance, shaded lines were often used to depict illusionistically projecting columns in a main panel of a wall decoration. The 'tramlines' are often associated with panel decorations (a large rectangular field in the main section of a tripartite design, often framed with narrow tramlines to suggest perspective). Panel-schemes are the simplest and by far the commonest form of wall painting (*for example* Room 4 at Verulamium reproduced in Davey and Ling 1982, fig.44), and present throughout the Roman period.

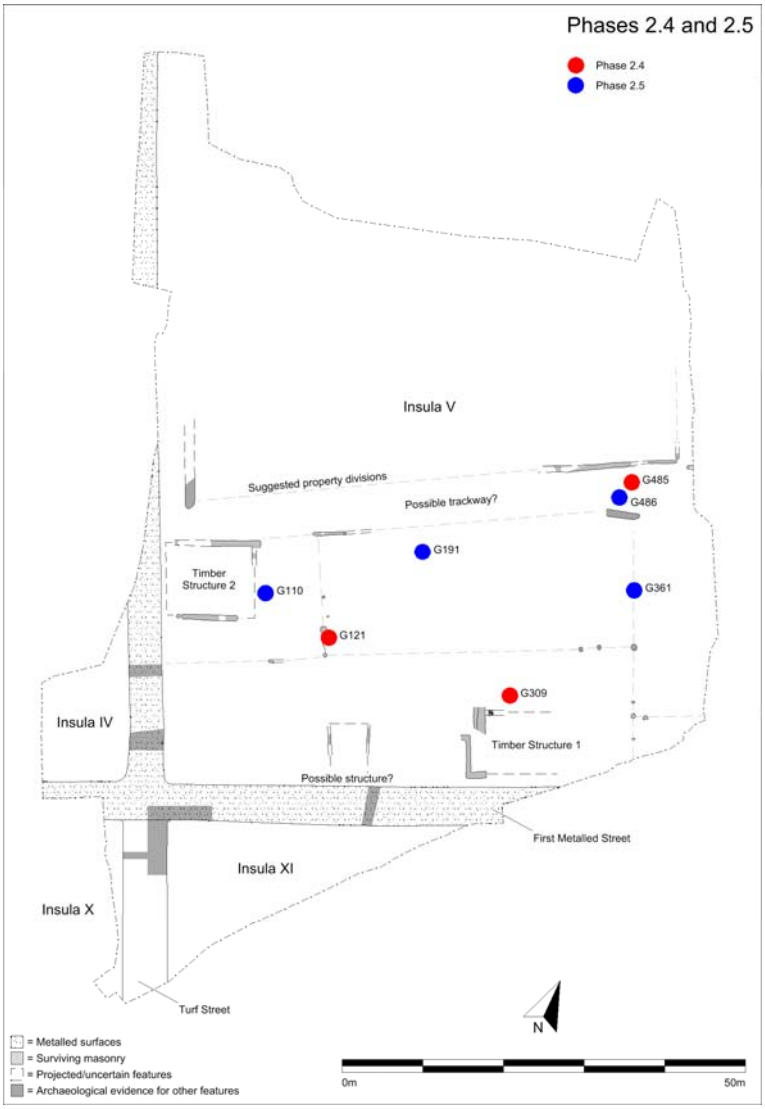


Figure 87: The Roman Painted Wall Plaster: distribution of wall plaster in phases 2.4 and 2.5

Phase 2.4 (mid- 2nd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
121 (made-up ground in external yard, Timber structure 1)	8130	4	Pink, slightly burnished
309 (Under Building F, rm 7)	2984	?	Coarse plaster
485 (mortar surface on EW boundary across Insula V)	3725	?	fragment of olive green ground colour splashed with black, white, yellow and red

All fragments from Phase 2.4 were found in surfaces or yard material associated with the early timber buildings (Figure 87), although it is not clear whether they derived from these structures or were brought in from further afield as hardcore. In view of the fact that the plaster was in reasonable condition, it is

perhaps unlikely that it was transported any great distance and so probably derives from a demolished building in the vicinity. The range of colours used and the spread of features from which the fragments were found might even suggest they derived from more than one room or building.

The splash decoration observed in Group 485 (Figure 88) is usually considered to be from the *dado* (lowest part of the wall in a tripartite scheme of wall-painting), but cannot be closely dated as such stippling seems to have occurred at all periods and is the simplest form of imitation marbling.

Figure 88: The Roman Painted Wall Plaster: Group 485 (3725) Splashed imitation marble *dado*

Phase 2.5 (mid- 2nd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
110 (possible yard surface, Timber building 1)	6914	?	plain
191 (post hole in yard surface, Timber building 1)	5337	3	red
361 (deposit of mortar, *opus signinum* and wall plaster)	3264	210	Includes a variety of colours Plain white with 'ladder' pattern of scratch marks. Possible graffiti Also yellow base colour with red, pink, black and white leaf decoration– see also Phase 8.1, Group *614* for same design. Yellow and red architectural fragment some Opus signinum (not painted), some window/door mouldings
486 (clay surface NE of timber structure 1)	3641	3	Polished pink with chevron roller impressions on reverse

Phase 2.5 consists of three groups of spreads or yard surfaces derived from demolition debris (Figure 87). The larger quantities of wall plaster, notably in Group 361, again suggest the demolition site was local. The incised ladder pattern seen on two fragments in Group 361 (Figure 89) is probably graffiti, rather than part of an intended design. The graffiti appears to have been scratched onto the *intonaco* (uppermost layer of fine, white plaster), to reveal the coarse plaster below.

A number of fragments also showed a yellow base colour decorated with 'leaf' patterns – a larger leaf was painted with a single stroke from the side of a brush, overlain with a different coloured smaller stroke (Figure 90). This may have produced a floral design, but could equally have been part of a *swag* (garland of leaves) or even the feathers from an exotic bird. A similar design was noted in Group 614, some 20m north of Group 361, and from a medieval quarried wall footing (Phase 8.1).

Group 486 also contained a single fragment of polished pink plaster with chevron impressions on the reverse. When a plaster rendering was applied to a clay or *pisé* wall, a key might be obtained by impressing the clay in 'herringbone' fashion with a stamp or roller or simply by incising the surface with a trowel. Similar keying might also occur between coats of plaster. The examples from Vine Street, although fragmentary, bear a strong resemblance to the better-preserved impressions recorded from the late 2nd – early 3rd century Norfolk Street Villa in the western suburbs of Leicester (Buckley forthcoming). The roller impressions and their possible links with those seen at Norfolk Street are discussed more fully below.

Figure 89: The Roman Painted Wall Plaster: Group 361 (3264) graffiti

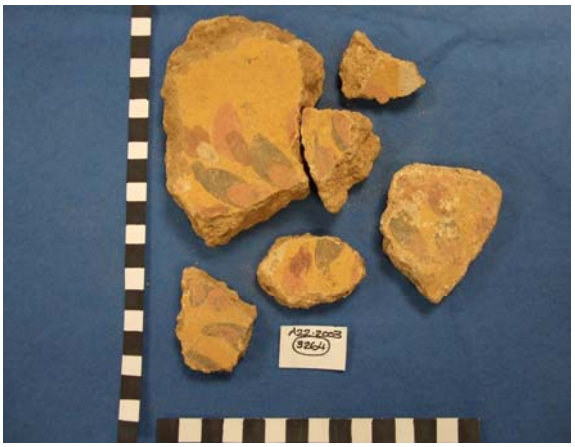


Figure 90: The Roman Painted Wall Plaster: Group 361 (3264) leaf patterns

Phase 3

Phase 3.1 (mid- 2nd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
318 (demolition of early timber phase under Building G, room 1)	2987	1	Plain white
410 (surface over demolished timber structure)	2607 2619	2 18	Red and white mixed dark red and white, some combing of white plaster
789 (made-up ground capping Timber Structure 2)	4161	3	Burnished red
1234(made-up ground capping Timber Structure 1)	6286	5	white

Following the demolition of the 2nd-century timber structures, the ground was apparently once again levelled and slightly raised before re-development with more permanent buildings. Within the demolition debris, wall plaster was found (Figure 91). It is possible that the timber buildings of Phase 2.4 could have been plastered and painted, and these remnants suggest a decoration, perhaps mostly in red and white. However, painted plaster is difficult to date stylistically, and consists of unchanging ingredients, so it is equally possible that the material was 'brought-in' from an earlier building not on the Vine Street site.

Of note was a fragment which shows the surface of the plaster being prepared with a rough brush-coat of lime slurry (Figure 92). That this surface was allowed to dry suggests the uneven surface was intentional, perhaps part of a textured design. Burnished fragments were again noted in this group, suggesting technical competence and a degree of quality.

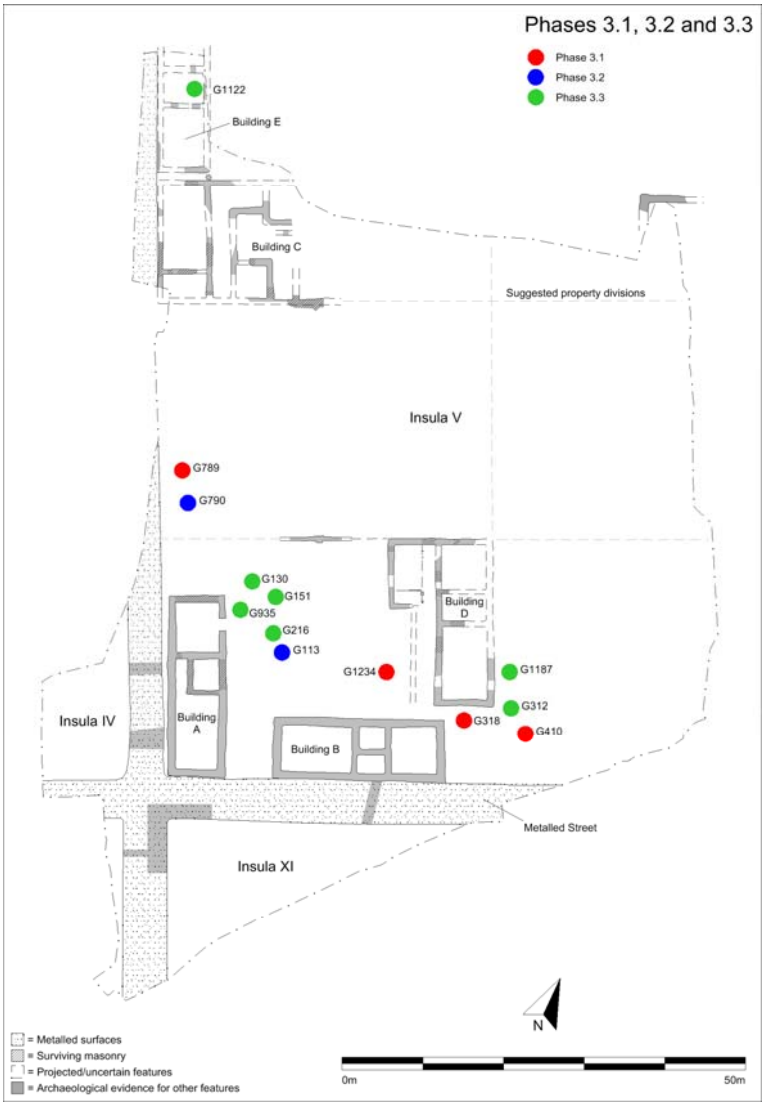


Figure 91: The Roman Painted Wall Plaster: distribution of wall plaster in phases 3.1, 3.2 and 3.3

Figure 92: The Roman Painted Wall Plaster: Group 410 (2619); fragment with lime wash

Phase 3.2(mid- 2nd century AD*)*

In the mid- to late 2nd century, the timber buildings were replaced with simple strip buildings (Buildings A-E), constructed with stone footings (Figure 91). The fragments of wall plaster found in the yard surface and the ditch to the north of Building A are associated with a demolished building from an earlier period. The striped decoration seen in both groups is probably part of a panel design, one of the commonest forms of decoration from all periods of Roman occupation.

Group	Context	Frag. No.	Wall plaster descriptions
113 (mortar surface east of Building A)	4709	10	yellow on red, white stripe over junction, white on black
790 (Ditch north of Buildings A, B & C)	5269	2	red band on white

Phase 3.3 (late 2nd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
130 (alleyway surface or yard NE of Building A)	6248	1	Red on pink on white
151 (alleyway surface or yard NE of Building A)	6297	1	red
216 (post hole in yard west of Building D)	4996	5	red
312 (remains of timber floor under Building F, rm 7	2956	1	Coarse plaster inc. chunks of lime and *opus signinum*
935 (trample on surface or yard NE of Building A)	6033	15	pseudo-marbling- pale grey/dark red spots on red, black. Rolled impression on reverse.
	6057	1	white
1122 (Possible earth floor with localised burning, Building E)	8075	6	Red
1187 (made-up ground SE of Building D	1187	1	red

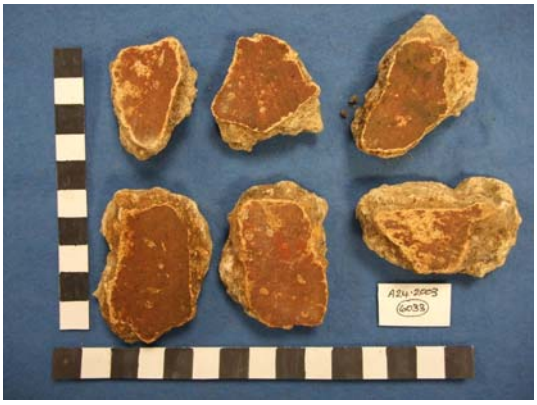


Figure 93: The Roman Painted Wall Plaster: Group 935, (6033) Splashed imitation marble *dado*

Figure 94: The Roman Painted Wall Plaster: Group 935, (6033) roller impressions

Like Phase 3.2, the wall plaster found in this phase is all associated with demolition debris from an earlier building (Figure 91). Of note is the single fragment from Group 312 which included chunks of lime and *opus signinum.* Wall plaster is produced by mixing slaked lime and sand which reacts, when water is added, to turn the friable slaked lime back into a solid (calcium carbonate). By adding other suitable materials (for example pounded tiles, bricks, pottery, burnt clay etc) the additives give the lime additional hydraulic properties, making it capable of setting in wet areas and giving soft lime greater strength. The plaster could thereby be made at least partially water resistant. In this instance, the fragments of crushed *opus signinum* in the plaster show the re-use of a building material to achieve this water-proofing effect. As a re-used commodity it may have originated in an earlier phase of building, of unknown location, but built by competent builders with an understanding of how to achieve damp-proofing. However, the location of this single fragment (under Building F, Room 7) is not far from the later bath house and it is conceivable that this piece was intrusive. The chunks of lime suggest the mix was not thorough.

Fragments from Group 935 are another example of a splashed *dado* decoration, a simple form of imitation marbling from all periods (Figure 93).

On the reverse of this group are clear, but worn, roller impressions (Figure 94). These impressions are eroded but show the 'diamond' pattern of a chevron roller, similar to that seen on the Norfolk Street samples (R. Buckley, *pers. comm.)*.

Phase 3.4 (late 2nd century AD*)*

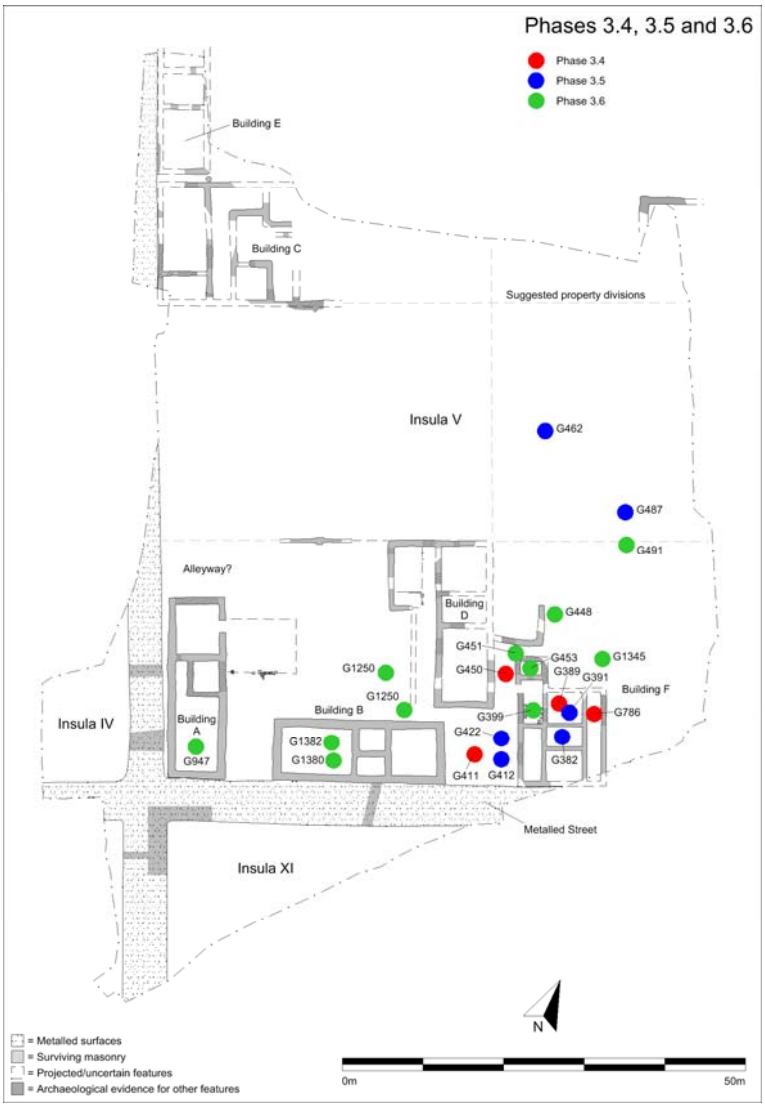


Figure 95: The Roman Painted Wall Plaster: distribution of wall plaster in phases 3.4, 3.5 and 3.6

Group	Context	Frag. No.	Wall plaster descriptions
389 (made up ground under Building F, rm 4)	2747	2	Coarse plaster
411 (made up ground under Building G, rm 1)	2784	2	Dark red with moulding, pecked surface with scratches. Opus signinum Base
450 (mortar surface in alleyway between buildings D & F)	4584	1	red
786 (made up ground under portico of Building F	2925	9	Red, one with yellow stripe

By the late 2nd century, Building F was constructed with a bath house wing to the north (Figure 95). The wall plaster from this Phase was all found either in made-up ground to the west of Building F or from the made-up ground beneath it. This suggests this group is again the demolition debris from an earlier building of unknown location.

Two moulded fragments (Group 411) of *opus signinum* were painted plain red (Figure 96 and Figure 97). The red paint was abraded and possibly 'pecked' suggesting it needed to be re-plastered and was perhaps subject to heavy wear. The curved surface of the plaster, the water-proofing and the implied heavy wear suggests these pieces may derive from a quarter-round fillet at the junction of the floor and wall, as noted

on other sites in Leicester, such as Redcross Street (Clay and Pollard 1994, p.154). Painted *opus signinum* is not often seen in Romano-British buildings (it is more commonly tessellated or tiled) but it has also been observed lining part of a heated Roman bath at Drayton Villa, Leicestershire (Connor 1993).

Figure 96: The Roman Painted Wall Plaster: Group 411, (2784) *opus signinum,* (reverse of Figure 97)

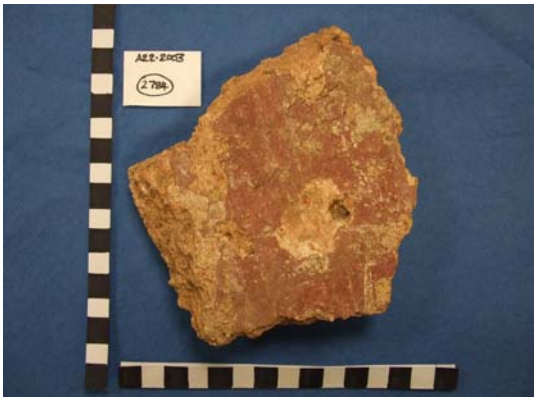


Figure 97: The Roman Painted Wall Plaster: Group 411, (2784) painted *opus signinum*

Phase 3.5 (late 2nd to early 3rd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
382 (crude surface in Building F, rm 2)	2777	1	Coarse plaster, no paint but a possible incised guideline. Lath imprint on reverse
391 (crude surface in Building F, rm 4)	2745	3	Pale pink on a white ground
412 (mortar floor for strip building-G)	2769	2	Dark red and white. Opus signinum base
422 (made up ground in alley west of Building F)	2735	3	Plain white. Opus signinum Base
462 (pit, north east of Building D)	3296	47	Probable dado – yellow base colour with red, white and green splashes some burnished fragments Some re painted plaster Roller impressions on reverse
487 (made up ground, NE of Building D)	3624	2	Abraded black fragment decorated with yellow, green and white ?vegetal design
	3653	14	Variety of colours, some polished, some pecking and one shows re-decoration (white to pink/orange)
490 (post-hole and beam-slot , NE of Building D)	3601	2	Red, mortar includes pounded tile
1362 (Building F, rm 1 Insula V possible trample or made up ground)	2898	2	Coarse plaster with impressions on reverse
1387 (Possible clay floor, Building D)	4796	1	Grey
	4808	1	cream
	4809	4	red

During the late 2nd to early 3rd century (Phase 3.5) strip buildings A, B and D were in decline while Building F was being remodelled to counter structural instability around the bath room (Room 6). Wall plaster was collected from four areas (Figure 95): below Building F, below Building D, from the alleyway between these two buildings and from pits/beam slots and made-up ground to the north east of Building D. All these contexts were likely to consist of demolition debris from an earlier building.

This phase provides further examples of painted *opus signinum* from the 'alleyway' group (Groups 412 & 422): one plain white and the other dark red with white.

The reverse of a fragment from Group 382 (below Building F) shows the impression of a roundwood wattle stick (Figure 98). This suggests that the plaster came from an internal stud wall (perhaps similar to the technique observed in the mid- 1st-century legionary fortress buildings in Colchester, illustrated in Bedoyère 1991, Fig.2b). Roller impressions were also observed.

An abraded guideline, scored with a pointed instrument forming a straight-lined corner, was also observed in Group 382. These guidelines were particularly used in repeating patterns and were important to achieve the regular spacing and constant size in elements of decoration. They were also used to mark out the upper edge of the *dado* or even to provide a reference point for motifs within the *dado*.

Splash decoration of a yellow base splattered with red, white and green (Group 462, north of Building F) was again in evidence, probably from a *dado* (Figure 99).

From the groups to the north east of Building D burnished fragments were observed, suggesting technical competence. A fragment decorated in black (Group 487) showed remnants of a floral or vegetal painting in green, white and yellow. The suggested intricacy implies a detailed painting of some quality.

Finally, from the same yard area, there were a number of examples of wall paintings which had been redecorated (mostly white to orange/pink). As with most re-decorated wall-paintings elsewhere in Britain the painters had not bothered to remove the previous decoration but merely applied another surface over the existing one (examples listed in Davey and Ling 1982, p.29). Re-decoration does not necessarily imply the building was occupied over a long period – in the fort at Lancaster (*ibid.*) there were five phases of decoration in a bath-house occupied for no more than eighty years.

Figure 98: The Roman Painted Wall Plaster: Group 382, (2777) impression of roundwood wattle, reverse

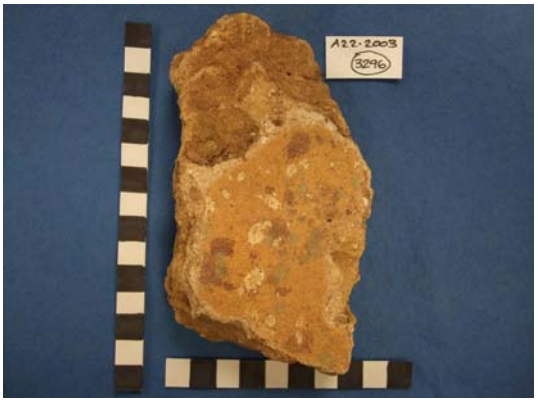


Figure 99: The Roman Painted Wall Plaster: Group 462, (3296) splash decorated imitation marble.

Phase 3.6 (early 3rd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
399 (Building F, Room 5, *Insula V* Hypocaust structure dismantled and back filled)	2744	7	Ridged surface, no intonaco. Evidence of plaster being combed to key another layer of plaster
448 (pits north of Building F)	3536	2	Polished red & white with pounded tile inclusions
451 (pit, north of Building F)	3355	2	Pink with red border. Has lip and deep pecking
453 (Plunge pool backfill, Building F)	3256	6	Polished green, purple and white.
491 (made up ground NE of Building D)	3484	5	Variety of colours, some polished, impressions on reverse
	3557	4	Mixed colours/polished
947 (made-up ground in Building	4982	3	dark red, red on white

Group	Context	Frag. No.	Wall plaster descriptions
A			
	6736	6	Red on white, yellow splodge on white. Rolled impression.
	5069	2	plain
1250 (made-up ground west of Building D)	5432	5	*burnished red on red sandy intonaco 2mm, dark red and grey on white
1257 (made-up ground west of Building D)	5783	1	red
1345 (pit in yard north of Building F)	2098 2507	1 1	Dark red polished paint on *opus signinum* base Plain white, *opus signinum* base
1380 (Internal post-holes and pads, Building B)	5904	7	dark red on white, yellow on burnished red on white
1382 (Infant burial, Building B)	5736	1	figurative red bands on white

During Phase 3.6 Buildings A and B were abandoned, with refuse and cess pits being dug in the principal rooms (Figure 95). Much of the external yard areas were covered with imported soils, perhaps levelling the site for further development. While it is likely that the wall plaster from this phase is again made-up of demolition debris from an unknown earlier building, it is also possible that some of it may derive from demolished walls from Buildings A and B, or the re-building of the bath house in Building F. Fragments including red and white seemed to predominate, but it was not clear whether these represented white with outline red panels or large coloured panels of red and white. It is assumed that the former perhaps come from rooms of lesser status as they would be much quicker to do.

Groups 399 and 453 were found in the backfill of the hypocaust structure and may have been from it. Group 399 was plain plaster with evidence of combing, presumably to key it to another layer (Figure 100). The combed lines are both straight and curving, and not consistent across the plaster, suggesting the combing was randomly applied. Group 453 was polished green, purple and white.

Figure 100: The Roman Painted Wall Plaster: Group 399, (2744) combed plaster (to key a second layer).

From the groups from external yard dumps (Groups 448, 451, 491, 1250, 1257 and 1345) there was more evidence of polishing and some 'pecking', which may indicate re-plastering. Painted *opus signinum* was again observed from a pit just to the east of the demolished bath house.

From within Building A (Group 947) there were a number of painted fragments and one piece of very abraded plaster that had diagonal roller impressions on the reverse.

In Building B two features contained painted plaster: Group 1380 included a red burnished plaster with applied yellow decoration and Group 1382, a figurative design of red lines on white. The later was found in a pit containing an infant burial, but is likely to be residual.

Phase 3.7 (early 3rd century AD*)*

From the beginning of the 3rd century, Buildings A, B and D were incorporated into a major re-development of the south west corner of *Insula V* (Figure 101). The resulting house, Building G, included a suite of rooms surrounding a large central courtyard, a peristyle corridor, hypocausts and an apsidal

room; a residential building of some importance. All the wall plaster from this phase is from demolition/construction contexts (spreads or wall footings), so again is likely to relate to either an earlier building or to the re-modelled Buildings A, B and D. Of note was a single fragment painted with cinnabar or vermillion (mercuric sulphide), an expensive and rarely-used pigment. Roller impressions were observed on the reverse of a green and white fragment, redecorated with red.

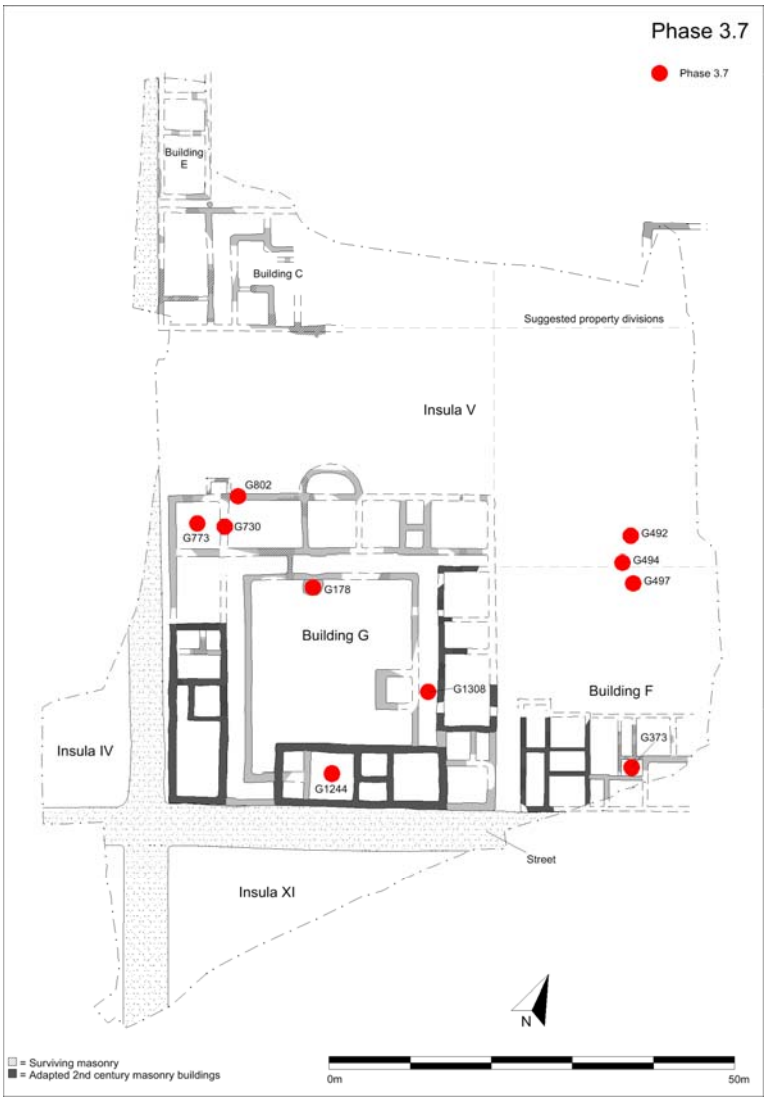


Figure 101: The Roman Painted Wall Plaster: distribution of wall plaster in phases 3.7

During the same phase Building F appears to have been extended eastward with a narrow building, perhaps linking it to the next larger building (Rooms 1 and 10). Of note was a fragment of *opus signinum* painted pink, although the proximity to the bath house and further examples of painted *opus signinum* would suggest it derived from an earlier phase (see 3.6)

The beginning of the 3rd century also saw the construction of a small timber structure to the north of Building F. Wall plaster from the foundations of this structure included examples of polished plaster, pecking (to key re-plastering), actual re-decorated plaster and some intricately painted designs including tendrils and possible hexagons. In a shallow pit to the south of the timber structure a fragment of re-decorated plaster was noted (white/green redecorated with red) with roller impressions on the reverse.

Group	Context	Frag. No.	Wall plaster descriptions
178 (well in Building G courtyard)	5318	?	pale green on white
373 (mortar spread on Building F, room 11)	2570	3	Pink intonaco on Op. Sig. base

Group	Context	Frag. No.	Wall plaster descriptions
492 (structure NE of Building G)	3542	1	Dark red with pecking
494 (possible timber structure NE of Building G)	3532	6	White ground with yellow and green leaf design Variety of other colours
	3551	1	Polished red
497 (irregular shallow pit, north east of Building G)	3483	25	Variety of colours, many with evidence of pecking and one certainly re-painted. Some polished Scribbled 'fried-egg' design, red lines on a white ground, deep yellow yolk
	3533	264	Much burnished. Variety of colours Possible tendrils or hexagons - ?ceiling. Up to 40mm thick & 3 layers recorded. Definate secondary layers observed. Roller impressions seen on reverse of white/green fragment, redecorated in red.
730 (wall footing, Building G)	5453	2	red
773 (made-up ground, Building G, rm 9)	4162	1	pink
802 (wall footings, Building G, Rm 10)	5755	3	Cinnabar on white *intonaco*
1244 (pits in Building G, rm 3)	5785	1	*burnished red on white sandy intonaco
1308 (mortar surface, Building G, Corridor 13)	5628	1	red

Figure 102: The Roman Painted Wall Plaster: Group 497, (3533) imitation marbling, the scribbled 'fried egg' design

A single fragment included a clear example of a 'fried egg' pattern (pale yellow ground colour, a darker yellow 'yolk', surrounded by red scribbles) (Figure 102). The same pattern was seen repeatedly at the Causeway Lane excavations (Ripper 1999, 295) a mere 150m to the south, where it was recovered from a dump backfilling a gravel quarry pit. It is possible that the Vine Street material originated from the same source. At Causeway Lane the design was thought to represent imitation marbled panels but was dated to the early 4th century from comparable designs at Catterick, York. There are, however, examples of a not dissimilar design from the mid- 2nd century at Verulamium, *Insula XXVIII,* Building 3 (Davey and Ling 1982, 184-5) where a variety of scribbled 'eggs' are thought to be imitating different types of breccia and alabaster.

Phase 3.8 (early to mid- 3rd century AD*)*

Phase 3.8 saw the demolition of Building C and north wing extension to Building G (Figure 103). The wall plaster from this phase included fragments of many different colours (see Group 1129) and of note, a burnished green fragment (Group 1067). Little wall plaster was recovered from the northern portion of the site prior to the demise of Building C, so it is likely that these fragments originated in the demolished building.

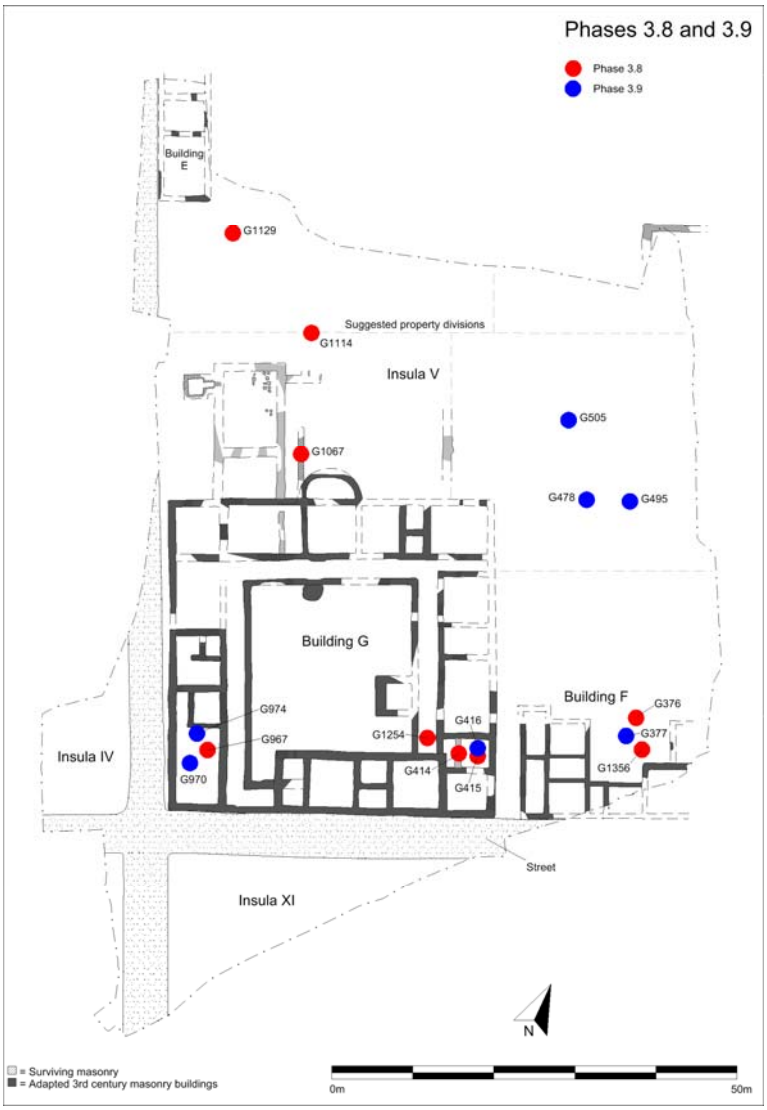


Figure 103: The Roman Painted Wall Plaster: Distribution of wall plaster in phases 3.8 and 3.9

Group	Context	Frag. No.	Wall plaster descriptions
376 (mortar spread north of Building F)	2475	7	Coarse plaster
414 (robbed construction cut for a new wall separating Rooms 24 and 25, Building G)	2650	2	white
415 (Building G, room 25, mortar surface)	2053	2	Dark red and white.
967 (trample in Building G, rm 6)	6565	1	grey
1067 (wall footing, Building G, rm 33)	5537	1	Burnished green
1114 (made-up ground, Building C)	8378	1	dark red on pink
1129 (demolished walls, Building C)	6951	28	red/pink, pale green, pink, all on white
1254 (trample in Building G , corridor 18)	5114	8	?
1356 (mortar spread north of Building F)	2449	536	The largest group in this area includes White and red stripes one curving architectural piece

Group	Context	Frag. No.	Wall plaster descriptions
			A number of *opus signinum* fragments either red or pink and one white with the corner of a grey frame with a dot on the corner, some curved 'architectural' pieces One curved black burnished fragment Roller impressions on reverse

Within Building G wall plaster was seen in floor surfaces in Rooms 6, 18 and 25, and wall footings between Rooms 24/25, but decorated only in plain colours (grey, dark red and white).

In an external yard surface to the immediate east of Building F over 536 fragments of painted plaster were recovered. Most were plain colours or simple stripes but one fragment included the corner of a frame (grey lines on a white background), with a larger dot or pellet on the corner (Figure 104). This was again noted at Causeway Lane (Ripper 1999, 298) but has been seen commonly seen elsewhere (*for example* at the painted house at Dover (Phillip, 1989)).

Figure 104 The Roman Painted Wall Plaster: Group 1356, (2449) a frame with a dot or pellet at the corner

A number of painted *opus signinum* fragments suggest the collection may have originated in the demolished bath house (Building F, Room 5). Some curved fragments (presumable from a window or door architrave), including a burnished black fragment, hint at the quality of the finish of the plastering.

A roller impression was also noted on the reverse of a single fragment.

Phase 3.9 (early to mid- 3rd century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
377 (tile & granite spread in yard north of Building F)	2411	3	Red (burnished), white and blue Burnished red on op. sig Light green
416 (Building G, rm 25, made up ground)	2767	1	White painted *opus signinum*
478 (demolition spreads NE of Building G)	3704	1	Impressions on reverse
495 (demolition spreads NE of Building G)	3511	289	Various colours, some with tramlines some pecking Black ,edged with white forming a corner window/door fragment Some scored lines Possible grey marbled dado
505 (soil accumulation NE of building G)	3652	2	Pink
970 (post and stake holes, Building G, rm 6)	6131	?	**red tendrils on yellow green, pale blue, red all on white

Group	Context	Frag. No.	Wall plaster descriptions
974 (stone culvert, Building G, rm 6)	6128	1	green

Phase 3.9 represents the early occupation of the re-modelled Building G, of which little survives (Figure 103). Within the building wall plaster was found in three groups: a fragment of *opus signinum* painted white from a spread in Room 25, a fragment of plain green from a culvert running under Room 6 and a few more intricately patterned fragments from a backfilled post-hole in Room 6 (kitchen). One piece had further evidence of a red scribbled design (Figure 105), reminiscent of the 'fried egg' pattern seen in Phase 3.7.

Painted plaster was also recovered from spreads to the North of Building F. These groups included red burnished *opus signinum* (Figure 106), various colours with tramlines, some scored lines and a possible grey splashed imitation marble fragment. Some pecking hints at a wall being re-plastered. These again are likely to have originally decorated the bath house.

Figure 105: The Roman Painted Wall Plaster: Group 970, (6131) free hand tendrils, or possibly part of a 'fried egg' imitation marble.

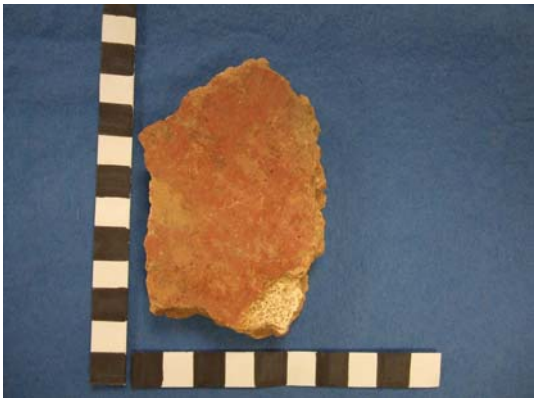


Figure 106: The Roman Painted Wall Plaster: Group 377, (2411) burnished red *opus signinum*.

Phase 4

Phase 4.1 (late 3rd – early 4th century AD*)*

Group	Context	Frag. No.	Wall plaster descriptions
368 (?yard or modern)	1133	3	One red on white intonaco (polished), one white, one yellow
476 (construction trample, Building H, rm 1)	3311	98	High quality burnished white with green swirls some white features on dark red base burnished red on white some probable dado: dark red base splashed with yellow and red
	3458	36	Mostly variations of red/pink and white, or green on white Abraded yellow and grey with a white stripe Lath impressions on reverse
496 (made up ground, Building H, rm 1)	3478	1	Red, with pecked surface
	3480	14	Black scalloped design edged in white. Perpendicular stripes emanating from the scallops in red, yellow and white. Possible attempt at shading for dimensionality. Scallop design was then plastered over and re-painted in red and white.
	3482	3	Faded pink/yellow/orange pattern

Group	Context	Frag. No.	Wall plaster descriptions
	3506	15	Variety of colours, some stripes, some polished
498 (construction trample, Building H, rm 1)	3452	1	Brown and yellow
502 (small pit in Building H, rm 1)	3464	2	Pink with yellow line
506 (floor bedding, Building H, rm 2)	3281	2	Polished white and flaky green (?tempera)
508 (yard surface)	1113	713	'Bird design' and most fragments could be part of this design (no joins). Pink ground with red splashed paint - dado. Two curved fragments (?skirting/coving). One has pink paint on reverse: One window/door architrave fragment. Also plain black, yellow and red fragments, all burnished, one with scratch marks (?graffiti). Incised guidelines, painted lines separating colours, brush marks on intonaco Reverse: 'Bird design' has daub impressions Elsewhere narrow lath marks are visible
	1251	1	Pink on white intonaco
512 (pit cut in Building F, rm 4)	2705	2	Coarse plaster
521 (surface north of Building F)	2209	2	Pink
526 (cess pit north of Building F)	3488	3	Polished red, yellows and greys
849 (preserved soils N & W of Building H)	5532	2	white
	8618	1	red
860 (pit north & west of Building H)	8200	53	light and dark green stripes with maroon. Lathe impression. Egyptian blue. Egyptian blue blue-maroon-red, dark and light green cinnabar with white stripe and Egyptian blue white pink stripes on red(cinnabar) black on white and pink dark green stripes on pale green, light blue stripes on dark blue-coarse grained fabric red ochre on white, two layers of plaster on an *opus signinum* base
977 (mortar surface, Building G, corridor 5)	5485	5	Red white stripes, plain white, red on white and yellow, yellow on white
984 (Post-holes and post-pads, Building G, rm 21)			
1410 (masonry wall footing, Building H rm 1)	3198 3200	5 ?many	Abraded red and white Variety of colours, some polished. Fe. In mortar Yellow edged with white/grey/red and purple
1473 (post pad in Building H, rm1)	3497	9	Variety of colours, mostly polished

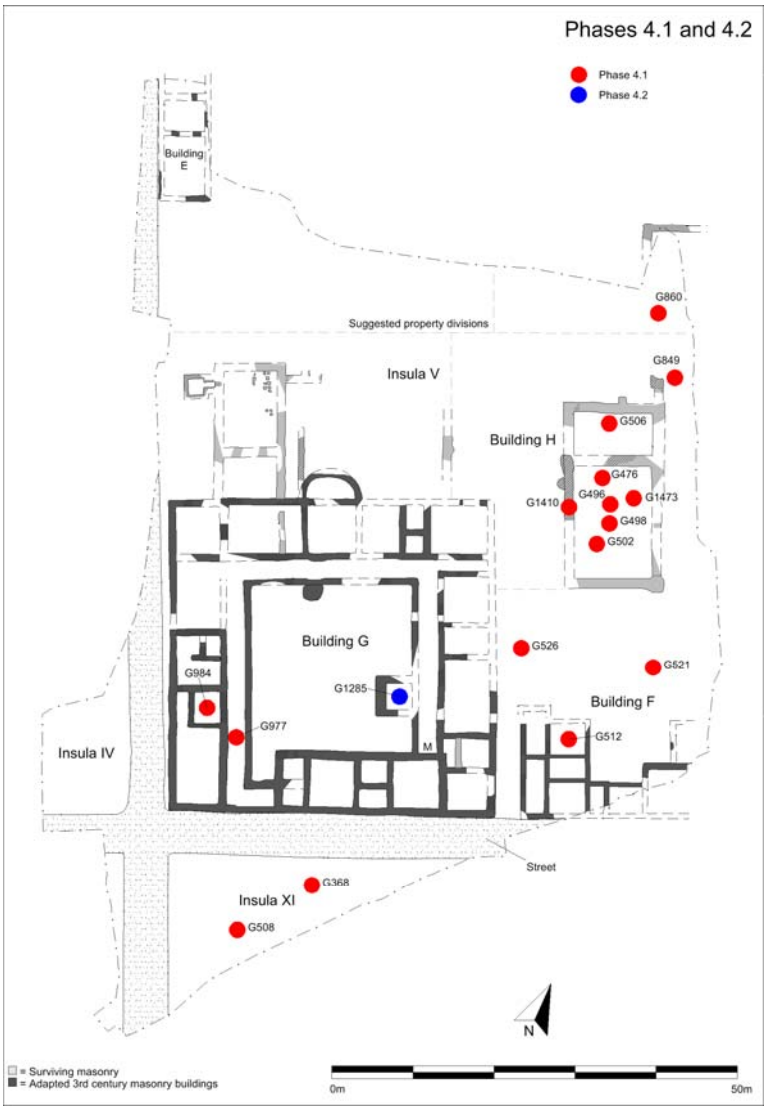


Figure 107: The Roman Painted Wall Plaster: distribution of wall plaster in phases 4.1 and 4.2

By the late 3rd to early 4th century, the courtyard house was probably at the peak of its occupation, with little evidence for repair or alteration until the mid- 4th century (Figure 107). Building H was constructed during this phase: a simple two room structure of large proportions but uncertain function.

Within Building G, wall painting fragments were found in Rooms 21 (kitchen) and in the adjoining Corridor 5, although all pieces were either plain or striped.

Around Building F wall painting was found in a pit in Room 4, a cess pit to the north of the building and in an external yard surface. Again the painting was plain or striped, with one polished red fragment.

Wall plaster was also recovered from footings and make-up layers of the newly constructed Building H. These included a high quality burnished group with green swirls, dark red splashed dado fragments, various stripes of colour and a highly decorated fragment with black scallops edged in white, with white and red parallel lines emerging from the curves (Figure 108). It is uncertain where this plaster originated: Building H is thought not to have been residential and was probably never painted, it is unlikely to have come from the upstanding Building G, and so it is most likely to have come from demolished parts of Building F or an unknown building in the vicinity.

In external surfaces and pits to the north of Building H fragments with lath impressions on the reverse were noted, which suggest how the internal walls were constructed. The pigment 'Egyptian Blue' or blue frit was also noted, separated from an area painted in cinnabar, by a thin white line (Figure 109): Blue frit, and more particularly cinnabar, are rarer pigments, but seen previously in Leicester both nearby at

Causeway Lane (Ripper 1999, p.299) and in the Norfolk Street Villa (Buckley forthcoming) just outside the western defences.

A group with a green base colour was decorated with an unusual combination of rusty red scribbles and finely painted pale blue abstract shapes: testament to an artistically finer design (Figure 110).

Another group was decorated with finely painted parallel lines of varying shades of green and white (Figure 111). Shading was often used to depict fluted columns, or to add an element of perspective to a panel design. Similar use of shading was noted at Causeway Lane (Ripper 1999, p.295).

Some red and white fragments on a base of *opus signinum* were also noted. These may have originated in the Building F bath house.

Lastly, a very large group of 713 fragments of painted plaster was recovered from a yard surface in *Insula XI* to the south of *Insula V*. The southern portion of *Insula XI* includes the Causeway Lane excavations and it is possible that this dumped material derived from the same demolished building that produced the bulk of the plaster seen there.

Most of the painted pieces appeared to derive from a design with a yellow ochre ground colour decorated with a more finely painted design. The fine painting included an exotic bird, possibly a peahen, of which a foot (Figure 112) and the head (Figure 113) are partly preserved. The bird is apparently standing on a vine or branch. It appears to have a green head with either a red body or a red collar around its neck, and an unnaturally large, rimmed eye. It is not certain that the head and the foot belong to the same bird. One fragment of green included a white line forming a corner, which may have been a frame to the bird scheme, but the 'vine' beneath the bird perhaps indicates it once stood in a scroll frieze (perhaps similar to that seen at Verulamium, cited in Davey and Ling 1982, 173).

A further 20-30 pieces could all belong to the same 'bird' scheme. Some decorated fragments appear to include vegetal or floral motifs, but could equally be feathers when seen fully (Figure 114). The use of 'shadows' in these fragments brings the design into bold relief. Incised guidelines were noted which may indicate a repeating design (*for example* e.g. 3rd century Blue Boar Lane, ceiling of market, Davey 1982, 264). Irregular reed/straw impressions were noted on the reverse, which probably derive from daub.

In the same group there was also evidence for a pink imitation marble splashed with red, a curved fragment with paint on the reverse (?spilt paint), incised guidelines, painted lines separating colours (?panels) and brush marks across a white *intonaco*. Burnishing was identified on plain black, yellow and red fragments. A single burnished red piece was scratched with a very fine sharp object (Figure 115). The scratches appear random, but could possibly be graffiti.

Figure 108: The Roman Painted Wall Plaster: Group 496, (3480) scallop design


Figure 109: The Roman Painted Wall Plaster: Group 860, (8200) 'Egyptian Blue' and cinnabar, separated by a thin white line

Figure 110: The Roman Painted Wall Plaster: Group 860, (8200) finely painted pale blue and rust red scribbles

Figure 111: The Roman Painted Wall Plaster: Group 860, (8200) parallel lines of varying shades of green and white

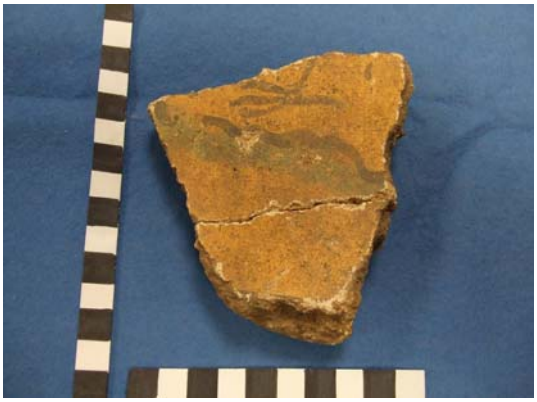


Figure 112: The Roman Painted Wall Plaster: Group 508, (1113) a bird's foot

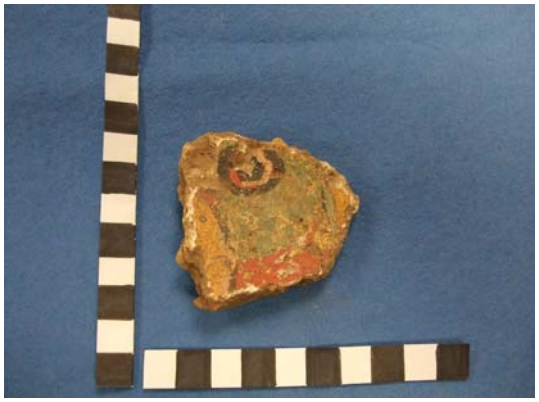


Figure 113: The Roman Painted Wall Plaster: Group 508, (1113) a possible bird's head

Figure 114: The Roman Painted Wall Plaster: Group 508, (1113) a vegetal design, or conceivably part of a bird

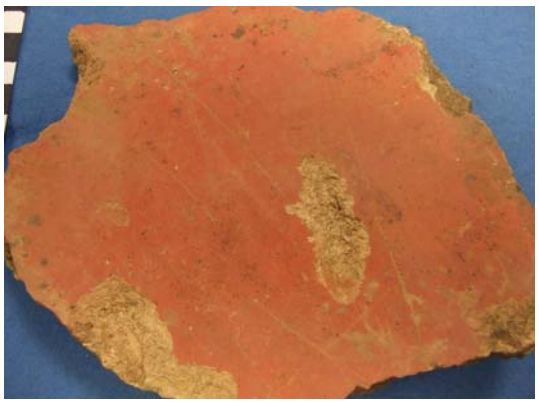


Figure 115: The Roman Painted Wall Plaster: Group 508, (1113) burnished red scratched with a sharp point

4.2 (early 4th-century AD*)*

Phase 4.2 saw the slight modification of the courtyard house with the addition of a tessellated floor in Room 19. From a small pit in the same room (uncertain relationship) a single fragment of pale bluish-purple painted plaster was retrieved (Figure 107). On the reverse straw impressions were noted, filled with dried mud (daub). Straw or hay was often added to the plaster mix, in much the same way horse hair has been added in subsequent periods, as a means of binding the ingredients.

Group	Context	Frag. No.	Wall plaster descriptions
1285 (pit, Building G, rm19)	5422	3	pale blue on pale purple on white. Straw impression filled with dried mud on reverse.

It is conceivable that this plaster was removed from an *in situ* wall (rather than over painted) and therefore alludes to the original colour scheme used, but it is equally possible that it derived from another building altogether.

4.4 (early-mid- 3rd century AD*)*

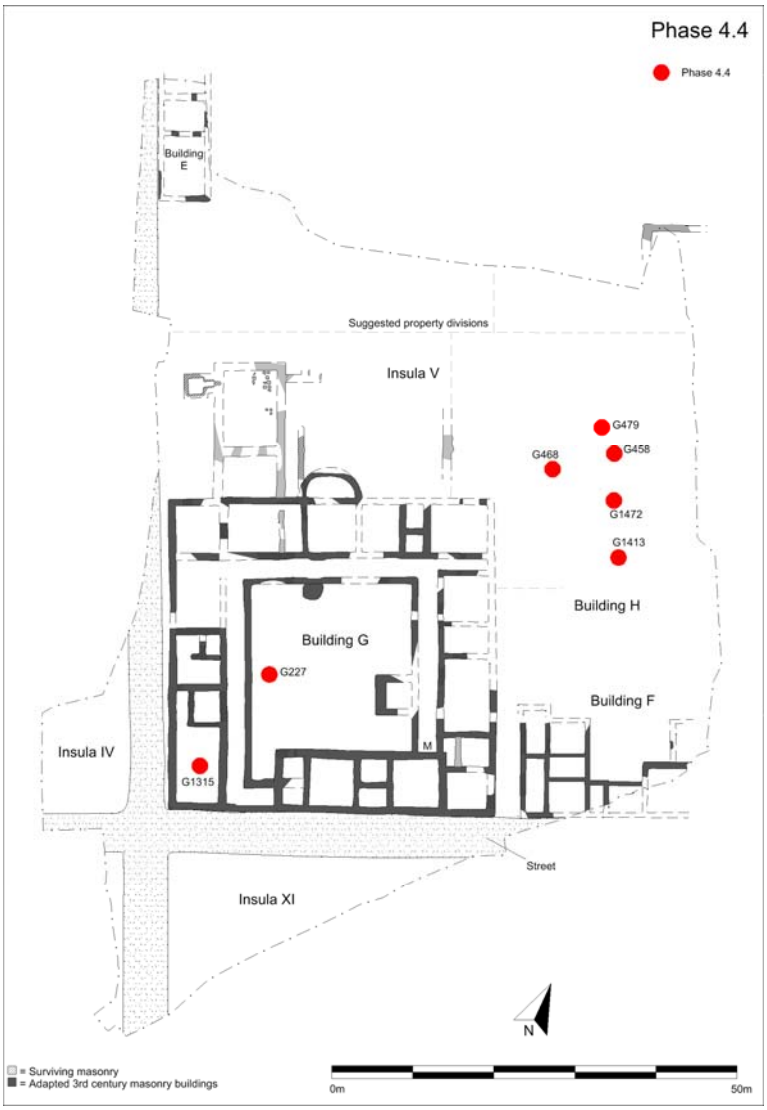


Figure 116: The Roman Painted Wall Plaster: distribution of wall plaster in phases 4.4

The late 3rd to early 4th century Phase 4.4 saw the continuation of minor alterations to Buildings G. Painted plaster was found in a pit cut into the courtyard and from a mortar surface in Room 6 (Figure 116). Neither group contained notable pieces, but the mortar surface indicates the continued practice of re-using building material for repairs.

Building H underwent a series of more substantial alterations during this period, with the insertion of a central corridor, an additional room to the west and re-surfacing within Room 1. The wall plaster from these contexts include examples in a range of colours, 'tramlines' suggesting panel designs, and 'vegetal' fragments (vague leaf shapes). Some fragments were polished and peck-marks which suggest the painting had been re-plastered. Building H was not thought to be residential and it is unlikely that the painting originated in this building.

A small fragment included the corner of what may have been an octagonal shape, infilled with red (Figure 117). Repeating patterns or geometric shapes are the commonest designs identified in ceiling decoration, but occur during all periods.

A well preserved fragment of a splashed yellow 'imitation marble' was recovered from a footing wall in the newly extended Building H, Room 4 (Figure 118). It appears to be of an identical type to a fragment seen in a similar location, but ascribed to the late 2nd – early 3rd Phase 3.5 (Group 462), suggesting this fragment is a residual piece, belonging to a much earlier demolished painting.

Group	Context	Frag. No.	Wall plaster descriptions
227 (pit. Building G courtyard)	5096	3	White stripe on red,
458 (Building H, rm3, demolished wall footing)	3517	6	Decorated fragment, mostly black with rough green leaf shapes, one straight white tramline and one 'bent' line to either side of the black Variety of other colours
468 (Building H, rm 4, granite wall footings)	3643	1	Probable dado of yellow ground splashed with white green and red
479 (trample in Building H, rm 3)	3443	8	Variety of colours, mostly polished. Some pecking marks
	3444	13	Greens and polished reds One pink fragment covered with lime wash
1315 (Stone make-up, mortar surface and repairs, Building G, corridor 5)	5929	1	blue and pale blue on white
1413 (mortar surface, Building H, rm1)	3335	1	Polished red
1472 (wall footing, Building H, rm1)	3373	3	Polished green
	3676	3	Yellow and black with white edging White, red and various greens (?vegetal)

Figure 117: The Roman Painted Wall Plaster: Group 458, (3517) corner of a possible hexagonal ceiling design

Figure 118: The Roman Painted Wall Plaster: Group 468, (3643) Splashed imitation marble *dado*

4.5 (early to mid- 4th century)

A single fragment of painted plaster was recovered from Phase 4.5, most likely associated with the earlier alterations to Building H (Figure 119).

Group	Context	Frag. No.	Wall plaster descriptions
470 (robbed wall footing, Building H, Rm4)	3635	1	Pink

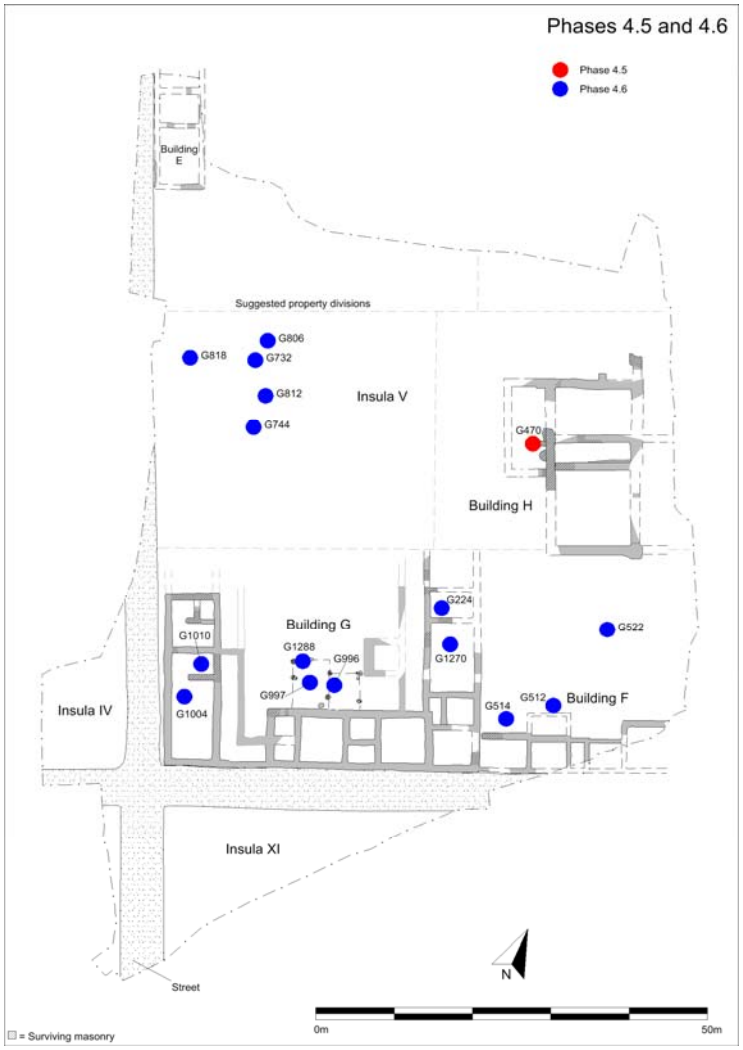


Figure 119: The Roman Painted Wall Plaster: distribution of wall plaster in phases 4.5 and 4.6

4.6 (mid- 4th century AD*)*

The mid- 4th century saw the decline of the courtyard house and Building F, with much of the northern half of both buildings being demolished (Figure 119). Rooms fronting onto the street became workshops and in two rooms attempts were made to hide valuables (a lead ingot in one and a coin hoard in another). Wall painting was found in three areas: in the demolition debris of the northern wing of Building G, in the southern portion of the courtyard of Building G and in the demolition debris of Building F.

From the northern wing a variety of painted plaster was found (Groups 732, 744, 806, 812, and 818 above): window or door architrave pieces in plain red, burnished green fragments, a variety of lines of different colours and one example that included three very narrow 'tramlines' with some red over-painting of a wider pink border decorated with diagonal white stripes (Figure 120). It is likely that these fragments originally decorated parts of the northern wing, and perhaps allude to the overall decorative effect.

Group	Context	Frag. No.	Wall plaster descriptions
224 (coin hoard, building G, rm 16)	5428	14	dark green on black on white black, red, pale green, green on black, *some figurative red over painted white on white, dark green/pale grey on white, dark red on yellow, black, red bands, yellow/grey, light blue
512 (circular cut in Building F, room 4 - ? post-demolition)	2397	1	White

Group	Context	Frag. No.	Wall plaster descriptions
514 (Building F, rms 3 & 5, fill of demolished wall trench)	2396	20	Polished dark red and yellow
522 (layer to the north of Building F)	2207	6	Dark red and pink
732 (Demolition spreads, Building G, rm 31)	5612	35	white on maroon. Window or door moulding.
744 (Robbed wall footings containing lead curse, Building G, rm 30)	5201	9	reed impression * 1 figured-pale green/black/blue, black on white, pale blue on maroon on white, pale grey on white
806 (Demolition or trample layer, Building G, rm 10)	5465	1	*white/red/pale purple/pale yellow border, diagonal stripes on wide stripe on white
	5482	1	red
812 (demolition spread, Building G, rm 31)	5108	7	red and dark red with white stripe
818 (robbed wall footing, Building G, rm 31)	6579	11	dark red on white *burnished green on white grey/yellow stripe on white
996 (robbed drain, Building G, courtyard)	4939	8	yellow/red on white *burnished red on white, yellow on white, grey stripe on white
997(pits, Building G, courtyard)	5524	20	Ceiling plaster - evidenced by impressions on reverse. Dried mud border of yellow bands of colour. Pale blue over white. white over blue to red junction red to green white over junction, lathes on reverse, Roller impressions
	5669	85	red ochre on white coarse red/white stripe, yellow on white red stripe on white yellow red band, *figurative trace evidence of rough edge of wall 3 frags fit, I piece with FE nail. blue green, pale blue stripe reds dark & light burnished cinnabar to blue-white stripe over junction pale green, 1-large in green dark green features & dark red stripe black to red- white stripe over junction ridged/ combed pale green/red on pink on white, pale blue on white
	5559	17	red on white, grey/pink/yellow bands on white, *red on pink on white, green, red, grey,yellow on white
	5586	20	White blue-grey to red white stripe over junction on white red band on white, pale grey, traces of pink band on white red band on yellow on white
1004 (Reuse of stone culvert as	5366	2	Red on white

Group	Context	Frag. No.	Wall plaster descriptions
drain, Building G, rm 6)			
1010 (Masonry or rubble feature, Building G, rm 21)	5539	4	red
1270 (Pits containing a burnt box and lead ingot, Building G, rm 17)	4706	194	Blue/orange/yellow stripes on white, various colours on white . Key imps. Egyptian Blue on black with bright pink 'spots', green on white, cinnabar red (large amount of cinnabar-burnished, yellow on red, blue on red, yellow on white, blue on maroon, pale green, striped yellow on maroon, yellow on cinnabar yellow on blue, green on pink pink on blue-yellow band, cinnabar black to yellow- white over junction dark green, light green, dark blue on black, yellow, pale blue, dark yellow on pale yellow
5963 (Timber structure, Building G courtyard)			red

Figure 120: The Roman Painted Wall Plaster: Group 806, (5465) feint white diagonal stripes over a band of pink

Figure 121: The Roman Painted Wall Plaster: Group 1270, (4706) petals within a roundel

Around the workshop area (formally the southern half of the courtyard house) painted plaster was found both within the building and in the backyard. The yard groups (996, 997, 1004 and 5963) show a wide variety of colours and stripes, with some evidence of a very high quality burnished cinnabar. Traces of a figurative painting were noted but too fragmentary to discern the intended design. Roller impressions were observed on the reverse of a single fragment.

Within the standing building plain red fragments were noted in Room 6 (pit) and with the coin hoard (Room 16). Buried with the lead ingot (Room 17) was a large and varied collection of plaster (Group 1270) which included what must have been a stunning painting of blue frit on black with pink spots!

A number of fragments with a red ground colour were decorated with white ‘flowers’ with heart-shaped petals, surrounded by finely painted yellow circles (Figure 121). There were also fine yellow ‘vines’ that may have been part of a scroll design. It is possible that the round flower paintings were part of a repeating roundel design, often associated with ceiling decoration. A very similar decoration survived from the ceiling of the late 2nd or early 3rd market hall in *Insula XVI*, Leicester (illustrated in Davey and Ling 1982, p.132-3).

4.7 (mid-late 4th century AD*)*

Figure 122: The Roman Painted Wall Plaster: distribution of wall plaster in phases 4.7

Group	Context	Frag. No.	Wall plaster descriptions
253 (pits, Building G courtyard)	4221	6	white band over green/red areas. traces of red. Combed.
525 (backfill of well in yard north of Building F)	2202	1	Red polished plaster.
731 (pit, Insula V)	5112	1	?
999 (soil layer, Building G courtyard)	5588	11	plain white edge piece, ceiling?
1000 (Silt deposition in stone culvert following abandonment, Building G, corridor 5)	5599	5	red on white, plain red burnished, (plain pale green)
1019 (robbed wall footing, Building G, Corridor 5)	4439	4	Red and white
1034 (Linear feature, Building G, rm 21)	5384	3	white stripe over red/yellow stripes white pseudo-marbling- pale grey on dark red on white
1037 (Trample layers, dumped tessera and building material, Building G, rm 6)	5265	1	dark red on white
1272 (pit in Building G, rm 17)	4613	3	red
1276 (Soil, demolition and charcoal spreads, Building G	4879	5	angled red on white, red/ yellow on white, dark red/light red on pink on white

Group	Context	Frag. No.	Wall plaster descriptions
courtyard)			
1278 (pits in Building G Courtyard)	4541	2	plain white. frag red on white
			yellow/red stripes on white -edge of ceiling
1314 (Demolition or trample layers and collapsed wall plaster, Building G, corridor 5)	5375	84	Black on pale green pseudo-marbling- white/black on red, lack on pale green pseudo-marbling- white/black on red, black/grey on brown with bit of red. hints of red red/black stripes on white. Rolled impression. *pseudo-marbling- black, red white spots on brown, slightly burnished, panel centre with red/black edging. Rolled impression. lathe impression
	5383	23	red stripe, most plain-no white. Rolled on reverse. pseudo-marbling-pale grey on black/yellow on white, orange red on white, red/grey splash on grey, plain-no white, red/black bands on white. Rolled on reverse.

By the late 4th century much of Buildings F and G was likely derelict (Figure 122). Refuse pits were being dug within the former courtyards and soil, mixed with discarded building rubble, accumulated within former rooms. The painted wall plaster from these contexts may again represent the final decoration of the courtyard house.

A notable quantity of plaster, from two demolition contexts within the courtyard house Corridor 5, was decorated in plain brown splashed with red, black and white paint (Figure 123). This is generally interpreted as imitation marbling, sometimes set in a panel, often associated with the *dado*.

Other fragments included bands of red and black on a white background (?panels) with chevron roller impressions on the reverse. There was evidence of dried mud in the impressions (Figure 124). This suggests the upper portion of the walls, at least, were rendered in mud or *pise*. Whilst other decorated fragments included polished plain red and green fragments, swirls of pseudo marbling, combed fragments (?to create texture) and a number of different striped or panel designs (Figure 125). The variety of designs might suggest many different paintings once existed in these rooms, perhaps that every room was painted differently, and that the interiors were a 'riot of colour'.

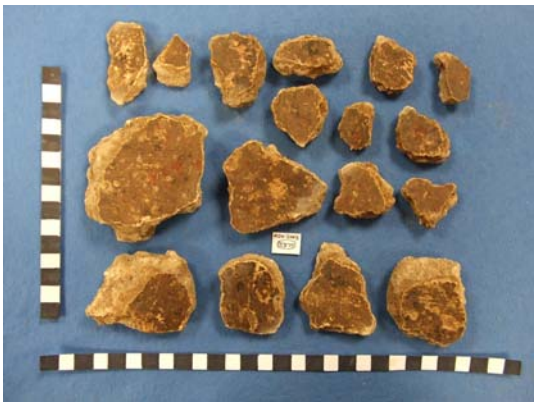


Figure 123 The Roman Painted Wall Plaster: Group 1314, (5375) Splashed *dado*

Figure 124: The Roman Painted Wall Plaster: Group 1314, (5383) roller impressions

Figure 125: The Roman Painted Wall Plaster: Group 1276, (4879) angled corner

Phase 8

8.1 (c.1100-1200)

Group	Context	Frag. No.	Wall plaster descriptions
230 (Quarried wall footings beneath Plot 3)	4658	7	Red and yellow, red
233 (Quarried wall footings Beneath the line of a possible southern street)	4226	1	burnished red, white spots on thick white intonaco 1 1/2mm
235 (pits beneath the line of a possible southern street)	4202	1	combed /ridged . red + yellow bands
239 (Quarried wall footings beneath the line of a possible southern street)	4328	1	dark red on white with white circles on the red
240 (Quarried wall footings beneath the line of a possible southern street)	4259	1	pink on dark red on white
246 (Quarried wall footings beneath the line of a possible southern street)	4256 4448	1 1	White black polished
483 (quarried wall trench to the east of Building H)	3189	11	Variety of colours, some polished
537 (robber trench)	1236	2	Red on a combed white surface
555 (quarried wall footings within Building F)	2399	1	White with red edge
558 (quarried wall footings within Building F)	2336	4	Red with white
565 (small length of rubble wall footings in Plot 6)	2907	1	Pink
614 (quarried wall footings beneath plot 7)	3151 3277 3306 3358 3564	1 1 2 1	scored Red with possible masonry impressions on reverse - Polished pink Yellow 'fleur de lys' on burnished red Red with yellow flecks Yellow with pink leaf shapes, over-painted with red leaf shapes– see also Phase 2.5, Group 361)
655 (demolition spread beneath plot 7)	3324 3339	1 -	Unpainted plaster made with pounded tile (?*op. sig*) -
701 (Quarried wall footings	4347	15	**all pieces reed/lathe impression on reverse

Group	Context	Frag. No.	Wall plaster descriptions
Beneath Plot Three)			**figured red on white, dark blue and pale blue pale blue and yellow on white, red (pieces of dried mud on reverse)
737 (Quarried wall footings Beneath Plot Three)	4936	4	red stripes on white red curved bands on white, possible secondary layer.
738 (Quarried wall footings Beneath Plot Three)	5282	2	White
745 (Quarried wall footings Beneath Plot Three)	4943	?	Yellow
762 (Quarried wall footings Beneath Plot Three)	4661	8	Pink, orange/red *figured brown on dark and light green on white * green (tendril), dark red, pink, green on white
1044 (Reuse of stone culvert as drain, Building G, rm 6)	4945	7	White pseudo-marbling-black/red/grey on white
1076 (pit Beneath Plot Two)	5838	11	White
1128 (Robbed wall footings, Building E)	6882	1	red/green bands on white
1130 (Quarried wall footings beneath St Michael's Lane)	6248	1	red on pink on white
	6464	8	**grey on red and orange on yellow
	6541	1	Yellow
1133 (pits beneath St Michael's Lane)	6966	1	Pseudo-marbling- grey/red spots on pink on white
1290 (Quarried wall footings beneath the line of a possible southern street)	4894	1	red on thick white *intonaco* 1mm

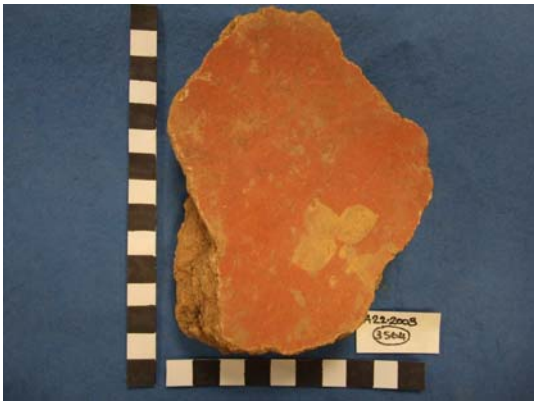


Figure 126: The Roman Painted Wall Plaster: Group 614, (3564) 'fleur de lys' or trefoil leaf-pattern

Figure 127: The Roman Painted Wall Plaster: Group 1133, (6966) Splashed imitation marble *dado*

The early medieval Phase 8.1 saw the final demise of the Roman buildings, with surviving masonry footings being robbed for the stone, although there was little evidence of any new construction. Wall painting was recovered both from backfilled footings and from rubbish pits, which littered the sites of where the buildings once stood. The plaster most likely originated from the Roman buildings and may again represent the last decoration of the residential phase of the buildings: it is unlikely to have derived from the 'workshop' phase of activity.

Across the site examples of the usual range of colours were identified; some burnished, some striped but mostly much abraded and too fragmentary to decipher. Of note was a single fragment of red burnished plaster with a yellow 'fleur de lys' or trefoil leaf-pattern added (Figure 126). Vegetal and floral motifs

were often adopted for wall paintings in Roman Britain with numerous examples cited in Davey and Ling (1982), but it is perhaps the example from the nearby Blue Boar Lane excavations (some 200m to the south west of the Vine Street excavations) that the most striking similarities can be found. The same trefoil leaf was used to decorate a black vertical strip ornamented with an intricate design including a bobble-fringed dish suspended with tendrils and vine (illustrated in Davey and Ling 1982, p.129).

Elsewhere a pink imitation marbling, splashed with red and white was observed (Figure 127). This is likely to have originated as a *dado*.

8.2 (c.1100-1250)

Group	Context	Frag. No.	Wall plaster descriptions
PLOT 2			
1065 (post hole)	5339	1	Red and white
PLOT 3			
245 (pit)	4364	5	pale blue on black on white dark red on white **reed impression, reeds possibly tied together. Possibly ceiling plaster
254 (pit within plot 3)	4605	56	bright green, pseudo-marbling, lots of red on yellow, with border white on pink, green border with red on white-possible *figurative, dark red on green, dark green, yellow green on black, white blue swirls on green, green border/red on white, yellow/ red figurative* pseudo-marbling- white black on dark red *figurative
662 (pit)	4271	4	red on pale grey on white, plain white
664 (Masonry wall footing, Masonry Building 1)	5138 5205	2 1	White Grey
668 (Possible trample or earth surfacing, Masonry Building 1)	5650	1	Dark red on white
699 (post hole)	4229	1	red
748 (pit)	5224	3	pale green on white on pale maroon on white
760 (pit)	4739	1	Pale mauve on white
1078 (Possible stone and gravel boundary footing within Plot 3)	4715	5	Red/brown on white, figurative pink/red/grey lines on white, green on black/red
PLOT 4			
541 (med. P-h)	1135	5	Plain white, some with dark red marks
1043 (pit within Plot 4)	4398 4719 4964 5026 4983 4975	1 2 5 2 2 12	red white yellow/dark red/red with white stripe over junction, red on white dark red on white pale green & red , white stripe over junction *burnished red on white, white/pale blue/red splashes on grey, plain dark red on pink, maroon lines on white, dark green on black. Reed impression.
PLOT 5			
539 (med. Pit)	1029	6	Red with a ridged surface
PLOT 6			
562 (possible hearth/pit in plot 6)	2577	1	Pink
1026 (plot 6, med pit)	1323	1	Red on white
PLOT 7			
621 (soil spread)	3215	1	red

Group	Context	Frag. No.	Wall plaster descriptions
666 (rectangular pit)	3161	2	White with red border. Possible chevron roller impressions on reverse. Also red polished fragment
1005 (east-west cob wall)	3228	-	
unstratified			
821	5000	3	An unstratified context but contains roller impressions

Figure 128: The Roman Painted Wall Plaster: Group 245, (4364) impressions of a bundle of tied reeds

Figure 129: The Roman Painted Wall Plaster: Group 254, (4605) abraded remnants of 'fried egg' design

By the late 12th – early to mid- 13th century occupation appears to have expanded away from the Roman street frontages, with a series of both timber and masonry buildings. These land divisions have been allocated plot numbers with plots 3, 4 and 5 along the former western boundary of the *Insula*, plots 6 and 7 to the east. All the painted plaster appears to be Roman and therefore must be considered as a residual collection, associated with the demolished residential buildings.

The painted plaster contained a mix of plain and striped colours. Of note was a yellow imitation marble, splashed with red and a swirling abstract design of green on black.

The reverse of a fragment from Plot 3 showed reed impressions, with an additional perpendicular impression, which may indicated that the reeds were either tied into bundles, or loosely woven (Figure 128).

Chevron roller patterns were observed on the reverse of some unstratified fragments from Plot 7

There were also further fragments with the distinctive 'fried egg' pattern (Figure 129) also seen in Phase 3.7, in a pit to the north of Building F, and in Phase 3.9, Building G, Room 6. These groups were early – mid- 3rd century and the painted plaster would probably have originated from the mid-late 2nd century strip buildings, or from an unknown demolished building. This suggests that the pits excavated in the early medieval Phase 8.2 were perhaps deliberately sited to 'quarry' Roman building materials for re-use, but the plaster was rejected as worthless.

8.3 (c.1100-1250)

Group	Context	Frag. No.	Wall plaster descriptions
PLOT 3			
665 (Rebuilt wall within masonry Building 1)	6000	1	red
	6001	2	red
677 (trample or earth surfacing within masonry Building 1)	5247	1	?
749 (pit)	4643	1	red
PLOT 6			
548 (med. building)	1010	7	Unpainted plaster

Phase 8.3 represents the further early medieval developments of the area. Residual painted plaster was recovered from plots 3 and 6 but was only plainly decorated.

Phase 9

9.1(c.1250-1400)

Group	Context	Frag. No.	Wall plaster descriptions
PLOT 2			
688 (pit)	4102	1	Red with lines
	4275	1	white stripe on black/dark red on white, green
771 (pit)	4159	1	white stripe on pale green
837 (pits)	4100	1	maroon, yellow, pale green + red
	4427	3	Red
838 (pits)	4712	3	pale grey/red on white, dark green, maroon with white/red stripes. Combed + reed impression.
1086 (pits)	4573	?	dark red on white
PLOT 3			
Not known. Probably an overcut feature cutting into G703	5310	1	Green and red sep. by a thin white line
PLOT 7			
573 (quarried wall footings)	3591	1	Red/orange
613 (spread of soil)	3261	19	Red, green and white burnished stripes.
661 (small masonry structure)	3058	-	-
1453 (inhumations)	6660		dark green/black on white
	8301		Grey and black
	8190		red marks on pink
PLOT 8			
563 (pit)	2236	4	Red with white
	2441	3	Pale green , white and pink
	2448	1	Red with white line
596 (linear cut)	2219	10	White with grey stripe
680 (Quarried wall footings)	4455	12	dark red on yellow on white (1mm thick), plain white, red/yellow stripes, yellow, pale green, white line over red.
	4525	2	?
686 (pit)	4720	1	red
765 (pit)	4955	1	red
767 (pit)	4618	5	dark red on white, red on white
	4635	1	pale blue on red on white, red
1048 (pits)	5371	2	yellow on white
1050 (Robbed wall footings, Building B)	4873	2	red on ridged rough white intonaco
1292 (Made-up ground)	5420	4	white splashes on red, plain green
PLOT 9			
543 (pit)	1159	2	Dark red on white (?figurative)
	1240	1	Unpainted plaster
	1241	1	Dark red
586 (casting pit)	1117	1	Unpainted plaster
587 (pit)	1109	9	Red on white
1027 (pit)	1005	5	Dark red and dark green
686 (pits)	4720	?	Mortar, maroon on white

By the mid- 13th century a high concentration of pits implies the plots were still in use, although there was little evidence for habitation. The painted plaster from these features appeared to be Roman and was therefore residual. Despite being re-buried (either in pits or in soil accumulations) some fragments were remarkably well-preserved (Figure 130).

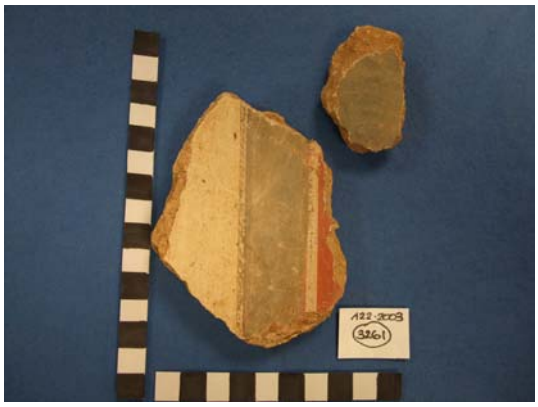


Figure 130: The Roman Painted Wall Plaster: Group 613, (3261) well-preserved burnished stripes.9.2(*c.*1300-1400)

Group	Context	Frag. No.	Wall plaster descriptions
PLOT 7			
574 (post holes)	3101	-	-
607 (pits)	3275	?11	Variety of colours, some polished Chevron, lath and daub impressions on reverse
835 (pits)	4260	1	Red, white and green
885 (soil)	8006	2	green on white, black on white white green on dark red on white, traces of painted lower level
1484 (cess pit)	1408	3	Pale blue and pale green on white
PLOT 8			
734 (pits)	4568	27	Burnished dark red on white plain white red on white, yellow on white-2nd layer- red on yellow on white
754 (pits)	4160	2	pale green on coarse white, red on white
768 (pits)	4528	1	Green and maroon
770 (pits)	4551	1	green on red on white
1295 (possible post-hole)	4856	1	red

During the 14th century, activity across the site was noticeably decreasing. Painted wall plaster was found in a scattering of pits to the north of Plot 2 and across the southern and eastern boundary of Plot 7. Of note were fragments with chevron roller impressions on the reverse, re-decorated fragments and fragments that had been polished. All were residual, Roman and derived from an unknown building, but likely to have been from the courtyard house that once occupied the site. Red and white predominates in this group but green and yellow were also frequently observed.

Phase 10 (Late Medieval: c.1400-1500)

Group	Context	Frag. No.	Wall plaster descriptions
PLOT 7			
572 (quarried wall footings)	3722 3725	2 6	Polished with impressions on reverse Green with splashes of red, black, next to cream. Impressions on reverse
609 (structural feature)	3313 3320	2 1	Pink/orange Abraded red on pink ground
610 (demolition deposits)	3242	52	A variety of colours, mostly green and white Some probable dado: yellow with red splashes. Feint roller impressions on reverse. some fragments have pecking marks Good chevron roller impressions
	3291	19	Plain pink but with feint chevron roller impressions on reverse

Group	Context	Frag. No.	Wall plaster descriptions
			Variety of colours
648 (pits)	3103	1	red
654 (quarried wall footings)	3283	3	Yellow with thin red stripe
891	3678	1	Pink/orange
1451 (inhumation	6963	1	red
PLOT 8			
774 (pits)	5120	11	dark red on white, red on white. Rolled impression
1053 (quarried wall footing)	4224	6	green on pale green, dark red on pink on white

By the 15th century very little activity was noted across the site, with a sparse scattering of pits and further quarrying of Roman wall footings predominating. The painted plaster was all residual but produced a number of clear examples of the use of chevron rollers (Figure 131). Vestiges of dried mud or clay suggest daub or clay pisé walls were being keyed to enable plastering. A fragment of imitation marbling in the form of a green base colour splashed with red and black was noted, as well as a yellow base splashed with red. Both are likely to have once covered the *dado*.

Figure 131: The Roman Painted Wall Plaster: Group 610, (3242) roller impressions

Phase 12(Late Post-Medieval: c.1650-1750)

Group	Context	Frag. No.	Wall plaster descriptions
692 (garden soil within plot 10)	4212	1	white

Phase 13(early modern c.1750-1900)

Group	Context	Frag. No.	Wall plaster descriptions
631 (modern)	1112	192	
634 (Modern pits and pipe trenches south of Grape Street)	2226	3	One yellow, one red polished and one white with thin grey line
657	3183	4	Red with yellow stripe. Probable reed impressions on reverse
	3186	1	Yellow/white fragment over-painting a dark red layer
690 (modern)	4655	?	red
782 (modern)	4569	5	red
1058 (modern)	5182	5	white

Unstratified clearing context

Group	Context	Frag. No.	Wall plaster descriptions
	3470	7	Variety of colours, some polished
	U/S	48	Variety of colours. Some chevron roller

impressions on reverse (see P.XX).

Summary of results

In this section the wall plaster is grouped by the building it is likely to have derived from, with the intention of reflecting something of the colour schemes and styles used in each structure. The plaster was obviously applied and decorated during the construction or renovation phase of any building, while the phase dates tend to securely date when the building or wall was demolished. The phase dates should therefore be treated as a *terminus post quem* for a potentially significantly earlier application of plaster.

Fragments of interest are noted if they either suggest a particular form of decoration or a technological innovation. The range of colours used in each group are not mentioned (there are too many!) but where a particular colour scheme seems to predominate, or an unusual pigment is used, these have been noted.

Plaster from a building pre-dating the known buildings (Sub-phases 2.1, 2.2 and 2.3: late 1st to early 2nd century)

Forty-four fragments were associated with the landscaping of *Insula V*, prior to the construction of the known timber buildings. No earlier buildings were identified on the site but as landscaping material it is conceivable that the plaster was bought-in following the demolition of a nearby building.

Plain, lined and striped fragments seem to predominate suggesting they were once part of a 'panel' design (the upper portion of a tripartite scheme of wall painting), common to all periods. Multi-coloured stripes were also observed, which may suggest the painting depicted either panels with perspective or possibly architectural features: the various shades thought to give an illusion of depth to architectural features, such as fluted columns.

A small group with free-hand lines and figurative elements suggest the panels may have contained more decorative images. Some fragments were polished, which shows a degree of technical competence.

Plaster from demolition debris associated with the timber buildings (Sub-phases 2.4, 2.5, 3.1 and 3.2: mid- 2nd to late 2nd century)

Two-hundred and sixty-two fragments possibly derived from the modification or demolition of the timber buildings, although they could equally be residual debris from earlier landscaping. Plain and striped fragments again predominate but on one group a delicately painted dark red and pink 'leaf' design was observed. This may have been part of a swag or garland from the upper frieze of a tripartite painting. Fragments of olive green splashed with four other colours (black, white, yellow and red) are thought to be a form of imitation marble, often used to decorate the lower or *dado* part of a tripartite painting.

The technical competence of the decorators was evident in burnished fragments, moulded plasterwork from window or door architraves and brush marks visible in the surface of the plaster which suggests the paintings were produced in true *fresco*. Chevron roller impressions on the reverse of some fragments indicate that the plaster was keyed to a clay or *pisé* wall.

Possible *graffiti* marks were noted in the form of a 'ladder' pattern, scratched on to the plaster with a sharp point.

Plaster from the demolition of the bath house (Building F), the strip buildings (A-D) or residual plaster from an earlier building (Sub-phases 3.3, 3.4, 3.5, 3.6 and 3.7: Late 2nd to early 3rd)

Four-hundred and eighty-eight fragments were recovered from contexts likely to be associated with the strip buildings A-D, (either as renovations or from when they were demolished), or from the demolished bath house (Building F).

Once again imitation *dado* marbling was in evidence: a red base splashed with grey and maroon and a yellow base splashed with red, white and green. An alternative form of imitation marbling, in the form of the 'fried egg' design (pale yellow ground with a dark yellow yolk, surrounded by free-hand red

scribbles, or vines) was also observed. A tantalising glimpse of an abstract 'vegetal' design (black, decorated with yellow, green and white), alludes to a strikingly bold painting.

Incised guidelines suggest some paintings were marked out. Together with moulded fragments and burnished pieces they again suggest a degree of technical competence from the decorators.

Some fragments had been re-decorated (white re-plastered and decorated with a pink-orange) while peck marks show how the new plaster layer was keyed into the old. Chevron roller impressions were once again in evidence, suggesting clay walls, but evidence of a wattle wall was also seen in a roundwood impression mark.

The purportedly expensive pigment cinnabar was identified in this group suggesting a building of some status. Painted *opus signinum* (mostly red and white, with some pink), presumably from the bath house, was also observed. Some fragments from the backfill of the plunge pool were a dramatic polished purple, green and white, although did not contain *opus signinum* in their backing layers.

Plaster from the demolition of Building C, the demolition of the Building F bath house or possibly from the early re-modelling of the Courtyard Building G. Fragments from external yards are likely to be earlier landscaping debris (Phases 3.8 and 3.9: early to mid- 3rd century)

Eight-hundred and eighty-three fragments were retrieved from this group. Red and white fragments predominate the colours used and fine lines (?frames to panels) were frequently seen. Scored lines indicate the marking out of areas of painting. Window or door architraves were noted, and some fragments were slightly bowed, suggesting they may have originated from the slumped base of the plaster, forming a skirting. A quantity of fragments was burnished, while peck marks suggest re-decoration. *Opus signinum* was seen painted red, white and pink and some fragments appear to have been burnished.

Lastly, the scribbled 'fried egg' design was again noted.

Plaster from a phase of re-landscaping, both beneath Building H and in Insula XI (Phase 4.1: late 3rd to early 4th century)

The 245 fragments of plaster recovered from the footings/make-up layers from Building H were probably either from the re-modelling of Building G or may even have been imported to the site. Although red and white fragments were still in evidence there was a noticeable increase in the proportion of blues, greens and yellows, including the rarer Egyptian Blue pigment. Cinnabar was also noted, as were a high proportion of burnished fragments.

Stripes predominated but a swirling pattern of green applied to a white background suggests a dramatic contrast to the orderly lines. A neatly painted scallop design on a yellow ground alludes to a more detailed depiction. Shading suggests perspective was used in this design.

A flaky green paint on a polished white surface suggests some paint was applied in *tempura*. Lath impressions indicate a stud wall was plastered, while peck marks suggest the wall was re-plastered.

A spread of debris including 714 fragments of painted plaster was located in the northern portion of *Insula XI*. The south of this *Insula* included the Causeway Lane excavations, which included large dumps of plaster. Much of Vine Street group was reminiscent of the Causeway Lane group, with a similar colour palate and emphasis on striped design (?panels), but the *Insula XI* group was not noticeably different to the material seen in *Insula V*. The possible exception was the fragmentary remains of a yellow design which included a finely painted exotic bird (head and one foot surviving). The 'bird' plaster appears to have been applied to a daub wall, like most of the Causeway Lane group (Ripper 1999).

A pink imitation marbling splashed with red was also noted.

Plaster which probably represents alterations to Building G and more fragments associated with an extension phase to Building H (Phases 4.2, 4.4 and 4.5: early 4th century to mid- 4th century)

Thirty-six fragments from footings associated with the extension of Building H were found presumably, like the group above, from an earlier building, but conceivably from the renovated Building H itself. This group included more black ground with abstract green 'leaves' and a yellow *dado* marbling splashed with white, green and red. Polishing was again in evidence and peck marks allude to a phase of re-decoration.

A further 7 fragments were found in Building G, which may represent repairs or alterations to the standing building. These were predominantly pale blue and white, with straw impressions on the reverse, filled with dried mud (?daub). These fragments are likely to have originated from the courtyard building G, and therefore represent the decoration of that building.

A phase of decline: the demolition of Building G. The plaster in this group is likely to represent the final decoration of both the Courtyard Building G and Building F (Phases 4.6 and 4.7: mid- 4th century to late 4th century)

Six-hundred and four fragments of painted plaster were recovered from this phase representing the decline and at least partial demolition of both the courtyard house and Building F.

From the area to the north of Building G red and white striped plaster seemed to predominate, but with evidence for a variety of other colours too. Fragments were both burnished and moulded. Reed impressions suggest ceilings were also plastered.

From pits dug into the semi-derelict southern half of Building G, over 500 fragments of plaster was recovered. These are again highly likely to represent the final decoration of the courtyard house. Red and white again predominate the colour range but there was also a good quantity of green on black and some yellow and light blue. Many fragments were burnished and comb or brush marks suggest it was painted in true *fresco.* Cinnabar red was much in evidence and some Egyptian Blue was noted, particularly from a striking group of blue on black with pink spots! Three different imitation marbling *dado* fragments were observed: red splashed with black and white, brown splashed with black, red and white and grey splashed with red. Both roller and lath impressions were noted on the reverse, suggesting both clay and timber walls (or walls and ceilings?). Vestiges of dried mud were noted in the impressions.

The few fragments from around Building F were painted red and white, with some evidence of burnishing.

Medieval to early modern contexts containing Roman wall plaster (Phases 8.1, 8.2, 8.3, 9.1, 9.2, 10, 12, 13 and unstratified contexts: AD *c.1100-1900)*

Seven-hundred and fifty-one fragments were recovered from post-Roman contexts, but it is likely that much of this group did originate from the buildings on site. Quarrying of Roman building material was in evidence across the site and it would seem probable that the wall plaster was largely re-dumped after the removal of the more valuable stone. There is no positive evidence that building material was brought-in (for landscaping *etc*.) during these post-Roman phases.

Once again red and white predominated over other colours, but yellows, blues and greens were also in evidence. Some unusual mauve's and pale greens were also noted. Striped patterns were common but there was also an example of a finely painted 'fleur de lys', and a tendril design. Red, grey, green and yellow splashed *dado* marbling was also noted. Some fragments were decorated in yellow on white and re-decorated with red on yellow and white. Peck marks were also observed.

The use of burnishing and a thick intonaco layer, suggests a high quality painting, while combed plaster implies true *fresco*.

Impressions on the reverse showed evidence of rollers, laths, reeds (even a tied bundle) and daub.

Discussion

Materials and techniques *S. Ripper & G. Morgan*

All the plasters analysed from the Vine Street excavations were lime plasters (see Appendix I). The painting technique was generally *buon fresco*, with the pigment suspensions being applied to the final wet lime or *intonaco* coat. Overpainting was probably carried out using the *fresco secco* technique, mixing the pigment with lime water or by soaking the dry lime plaster with lime water. The pigments used were as follows: red ochre/haematite, cinnabar red, Egyptian blue, glauconite/green earth, limonite/yellow ochre, white lime and soot or charcoal. Egyptian blue is a synthetic pigment, probably imported, whilst cinnabar was the very expensive pigment imported from Rome. It has to date been found on some 30 sites in Roman Britain.

Red and white painting appeared to dominate the colour palate over all periods, with perhaps an increase in blacks, blues and yellows in the later phases, but the changes over time were not distinct. Purple and mauve colours were seen, but rarely.

A range of styles of painting were observed but both 'stripes' (panels and architectural) and figurative or vegetal designs were seen from all periods. There was slight evidence that stripes predominated in the earlier periods, but the fragmentary nature of the collection precludes certainty. Figurative paintings appeared to change from the early abstract vegetal patterns to more representational, naturalistic designs by the late 3rd century (like the 'bird' painting seen in Phase 4.1), but again this cannot be stated with certainty. The splashed imitation marble was seen from the mid- 2nd century onwards, and was ubiquitous to all periods. The 'fried egg' marbling was observed from the late 2nd century to the mid-3rd, but not in later contexts. Burnishing or polishing of the plaster surface was also noted in all periods and appears to be a commonly used technique.

The painted *opus signinum* (noted from the late 2nd to mid- 3rd centuries only) was only observed in the vicinity of the bath house and therefore presumably reserved for 'wet' rooms only.

On the reverse of the plaster roller impressions, lath marks and reed/straw impressions were noted from the mid- 2nd century through to the late 4th century (with some of the best preserved fragments actually surviving from a later medieval context). The differing marks being present from all periods suggests that the variety of materials and techniques used for building walls, and subsequently plastering them, varied little over time.

Roller impression and links with Norfolk Street Roman villa *R. Buckley & S. Ripper*

When a plaster rendering was applied to a clay or *pisé* wall, a key might be obtained by impressing the clay in 'herringbone' fashion with a stamp or roller, prior to the application of a top coat of plaster. From the Vine Street excavations 20 fragments of plaster had evidence of the chevron impressions made by rollers, on the reverse. Most examples were too fragmentary, or too abraded to reveal anything beyond the presence of chevrons, but three fragments included the central diamond shape, thought to represent the centre of the roller. The roller-impressed fragments were identified across ten Roman phases (from the mid- 2nd century to the mid-late 4th century), but were also found in demolition debris from medieval deposits (Figure 132). The best preserved fragment, showing a clear impression of the central diamond, was from an unstratified context in Area 3 (roughly Building H).

The earliest example (Phase 2.5, Group 486) derived either from the modification or demolition of the timber buildings, or may have been brought to site as demolition debris from an unknown building, and must be either mid- 2nd century or earlier. The latest examples are likely to have derived from Building G, constructed in the early 3rd century. No fragments could be associated with any particular building with any certainty but the distribution of fragments across the site suggests the technique of rolling onto a *pisé* wall was used in more than one building. This is supported by both the range of phases from which the fragments were derived and by the variety of painted decoration on the reverse (suggesting they were from different walls).

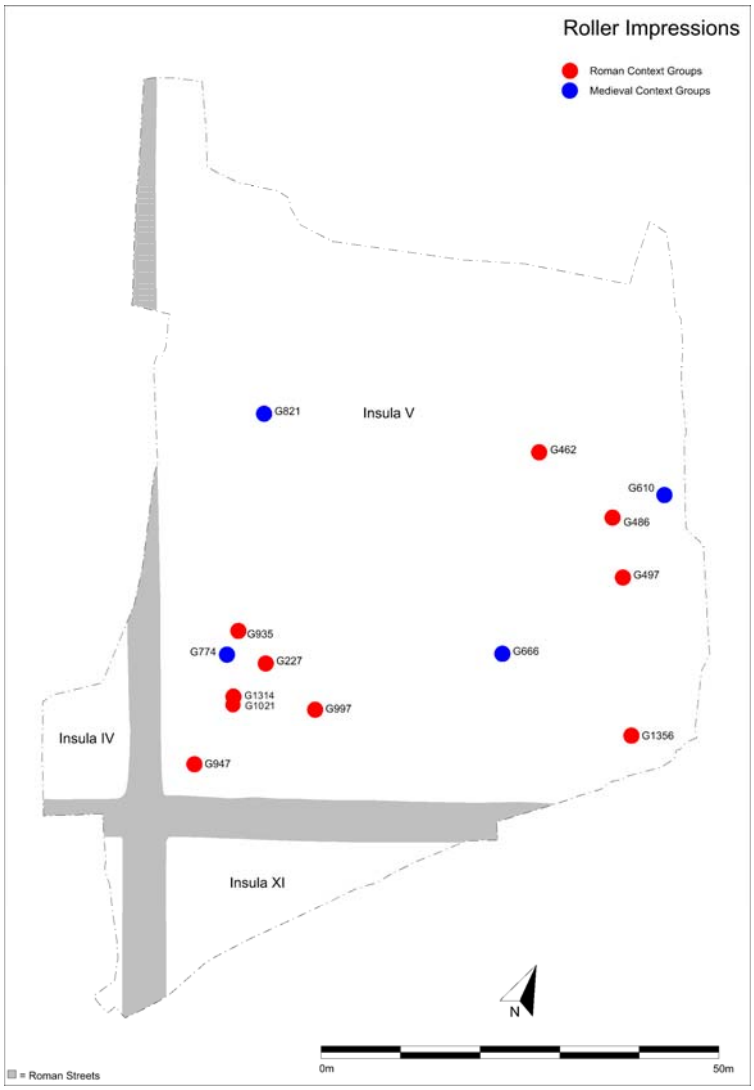


Figure 132: The Roman Painted Wall Plaster: distribution of fragments of wall plaster with roller impressions.

Table 122: The Roman Painted Wall Plaster: The distribution and preservation of roller impressions

Phase	Date	Wall plaster descriptions
Area 3 u/s		Fragment with *c.*8 v-shaped chevrons, but no central diamond. Reverse: abraded yellow and black with blob of mortar splashed on. Found during machine clearance of Area 3 (East), roughly in the location of Building H
Area 3 u/s		This fragment is the clearest example we have of the central diamond Possible 5 chevrons survive, including the diamond-shaped central impression. The centre of the diamond is 'raised' on the plaster, chiselled away on the roller. Photographed Reverse: plain yellow ochre splashed with red and black Found during machine clearance of Area 3 (East), roughly in the location of Building H
Ph2.5 G486 C3641	Mid 2nd	Not photographed Reverse: polished pink North of Timber structure 1, over the east/west 'track' Probably originated in an earlier unknown building

Phase	Date	Wall plaster descriptions
Ph3.3 G935 C6033	Late 2nd	4 fragments with much abraded impressions (Figure 94). One shows innermost diamond and, like the above example, the plaster is 'raised in the centre Reverse: marbled. Red and grey spots on red/black Trample from surface of strip Building A Probably originated in an earlier unknown building
Ph3.5 G462 C3296	Late 2nd/ early 3rd	No photo or description Reverse: 47 fragments recorded from this context but not clear which fragment is impressed Pit NE of strip Building D Probably originated in an earlier unknown building
Ph3.6 G947 C6736	Early 3rd	Very abraded roller impressions Reverse: red on white/ yellow splodge on white Made-up ground in Building A earlier unknown building or Building A/D demolition
Ph3.7 G497 C3533	Early 3rd	No photo Reverse: white/green fragment re-decorated with red. Roller impressions are on first coat. Irregular shallow pit NE of Building G earlier unknown building / Building A/D demolition or even early re-decoration of Buildings G/F
Ph3.8 G1356 C2449	Early – mid- 3rd	No photo Reverse: white/cream with black border Mortar spread just N of Building F earlier unknown building / Building A/D demolition or even early re-decoration of Building F
Ph4.4 G227 5618	Early - mid- 3rd	No photo or description Reverse: not recorded Pit in Building G courtyard Could be from Building G or residual
Ph4.6 G997 C5586	Mid 4th	No photo or description Reverse: not recorded Pit in Building G courtyard Could be from Building G or residual
Ph4.7 G1314 C5375	Mid - late 4th	One fragment showing 3 V's of chevrons (Figure 124). Reverse: slightly burnished red/black Demolition or trample layers and collapsed wall plaster, Building G, corridor 5) Very likely from Courtyard Building G
Ph4.7 G1314 C5383	Mid - late 4th	Two fragments photographed, one possibly including the central diamond with no hole in the centre (unlike Norfolk Street) Reverse: red Demolition or trample layers and collapsed wall plaster, Building G, corridor 5) Very likely from Courtyard Building G
Ph8.2 G666 C3161	1100 – 1250 AD	Database says 'possible roller impressions'
Ph8.2	1100 –	Unstratified context from the Plot 7 area. No description or photo.

Phase	Date	Wall plaster descriptions
G821 C5000	1250 AD	
Ph10 G610 C3242	Late Medieval: AD *c.*1400-1500AD	Plaster showing 6 'V's' of a chevron pattern, but not the central diamond (Figure 131) Reverse: yellow with splashes of red (marbling) Demolition deposits
Ph10 G610 C3291	As above	Contexts containing plaster with 'feint' roller impressions. Photo Reverse: plain light pink Demolition deposits
Ph10 G774 C5120	As above	No photo or description Reverse: not known

Although the technique of keying a clay wall with impressions applied by a roller is well known both in Rome and in Roman Britain (Davey and Ling 1982, 55), the Vine Street fragments are notable for their strong resemblance to the 'Roller 2' impressions from Scheme 3, from the late 2nd-early 3rd century Norfolk Street Villa in the western suburbs of Leicester (Buckley forthcoming). There, two distinct rollers were identified. A widespread pattern of roller impressions was observed (Roller 1) on the reverse of a large group of conjoining fragments, showing a pattern of diamonds and chevrons, edged with angled lines. Sufficient evidence survived to reconstruct the complete pattern (Figure 133) which would probably have been carved on a cylindrical wooden roller, thereby creating a repeating pattern (Figure 134 &Figure 135). A second less well-preserved roller (Roller 2) was observed from Scheme 3, which largely consisted of moulded door and window architraves, decorated in dark red and white. These 'Roller 2' impressions are of similar dimensions and shape to the impressions noted at Vine Street (Figure 137 and Figure 138), and could conceivably even have been produced from the same die.

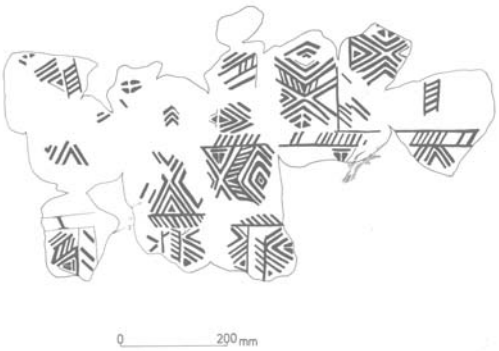


Figure 133: The Roman Painted Wall Plaster: roller impressions on the reverse of Scheme 2 wall plaster from the Norfolk Street Roman villa (A287.1975)

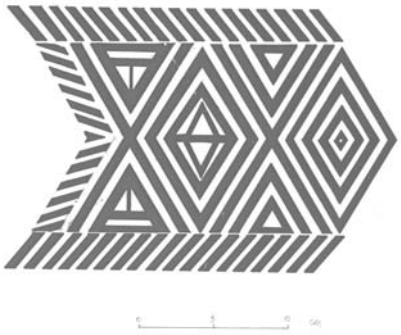


Figure 134: The Roman Painted Wall Plaster: reconstruction of roller pattern from Norfolk Street

Figure 135: The Roman Painted Wall Plaster: fragment of plaster from Norfolk Street and replica roller

Figure 136: The Roman Painted Wall Plaster: roller impression from an unstratified context in Area 3 showing a well preserved diamond shaped roller centre

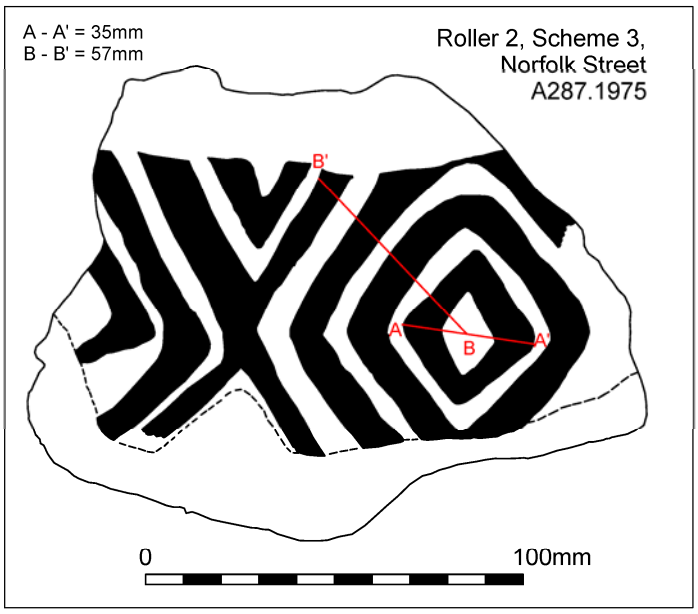


Figure 137: The Roman Painted Wall Plaster: roller impression from Scheme 3, Norfolk Street Roman Villa (after Buckley forthcoming)

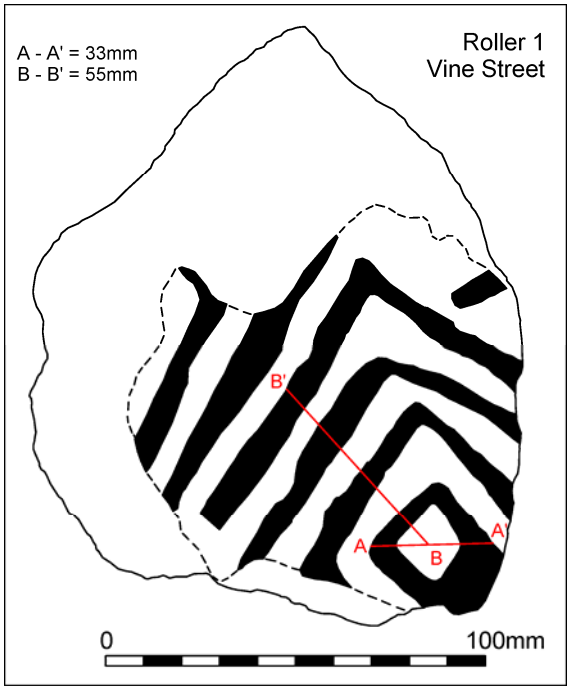


Figure 138: The Roman Painted Wall Plaster: roller impressions from Vine Street, Area 3, unstratified

Two measurements (A – A' and B – B') were taken to compare the Vine Street Area 3 fragment with the Norfolk Street Roller 2 drawing. Considering the mobile properties of wet plaster and the difficulties of drawing objects with inexact edges the two impressions could be considered to be identical in their dimensions.

This roller pattern has not been identified elsewhere in Britain.

The Norfolk Street Plaster

Although the better-preserved Roller 1 impressions were clearly not the same roller that was used at Vine Street, the following description (based on archive notes – R.Buckley) is a useful comparative account which depicts something of the role of rollers on the plastering process:

> In its final form, the Norfolk Street Roman villa was a courtyard building with northern and western domestic ranges, both with evidence for tessellated pavements and painted wall plaster, an aisled barn on the south side and a north-eastern range with two hypocausts, perhaps a baths suite. The courtyard was closed off with a boundary wall with gateway leading to a metalled road. Of particular significance is the fact that the west range was almost identical to the north range of Vine Street, whilst similar tessellated pavements were laid at the two sites in the 4th century. This lends weight to the suggestion that the two houses were perhaps built by the same contractor within a short space of time of one another.
>
> The construction of the north and west ranges of Norfolk Street is dated to the mid- 2nd century to early 3rd century by the pottery (Lucas, archive report), possibly built in two phases. Two rooms in the north range may have become disused in the late 2nd to mid- 3rd century and in the early to mid- 4th century, pavements were laid in the west, north and north-east wings. In the mid- to late 4th century, there is evidence for the widespread demolition of the villa.
>
> The Norfolk Street villa excavations produced the largest assemblage of painted wall plaster from Leicester so far, with considerable quantities of fragments coming from dumps in a disused cistern in the courtyard, perhaps following partial demolition of the north range. The bulk of the material, however, came from a cellar in the north range. This was itself plastered and painted on two occasions (with fragments of plaster surviving *in situ* despite extensive robbing of the walls) and also contained dumped plaster and a collapsed unbaked clay brick wall from the ground-floor room to the west which was plastered and painted on both sides. The wall was probably toppled during the demolition phase of the mid- to late 4th century. Two largely intact schemes of decoration were preserved: scheme 7, the 'face-up' plaster and scheme 14, the 'face down' plaster.
>
> There was evidence for roller impressions similar to Lowther's diamond and lattice type (Lowther 1948a) on the surface of the undercoat plaster from Scheme 7, the design originally on the east wall of room 12 which was subsequently toppled into the adjacent cellar to the east (room 13). Although this bore a comparatively simple design of coloured outline panels separated by plant forms above a grey splashed dado, the upper zone was more complex, being decorated with a horizontal frieze of leaves containing clusters of fruits. The potential problem of the top-coat plaster drying out too quickly (thereby preventing true fresco being achieved), was solved by dividing the wall into two horizontally. First, the whole wall was plastered with an undercoat, then the upper zone received a middle and top coat, was lime washed and finally decorated with the frieze of leaves. The still-damp undercoat of the lower part of the wall was keyed using a roller bearing a diamond and lattice pattern to ensure good adhesion of upper coats. Later in the day, or perhaps the next day, the lower part of the upper zone top-coat plaster was carefully trimmed horizontally and the lower part of the wall received its middle and top coats in preparation for painting. The join between the two-day's work is visible on the reconstructed plaster in the Jewry wall Museum, the top coat of the lower zone clearly overlapping that of the upper. The scheme 7 wall plaster was applied to the west side of a wall constructed of unfired clay brick.

Figure 139: The Roman Painted Wall Plaster: partially revealed *in situ* wall plaster, Building H.

Conclusion

There is some evidence to suggest that at least part of all the Roman buildings observed at Vine Street were decorated with painted plaster; including the early timber buildings and the mid- 2nd century strip buildings. The collection, however, was too fragmentary to recreate any of the painted schemes, or even elements of schemes. The incompleteness of the groups of plaster dictates that the absence of evidence should not be viewed as the evidence of absence.

An overview of the collection suggests that panels of plain colour or simple stripes appear to dominate groups of plaster from the earlier phases, with red and white being the most popular colours used. Some early black painting decorated with abstract green leaves hints at elements of freehand painting. Finer, more representational paintings (such as the exotic bird and the 'fleur de lys') are only seen in the later phases. The 'fried egg' design was noted in demolition debris from the timber building (mid- 2nd century), again in the strip building phase and even possibly associated with early re-modelling of Building G (mid- 3rd century), suggesting it was a design that remained in favour. Likewise, imitation marbling in the form of a splash decorated plain background is seen from the mid- 2nd century and subsequently in every phase, albeit with differing combinations of colour.

The burnishing of painted plaster was seen in every phase, as were moulded door and window architraves. All the paintings appear to have been achieved in *true fresco* with some additional decoration in *tempera,* noted in the vicinity of Building H. Guidelines were observed from the mid- 2nd century onwards, suggesting the schemes were planned and measured. Cinnabar, Egyptian Blue and purple (the rarer paints) were used, principally in the Bath House. The frequent re-decoration of painted walls suggests a wealthy household. Overall, the collection hints at good quality paintings achieved by a highly skilled workforce.

Evidence from the back of the plaster fragments suggests the walls of the buildings were made from a variety of fabrics; clay or *pisé,* stud timber, daub and reeds/straw. A final *sondage,* excavated on the last day of the fieldwork, even revealed an area of *in situ* painted plaster, adhering to a stone wall (Figure 139). Unfortunately, the late observation meant this tantalising remnant could not be investigated further.

Finally, the chevron roller impressions seen at Vine Street provide a compelling link with the mid- 2nd century Norfolk Street Roman villa. Remarkably similar techniques of keying plaster were observed on both sites and suggest the possibility that the same workmen may have been involved in the construction and/or redecoration of both the town house and villa.

Appendix: Wall plaster analysis *Graham Morgan*

Table 123: The Roman Painted Wall Plaster: results of the analysis of the painted wall plaster

Phase	Group	Context	Results
3.7	802	5755	Burnished red* <0.1mm, on white *intonaco*, 0.4mm, on coarse sandy plaster with lime pieces, 10mm thick.
3.7	860	8200	a. red* on yellow on white *intonaco*, 0.4mm, on coarse sandy plaster, 22mm, on lower similar plaster traces, 8+mm thick. Also, white line on light green and dark green on plaster 20mm + 12mm thick and; b. blue on black on white *intonaco*, 0.2mm, on sand and gravel plaster, 30mm – 50mm thick, on muddy plaster traces, 15+mm thick. c.red ochre on white on white *intonaco*, 0.2mm, on two layer sand and gravel plaster, [top] 30mm + [middle] 18mm, on [lower] *opus signinum*, 15mm thick.
4.1	476	3311	Burnished red on white traces, 0.2mm, on coarse sandy plaster, 14mm, on coarse sandy plaster, 14mm, on pale plaster, 14mm thick.
4.1	860	8200	Bag 1: Burnished red*, <0.1, on yellow, 0.4mm, on white *intonaco*, 0.5mm, on pale buff sandy plaster, 8mm, on off-white sandy plaster with lime lumps, 12mm thick. Dark red detail on pale blue on white *intonaco*, 0.2mm, on sandy plaster 16mm thick. Blue on black on white *intonaco*, on plaster as above 14mm and 15mm thick. Bag 2: Pale blue and white lines on burnished red on white *intonaco*, 0.2mm, on coarse sandy plaster, 18mm, on *opus signinum* traces. White and dark green on pale green on white *intonaco*, 0.4mm, on coarse sandy plaster to 30mm thick. Bag 3: Red on white *intonaco*, 0.5mm, on coarse sandy plaster, 20mm thick. White lines on burnished red, 0.2mm, on coarse sandy plaster 22mm thick. Grey on white *intonaco*, 0.4mm, on coarse sandy plaster 18mm thick. White lines on pale green on white *intonaco*, 0.2mm, on coarse sandy plaster 12mm thick. Black on pink on white *intonaco*, 0.4mm, on coarse sandy plaster 17mm thick. Bag 4: Blue on black on white *intonaco*, 0.9mm, 0n coarse sandy plaster, 12mm, on light sandy plaster 10mm thick. Bag 5: White line on a dark green to pink interface, <0.1mm, on white *intonaco*, 0.9mm, on coarse sandy plaster, 12mm, on light sandy plaster, 10+mm thick. Dark red line on a red* to blue on dark red/brown interface on white *intonaco*, 1mm, on coarse sandy plaster, 10mm, on very coarse sand and gravel plaster to 40mm thick.
4.6	997	5524	White on pale blue on white *intonaco*, 0.1mm, on coarse sandy plaster, 14mm, on coarse sandy plaster 12 – 22mm thick. White line over blue on black and red* + red interface on 16mm plaster as above. White line over blue and burnished red/dark pink, 0.1mm, on white *intonaco*, 0.4mm, on coarse sandy plaster, 20mm thick. Also a sample with un-burnished dark pink. The dark pink is red ochre with lime. Grey/dark brown on white *intonaco*, 0.5mm, on sandy plaster, 20mm thick. Also samples with yellow as above and red* on pink on white and pale green traces as above.
		5559	Red* on pink on pale green, 0.1mm, on *intonaco*, 0.2mm, on coarse

Phase	Group	Context	Results
			sandy plaster, to 20mm thick. The plaster has a triangular section.
		5669	Bag 1: Yellow on white and pale blue on white *intonaco*, 0.2mm, on coarse sandy plaster 16mm thick. Red* on pink to white [red* + lime], on pale green, <0.1mm, on white *intonaco*, 0.5mm, on buff sandy plaster, 8mm, on pale sandy plaster, 10mm, on brown sandy and muddy plaster 15mm thick. Cf 5559 Bag 2: Pale blue bands and white lines on burnished red* on white *intonaco*, 0.4mm, on coarse sandy plaster, 15mm thick. White on a black to red* interface on plaster as above. Bag3: blue on yellow on white *intonaco*, 1mm, on coarse sandy plaster 8mm thick. Bag4: White lines on a red, 0.1mm, to yellow interface on white *intonaco*, 0.2mm, on coarse sandy plaster, 10mm, on buff sandy plaster, 14mm thick. Secondary plaster: burnished red, <0.1mm, on white *intonaco*, 0.5mm, on coarse sand and gravel plaster 18mm thick on primary plaster; primary plaster: white on pale green and a pink line on black on white *intonaco*, brown sand and gravel traces. Dark red on white *intonaco*, 0.2mm, on coarse sandy plaster with tile traces and lime lumps, 27mm thick.
	1270	4706	Bag 1: Coarse blue on black, 0.1mm, on white *intonaco*, 0.4mm, on coarse pale sandy plaster 6mm, on buff coarse sandy plaster 10mm thick. Yellow bands on a blue to white interface, on plaster layers 10mm + 15mm thick. Also samples with pink [red* + lime], on blue and pale green on black on yellow on plaster as above. Bag 2: Yellow band and pink [red* and lime] on Egyptian blue on grey on white *intonaco*, 0.3mm, on coarse sandy plaster, 12mm, on yellow to buff plaster with lime or chalk lumps, 14mm, on mud traces. Also samples with white and red* bands on yellow on white *intonaco*, 0.4mm, on coarse sandy plaster, 16mm, and samples with a white band on a black to yellow interface, and green on white, 0.1mm, on white *intonaco*, 0.4mm, on plaster as above. Bag 3: Red* on yellow on white *intonaco*, 0.4mm, on coarse sandy plaster, 17mm thick. Pale blue and red* on pink on maroon on white *intonaco*, 0.4mm, on coarse sandy plaster, 15mm thick as above. Also samples of pale green on white *intonaco* as above, and a white line on red* on white *intonaco*, 0.5mm, on plaster as above. Bag 4: Pale green on pink, blue on black on yellow, pale yellow with blue specks on red/maroon, white and pale yellow, both with blue specks, on dark red, yellow, white and dark red on red*, and white on green on yellow all on plasters with white *intonaco*, 0.5mm, on coarse sandy plaster, 15 - 18mm, on buff sandy/muddy plaster to 15mm thick. Dark blue on black on yellow on white *intonaco*, 0.4mm, on sandy plaster with gravel, [4706a] 10mm – 18mm, on buff muddy plaster [4706b], 15+mm thick. Also; green on white, a white line over black to yellow, red* on pink on combed white, yellow with blue specks on dark

Phase	Group	Context	Results
			red to maroon on white.
4.7	1314	5375	Red, white and black splashes on dark grey to dark brown to black on white *intonaco*, 0.4mm, on coarse sandy plaster to 25mm thick. Black, white and red splashes on grey on white *intonaco*, 0.4mm, on coarse sandy plaster 20mm thick. White and yellow lines on burnished black on white *intonaco*, 0.2mm, on coarse sandy plaster 27mm thick.
8.1	1290	4894	Red* <0.1mm, on off-white *intonaco*, 0.4mm, with some sand, on sandy plaster 7mm thick.
8.2	254	4605	Bag 1: Pale green on black on white *intonaco*, 0.4mm, coarse sandy plaster, 20mm thick. Yellow on white *intonaco*, 0.4mm, on coarse sandy plaster, 16mm thick. Red on white *intonaco*, 0.5mm, on coarse sandy plaster, 10mm, on white *intonaco*, 0.7mm, on coarse sandy plaster traces, 5+mm thick. Bag 2: Dark green on white *intonaco*, 0.5mm, on coarse sandy plaster, 20mm thick. Grey to black on white *intonaco*, 0.5mm, on coarse sandy plaster to 25mm thick.
	1078	4715	Red* <0.1mm, and blue on off-white *intonaco*, 0.4mm, on light sandy plaster, 8mm, on buff sandy plaster 6mm+. Also red/brown on plaster as above.
9.1	837	113	a. Primary plaster: black on yellow on white *intonaco*, 0.1 – 0.4mm, on pale sandy plaster with gravel and lime/chalk, 24mm, with traces on mud on the rear. b. Secondary plaster: green on white *intonaco*, 0.4mm, on coarse sand and gravel plaster, 17mm, on traces of red* and red with pick casts.
	1292	5420	Pale blue on white on red* 0.1mm, on white *intonaco*, 0.2mm, on buff sandy plaster 14mm, on coarse sandy plaster with some tile, 28mm thick.

THE ROMAN BUILDING MATERIAL *Phil Mills, Nicholas J. Cooper and Terri Davies*

The Roman ceramic building material and slate ***Phil Mills***

Introduction

There were four sites from which Roman building materials were recovered as part of the Highcross development. The material was initially sorted and recorded by Nick Cooper and Terri Davies, with CBM grouped by form type; number of fragments; and weight were recorded, with larger pieces retained. The retained material was examined by Phil Mills, in autumn 2008, who constructed a fabric and form series. The fabric series was compared to one created by John Lucas for the Norfolk Street Villa, stored at the Jewry Wall museum and concordances are suggested here. The quantities of CBM recovered from each site is summarised in Table 124, which shows the total assemblage as well as the stratified assemblage from each site.

Table 124: The Roman Building Materials: CBM and slate by Site

		Total			Stratified		
Site		No	Wt	Cnr	No	Wt	Cnr
A22 & A24.2003	Vine St	7686	1302882	49	7610	1285945	49
A8.2005	Freeschool Lane	2485	518351	16	2379	508387	16
A2.2003	Vaughan Way	980	147996		957	145231	
A5.2006	East Bond St	395	39639	3	373	36325	3

This report is mainly based on the material from the Vine Street excavations, with comparison with the other, smaller assemblages made as appropriate. The main measures used in this report are number of fragments (No) and weight (Wt) in grams. Corners were recorded in the comments of the initial recording, and are presented here (Cnr); however their extremely low numbers for the sites suggests that they have not been systematically recorded, so their values should be treated with caution. The average fragment side (MSW) is a derived value based on the division of the total Wt of a group by the total No.

Vine Street is the only assemblage large enough to allow for the meaningful examination of phase groups, which are presented here as appropriate. All other sites are presented as stratified site groups.

This report first presents the dating evidence of the building materials recovered. Then the Taphonomic characterisation of Vine St is explored and comparison made with the deposition patterns of CBM in general. The next section examines the question of supply to the sites in terms of fabric and form. It is not possible to compare quantified fabric groups, but a broader picture of supply can be suggested. The following section examines the ratios of the different BM types in the assemblages, and compares this to what would be expected from different types of event. Finally the results of the study are discussed with respect to the project aims.

Dating

The best dated materials are the roller relief stamps. Dies 9, 13, the split form of 13 and 30 (Betts et al, 1994) were all found in the various assemblages. These have been dated to the mid- 2nd century from a number of sites in Eastern England, and have all been found associated with the Jewry Wall Baths, Leicester which had a completion date of AD 155-60 (Wacher, 1974). Examples were recorded from (664) and (847) at East Bond Street as well as Vine Street., where there are several examples. There is an example from a Phase 2.2 pit (3501 – G363). The phase date (late 1st to early 2nd century) is at the lower limit for the date of this die, so the fragment may be intrusive, possibly an accidental breakage during the construction of Building H (Phase 4.1). The other examples are residually present in a Phase 4.6 robber trench (6579 – G818) and demolition layer (5612 – G732); and in Phase 10 garden soil (6905 – G1089).

The dated tegula cutaways, after Warry 2006, include a cutaway type B (AD 100-180) from the wall at Freeschool Lane (tile TRI13). There are a number of examples of cutaway type C (AD 160-260) mainly from the wall at Freeschool Lane, but also from a Phase 2.5 demolitions spread (3264 – G361); a Phase

3.9 rubble spread across Building F's rear yard (2411 – G377); and a Phase 4.4 pit (5530 – G227) on Vine Street. There is also a single example of a cutaway type D (AD 240-380) from a Phase 3.6 demolition layer backfilling the hypocaust within Building F (2619 – G399).

Combing patterns have some correlation to date – Scored lattice patters tend to be early –perhaps mid- 1st to mid- 2nd century. Some examples may be of half box flue tiles. They are noted in small quantities at all the sites. They are presumably residual elements from an early bath structure, reused as hard core in the 2nd century development of the city. Fine combed examples, perhaps dating from the 2nd century to perhaps the later 3rd century are seen on all sites apart from East Bond Street, and are likely to have comprised the bulk of the flue tiles used for the bath structure on Vine Street. The later wide combed flue tile patterns (perhaps mid- 3rd+) are only noted at East Bond Street and Vine Street, in both cases likely 'scatter' from the destruction or demolition of later hypocaust structure(s) in the city.

The wide regional trade in Harold shelly ware CBM (L29 and T29 below) probably parallels that of the expansion of trade in pottery vessels from the same source, from the 3rd to 4th century. Shelly box flue tiles are noted at Vaughan Way, Freeschool Lane and Vine Street. The earliest example at Vine Street is a single example in a Phase 3.6 pit (3577 –G446). There are two further occurrences in Phase 4 from a robber trench (5529 – G1073, Phase 4.6) and a possible example from a pit (4952 – G731, Phase 4.7). The bulk of occurrences of this fabric occur residually in post Roman phases, and would not have been part of the bath structure, but either from another hypocaust structure in the area, or brought in as curated hardcore for building projects in Phases 3 and 4.

The breakdown of the stratified material by period from Vine Street is shown in Table 125. This emphasises the very small amount of material from the earliest Roman phases, and shows an interesting decline in material in Phase 4, although that is a function of the large amount of post Roman activity, especially the disturbances in Phases 8 and 9.

Table 125: The Roman Building Materials: the Vine Street assemblage by phase

Phase		No%	Wt%	Cnr%	MSW
0	Unphased	4%	3%	5%	120.86
2	Early Roman mid-1st-Early 2nd Century	8%	3%	5%	72.69
3	Mid Roman Mid 2nd-3rd Century	27%	33%	7%	206.58
4	Late Roman 4thCentury	23%	28%	40%	209.72
7	Saxo-Norman 850-1150	0%	0%	0%	118.80
8	Earlier Medieval *c.*01100-1250	16%	15%	7%	157.43
9	Medieval *c.*1250-1400	19%	15%	35%	132.16
10	Late Medieval *c.*1400-1500	1%	1%	0%	121.77
11	Early Post-medieval 1500-1650	0%	0%	0%	135.81
13	Early Modern 1750-1900	1%	1%	2%	149.73
14	Twentieth Century - Present	0%	1%	0%	232.23
N/ Avg		7664	1301016	43	169.76

Taphonomy

The context types have been grouped into context classes (c.f. Booth 2000; Mills 2006), and the proportions of material from each context class for the entire site is shown in Table 126. This is represented graphically in Figure 140, with Figure 141 showing the MSW of the CBM fragments in each context class. Pit and robber trench fills are the most frequent deposits on Vine Street. This contrasts with the previously identified pattern where ditches, gullies and layers are typically much more common deposition locations. It is interesting to note the only deposit types where Wt% is higher than No% are demolition layers, floor layers and robber trenches, with the most extreme variance seen for demolition layers. Unusually the largest fragments are from middens or dumps. Normally larger fragments are seen from pits, ditches and floor layers.

Examining roof tile only (Figure 141, Figure 142 and Figure 143) shows surprising little difference – a reduction in the importance of robber trenches, presumably backfilled with the bricks from the demolished buildings. This small level of difference is reflecting in the MSW values as well.

The breakdown of context types by the Roman phases is given in Table 127, Table 128, Table 129,

Table 130, and Table 132. Figure 144 shows a stacked bar chart of the absolute values by No for the different phases. The absolute values of MSW by phase and context type are shown in Figure 145. This data neatly demonstrates some of the changing deposition patterns overtime, as a reflection of site activities. There are changes, for instance in the importance of CBM in construction layers which can be explained by the rise in quantities of reused material available for hardcore as time goes on. The increase in sherd size in pits and robber trenches in the final Roman phase is also significant in terms of the changes happening to the site, and the city as a whole, as more material is discarded rather than reused as hardcore, indicative of declining demand for such materials.

Figure 146 presents a graphical summary of deposition patterns by context type for some 25 sites from Roman Britain. Pleasingly the results for this site, the only inter-mural site in the dataset, shows a higher degree of complexity than the other site types, with deposit types such as demolition and robber trenches making up an important component.

Table 126: The Roman Building Materials: the Vine Street assemblage by deposit type

Cxt Class	No%	Wt%	Cnr%	MSW
Construction layer	17.02%	9.28%	11.63%	92.19
Demolition Layer	19.46%	29.75%	18.60%	258.29
Ditch	0.16%	0.11%	2.33%	120.58
Drain	0.67%	0.94%		236.63
Feature	0.04%	0.08%		350.00
Floor layer	5.07%	6.31%	2.33%	210.19
Garden Soil	0.12%	0.04%		60.22
Grave	0.67%	0.65%	2.33%	163.35
Gully	0.01%	0.01%		109.00
Hearth/oven	0.49%	0.53%		183.24
Kiln	0.72%	1.48%	4.65%	346.36
Layer	0.26%	0.31%	2.33%	197.70
Midden	0.03%	0.08%		500.00
Occupation Layer	0.93%	1.01%		183.32
Pit	26.45%	23.64%	13.95%	151.00
Post base	0.18%	0.10%		89.29
Posthole	2.16%	1.24%		96.87
Robber Trench	16.47%	17.81%	30.23%	182.83
Slot	1.14%	0.70%		103.86
Unknown	4.31%	2.42%	4.65%	94.94
Wall	2.48%	2.59%	6.98%	176.25
Well	1.16%	0.92%		134.89
N/ Avg	7610	1285945	43	168.98

Table 127: The Roman Building Materials: quantities of Vine Street roof tile only by context class

Cxt Class	No%	Wt%	Cnr%	MSW
Construction layer	18.83%	12.18%	18.75%	90.07
Demolition Layer	15.63%	26.77%	6.25%	238.54
Ditch	0.14%	0.11%		105.00
Drain	0.79%	0.97%		169.86
Feature	0.05%	0.14%		350.00
Floor layer	4.83%	4.41%	6.25%	127.19
Garden Soil	0.16%	0.07%		60.22
Grave	0.77%	0.87%		155.74
Gully	0.02%	0.01%		109.00
Hearth/oven	0.56%	0.59%		147.68
Kiln	0.50%	1.20%		330.96
Layer	0.22%	0.30%		190.67
Midden	0.04%	0.13%		500.00
Occupation Layer	0.90%	1.00%		155.18
Pit	28.14%	25.29%	43.75%	125.14
Post base	0.25%	0.16%		89.29
Posthole	2.68%	1.88%		97.50
Robber Trench	15.00%	16.33%	25.00%	151.60
Slot	1.44%	1.03%		99.81
Unknown	4.95%	3.00%		84.28
Wall	2.57%	2.36%		127.80
Well	1.51%	1.21%		111.48
N/ Avg	5554	773419	16	139.25

Table 128: The Roman Building Materials: quantities of all Vine Street CBM by deposit type for Phase 2

Cxt Class	No%	Wt%	Cnr%	MSW
Construction layer	72.16%	44.24%	100.00%	44.56
Floor layer	1.03%	2.00%		140.67
Layer	0.69%	1.94%		205.00
Occupation Layer	4.12%	14.37%		253.38
Pit	16.15%	23.97%		107.87
Posthole	2.06%	6.00%		211.50
Robber Trench	2.06%	4.08%		143.75
Slot	1.72%	3.40%		144.00
N/Avg	582	42304	2	72.69

Table 129: The Roman Building Materials: quantities of all Vine Street CBM by deposit type for Phase 3

Cxt Class	No%	Wt%	Cnr%	MSW
Construction layer	22.94%	13.63%	33.33%	122.70
Demolition Layer	47.34%	62.99%		274.89
Drain	0.29%	0.22%		154.00
Floor layer	11.13%	8.22%	33.33%	152.49
Garden Soil	0.05%	0.00%		6.00

Cxt Class	No%	Wt%	Cnr%	MSW
Hearth/oven	0.97%	1.45%		309.90
Layer	0.15%	0.23%		333.33
Midden	0.10%	0.23%		500.00
Occupation Layer	0.48%	0.63%		270.50
Pit	3.78%	4.31%		235.91
Post base	0.68%	0.29%		89.29
Posthole	2.57%	1.04%		83.91
Robber Trench	0.34%	0.28%		171.14
Slot	1.79%	0.80%		91.86
Unknown	0.58%	0.34%		121.25
Wall	3.53%	3.40%	33.33%	198.85
Well	3.29%	1.93%		120.82
N/Avg	2066	426794	3	206.58

Table 130: The Roman Building Materials: quantities of all CBM by deposit type for Phase 4

Cxt Class	No%	Wt%	Cnr%	MSW
Construction layer	20.11%	10.65%	5.88%	111.04
Demolition Layer	22.66%	26.61%	41.18%	246.25
Ditch	0.68%	0.39%	5.88%	120.58
Drain	2.55%	3.1%		247.64
Feature	0.17%	0.28%		350.00
Floor layer	7.93%	11.97%		316.61
Occupation Layer	0.57%	0.25%		91.40
Pit	20.00%	18.62%	23.53%	195.29
Posthole	1.76%	1.21%		144.45
Robber Trench	21.87%	26.04%	23.53%	249.68
Slot	1.64%	0.92%		118.03
Wall	0.06%	0.04%		154.00
N/Avg	1765	370163	17	209.72

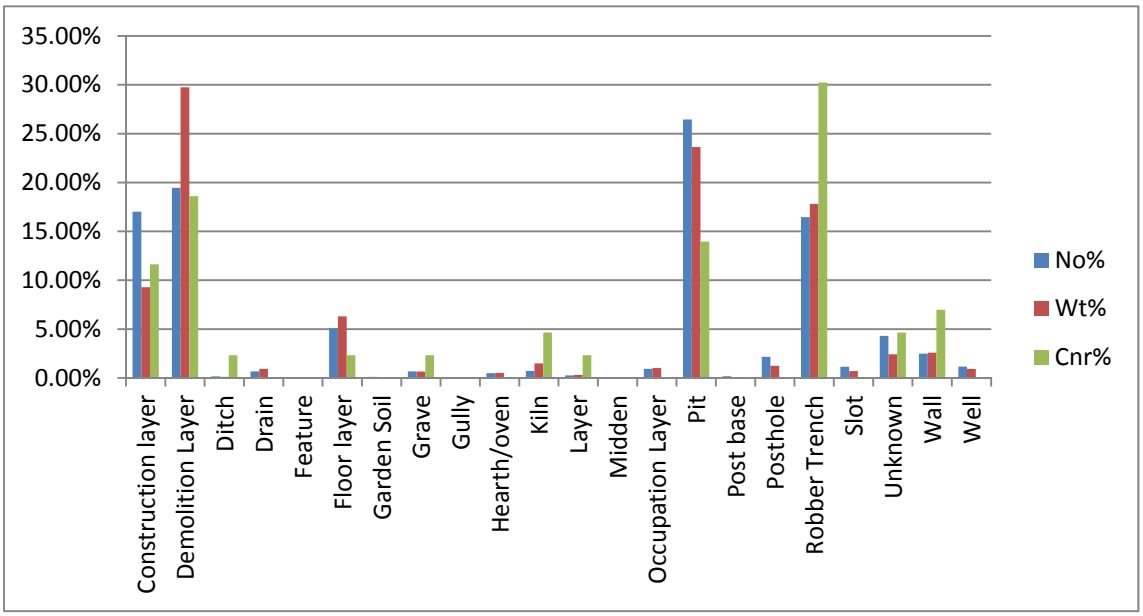


Figure 140: The Roman Building Materials: bar chart of proportions of Vine Street CBM by context class

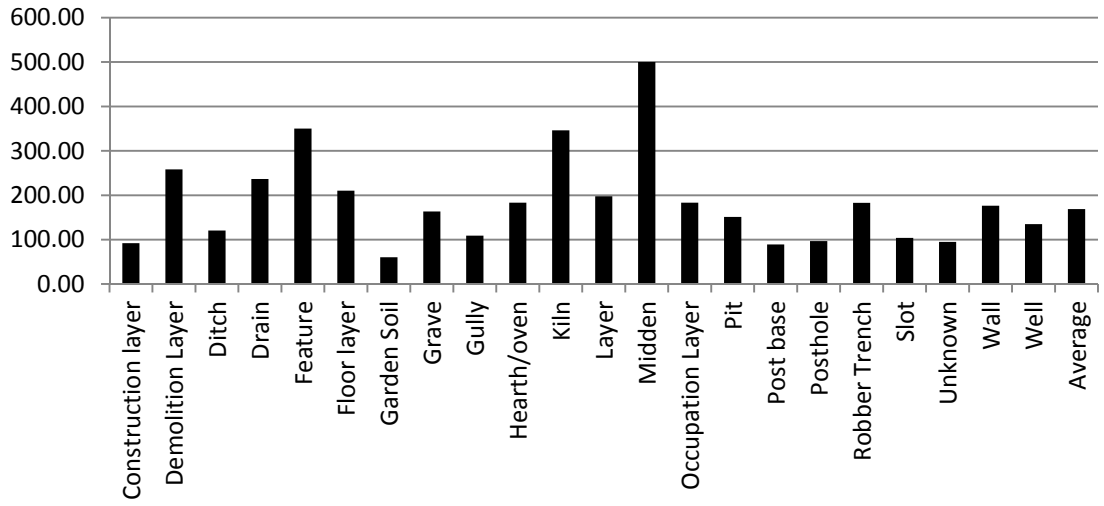


Figure 141: The Roman Building Materials: bar chart of Vine Street MSW by context class

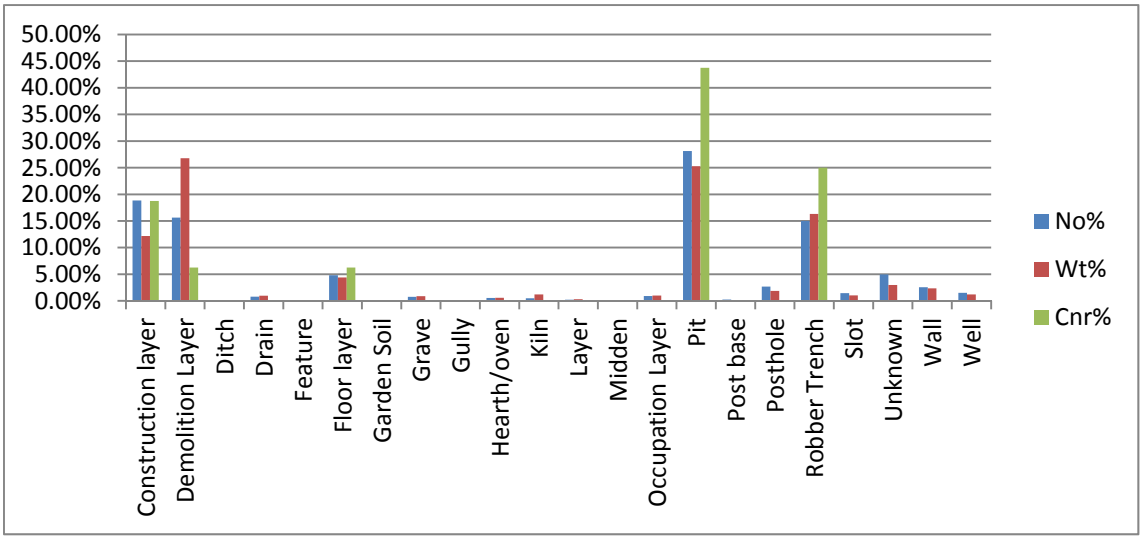


Figure 142: The Roman Building Materials: bar chart of Vine Street Roof tile only by context type

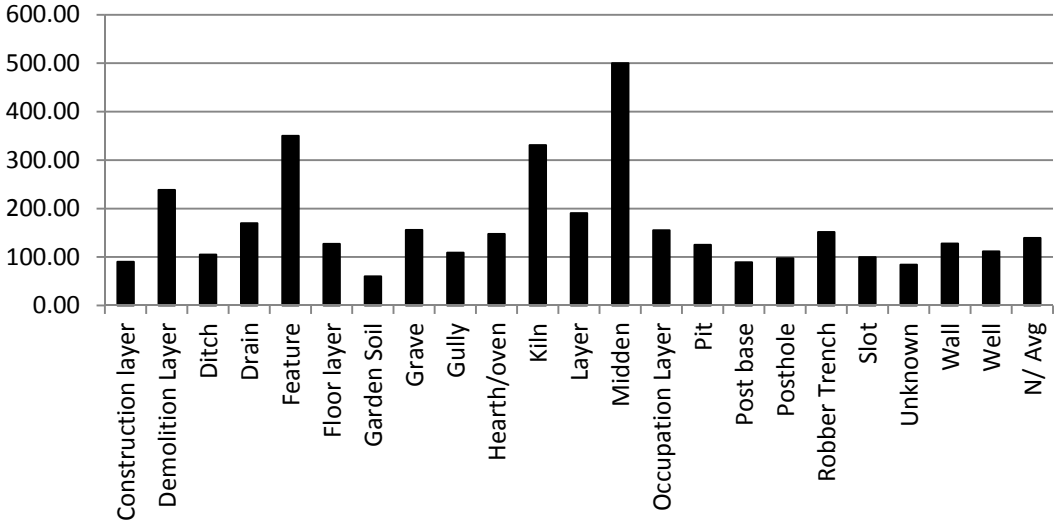


Figure 143: The Roman Building Materials: bar chart of Vine Street MSW by context type for roof tile only

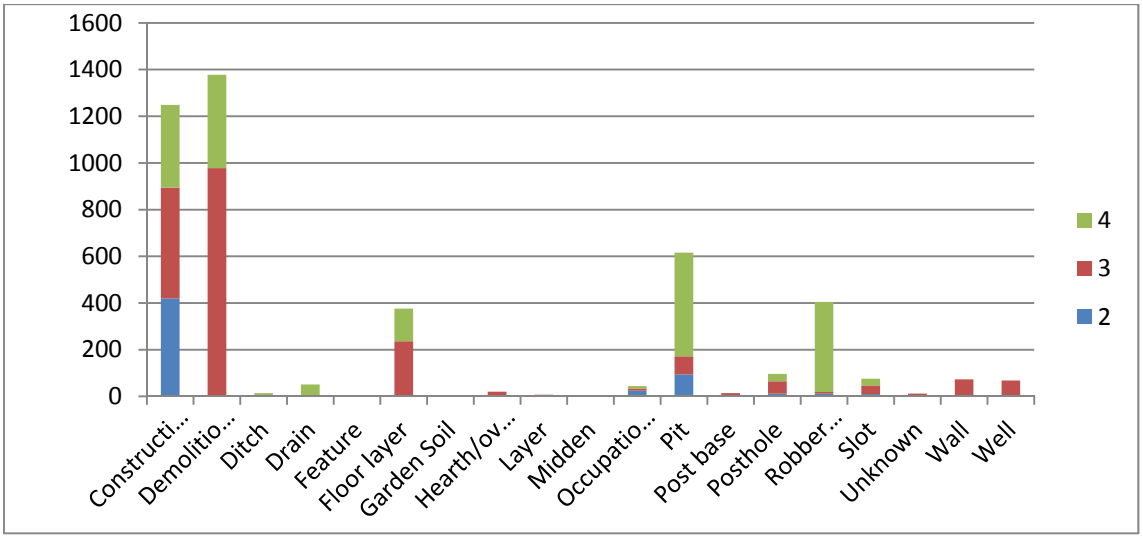


Figure 144: The Roman Building Materials: stacked bar chart of Vine Street CBM no. by phase

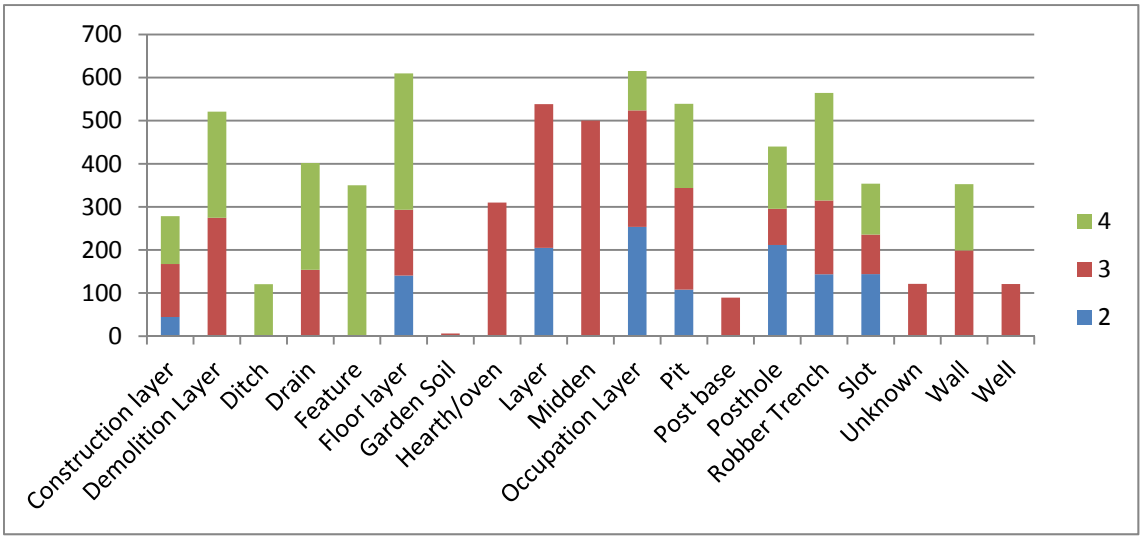


Figure 145: The Roman Building Materials: stacked bar chart of Vine Street CBM MSW by phase

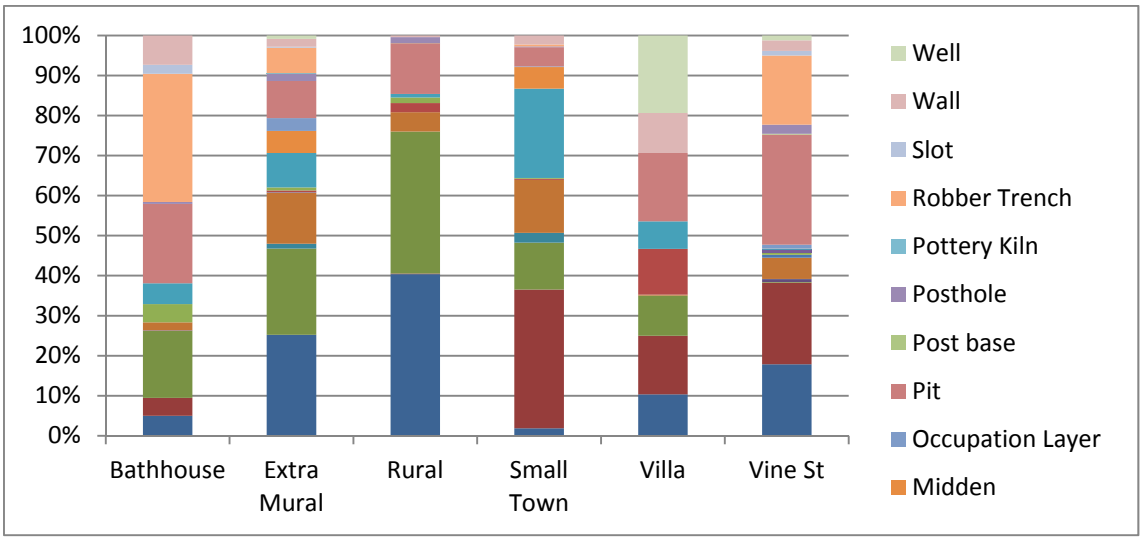


Figure 146: The Roman Building Materials: summary of typical CBM deposition for Roman sites in the UK (based on 25 sites)

Slate and CBM roof tile

Table 131 shows the relative quantities of Roman roof tile (tegula and Imbrex) with Roman and Medieval roof slates from all the sites and including the qunatities from Causeway Lane (after Martin 1999 and Gnanaratnam 1999). This is shown graphically in Figure 147. The breakdown of roofing CBM to slate by phase for Vine Street is shown in Table 132 and Figure 148. This clearly shows that CBM dominates slate by fragment count for these sites in Leicester. It is interesting to note the discrepancy between the partially slate roofed structures on Vine Street with the material recovered from Causeway lane. The direct comparison between these two types of roofing is made problematical by the difficulty in identifying roofing slate during excavation. A comparison of minimum numbers based on slate fragments could partially control some of these biases.

Table 131: The Roman Building Materials:stratified slate by Site

Site	Roof tile		All Slate		Roman Roofing Slate
	No	Wt	No	Wt	No
Vine St	7610	1285945	112	125347	108
Freeschool Lane	2358	472887	24	20284	8
Vaughan Way	944	144221	94	21213	11
East Bond St	373	36325	8	1185	1
Causeway Lane	3401	589190	329		315

Table 132: The Roman Building Materials: Vine street Slate occurrence by Phase

	Roof tile		Slate	
Phase	No	Wt	No	Wt
0	250	21669	1	2397
2	582	42304		
3	2066	426794		
4	1765	370163	93	114389
7	20	2376		
8	1229	193478	15	6682
9	1455	192292	3	1879
10	70	8524		
11	32	4346		
13	106	15871		
14	35	8128		

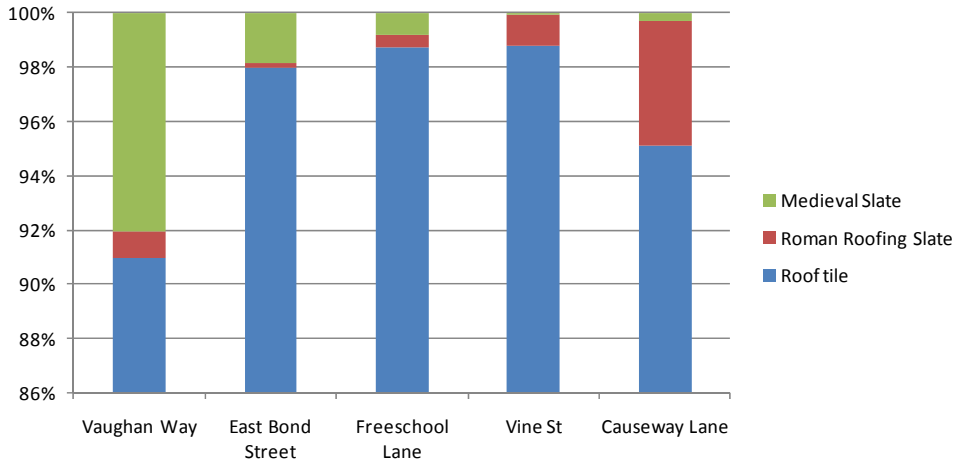


Figure 147: The Roman Building Materials: proportional stacked bar chart showing ratios of CBM, Roman and Medieval slate

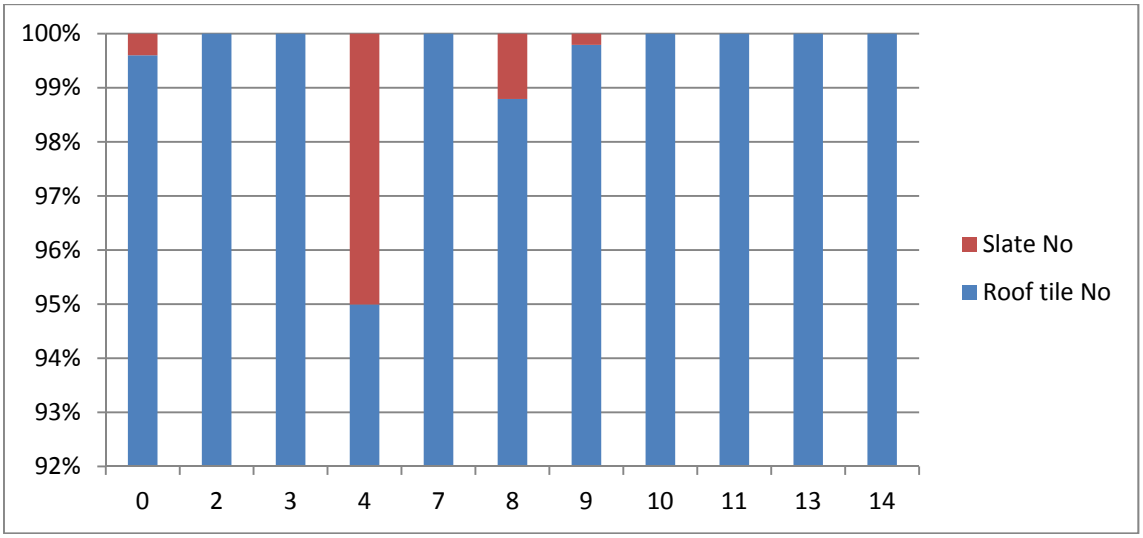


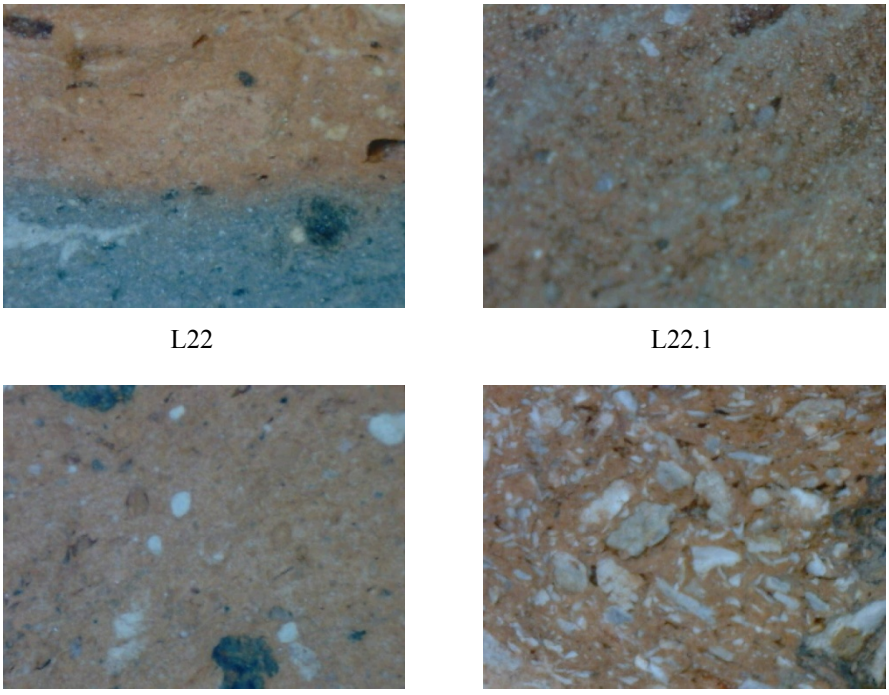
Figure 148: The Roman Building Materials: proportional stacked bar chart of Slate to CBM by Phase group for Vine St

Fabrics and supply

The fabric descriptions are given with parallels to the Norfolk Street Villa fabric series, of which fabric 1– 20 were examined apart from fabric 17 which could not be located.

Class L Bricks and Flue tiles

There are four brick (wall tile) and flue tile fabrics defined (Figure 149) which can be further grouped as probably local to Leicester (L22, L22.1, L22.3) and imported Bedfordshire shelly Fabric L29.



L22 L22.1

L22.3 L29

Figure 149: The Roman Building Materials:brick fabrics at x10 scale

(i) Probable Leicester Fabrics

L22 This is a hard brick fabric with a fine fracture and powdery feel/ It has light reddish brown (5YR/4) surfaces, light red (2.5YR6/8) margins and a grey core. It has inclusions of sparse rounded white

quartz at 0.1 mm and sparse black ironstone at 0.3mm. Norfolk Street Villa fabrics 1, 12, 15a and probably 16.

L22.1 This is a hard oxidised brick fabric with reddish brown (5YR5/4) surfaces and red (10R5/6) margins and core. It has inclusions of moderate rounded white quartz at 0.2mm and sparse well sorted rounded limestone at 0.3mm in a fine sandy matrix. Norfolk Street Villa fabrics 20, 13, 4, 6.

L22.3 This is a very hard oxidised brick fabric with and irregular fracture and harsh sandy feel. It has inclusions of common poorly sorted sub-rounded limestone or chalk at 0.5-0.8mm and sparse rounded black ironstone at 1.3mm and occasional large rounded limestone at 5mm. Norfolk Street Villa fabrics 8 and 9.

(ii) Harrold Shelly Tile

L29 This is a hard oxidised tile fabric with a very irregular break and harsh feel and soapy surfaces. It has brown (7.5YR) upper surfaces and margin with weak red (10R5/4) core. It has inclusions of abundant irregular fossil shell at *c.* 0.2 - 3 mm, and common subrounded irregular limestone at *c.* 0.1mm. This is the tile version of Harrold Shelly ware (Tomber and Dore 1998 HAR SH), with similar dates to the pottery produced from this source, with close regional supply from the 2nd century, and wider supply from the 3rd – 4th century. Known products include flue tile including some 2nd century roller stamp varieties seen in Bedfordshire, with wide combed varieties sported further afield from the 3rd century onwards.

Bricks

The only bricks (also referred to as wall tiles) identified were of L22. They included lydions, from Freeschool lane, and a probable pedalis. There were many bricks from Vine Street, including the bessalis type which made up Pilae stacks. It is likely that these would have included the larger sizes associates with hypocaust structures. There were also a number of triangular shaped bricks from Vaughan Way, possibly reworked into this shape. These types of bricks were often used for walls, especially for thick brick faced rubble filled walls (Brodbribb 1989), although these are rare in Britain.

Floor tile

There were two examples of residual *opus spicatum* bricks from Vaughan Way. These were 140 x 52 x 25mm and 100 x 58 x 29mm. These would have derived from an *opus spicatum* floor, possibly near to the site.

Flue tiles

No complete forms were seen, although vent holes were noted in several examples. It is likely that the box flue tiles were within the range of Betts et al 1994 1 and 3. Most of the Flue tiles exhibited a wide range of keying patterns, a phenomenon of the Roman West.

A number of lattice cut tiles may in fact have been half box flue tiles, which were used in 1st century bath structures (Brodbribb 1989).

There was a single example of a voussoir recorded from Vine Street, apparently reused as part of a remodelled stone culvert, now acting as a drain in Phase 4.6 (5366 – G1004)

Roller stamp patterns

D9 – This is roller pattern die 9 (Betts et al 1994) which is an intricate decorated stamp comprising floral motifs, diamonds and points. It dates from the mid- – late 2nd century and has been found at a number of locations, including Leicester (Figure 150) apparently in a range of fabrics

D13 and D13 Split – This is die 13 (Betts et al 1994) and its later damaged split variant. It is made up of a pattern of concentric diamond shapes with symbols within them. This is found at Jewry Wall, and at various locations around Eastern and Southern England.

D30 – This is die 30 (Betts et al 1994) and is made up of a concentric diamond strip next to an intricate chevron pattern. It has only been reported in Leicester.

The examples of relief patterned tiles recovered from the excavations, comprised of flue tiles from Vine Street and some 11% of the very small sample from St Peters. This compares with their presence at Alchester where they account for some 2.5% of the flue tile total (Mills Forthcoming a). The distribution of the die patterns is shown in Figure 150.

It would appear that the late 2nd century saw a number of itinerant specialist tile makers travelling around Eastern England, making box flue tiles. There is also evidence of itinerant specialist roof tile makers, including the apparent regional uniformity of cutaways type changes around the country over time (Warry 2006). These tile makers seem to have worked on their own, occasionally working with others for particularly large projects, such as the Public Baths at Jewry Wall, Leicester. These tillers identified individual productions (presumable a kiln load) with a few unique roller stamp designs.

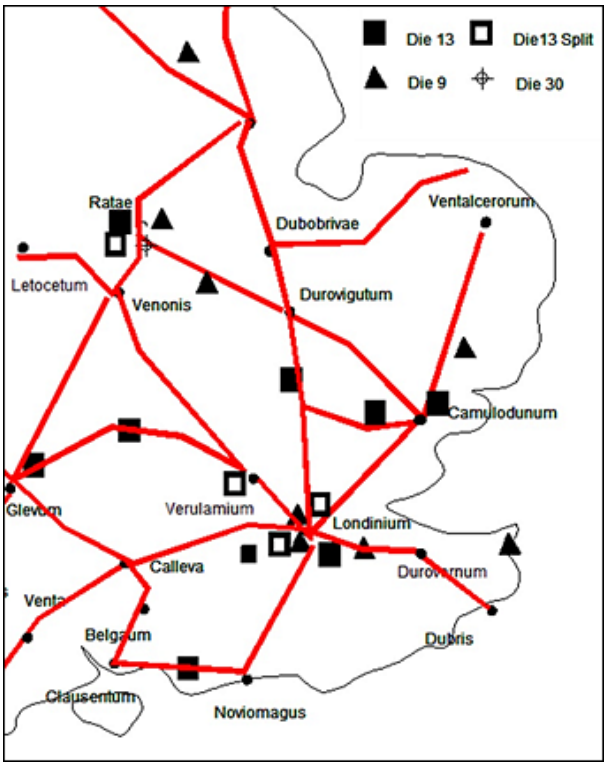


Figure 150: The Roman Building Materials:distribution of die patterns and major C2 Roman roads

Combing patterns

C1 – Scored lattice pattern, usually 1st century (Ward 1999)

C2 – Fine combed pattern 2nd century (perhaps until mid- 3rd century)

C3 - Wide combed pattern, perhaps 3rd century onwards

There is an example of a fine combed flue tile from a mid- 2nd century robber trench (2914 – G428, Phase 2.5) and the trend in the later phases suggests that scored lozenge patterns (C1) were deposited mainly in Phase 3. This is consistent with their being used in structures contemporary with Phase 2, but demolished or refurbished in Phase 3. The presence of fine combing patterns in Phase 2 suggests that they may predate wide combing patterns (C3). This pattern fits with what has been observed on box flue tiles at Piddington (Ward 1999) and Worcester (Mills 2001), with fine combing perhaps starting from the early – mid- 2nd century until the mid- - late 3rd, and wide comb patterns becoming dominant after the late 3rd century AD,

Table 133: The Roman Building Materials:flue tile roller and Comb pattern count by phase for Vine Street

Phase	Count	Markings
2	1	D9
2	1	C2
3	3	C
3	1	C3
3	1	C2
3	8	C1
4	7	C1
4	2	D9
4	5	C2
4	9	C3
4	2	D13
4	1	D13 a
4	1	D30

Roof tile

There were five fabrics identified in the manufacture of roof tile (Figure 151). As with the brick fabrics most are probably from around Leicester, but there are also examples of material from Bedfordshire.

(i) Probable Leicester Fabrics

T24 This is a hard red (10R5/6) tile fabric with a fine fracture and sandy feel. It has inclusions of moderate subrounded lime at 0.6mm and moderate black ironstone at 0.4mm. Norfolk Street Villa fabrics 1, 4, 3 9, 15a and 16..

T24.1 As L22. This is a hard tile fabric with a fine fracture and clean feel. It has reddish yellow 5YR6/6) surfaces red (10R 5/6) margins and a grey core. It has inclusions of common lime reaction blooms at 0.3-0.5mm and moderate rounded transparent quartz at 0.3mm. Norfolk Street Villa fabrics 6, 18 and 20.

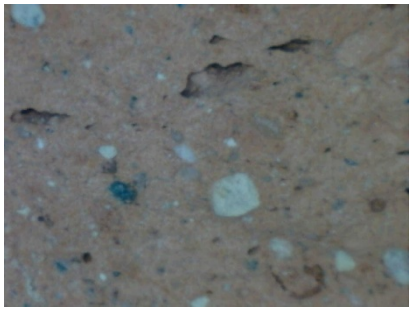
T24.2 This is a very hard red (2.5YR 5/6) tile fabric with a fine fracture and sandy feel. It has inclusions of common rounded white quartz at 0.3mm ad sparse clear quartz at 0.2mm and sparse fie lime stone at 0.1mm. Norfolk Street Villa fabrics 11, 12 and probably 8.

T24.3 This is a hard light red (2.5YR 6/6) tile fabric with an irregular fracture and harsh feel. It has inclusions of common sub-rounded quartz at 0.3mm, moderate black ironstone at 0.5 mm and occasional rounded lime at 1mm and possible grog at 0.3mm and organic voids at *c.* 1mm. Norfolk Street Villa fabrics 2, 5, 13, 15, 19 and probably 10 and 14.

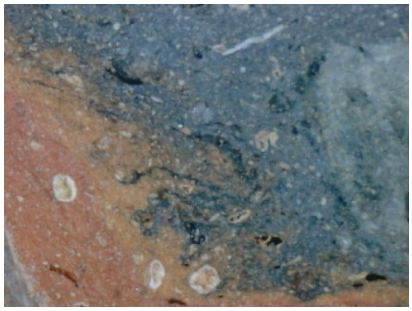
T24.5 This is a hard light yellowish brown (10YR6/4) tile fabric with an irregular fracture and sandy feel. It has inclusions of common black ironstone at 0.3mm and common white quartz at 0.3mm and possible organic voids at 0.8mm and sparse rounded lime at 1mm. Probably Norfolk Street Villa fabric 7.

(ii) Harrold Shelly Tile

T29 As L29. An Imbrex in this fabric was noted at Vine Street, a few Tegula in T29 were recorded at Freeschool Lane, and a number of Tegula and an imbrex were noted at Vaughan Way.

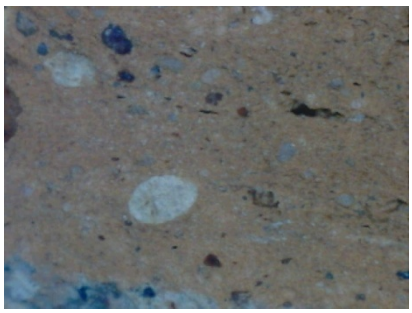


T24



T24.1

T24.2



T24.3

T24.5

Figure 151: The Roman Building Materials:tile fabrics at x10 scale

(iii) Ridge Tile

These are specialised large curved tiles, larger than imbrex, which are used for the ridges on the top of a roof. They are relatively rare as in many cases imbrices are used for this function.

There is an almost complete example of a ridge-tile from a Phase 4.1 pit (3488 – G526) at Vine Street.

(iv) Imbrex

The imbrex noted here comprised the normal range of tapering curved tiles shaped on a sanded mould.

(v) Tegula

A number of Tegula forms were defined. Only examples in the probable Leicester fabrics were observed.

Te1.1 This is a tegula with a straight edged flange. Examples with cutaway C were observed (AD 160 – 260). Not illustrated

Te1.2 This is a tegula with straight flanges with a slightly concave internal face. No cutaway observed.

Te2.1 This is a round edge flange, either a slight rounded groove on the internal face of the flange or an angular groove on the external top edge of the flange. Examples with cutaway C were observed (AD 160 -260).

Te3.1 This is a tegula with straight slightly everted flanges with a slight concave external face. This is associated with CA B (AD 100 – 180).

Te 4.1 This is a tegula with rounded (handmade?) flanges with a groove on the base of the internal face, a concave internal face, a slight groove on the top of the flange and a slightly convex external face. It is associated with CA D (AD 240 – 380)

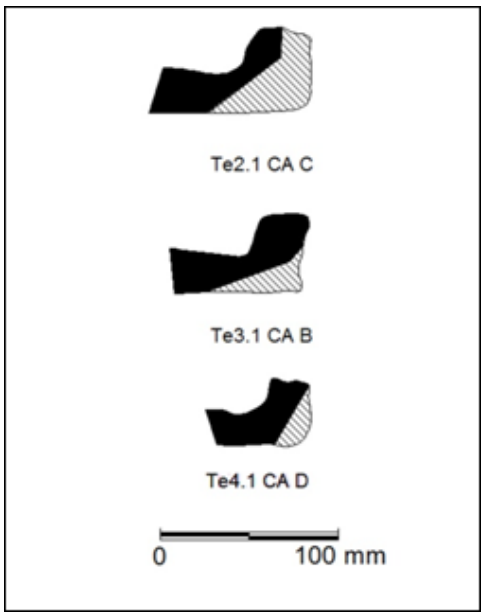


Figure 152: The Roman Building Materials:flange and cutaway types

Vaulting Tegulae

These are Tegulae which have been bent into a longitudinally convex shape prior to firing, and have a smoothed underside rather than the sandy base for normal tegula, as a result of this shaping. Warry (2006) indicates their probable use for vaulted structures, especially in baths and it seems probable that these roof tiles may relate to vaulting over the short lived bath-suite within Building F on Vine Street (Phase 3.4).

Three examples were found from Vine Street: from a Phase 3.8 trample layer (2453 – G375) and Phase 3.9 rubble spread (2411 – G377), both associated with Building F; and from a Phase 4.4 pit (5530 – G227) within the central courtyard of Building G. Two examples of cutaways on vaulted tegula, type C were recorded, implying a date of AD 160-260 for their use.

Function

The different functional groups of the identified CBM forms are shown in Table 134, Table 135, Table 136 and Table 137 and represented graphically in Figure 153 with the ratios of tegula and imbrex shown in Figure 154.

This pattern conforms to what we would expect – a large number of flue-tiles and bricks probably deriving from the bath-suite within Building F and the hypocaust system within Building G at Vine Street. The pattern at Vaughan Way is similar, implying the presence of a hypocaust structure very close to the excavated area at some point in the Roman period. The smaller quantities of flue tile at East Bond Street and Freeschool Lane suggest that they comprise a 'background' scatter of flue tile which is reused on those sites as hardcore.

In terms of the proportions of tegula to imbrex the numbers are a bit higher than would be normally expected from a site (Mills 2006) and seem to reflect a larger than normal quantity of material discarded on site with very little selection of material for reuse elsewhere.

Table 134: The Roman Building Materials:CBM function for Vine St

Brick Type	No%	Wt%	Cnr%	MSW
Brick	18%	26%	4%	304.74
Flue Tile	18%	16%	65%	189.47
Imbrex	24%	18%	13%	155.51
Ridge Tile	0%	0%	0%	167.50
Tegula	40%	40%	19%	209.32
Voussoir	0%	0%	0%	1232.00
N/Avg	5693	1197620	48	210.367

Table 135: The Roman Building Materials:CBM function for Freeschool Lane

Brick Type	No%	Wt%	Cnr%	MSW
Brick	33%	62%	31%	656.99
Flue Tile	6%	3%	50%	143.95
Imbrex	22%	7%	13%	105.81
Tegula	39%	28%	6%	246.75
N/Avg	1395	479667	16	343.85

Table 136: The Roman Building Materials:CBM function for Vaughan Way

Brick Type	No%	Wt%	Cnr%	MSW
Brick	27%	48%		419.39
Flue Tile	12%	7%		132.22
Imbrex	19%	9%		107.33
Tegula	42%	36%		196.98
N/ Avg	574	132831		231.41

Table 137: The Roman Building Materials:CBM function for East Bond Street

Brick Type	No%	Wt%	Cnr%	MSW
Brick	11%	13%	0%	184.63
Flue Tile	7%	3%	67%	60.81
Imbrex	34%	16%	33%	72.20
Tegula	48%	67%	0%	208.72
N/Avg	220	32871	3	149.41

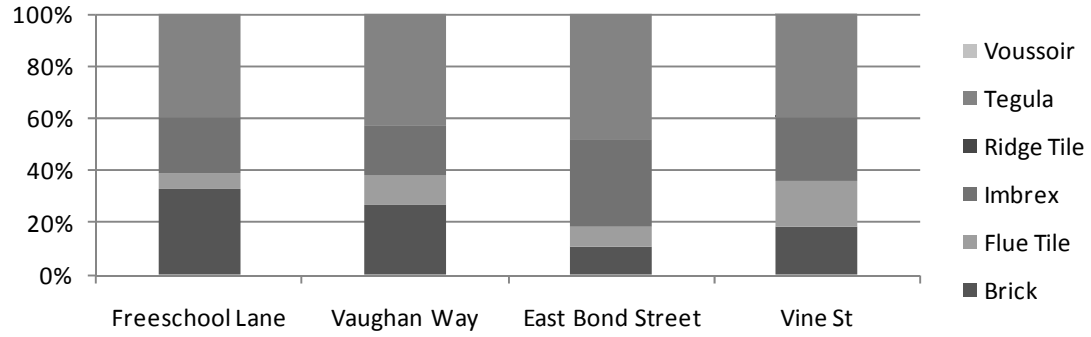


Figure 153: The Roman Building Materials:proportional stacked bar chart of Brick type by site by No%

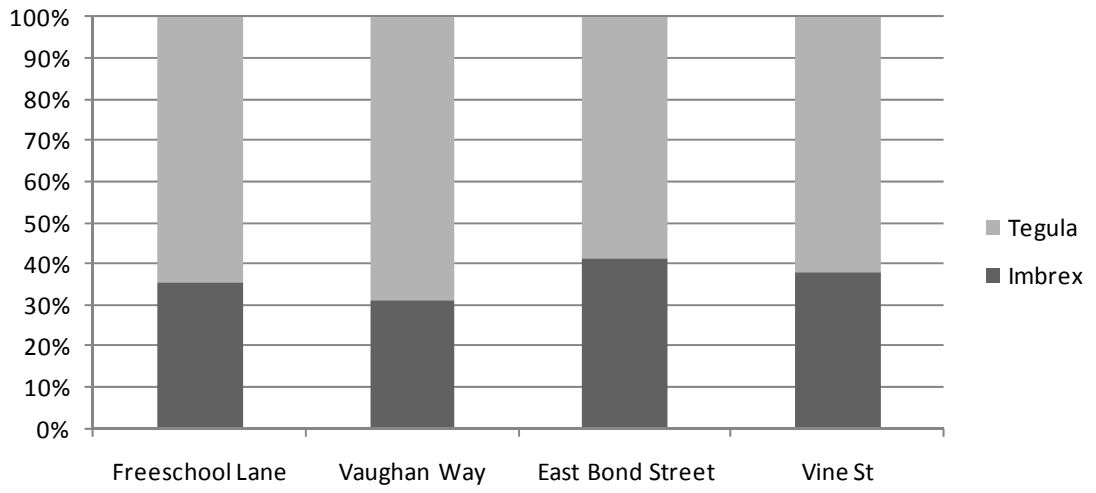


Figure 154: The Roman Building Materials:proportional stacked bar chart of tegula and imbrex by No% by Site

The changes in proportions of brick type by phase for Vine Street are shown in Table 138 and graphically presented in Figure 155, with tegula and imbrex only in Figure 156. It is interesting to note the large quantity of flue tile deposited in Phase 4, contrasting with a decline in brick deposition from Phase 3 to 4. Whilst this could reflect the curation and disproportionate removal of bricks from the site, the introduction of shelly flue tile in Phase 4 implies this pattern is a reflection of the importation of hardcore from the rest of the city at this point. The pattern for the proportion of tegula to imbrex shows a steady increase by phase, suggesting a decline in attempts to reuse roofing material.

Table 138: The Roman Building Materials: brick type by Roman phase group for Vine St

Phase	Brick Type	No%	Wt%	Cnr%	MSW	N No	N Wt	N Cnr	MSW Avg
2	Brick	33%	22%	0%	53.74				
2	Flue Tile	4%	8%	50%	189.41				
2	Imbrex	18%	22%	50%	104.99				
2	Tegula	46%	48%	0%	86.70	476	39344	2	82.66
3	Brick	22%	32%	0%	341.35				
3	Flue Tile	7%	5%	100%	170.63				
3	Imbrex	26%	19%	0%	168.96				
3	Tegula	45%	44%	0%	231.74	1754	412712	2	235.30
4	Brick	15%	24%	4%	424.08				
4	Flue Tile	27%	26%	48%	250.37				
4	Imbrex	25%	17%	13%	168.39				
4	Ridge Tile	0%	0%	0%	167.50				
4	Tegula	34%	33%	35%	244.44				
4	Voussoir	0%	0%	0%	1232.00	1368	347197	23	253.80

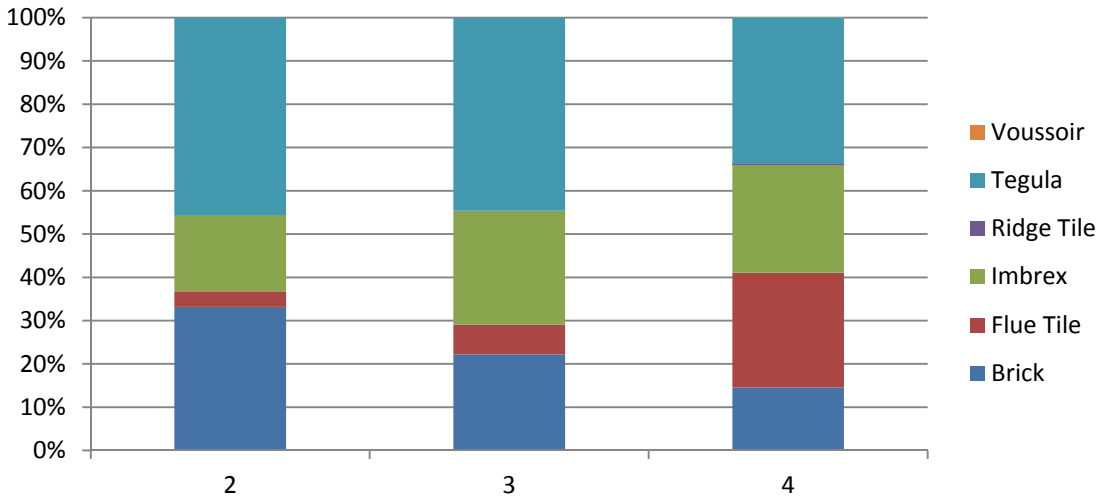


Figure 155: The Roman Building Materials:proportional stacked bar chart of brick type by Roman phase groups for Vine Street

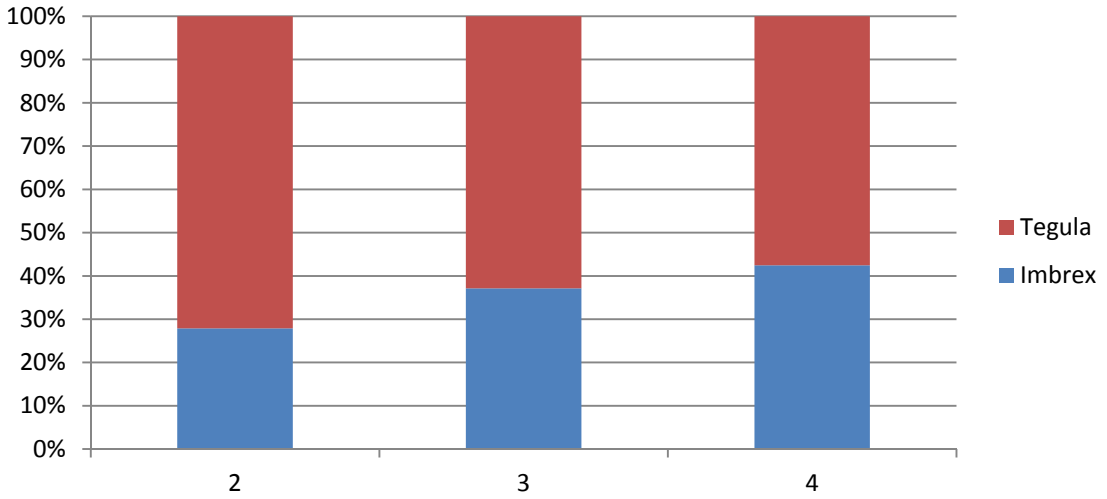


Figure 156: The Roman Building Materials: proportional stacked bar chart of Tegula and Imbrex quantities by No for the Roman Phase groups at Vine St.

Animal Prints and Other Marks

The number of tiles with animal foot prints is very high for a Romano-British assemblage. Whilst information is only available for a few sites (Mills 2006) the level of animal prints tends to be higher for rural production sites. This can be compared to the values from Alchester of less that 0.01% (Mills forthcoming a) and Worcester Magistrates court (Mills 2001; Mills 2006) which had a value of 0.23%. Comparable levels have only been recorded at the rural/villa sites in Warwickshire. This suggests that supply included a relatively high component from sources which were not solely producing tile. There is an exceptionally high level of hobnail boot prints from these sites. The breakdown by site and phase is shown in Table 139 and Table 140. This implies that animal print levels in Phase 3 are closer to what would be expected for specialist supply, but that this changes in Phase 4.

Table 139: The Roman Building Materials: boot and animal prints by site

Site	Boot Print	Animal	N
Vine St	0.08%	0.40%	7722
Freeschool Lane	0.08%	0.54%	2403
Vaughan Way	0.10%	0.00%	957
East Bond St	0.00%	1.57%	381

Table 140: The Roman Building Materials: boot and animal prints by phase for Vine Street

Phase	Animal	Boot	N
3	0.24%	0.24%	2066
4	0.47%	0.34%	1858
7	15.00%	15.00%	20
8	0.08%	0.00%	1244
9	0.21%	0.27%	1458
13	0.00%	0.94%	106

Sooting

The number of burnt fragments is shown in Table 141, with the breakdown by phase for Vine Street shown in Table 142. The ranges are comparable with those which has been observed for intra-mural Roman Urban sites, although the value from St Peters at 2.10% is at the high end of this range.

The highest level by Roman phase for Vine Street is in Phase 4, at 1.98%. This is at the high level of the urban pattern and can be explained by the dumping of used flue tiles in this phase. In the medieval period the very high level of sooting on Roman tile probably relates to burning of residual material in kilns and hearths active between Phase 8 and Phase 10.

Table 141: The Roman Building Materials: burning by site

Site Code	No%	Wt%	MSW	N no	N Wt
Vine St	1.45%	1.20%	151.42	7722	1411292
Freeschool Lane	0.87%	1.48%	373.62	2403	528671
Vaughan Way	1.52%	1.20%	124.56	1051	166444
East Bond Street	2.10%	1.47%	68.75	381	37510

Table 142: The Roman Builidng Materials: burning by Phase for Vine Street

Phase	No%	Wt%	Cnr%	MSW	N no	N wt
0	1.60%	3.69%		200.00	250	21669
2	1.20%	4.22%		254.86	582	42304
3	0.97%	0.66%	33.33%	140.10	2066	426794
4	1.98%	1.52%		161.17	1765	370163
8	3.1%	2.41%		126.11	1229	193478
9	0.41%	0.45%		145.00	1455	192292
10	4.29%	4.65%		132.00	70	8524

Discussion

The groups of CBM examined here are an important addition to our understanding of the nature of the CBM industry in Roman Leicester, in terms of its economic structure as well as social context. Corroboration of suggested datable attributes of Romano-British CBM has been found, as well as the

framework for understanding the change of supply of CBM to the city as a whole. The groups as a whole offer an important inter-mural dataset for characterising the patterns of CBM usage and deposition in Roman Britain.

The material from all the sites is mainly from the mid- 2nd to mid- 3rd century, reflecting the huge amount of construction which occurred during that period. There are some residual examples of an earlier roof tile and possibly earlier half box flue tiles perhaps from the 2nd century, which occur within the assemblages examined here, probably deriving from earlier structures within the original town centre. There are also some examples of later material, in terms of thick combed roof tiles and imported shelly Bedford tile from the 3rd century onwards, some of which were incorporated into the later structure (Building H) on Vine Street, and perhaps a late building near the site at St Peters.

The taphonomic profile from Vine Street is an interesting addition to the characterisation of deposition of CBM in Roman Britain, nicely reflecting the greater complexity of activities in the urban core, and their changes overtime

In the earliest period, up until perhaps the 3rd century, all the CBM was manufactured locally, although during the big construction projects of the mid- 2nd century the city was host to a number of itinerant specialist tile makers who used roller stamps to identify their wares. After the 3rd century local production continued, but there was a significant trade, especially in flue tiles, with the specialist manufacturing industry centred on Harold, Bedfordshire. This parallels nicely with other CBM and specialist ceramic industries being identified around the country, such as the pink grog tempered storage jars from Towcester in the late 3rd century (Mills forthcoming a) and the Horningsea industry, in Cambridgeshire, from the mid- 2nd century (Mills forthcoming b). In both these latter industries CBM products follow the same catchment area for such specialist products as storage jars, and it is likely that the same is with the Harrold tile industry.

The sooting and functional analysis of the material suggests that the bath-suite within Building F was completed but was only used very briefly before abandonment and demolition.

Acknowledgments

I would like to thank Laura Hadland of the Leicester Museum Service for help in accessing the Norfolk Street Villa fabric series.

The Tessellated Paving ***Nicholas J. Cooper and Terri Davies***

Three small (metre square) areas of *in situ* tessellated paving from the corridor or portico of the east range of Building G (see Volume 1) were lifted during the excavations, including a red and grey grid pattern similar to that at Norfolk Street Villa, and these have been recorded by David Neal and Steve Cosh for the future volume IV of *Roman Mosaics in Britain*. Apart from these, there was no other *in situ* decorative flooring preserved. However, several thousand individual *tesserae* were recovered and recorded during the excavations, ranging in size from 10 to 40mm, and predominantly manufactured from reused tile and fine grey sandstone (presumably from the local Dane Hills quarry). Most of these were of the larger sizes, usually between 20-30mm, and used in the coarser tessellated paving work of the kind found *in situ*. Additionally, small numbers of individual white chalk *tesserae* were recovered, usually in the smaller size range up to 10mm, and indicative of finer mosaic work. A single fragment of mosaic flooring 70mm across, comprising a block of while *tesserae* and a single line of grey *tesserae* along one edge was part of a dump of flooring material used to patch the floor of the workshop. It seems likely that this derives from a mosaic pavement elsewhere within the building but from precisely which room is unknown.

The source of the chalk used for the *tesserae* is currently being investigated by Alison Tasker and Mark Williams of University of Leicester's Department of Geology. The microfossil signature of the chalk suggests that it has a broadly Turonian date and that the most likely provenance is the Welton Chalk Formation of the Northern Province (Yorkshire, Humberside, Lincolnshire and N Norfolk). Further investigations should enable this to be confirmed.

The volume and distribution of the larger red and grey *tesserae* across the site, both in demolition deposits associated with specific rooms during Phases 3 and 4 and material redeposited in robber trenches, indicates that much of the building (with the exception of the workshop) was floored in this

way. Evidence for constructional debris relating to the building complex including unused cut blocks, off cuts and marked, but uncut, blocks of grey sandstone (Contexts 3501, 3624) and unused cubes of tile, indicate that much of the raw material for the coarser tessellated pavements was prepared on site.

THE INDUSTRIAL RESIDUES *Alice Forward and Graham Morgan*

(with Heidi Addison and Keith Johnson)

Introduction

This study deals with an assemblage of metal-working debris (ferrous and non-ferrous slag) from Vine Street. The majority of the assemblage was redeposited. There were however two distinct areas of in-situ metal working; a 4th-century smithy (identified by a workshop floor in Building G Room 6 with dense deposits of hammerscale) and a medieval casting pit and associated hearth for the casting of copper alloy objects (bells, cauldrons etc).

Methodology

All slag has been subjected to a visual assessment only. Some types of slag are visually diagnostic, providing unambiguous evidence for a specific metallurgical process. Other debris is less distinctive and it is not possible to say from which metallurgical, or other high temperature process it derives. The terminology in this report follows the conventions in the English Heritage Guidelines (Bayley *et. al.* 2001) and the recent glossary of terms used in the study of ancient metal-working (Salter and Gilmour 2009).

Ferrous Material

A Roman Smithy (Building G, Room 6 – Phase 4.6)

The smithy workshop floor (5749 – G1006, Phase 4.6) was initially identified as an industrial deposit and testing with a magnet revealed that the layer contained hammerscale. Hammerscale is evidence of smithying and is produced when the oxidised surface of a hot iron object is struck. Concentrations of hammerscale can often indicate reasonably accurately where smithying took place on site.

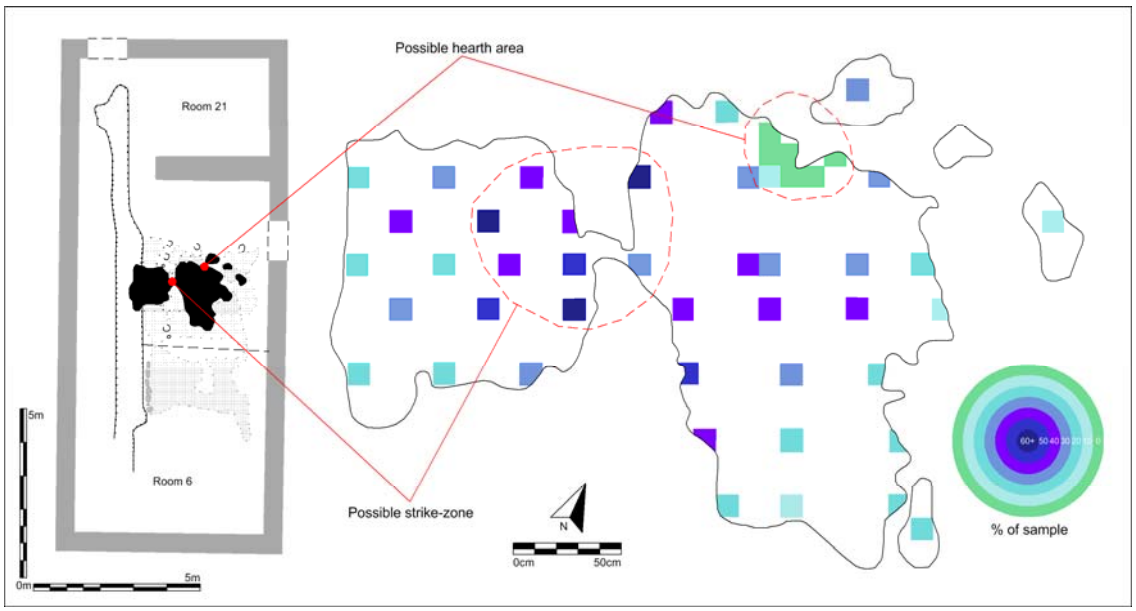


Figure 157: The Industrial Residues: distribution map showing density distribution from select samples of hammerscale

Sampling Methodology

A sampling strategy was implemented using a 10 x 10cm grid laid across the smithy floor, with each square being sampled. Sample sizes ranged in volume between 100ml and 500ml. In total, 356 samples were retrieved, and forty-nine representative sub-samples have been analysed for this report. The sub-

samples were dried on trays in an oven at a low temperature in order to ensure all the moisture was extracted, after which the volume and weight were measured. The hammerscale was then extracted from the sub-sample with a small magnet and weighed, enabling a representative measure of g/ml to be obtained. Hammerscale density was then plotted on a plan of the deposit allowing a distribution map to be created.

Hammerscale Distribution

Floor deposits from within buildings used for iron smithying usually contain at least 10% hammerscale (Mills and McDonnell 1992) and the samples analysed produced results showing that the density of the hammerscale ranged from less than 10% to 66%. The distribution map highlights three main areas of high density with hammerscale representing between 64% and 66% of sample, indicating probable areas of iron working. An area completely devoid of hammerscale was also identified situated only 0.7m, 1.42m, and 1.23m away from the assumed working areas, indicating a possible position for a hearth. A number of finds were found in association with the hammerscale; a large block of iron, thought to have functioned as an anvil when set into wood (see small finds report and object 165 for further details), was found embedded in the context, as was a wooden handle. A metal disc was also found at the top of the context. The sampling of layer (5749) provides clear evidence for a smithy, and it is anticipated that processing of all samples will allow for in-depth spatial analysis of the smith's work area.

Medieval Iron working (Beneath St Michael's Lane – Phase 8.1)

The majority of the evidence for medieval metallurgical industrial activity at Vine Street has been identified as copper alloy melting and casting (see below); however, there is also a concentration of redeposited material associated with iron working from the backfill of a pit (6619 – G1137) and a robbed out wall footing (6582 – G1128) beneath St Michael's Lane. Two smithying hearth bottoms (530g and 461g) and three fragments of undiagnostic ferrous slag (386g) were retrieved from the pit which is dated to the early medieval period. The nearby backfill of a robbed out wall footing also contained a smithying hearth bottom (415g), a fragment of vitrified clay (24g) and a fragment of iron (11g). Both contexts were located to the north, on the opposite side of the site from the copper alloy casting.

Smithying hearth bottoms have a distinctive shape, plano-convex to concavo-convex in section and circular or oval in plan. They are the slag that collects in the base of the smith's hearth, and are unlikely to be confused with the waste products of smelting and are therefore considered to be diagnostic of iron smithying. As the diagnostic slag was produced by iron smithying, it is likely that the undiagnostic ironworking slag was also a by-product of smithying. Although the ferrous slag is redeposited it does suggest that secondary iron working was occurring in this area during the early medieval period.

Non-Ferrous

A Medieval Casting Pit and Hearth (Within Plot Nine – Phase 9.1)

Copper alloy slag and metals have been identified based on visual identification of corrosion products only.

The archaeological remains of the casting pit (1116 – G586), although truncated, were well-preserved with a 'central linear flue cut into the base surrounded by a level, built-up load-bearing surface of compacted earth and stone' (see Phase 9.1: Vol. 1). The pit fill contained dross (18g), copper alloy slag, hearth lining with copper alloy adhering and several fragments of stone with slag attached. Although the material is all redeposited it is indicative of the metal working associated with the casting pit. A nearby hearth (1031 – G542) of the same date contained five fragments of hearth lining with Cu alloy slag adhering the surface (156g). The hearth is believed to be associated with the casting pit.

On the western side of the site a concentration of pits in Plots 2, 8 and 9, dating to the same period as the casting pit and hearth, contained Cu alloy slag, hearth lining, metal copper alloy off-cuts and a possible copper alloy crucible spill. As well as the industrial waste, the pits also contained bone, charcoal, pottery and human refuse, which would indicate that the metallurgical debris is not in situ. However, the proximity of the pits to the casting pit and hearth does suggest that the metallurgical waste from the pits is associated with the casting in this area.

Initial interpretations suggested the casting pit was for the production of a bell, as it is close to All Saints' church, which underwent rebuilding and refurbishment from the late 13th-century onwards (Morris) and this work could be associated with this casting pit. It is however to be kept in mind that bell founders would spend most of their time casting cauldrons, skillets and other similar items, the demand for bells not being consistent enough to support a business (Nicholas 2003). An example of this is seen from the excavations at Deansway, Worcester where the primary production activity for casting pits was associated with domestic items and bell making a secondary concern (G Taylor, *c.*K. Currie and H Dalwood 2004, 107). The evidence for casting at Deansway is also slightly different to Vine Street as workshops and a defined casting area with two furnace structures constructed of tile and stone three casting pits were recorded (G Taylor *et al* 2004, 107). It is not just the layout for an area of industry at Deansway that is different but the pits were also used for more than one event, supporting the idea of a foundry rather than a casting pit built for a single casting event which is believed to be the case at Vine Street. It is possible that the heavy truncation at Vine Street may have removed other evidence for casting in this area but it is to be kept in mind that the pit was close to All Saints and this does suggest that it was associated with work there rather than an established foundry. Bells were cast from high tin bronzes (Tylecote, 1986), domestic vessels were produced from mixed alloys often containing high levels of arsenic and antimony (Blades 1992). A further quantitative analysis will hopefully determine what alloys were being cast and therefore what types of objects were being produced.

THE HUMAN REMAINS *Mathew Morris and Harriet Jacklin*

The Roman and medieval human remains

The skeletal analysis of the human remains recovered from St Michael's Cemetery (Plot 7), Vine Street, Leicester, took place between 2007 and 2009. In total 282 skeletons were fully analysed.

Detailed stratigraphic narratives examining broader aspects of the cemetery, such as phasing and burial practice, are provided in this report under the relevant Plot discussions (see Plot Seven discussion for Phases 8.2-10).

Detailed skeletal analysis examining the physical aspects of the individual human remains can be found in the companion report:

Jacklin, H A (2009) *Life and Death in Leicester's North-east Quarter, Vol. 3: Skeletal Analysis*. ULAS Report No. **2009-048**

The Victorian inhumations

Introduction

As pre-emptive work, carried out during February 2006 during the initial site strip and clean of Area 4, eleven inhumations associated with a former 19th-century non-conformist chapel were lifted by staff of University of Leicester Archaeological Services (ULAS). These were situated on the western edge of the excavation area adjacent to the boundary with the churchyard attached to All Saints church. A twelfth inhumation (SK70) was subsequently excavated further south. This was originally though to be Roman in date but is now also believed to be of 19th-century origin.

Very little is documented concerning this chapel. The Victoria County History (McKinley, 1958) records that it was a Baptist chapel prior to 1843 but was sold to the Primitive Methodists in 1861 before closing around 1900. Maps covering the city provide further insight, with J. Fowler's map of 1828 showing no evidence of the chapel, suggesting that it must have been built within the fifteen year period between this survey and its known presence in 1843. The first edition 1:2500 Ordnance Survey county series map of 1888 indicaties a large rectangular structure described as 'chapel (disused)'. By 1904, the first revision to this map, a new, smaller building described as 'vicarage' is shown occupying the site, suggesting the chapel had not just closed but had been demolished as well.

The Burials

The majority of the burials were uncovered in a single localised concentration on the western edge of the site (Figure 158). All eleven were orientated north-south and were evenly spaced on a single alignment projecting 8m into the site from the western edge of excavation. Further inhumations could also be identified in section continuing west beyond the limit of excavation towards the property division with the rear of All Saint's church. These were left in situ as they would remain undisturbed beyond the proposed footprint and formation level of the new car park. All were buried in buried within soft dark blackish-brown soil overlying G799 (Phase 12).

Due to the nature of their excavation, being purely retrieval for reburial, and time limits following their exhumation, no accurate estimation of each individual's age and sex was carried out and the only analysis conducted was restricted to field-based observations. The individuals were subsequently reburied at Gilroes Cemetery.

The state of preservation was mixed, but generally poor-fair, with very little organic matter surviving (be it tissue, hair or coffin wood) and only two individuals (SK47 and SK55) were noted to have associated adipocere. Three individuals (SK49, SK52 and SK61) had suffered subsequent truncation, probably from the demolition of the chapel and subsequent use of the land, including recent piling. The metal coffin furnishing also appear to have had a direct impact on the preservation of the remains, with accelerated decomposition of skeletal material occurring on areas of individuals in direct contact with the metal, notably torso areas beneath name plates.

Figure 158: The Human Remains: location of the twelve 19th-century inhumations in relation to the site and the properties and buildings recorded on the 1:2500 1888 Ordnance Survey map for Leicester

Described spatially from west to east:

SK59 – child; preservation very poor (only head surviving); interred within rectangular coffin impression, 0.8m by 0.2m and 0.1m deep, distinguished by in-situ iron coffin handles located centrally at the head and foot, and on either side of the impression; corroded iron name plate situated over torso area.

SK60 – infant; preservation fair (head, torso and legs surviving); interred within a tapered cut, 0.8m by 0.26m and 0.1m deep; only evidence of coffin was a corroded iron name plate situated over the torso.

SK47 – juvenile/adult; preservation fair (head, arms, pelvis and legs surviving); interred within a tapered coffin impression, 1.62m by 0.2-0.28m and 0.19m deep, distinguished by in-situ iron coffin handles and nails at the head and foot and a handle on one side, adipocere and small poorly preserved wood fragments; corroded iron name plate situated over torso area; grave cut measured 2.18m by 0.4m.

SK58 – adult; preservation fair (head, arms, pelvis and legs surviving); interred within a rectangular coffin impression, 1.88m by 0.42m and 0.18m deep, distinguished by in-situ iron coffin handles at the head and foot, and on one side; no name plate surviving; grave cut measured 1.92m by 0.43m.

SK55 – child; preservation poor (head, arms and parts of torso surviving); no coffin or grave cut distinguishable but presence of coffin inferred by disturbed nails and broken coffin handle within immediate vicinity; two possible shroud pins were recovered adjacent to the neck area; adipocere was noted along the torso's right side.

SK61 – infant; preservation poor (head and feet truncated by subsequent modern activity); interred within a rectangular coffin impression, 0.3m wide and 0.14m deep, distinguished by in-situ iron coffin handles and nails to either side of the body; fragments of an iron name plate were recovered from the torso area; the inhumation was situated directly beneath SK49.

SK49 – adult; preservation fair (head truncated by subsequent modern activity); interred within a tapered coffin impression, over 1.53m by 0.35-0.45m and 70mm deep, distinguished by in-situ iron coffin handles and nails to either side and the foot of the body; corroded iron name plate situated over torso; the inhumation was situated directly over SK61.

Figure 159: The Human Remains: Skeleton SK52, typical of all the 19th century inhumations

SK52 – adult; preservation fair (feet truncated by subsequent modern activity); interred within a tapered coffin impression, over 1.7m by 0.32-0.52m and 0.24m deep, distinguished by in-situ iron coffin handles to either side of the body; corroded iron name plate situated over torso (Figure 159).

SK68 – infant; preservation fair; interred within a rectangular/tapered coffin impression, 0.6m by 0.17-0.26m and 90mm deep, distinguished by in-situ nails and small, poorly preserved wood fragments; no name plate surviving; the inhumation was situated directly over SK67.

SK67 – child/juvenile; preservation fair; interred within a rectangular coffin impression, 0.96m by 0.3m and 0.14m deep, distinguished by change in soil compaction and presence of corroded iron name plate situated over torso; grave cut measured 1.121m by 0.45m; the inhumation was situated directly beneath SK68.

SK66 – child; preservation poor (arms missing); no coffin distinguishable but presence inferred by presence of nails within grave cut; grave cut measured 1.26m by 0.54m.

The elaborate infant casket burial: SK70

Situated to the south of the chapel's footprint was a twelfth, isolated inhumation. Initially believed to be Roman in origin, comparable to two further Roman infant burials within the vicinity (SK107 and SK111) on excavation it was identified as a further 19th-century burial likely linked to the chapel. This association is further confirmed by its position in regards to the 1888 Ordnance Survey map which clearly places it within the footprint of the chapel property (Figure 158). The casket had been buried within a grave, 1.06m by 0.39m and 0.23m deep, truncating G230 (Phase 8.1).

The casket survived as a thin horizontal and vertical stain of dark organic loam with small fragments of poorly preserved wood surviving in proximity to ferrous material. It had possibly been constructed as a rectangular box measuring 0.83m by 0.12m and at least 80mm deep, but had bowed out to 0.21m across the centre. Construction, established from the arrangement of nails, appears to have entailed first fixing the head and foot boards to the base before attaching the sides, with the entire coffin fastened with iron nails driven through the wood from the exterior. Internally, a series of small pewter coated tacks had been driven into the wood in the opposite direction. These were not large, or long, enough to be structural and may indicate that the coffin had been cloth lined. Fixed to the exterior were six iron D-shaped handles, two situated on either side, spaced 0.3m apart, with a single handle at both the head and foot of the coffin. These had been mounted with stamped pewter backing plates, depicting pairs of facing cherubs in profile.

SK70 – infant; preservation very poor.

THE ENVIRONMENTAL EVIDENCE *Angela Monckton*

General Introduction

The excavations at Vine Street provided the opportunity to recover a variety of remains from sieved samples as well as by hand collection from a site with extensive evidence of Roman buildings not seen in Leicester before. The site represented an entire insula of the Roman town from Early to Late Roman periods so it was possible to look for changes over the period. The medieval occupation was also well represented and was examined in order to help characterise the type of occupation in this part of the town. In addition to the animal bones and oyster shells recovered by hand during excavation 3.6 tonnes of soil samples were taken to wet sieve for smaller remains. These included the small animal bones, fish bones and scales, shell and insect remains together with charred cereal grains and seeds which would not be found otherwise. Small samples were also taken to examine for other microscopic remains such as pollen and parasite ova. Samples for analysis of soil sediments were also taken. These plant and animal remains recovered from the environmental samples provided evidence of the foods available to the people as well as some evidence of the environment and economy in the past.

Extensive sampling had been carried out for the first time in Leicester on the Shires excavation at Little Lane and St. Peter's Lane recovering a range of remains including large and small animal bones, fish remains and plant remains. A little waterlogged material which included pollen, was recovered from the bottoms of the deeper wells, evidence for gut parasites was also found in cesspits. Sampling on the Shires had the objective of surveying the range of remains in a large number of contexts, and results showed plant remains were common but often present at a low concentration (Moffett, 1993; Monckton, 1995). More selective bulk sampling, although still extensive, was carried out at Causeway Lane in order to produce larger assemblages of material for analysis in order to extend the information already obtained from the Shires and other sites in the town (Monckton, 1999a). For these Highcross excavations it was still considered necessary to sample as extensively as possible in order to recover more of the range of plants and animals present from all areas of the site. Here at Vine Street particular attention was paid to the deposits from Insula V of the Roman town.

Preservation

Most of the sediments were free draining and bone was generally well preserved on the site, including small bones and fish remains recovered from sieved samples. Charred plant remains do not decay and are preserved in most types of soils. They generally represent plant products such as cereals, which come into contact with fire during their processing, use or disposal; they can provide information about plant materials used or consumed on the site. Plants such as legumes, which do not require parching in their processing, and vegetables, which may not be allowed to seed or the remains of which may be composted are not often preserved, so more extensive sampling is required to increase the chance of their recovery. Other remains included charcoal and oyster shell (Morgan, Hill, this volume), some eggshell was also found. Such remains found in rubbish pits give evidence about life on the site in the past.

Some remains were found to be preserved by mineralisation, this occurs in such conditions as found in cesspits where sewage and latrine waste was dumped. In such conditions the organic remains become impregnated with calcium salts which preserve the form of the remains of plants and animals in a semi-fossilised state. Mineralised plant remains from cesspits often represent food remains such as fruit stones and pips, these together with chewed fish bones which having passed through the gut, were deposited in the pit as sewage. Such pits also preserved microscopic eggs of gut parasites confirming their use as cesspits with occasional finds of coprolites (mineralised or dried faeces) adding to this evidence (Carrott, this volume). Mineralised remains of flies, other insects and woodlice were also preserved which give evidence about the putrid conditions in the pits.

No waterlogged material was found on this site. At the Shires and Causeway Lane waterlogged preservation was poor, insects and plant remains not surviving well, although some pollen was recovered from the wells and deeper pits. Pollen was recovered here from a turf layer and buried soil as evidence of the site environment (Greig, this volume). Additional sampling for soil micromorphology and chemistry was also carried out on some of the floor layers and is considered separately (Macphail, this volume).

Sampling

Environmental samples were taken from contexts which were well defined, potentially datable and productive (Greig, 1989: 22) while attempting to cover the main periods of the site. Usual sample size was about 20 litres, although smaller samples were taken where material was limited and a number of contexts with good potential for remains, particularly bone, were selected and larger samples taken. Hence, a range of samples of 1 to 30 litres in size was taken for the recovery of plant remains and small bones.

Table 143: The Environmental Evidence: samples processed by Area and Phase

AREA	Ph.1	Ph.2	Ph.3	Ph.4	Ph.7	Ph.8	Ph.9	TOTAL
A.1	-	4	1	1	-	2	9	17
A.2	-	13	22	5	1	3	2	60
A.3	-	11	20	6	-	1	0	38
A.4	-	24 + 20	55	71	-	23	15	202
TOTAL	-	72	98	83	1	29	26	309

Processing

From the samples taken selected well-dated samples were wet-sieved in York tank using a 0.5mm mesh with flotation into a 0.3mm mesh sieve. Samples were processed in parts up to 10 litres with additional parts processed for contexts with good potential. This amounted to 458 sample parts (from 309 contexts) totalling 2756 litres (3582 kg), (Table 143). Some samples very rich in charred remains were processed by manual bucket flotation, usually taking a small fraction of the sample. The residues were air dried and then separated on a 4mm riddle and the coarse fractions (over 4mm) were all sorted for bones and finds. The remaining residue, the fine fraction (below 4mm) was retained for analysis and sorted for selected samples only, to recover fish remains, small bones, or mineralised material. This work was carried out at by Alex Beacock and Anita Radini at ULAS.

The flotation fractions (flots) from all sample parts were air dried and assessed for the presence of plant remains. The flots also contained small bones, fish and insect remains so most of the flots were sorted and the remains added to those from the other residues for identification and analysis (Browning, Nicholson, this volume). The archaeological integrity of the samples was considered in evaluating all the remains for analysis. The most productive flots from each phase were selected for analysis of plant remains and the rest summarised below (Monckton and Radini, this volume).

Sub-samples were retained from all the sieved samples and some of these, together with some spot samples and possible coprolites, were tested for parasite remains. All sample records are held in the archive.

Analysis

The data about the samples and the types of remains recovered was recorded on the site database and tabulated on a spreadsheet by phase and group or subgroup, all held in the archive. A summary of the food remains found by phase was tabulated (Table 145). The specialist reports follow.

THE PLANT REMAINS *Angela Monckton and Anita Radini*

Introduction

The excavations at Vine Street provided the opportunity to take samples from features associated with extensive buildings not seen before in Leicester to compare with data from previously excavated sites at the Shires and Causeway Lane (Moffett 1993, Monckton, 1999a), and also to add to the environmental information for the Roman town.

Charred cereal grains, some cereal chaff and seeds were recovered from the environmental samples as well as mineralised fruit stones, fruit pips and seeds from cesspits. The identification and analysis of the remains showed the cereal crops consumed on the site and the changes in the crops from the Roman to medieval period including some evidence from the arable weeds of the fields. Evidence for other food plants including fruit, nuts and legumes and some evidence for other cultivated plants was found. The presence of mineralised fruit remains contributed to the identification of the cesspits. Other evidence included some possible garden plants, some imported foods, and hay for animal fodder. The foods and plant resources available over the Roman period were examined.

Methods

The flotation fractions (flots) from 309 contexts collected in a 0.3mm mesh sieve from wet sieved samples (see above) were assessed. Of these 218 were sorted and recorded including 45 which were selected for full analysis. All the recorded flots were sorted for plant remains and small bones, fish and insect remains and the additional plants noted; those not fully analysed are referred to in the text as scanned samples. For the analysis of the plant remains the selected flots were 100% sorted unless stated and the plant remains were identified, counted and tabulated as charred seeds in the broad sense except where specified, and plant remains from the other sorted residues are included. Identification was carried out as far as possible within the limits of time available and the condition of the material. Plants were listed in order with reference to Stace (1991), they were grouped in types and habitats, however, as many plants can occur in a variety of habitats and these may not have been the same in the past, this should only be considered as a guide to interpretation.

Table 144: The Plant Remains: total numbers of contexts sampled and examined for plant remains

Phase	Processed Samples	Examined Samples	Volume of sorted samples
Phase 2	72	58	425 L.
Phase 3	98	86	597 L.
Phase 4	83	74	603 L.
Medieval	56	30 ?	270 L. ?
TOTAL	309	248	-

In order to compare the plant remains from the Roman samples the proportions of cereal grains, chaff, food plants (legumes, cultivated plants, fruits and nut shell), and seeds of wild plants were calculated and plotted (Figure 160). This was done because the proportions of types of remains in a sample can assist in interpretation and indicate activities such as crop processing (Hillman 1981). Ratios of cereal grains, chaff and weeds were also considered (Van der Veen 1992), samples with abundant chaff represent cereal processing waste, those with abundant weed seeds represent cereal-cleaning waste, and those dominated by cereal grains represent the cereal product for food. All the plant remains recovered were also examined by phase to investigate any changes over time and to record the foods available in early, middle and late Roman times to compare with the national picture (Van der Veen et al 2008) and to compare with other local sites (Figure 161 and Table 145).

Roman Plant Remains

Cereals

The main cereals found were wheat (*Triticum* spp) and barley (*Hordeum vulgare*); oat (*Avena* sp) was present, although possibly not a cultivated variety, because the grains were small and the species could not be confirmed in the absence of chaff, there were also a few possible rye grains (c.f. *Secale cereale*). The most common wheat identified was spelt (*Triticum spelta*) although some poorly preserved grains and chaff could only be identified as emmer or spelt (*Triticum dicoccum/spelta*), however these were most probably spelt. A few grains of free-threshing wheat were occasionally found, this is most probably bread wheat (*Triticum aestivum s.l.)* which is the only species of free-threshing wheat identified in Roman Britain. The better-preserved barley grains were identified as the hulled form and the presence of twisted grains indicate that this is possibly 6-row hulled barley. Oat was probably a weed of the other cereals and there were a few possible rye grains from phases 2 and 3 as an additional cereal. Some grains could only be identified as cereal indeterminate because of distortion during charring or their abraded condition.

Cultivated or collected plants

Edible legumes were represented by peas (*Pisum sativum*), and fragments of peas or beans. The identified pea from phase 4 was small (*c.* 4mm) but identified from the form of the hilum. There were also incomplete legumes of a similar size, only identifiable as *Vicia/Pisum/Lathyrus;* these may be poorly preserved peas. Other cultivated plants are opium poppy (*Papaver somniferum*), fig (*Ficus carica*), both of which were mineralised, a charred fragment of a grape pip (*Vitis vinifera*) was found in phase 3, and flax (*Linum usitatissimum*) was also present in phase 4 as a single seed. Figs and grapes may be imports or introduced garden plants. A fragment of a seed possibly of beet (*Beta vulgaris*) indicated cultivated vegetables as found at Causeway Lane. Apples (*Malus* sp.), bullace (*Prunus domestica*), other medium-sized plums and cherry pips (*Prunus* sp.) were found mineralised in a cesspit of phase 4. Most were present only as mineralised kernels so were difficult to identify with certainty. These fruits may have been from orchard trees or gathered from the wild, and other gathered foodstuffs were represented by hazel nutshell (*Corylus avellana*) and sloe (*Prunus spinosa*).

Other plants

Most of the seeds found represent the arable weeds of cereal crops with brome grass as the most common (*Bromus hordeaceus/secalinus*), others include occasional seeds of stinking mayweed (*Anthemis cotula*), a weed of heavy soils (Greig 1991) and may indicate that the cereals were grown on such soils as found in Leicestershire; this weed became much more common during the medieval period. In addition, scentless mayweed (*Tripleurospermum* sp.) was found in small numbers in some samples, this is a plant of lighter soils. Cleavers (*Galium aparine*) is an autumn-germinating species and when found associated with cereals suggests that they may have been autumn sown (Jones 1988). Weeds associated with spring-sown crops and garden cultivation were also found and included goosefoots (*Chenopodium* sp.), chickweed (*Stellaria media*) and docks (*Rumex* sp.); these weeds are also associated with settlements and disturbed ground. Many plants classed as arable weeds are not characteristic of particular types of soils or conditions but some, such as nettles (*Urtica* sp), persicaria (*Persicaria* sp.) and henbane (*Hyoscyamus niger*) are found on nutrient-rich soils such as farmyards and manure heaps. Additional species of arable weeds were wild radish (*Raphanus raphanistrum*) and the field poppies (*Papaver rhoeas/dubium*). A group of plants now found on grassland, including some which are characteristic of hay meadow such as yellow rattle (*Rhinanthus* sp), and crested dog's-tail (*Cynosurus cristatus*), were found in some of the samples particularly in phase 3 described below.

A number of damp-ground plants such as spike-rush (*Eleocharis* sp) were represented possibly from ditches at crop field margins. Some plant material could have been brought into the town for use as flooring or bedding. Hedgerow plants were represented possibly by elder (*Sambucus nigra)* which is also common on waste ground, the berries of which may have been gathered for use, and white bryony (*Bryonia dioica*), a climber of hedgerows is of note here as seeds were found in phases 3 and 4. The remaining seeds were unclassified either because they have no common habitat or because they could not be identified further. The latter include the sedges (*Carex* spp), many of which are plants of damp ground and the small leguminous seeds (Fabaceae) of clover type such as *Lotus, Trifolium, Melilotus* and *Medicago*, which include many grassland plants.

Phase 2: Early Roman

Samples from a total of 72 contexts were processed of these flots from 58 contexts were sorted (70 parts). Cereal grains were found in 72% of the samples and chaff in only 8%. Fish remains, either scales or bones, were found in 21% of the samples. The features sampled included the earliest pits on the site and features associated with the Timber buildings 1 and 2. Of the samples analysed only three were quite rich in charred plant remains (Table 146). They were from Phase 2.2 and suggest domestic occupation with waste charred remains from food preparation dumped and accumulated on the site. All samples are from Insula V unless described otherwise.

Phase 2.2

G287, sample 115 from the street-side ditch fill of the eastern street in Insula XI contained about equal numbers of cereal grains and seeds, the cereal is probably mostly spelt, and the seeds are mainly large grasses which stay with the cereal grains after cleaning because they are a similar size and can be removed by hand cleaning before consumption. This suggests that this is domestic waste from food preparation dumped in the ditch from nearby occupation. Occupation in Insula XI was shown by hearth G366 although no evidence was recovered from it.

G292, sample 285 from a pit within Insula V, contained wheat and barley grains and some spelt chaff with more numerous seeds also including large grasses. This sample had more evidence of cereal cleaning from the presence of chaff but probably also represents domestic preparation of cereals as food. The remains are probably from domestic hearth cleanings dumped in the pit which was probably used as a rubbish pit after being dug as a quarry or for other purposes.

G326, sample 2405, G326 from a probable refuse pit within Insula V, was dominated by cereal grains with spelt, barley and a little rye as domestic waste from food preparation showing the cereals available.

G344, samples 336 and 337 from pits within Insula V contained numerous fragments of hazel nutshell, the most found on the site. Both samples were fairly rich in cereal grains of both wheat and barley with arable weeds, mainly of large grasses (Table 146). The samples were dominated by food remains (Figure 160), and represent domestic waste from food preparation.

G358, sample 347 from a pit within Insula V was rather poor in remains but did contain a few fragments of mineralised plant stem and some insect remains with three fragments of fruit stones found in the residue. These are probably from a small type of plum and this may represent the only pit containing latrine waste from the phase.

G787, sample 1020, and G115, sample 1013, from pits within Insula V were similar to each other with a small number of remains, mainly of cereal grains, wheat in the former but wheat and barley in the latter with only single numbers of weed seeds and so represent fairly clean cereal for consumption, possibly as spills into the cooking fire.

Phase 2.3

G403, sample 2404 from spreads of made-up ground mixed with hearth residues within Insula V, contained domestic waste with only a few grains of barley and a nutshell fragment present together with a few seeds of some grassland plants which may represent kindling used in a domestic hearth.

Phase 2.4

G100, sample 976 from a possible trampled earth surface inside Timber Structure 2, and samples 991 and 999 from yard trample G123 outside the building all contained remains with more grains than seeds or with grains about equal to the number of seeds. They are thought to represent domestic waste from food preparation mainly of glume wheat probably spelt. The seeds are those of arable weeds brought with the crops. This probably represents a scatter of waste from domestic hearths.

G302, sample 271 from a possible trampled earth surface in Timber Structure 1, contained wheat barley and hazel nutshell in small numbers with a fragment of spelt chaff; weed seeds were mainly of large grasses and this also represents domestic waste.

G485, sample 353 from clay bedding for a mortar surface north-east of the timber structures contained the uncharred seeds of some water plants including duckweed. These are seeds rich in silica and can be preserved in soils. They suggest that the clay here originated in standing water either on site or was brought to the site from a wet area.

G921, sample 560 from an earth floor within Insula IV, and associated hearth trample samples 533 and scanned sample 531, both G922, all contained a few grains with more seeds; the seeds are all weeds of the crops so this represents another scatter of domestic waste including a few fragments of peas or beans from sample 533 which are sparsely represented in the phase.

G1193, sample 814 from a fill of the beam-slots of a possible structure west of Timber building 1, contained only a few grains and seeds in a scanned sample as part of a low density general scatter of domestic waste.

Summary Phase 2

The evidence from Phase 2 is entirely domestic showing that cereals were prepared for consumption on the site and spelt wheat, barley, and possibly some rye were consumed. There was a scatter of waste from cereal cleaning, consisting mainly of a few spilled grains and weed seeds, with only occasional fragments of chaff, showing that the cereals were threshed and de-husked elsewhere. The weeds were all arable weeds with large grasses most abundant. Other foods were represented by hazel nutshell and a few fragments of peas and beans. The most domestic waste was found in two samples of G344, which had abundant hazel nutshell, and in this phase the pits contained the most cereal grains. A possible cesspit G358 contained the only evidence of fruit, possibly small plums, from the phase. Timber structures 1 and 2 had samples with mainly charred cereal grains present, although not abundant, as domestic waste from food preparation. The only samples from Insula IV were dominated by seeds with some grains, but also probably represent a scatter of domestic waste from cereal cleaning. Other samples from the phase contained a scatter of domestic waste from the occupation of the site.

Phase 3: Middle Roman

Samples from 98 contexts were processed, of which samples from 86 contexts (in 99 parts) were sorted and are summarised in Figure 161. Cereal grains were present in 65% of the samples and chaff in only 17%; two of the samples contained over a hundred cereal grains, the most from the site. About 28% of the samples contained some fish remains. Of the samples analysed (Table 147), those from three hearths were dominated by cereal grains as evidence of food, while wild plants were well represented in two samples containing remains of hay or fodder, and one sample from a yard probably represented the local vegetation of the site.

Phase 3.1, Layers capping Timber Structure 1

G419, sample 246 from a dump of refuse and hearth material capping Timber Structure 1 and pre-dating Building F was the most productive sample with over 300 items per litre of soil. While containing cereal grains and nutshell as food plant remains it was dominated by wild plant seeds, the majority being seeds of grassland plants. The sample included a range of species which are characteristic of tall grassland including yellow rattle (*Rhinanthus* sp), knapweed (*Centaurea nigra*), crested dog's-tail grass (*Cynosurus cristatus*), and ribwort plantain (*Plantago lanceolata*), together with small grass seeds, some of which could be identified as timothy (*Phleum* sp). Many charred grass stem fragments, which were too small to be from cereals were also found. In addition eye-bright or bartsia (*Euphrasia/Odontites*), self-heal (*Prunella vulgaris*) and heath grass (*Danthonia decumbens*) also belong to this grassland group (Greig 1988) giving a total of eight grassland taxa. Some of the small leguminous plants which could not be identified further from the charred seeds, are possibly *Lotus, Trifolium* and *Medicago* species, many of which are plants of grassland. This is also true of a number of *Potentilla* species. The presence of the taller plants such as yellow rattle and knapweed suggests an origin from hay meadow rather than short grassland (Greig 1988). The group of plants found is similar to those of a traditional grazed hay meadow although the species present may be under represented, possibly because of loss during charring. Hay meadow is a type of grassland maintained by mowing and limited grazing which returns nutrients to the soil as dung (Greig 1991). The hay remains were burnt, possibly during clearing stables or animal housing or possibly as reuse of old fodder as fuel or kindling, or burnt accidentally.

Cereal grains were quite numerous consisting of spelt, barley and some probable rye grains, with some spelt chaff and a fragment of barley chaff. Arable weeds were also present including brome grass. The seeds of some unclassified plants may also be from grassland include *Medicago/Trifolium,* buttercups (*Ranunculus acris/ repens/bulbosus*) and sedges (*Carex* sp), although some of these may be from damp areas of cultivated fields. The cereal remains probably originated as domestic waste including grains, chaff and arable weed seeds; it is possible that the heath grass was an arable weed brought in with the cereals rather than a grassland plant. Onion couch grass tubers are also present in similar habitats. Other food plant remains are represented by hazel nutshell also suggesting domestic waste. This sample may therefore consist mainly of fodder remains possibly mixed with domestic waste.

G784, sample 286 from a refuse pit and sample 287, G324, from layers capping Timber Building 1. These were two similar less-productive samples which contained cereal grains with chaff and weed seeds with a fragment of nutshell in the latter. They probably represent domestic waste from food preparation burnt in domestic hearths and dumped or accumulated on the site.

G1207, sample 968 from a possible hearth above Timber Structure 1: this sample contained only cereal grains and charcoal and although only a moderate number of grains were present, the sample seems to represent cleaned grain probably as waste from food preparation. Wheat and barley were both present.

Phase 3.2

G1228, sample 918 from a hearth in the yard west of Building D contained a few cereal grains and seeds but also a charred grape pip as evidence of an imported or introduced food plant, suggesting high status. This suggests the domestic activity associated with Building D.

G1395, sample 454 from layer of soil accumulation over the Northern Street between Insulae IV and V: contained a few cereal grains and seeds only as part of a scatter of domestic waste or residual material from previous activity.

Phase 3.4

G910, sample 220 from made-up ground beneath a yard to the east of Building F: this sample contained a few cereal remains but was dominated by weed seeds, some of which were arable weeds typically associated with cereals such as brome grass and cleavers, the others include high numbers of chickweed and docks as well as some grassy species. Such plants as small leaved nettle, mallow and henbane were found and are typical of Roman urban floras where pits and cesspits are present. This sample probably represents burnt domestic rubbish mixed with local plant material from clearing the site of weeds or using dried weeds as kindling. The flora of ancient towns has been compared to that of traditional farmyards by Hall (1988), and this seems to be the case on parts of the site here. The sample may represent clearance of the area during the construction of Building F.

Phase 3.5,

G487, sample 330 from soil north-east of buildings D: contained a few remains of cereal grains, chaff and seeds as a scatter of domestic waste.

G931, sample 978 from re-deposited hearth residue within Building A: a very productive sample with numerous cereal grains, very little chaff and weed seeds in about equal number to the cereal grains. The seeds included arable weeds as well as some from grassy vegetation, probably representing weeds of the crop and possibly grass used as kindling. The grains included spelt, and a few grains of rye, some of which were sprouting, with only three chaff fragments suggesting the grain was processed elsewhere. This probably represents domestic waste from food preparation in the building.

G1388, sample 493 from a pit within the southern room of Building D, and sample 497, G1387 from a possible earth floor within the same room: the former was a productive sample and contained grains, chaff and nutshell but was dominated by weed seeds including grassy vegetation, perhaps from using grass as kindling and also suggesting the presence of hay brought to the site for fodder. This adds to the evidence from the excavation that the room was possibly used for animal keeping in a period of decline. Sample 497 is similar to sample 330 above, as a scatter of domestic waste from the floor.

Phase 3.6,

G491, sample 324 from made-up ground or soil accumulation north-east of Building D, contained only a scatter of cereal grains, chaff and seeds as probable waste from food preparation as part of the general scatter of domestic waste accumulated on the site.

G947, sample 960 from made-up ground in the interior of Building A was very similar to sample 246, G419 (see above) as it contained the same variety of grassland plants typical of hay meadow so suggesting that this sample also contains fodder together with some domestic waste. This is probably soil from a local source used to level the interior of Building A during conversion to the courtyard house.

Phase 3.7

G955, sample 959 from a trample layer in Building G Room 21, contained only cereal grains and weed seeds as a scatter of domestic waste.

Phase 3.8

G967, sample 950 from trampled hearth residue in Building G Room 6 associated with hearth G966 immediately to the south, contained a moderate amount of waste dominated by seeds of arable weeds and grassy vegetation, unlike the other hearths of this phase which had more cereal grains. However, a few cereal grains, a nutshell fragment and a fragment of pea or bean show the presence of legumes in this phase and the presence of domestic waste.

Summary Phase 3

A general scatter of domestic waste of charred cereal grains with weed seeds and some chaff fragments from food preparation was present throughout the phase. Legumes, peas or beans, were only represented by occasional fragments; small amounts of hazel nutshell was also found in some of the samples. The only evidence of imported or introduced food was from a charred grape pip from a hearth associated with Building D. There was little variety of fruits represented, perhaps because of lack of cesspits in this phase.

Four hearths or hearth residues were investigated and three of them were dominated by food remains, mainly cereal grains; a fourth was dominated by weed seeds but also included domestic waste. Hence all the hearths appear to be of domestic function.

Two exceptional samples from this phase contained remains of hay characterised by hay meadow plants. This probably represents waste fodder and it is striking that there was also good evidence for hay in this period found at Causeway Lane (Monckton, 1999a). The samples here, as at Causeway Lane, also contained abundant evidence for cereals suggesting a mixture of domestic waste was included.

A sample from a yard of Building F was different. It contained very abundant weed seeds unlike either the hay of the arable weeds found with the cereals; it contained abundant chickweed and docks with some grassy plants together with buttercups and ragged robin. This probably represents the vegetation of the surroundings including rough vegetation and wayside plants. This seems to have been cleared from the site and burnt.

Phase 4: Late Roman

Samples from 83 contexts were processed of which flots from 74 contexts (in 87 parts) were sorted and recorded. Of these, 65% contained some cereal grains and only 12% any chaff (Figure 161). Fish remains were present in 12% of the samples. The most productive samples from the phase were from cesspits of G526 which contained mineralised fruit stones and fish remains. The survival of Roman cesspits with mineralised preservation is a fortunate occurrence and only a few others are known from Leicester. Such remains provide evidence of the variety of the diet. Other samples from this phase are from Building G, the courtyard house, and other features across the site (Table 148). A general scatter of charred plant remains as domestic waste was found and chaff was again sparse.

Phase 4.1

G526, two cess or refuse pits adjacent to Building G and to the rear of Building F were sampled and both contained mineralised remains. The south pit produced the richest samples from the site, sample 318, containing numerous fruit stones of sloe, bullace, plums, cherry and apple (Table 148). Some mineralised spikelets of spelt wheat were unusually preserved, mineralised weed seeds were also present perhaps representing the local vegetation with mallow, chickweeds and thistles present. A few charred remains included a few wheat grains and arable weeds. Numerous fish bones and scales were of marine and freshwater fish (Nicholson, this volume). The north pit had less fruit remains except for apple pips, but contained fig and opium poppy seeds as probable imports or introduced plants, also with local weeds and abundant fish remains. The basal layer of this pit sample 322 differed in containing charred remains with the most chaff from the site with fewer grains and more weeds so probably represented cereal cleaning waste. This waste was not very abundant so may represent domestic scale activity, cleaning cereals for consumption on the site. These cesspits are a rare survival showing the varied diet of Roman type which included fruit and fish, this shows that the inhabitants could afford imports and trade with the coast and suggest high status and wealth such as would be associated with the courtyard house, Building G.

Phase 4.6

G383, sample 270 from a possible hearth within Building F Room 2 contained a scatter of domestic waste including a few hazel nutshell fragments.

G1004, three samples from the drain or culvert within Building G, Room 6 were taken, 729, 802 and 871, although they showed some unusual preservation of uncharred plant material not fully mineralised the remains were not very revealing. All were dominated by uncharred seeds including greater celandine; and some plant seed capsules, unidentified at present, were also found. These may have been preserved by the industrial residues in the soil from the workshop phase of use or may be partially mineralised. The samples also contained a scatter of charred cereal waste in small numbers suggesting only some domestic activity.

G1007, sample 675 from a gully within Building G, Room 21, as a continuation of culvert G1004, contained only a few cereal grains and seeds as part of the general scatter of domestic waste, no evidence of mineralised material to indicate sewage was found.

Phase 4.7

G731, sample 557 from a large pit north of Building G room 9, contained barley grains with more seeds mainly of large grasses probably as domestic waste in a rubbish pit although the building was demolished in the previous sub-phase.

G1017, sample 744 from small pit in Building G Corridor 5 immediately east of Room 6, was similar with barley and seeds of docks and sedges.

G1032, samples 717 and 720 from the drain in-fill within Building G, Room 6 were also dominated by seeds, with most in the former which includes grassy vegetation with a few cereal grains and seeds of greater celandine (Table 148). The latter sample had only a small number of remains which included wheat, barley and nutshell. Both contain a scatter of domestic waste, perhaps including grassy material as kindling.

G1013, sample 401 from a pit and sample 411, G1038, from a robbed post-hole, both in Insula IV, contained more grains than seeds, the former with wheat and barley, a fragment of pea or bean, and large seeds of arable weeds including cleavers; the latter with glume wheat and barley and seeds of large grasses. This appears to be food waste from cooking spills accumulated from a domestic hearth.

Summary Phase 4

The cesspits of this phase (G526, Phase 4.1) contained a variety of fruit and fish remains as evidence of the availability of these foods here in the Late Roman period. They suggest high status and are probably associated with the courtyard house, Building G. Remains from the culvert were unhelpful in interpreting the function of Room 6 at the time because they only contained a scatter of domestic waste as is common

on the site. However, there was some preservation of uncharred material different from mineralisation seen in the cesspits, which may have been caused by the presence of the industrial residues. The remaining features both tabulated (Table 148) and scanned contained only a low level of charred cereal waste of both spilled grains and seeds from small scale cereal cleaning, probably from domestic hearths, dumped or accumulated on the site.

Discussion

There was a scatter of cereal waste over the whole of the site but the density of charred remains was generally low. It is now apparent that this is a characteristic of domestic occupation as found nearby at Causeway Lane where in mainly back-yard activity, although 73% of the samples contained charred cereals only 7% had over 20 cereal grains and only 16% contained chaff (mainly glumes). This is very similar to Vine Street where about 67% of the samples contained cereals, 5.5% with over 20 grains, and 13% with any chaff from contexts associated with the buildings. The samples contained cereal grains and weed seeds including large grasses, with a few chaff fragments (glumes). This is interpreted as final cleaning of cereals for use by considering the proportion of remains in the samples and the relative proportions of cereal grains and chaff to weed seeds (Figure 160).

The glume wheat such as the spelt found here require two main stages of processing, the first being threshing to break the ears into spikelets where the grain is held tightly in the glumes (chaff), followed by winnowing and coarse sieving to remove straw and larger contaminants. The spikelets can then be stored or transported and processed in small quantities as required. The second stage of preparation involves parching (in corn driers in the Roman period) followed by pounding to free the grains from the chaff, and then fine sieving to remove the chaff and weed seeds (Hillman 1981). Such fine sieving waste with very abundant chaff is typical of Roman corn drier sites where agricultural activity is carried out and is quite different from the samples found here. Only sample 322 (G526, Phase 4.1) contained more glumes than grains and may represent small-scale cereal processing. Other samples represent de-husked grain because in the ears of spelt wheat there is one glume to each grain so when more grains than glumes are found this represents processed grain. Many of the samples here contained cereal grains with very few chaff fragments, and weed seeds in similar numbers to the grains, this probably represents waste from the final cleaning of the de-husked cereals for consumption because even after processing some contaminants remain to be removed by hand. This can be carried out during food preparation, many seeds of the large grasses were found here with the waste, which was then burnt as domestic rubbish. Some of the samples contain mainly grains with occasional legumes and nutshell fragments probably as cooking spills into domestic hearths. The presence of glumes even in low numbers shows the consumption of glume wheat, mainly spelt, throughout the Roman phases (Figure 161). However, chaff is sparse on the site suggesting that the spelt was processed elsewhere and corn driers are now known from three sites on the edge of the town, at Norfolk Street (Jones 1982), Crown Hills and Hamilton (Monckton 2004) and at a few other sites in the county.

There are a few different samples with very abundant charred seeds of wild plants and consideration of the plant species shows that two of the samples from Phase 3 contain remains of hay probably for fodder. Sample 246 (G419, Phase 3.1) contained a large number of seeds of grasses and seeds of at least eight grassland taxa including plants typical of hay meadow including yellow rattle, knapweed and crested dog's-tail grass. Samples 960 (G947, Phase 3.6) and 493 (G1388, Phase 3.5) are similar but have fewer remains. There is some overlap between the plants found on wet grassland, meadows and pastures but the plants present here suggest a hay meadow (Greig 1988a). This sample contains material which is similar to that found in a 1st-2nd century well at Tiddington (Greig 1988b) where 18 grassland taxa including the above species were found in a waterlogged deposit interpreted as including hay or dung. The sample here although less diverse, perhaps because of being charred, was interpreted as containing burnt hay as was the case at Causeway Lane (Monckton 1996). These deposits also contained domestic rubbish and other material with which the remains of the hay was mixed. This suggests the presence of hay meadows nearby to supply fodder for animals kept in the town. It is interesting to note that the find of abundant hay remains from Causeway Lane was also of the same Middle Roman period and animal keeping, possibly of horses for transport, was suggested at that site. Here the G1388 sample may suggest the keeping of animals in part of the building during a period of decline. The presence of hay meadows near the town is also indicated.

Another sample 220 (G910, Phase 3.10 from a dump in a yard contains abundant seeds of wild plants including chickweeds and docks and it is suggested that this is from weeds growing on the site. It shows

the natural vegetation of the site and clearance of the site during construction activity. A few other samples may also preserve such weeds as the mineralised seeds of wild plants in the cesspit samples 318 and 320 (G526, Phase 4.1) including mallow and small leaved nettle, as well as the find of white bryony in samples 950 (G967, Phase 3.8) and 320 (G526, Phase 4.1), while elder is ubiquitous. Plants of rough vegetation, soils rich in organic remains from rubbish pits and manure heaps, wayside plants and grassy vegetation were all represented. The flora of ancient towns has been compared to that of a traditional farmyard by Hall (1988), and this seems to be the case on parts of the site here. There are a number of samples which also contained grassy material, probably used as kindling, as suggested at the Shires (Moffett 1993). This was possibly either from fodder brought to the site of from material growing nearby.

Food remains from the site represent all periods particularly the cereals, used for porridges and flour for bread. The cereal grains on the site may represent waste from foods made from whole grains such as stews or pottage, some grain may have been roughly ground on the site for porridge, but grain for bread would mostly have been ground at mills. The main cereals were spelt wheat, and barley which may have been used for human food as well as for animals. The occasional rye grains may suggest that this also a crop. The oats were probably wild and a weed of the crops or for fodder, in the absence of chaff it could not be identified further.

In order to investigate any changes over time the proportion of samples from each phase with cereal and other remains was calculated and plotted (Figure 161). Spelt and barley were present in similar numbers of samples in Phase 2 and 3 with barley slightly more common in Phase 4 which is similar to the site at Causeway Lane where wheat and barley were about equally represented in terms of numbers of identified grain although barley was most numerous in the later phases. The overall occurrence of most types of remains was similar over the phases of the site which seems to show the same type of domestic activity throughout the Roman period. Evidence for fish is constantly present in around 20% of the samples.

Other foods were represented by charred legumes, peas or beans, hazel nutshell (which was most numerous in phase 2), and flax. The latter was only found as a single seed and was better represented at Causeway Lane, but could be used for food because the seeds are edible and there is no evidence here for use as fibre. Some of the wild plants could be used as salad leaves such as sorrel and fat-hen or as herbs but this cannot be demonstrated here although such plants were certainly available. The legumes and flax represent crops, while hazel nuts and other wild plants were gathered, elder and blackberry may also have been collected from nearby.

Abundant fruits were present amongst the food remains from the cesspits, with apple, sloe, bullace, plums and cherries probably represented. Food flavourings are represented by opium poppy and imports by figs and grape (the latter found charred while the rest are mineralised). These show the variety of the diet available to some people in the town and suggest high status because imports would have been expensive. Fish remains were also recovered from the cesspits, both of freshwater and saltwater fish and also show trade with the coast (Nicholson, this volume). The finds of fruit and fish show the Roman influence on the diet of at least some of the people – neither of these foods are found on the Iron Age sites in the county despite extensive sampling, nor yet on any Roman rural sites in the county (Monckton 2004). On this site the fruit remains were from two pits in Phase 4 (G526) with a little from a pit in Phase 2 (G358). A number of possible cesspits were assessed here but only traces of mineralised remains were found in a few and fruit remains only preserved in these three cesspits. In Leicester a few Roman cesspits with well-preserved remains are now known from the following periods: Early Roman from Causeway Lane and Newarke Street (Monckton, 1996b, 1999a), Middle Roman from Castle Street (Monckton unpublished) and now Late Roman here at Vine Street. This shows that these foods were available to some people throughout the Roman period in Leicester. The chance preservation of remains within cesspits may be a factor in finding this evidence – some pits may not have had the right conditions for mineralisation whilst others may have been destroyed by later activity. It is also possible that sewage disposal was not always in pits anyway and night-soil may have been removed from the town and spread on the nearby fields for manure. Some of the fruits could have been collected from the wild but most were probably grown in gardens or orchards. Figs and grapes could have been introduced or imported, while opium poppy is likely to have been an introduced garden plant. Such cesspits provide useful evidence about the diet in the Roman period and show that exotic foods reached even inland towns.

Table 145: The Plant Remains: food plants found by phase in Roman samples

FOOD	Phase 2	Phase 3	Phase 4	Source
Spelt	X	X	X	Local crop
Barley	X	X	X	Local crop
Rye	X	X		Crop?
Oat		X		Crop?
Hazel nuts	XX	X	X	Wild
Blackberry	X		X	Wild
Elder	X	X	X	Wild
Peas			X	Local crop
Beans				?
Bean/Pea	X	X	X	Local crop
Grape		X		Import
Fig			X	Import
Opium poppy			X	Import/introduced
Apple			X	Orchard/garden
Bullace	X		XX	Orchard/wild
Plums			XX	Orchard/garden
Cherry type			X	Orchard/garden
Sloe			XX	Wild
Flax			X	Crop
Mint		X		Wild
Field poppy		X		Wild
Brassicas			X	Wild?

Key: X = present, XX = abundant.

Conclusions

The main cereals in use were spelt and barley, probably 6 row hulled barley. Peas and possibly beans were part of the diet with figs and grapes possibly imported. Opium poppy may have been cultivated in gardens for food flavourings with perhaps fruit trees represented by apple, bullace, plums and possible cherries in gardens or orchards. Gathered foodstuffs are represented by hazel nutshell, sloe, bramble, and elder, probably gathered from hedgerows or nearby scrub vegetation.

Many of the samples of charred plant remains appear to consist of a small amount of cereal cleaning waste including cereal grains, a little chaff (glumes) and arable weeds as evidence of the preparation of glume wheat, mainly spelt, for consumption. Barley is also present in many samples, while rye occurs as small numbers of grains in a few samples. The waste was burnt and dumped or accumulated on the site as a scatter of domestic waste. The waste included weeds of heavy soils including cleavers and stinking mayweed, which suggests that the cereals may have been grown on the clay land in the area although such soils are common in the region. Arable weeds of lighter soils, including wild radish, field poppies and scentless mayweed, are also represented indicating a variety of sources for the cereals. The small amount of chaff found in the samples suggests that the cereal were processed elsewhere, possibly at the sites with corn driers on the edge of the town. Samples representing waste from food preparation attested to the domestic activity and consumption of glume wheat throughout phases 2, 3 and 4, but most abundant in phase 2 pits and associated with the timber buildings. Other crops of legumes including peas and possibly beans were also consumed on the site, also hazel nuts as gathered food.

Two samples interpreted as including hay were found in Phase 3 suggesting the keeping of animals on site, and the presence of hay meadows used to supply fodder for animals kept in the town. The local vegetation is suggested by several samples but most abundant in a sample from a yard of phase 3. The phase 4 cesspits contained numerous mineralised fruit stones and some were imports, these suggest the Roman influence on the diet because these fruits have not been found on Iron Age or Roman rural sites in the county. The abundant fruit remains here are from the Late Roman phase which adds to a few other Roman cesspits found in Leicester from Early and Middle Roman phases to show these foods were available to some people in Leicester throughout the Roman period. Here they are probably associated with the courtyard house and the imports included suggest the wealth of the inhabitants.

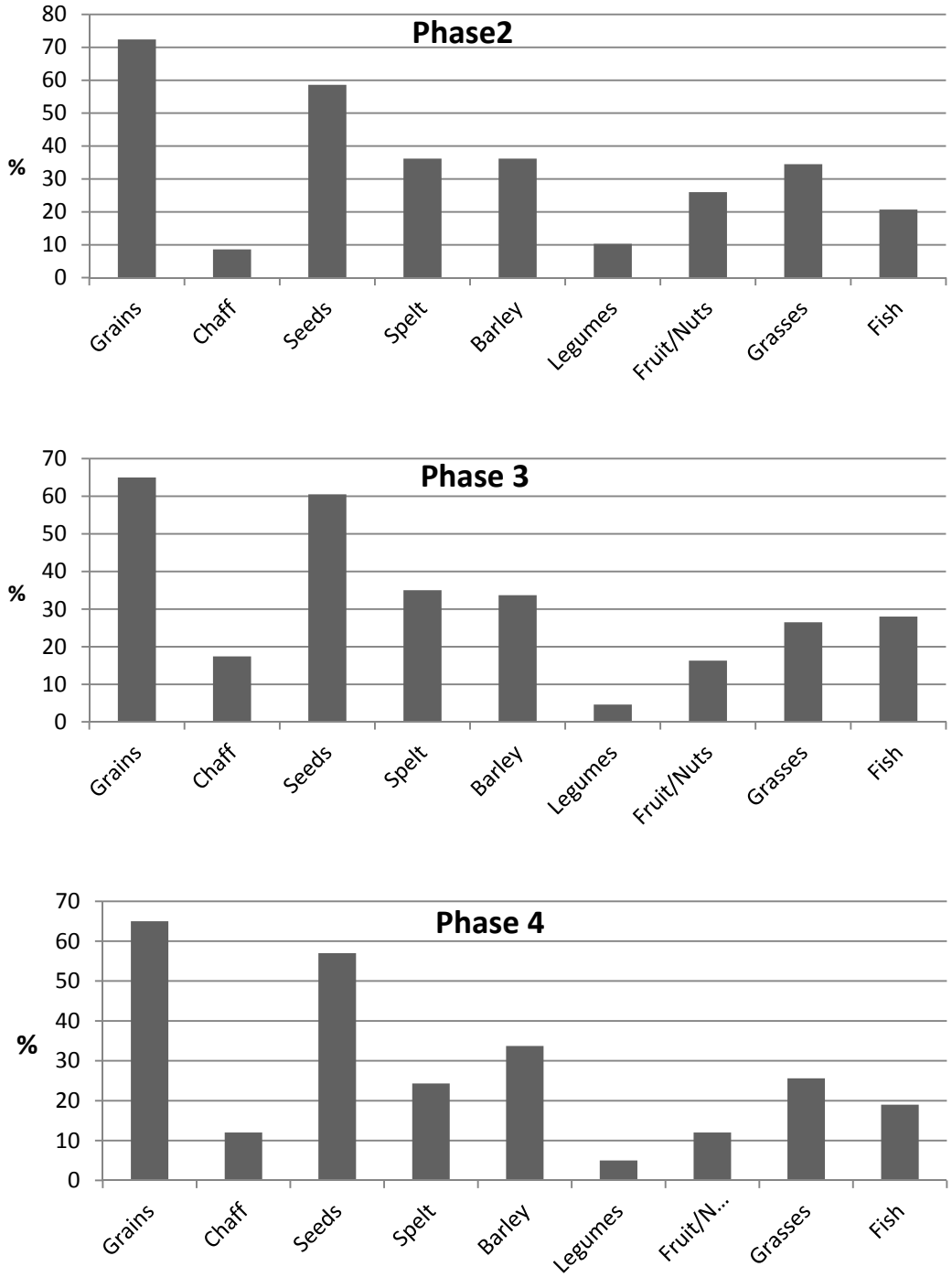
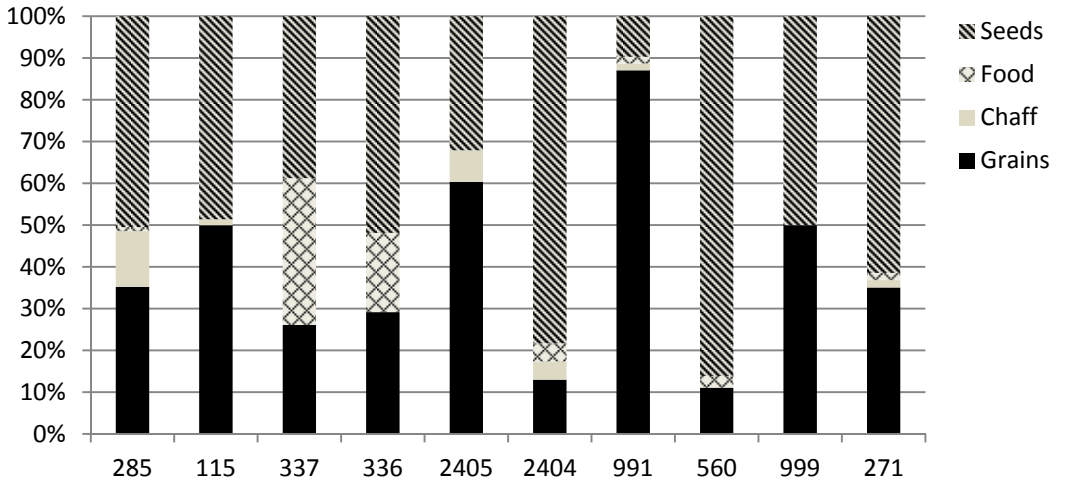
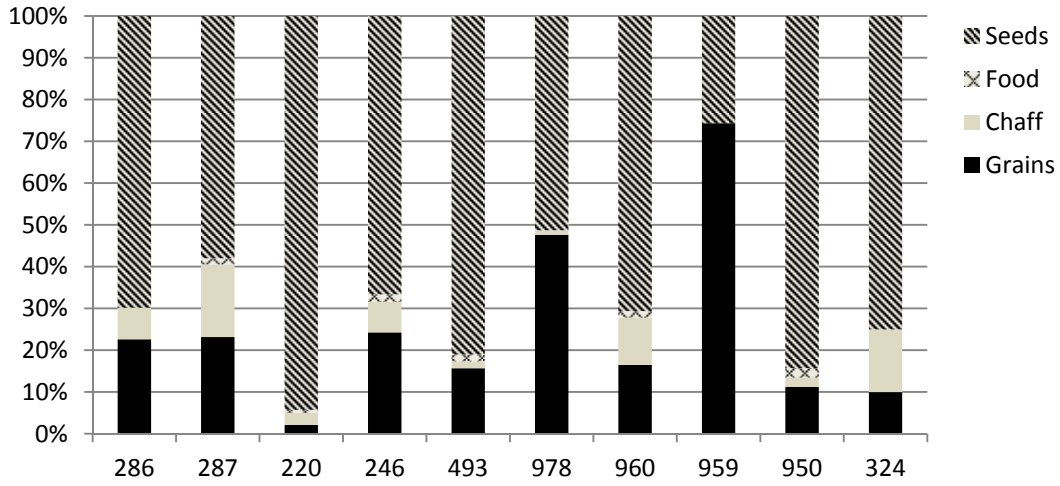


Figure 160: The Plant Remains: Percentage of samples with each category of food remains, by phase.

Phase 2



Phase 3



Phase 4

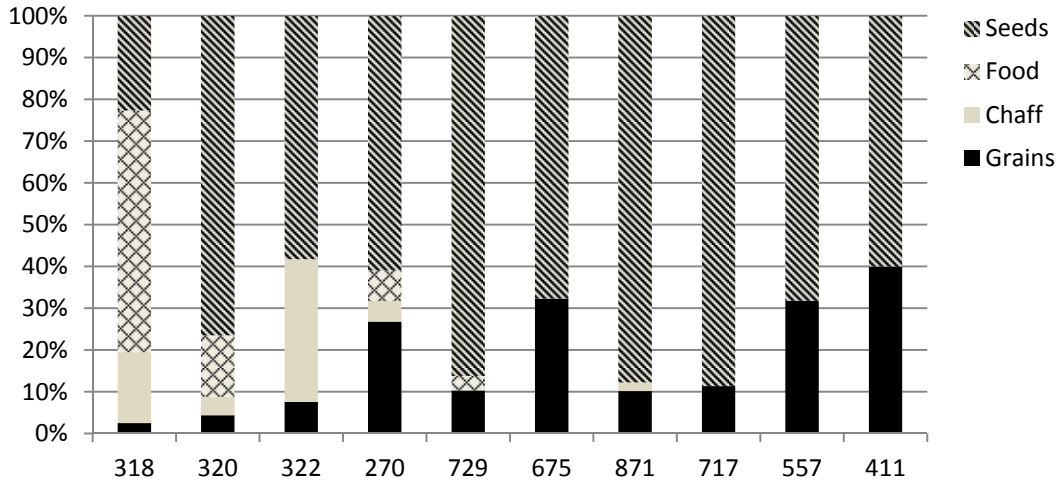


Figure 161: The Plant Remains: distribution of different categories of plant remains phase, by sample

Table 146: The Plant Remains: plant remains identified within select Phase 2 contexts

Phase	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	Phase
Group	G0292	G0115	G0287	G0344	G0344	G0787	G0326	G0358	G0403	G0100	G0922	G0123	G0921	G0123	G0302	Group
Sample	285	1013	115	337	336	1020	2405	347	2404	976	533	991	560	999	271	Sample
Context	2631	8284	1410	3561	3562	5885	2155	3721	2992	6902	5057	8098	5105	8106	2917	Context
Feature	quarry	pit	ditch	pit	spread	pit	pit	cess	layer	layer	layer	layer	floor	layer	layer	Feature
Area	2	4	1	3	3	4	2	3	2	4	4	4	4	4	2	Area
CEREAL GRAINS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CEREAL GRAINS
Triticum dicoccum /spelta	-	-	10	12	5	-	6	-	-	-	-	-	-	-	9	Emmer/Spelt
Triticum spelta L.	9	3	-	-	4	5	3	-	-	-	-	11	3	10	-	Spelt
Triticum sp grain	2	-	-	3	-	12	6	-	-	-	-	-	-	-	2	Wheat
cf *Secale cereale* L.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	cf Rye
Hordeum vulgare L. (germd)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Barley
Hordeum vulgare L. (hu)	4	2	-	2	4	-	2		2	6	-	2	-	17	-	Barley
Cereal indet	19	15	18	11	27	5	14	1	4	9	4	41	1	8	9	Cereal indet
Cereal indet tail grains	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	Cereal indet tail grains
Cereal embryos	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cereal
CEREAL CHAFF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CEREAL CHAFF
Triticum spelta L. (gl)	4	-	-	-	-	-	1	-	1	-	-	1	-	-	1	Spelt
Triticum dicoccum/spelta (ra)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Glume wheat
Triticum dicoccum/spelta (gl)	7	-	-	-	-	-	1	-	-	-	-	-	-	-	-	Emmer/Spelt
Hordeum vulgare L. (ra)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Barley
Culm node large	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	Cereal stem
Cereal awns	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-	straw
LEGUMES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEGUMES
Vicia/Pisum	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	Bean/Pea
Vicia/Lathyrus/Pisum	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	Bean/Peas
COLLECTED / CULTIVATED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	FOOD
Corylus avellana L.	1	-	-	39	26	-	-	-	2	-	2	1	1	-	1	Hazel nutshell
Prunus sp. bullace (m)								3								Plums
ARABLE OR DISTURBED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WILD
Chenopodium sp	2	-	-	-	3	1	-	-	6	-	4	-	-	-	1	Goosefoots
Chenopodium album type	1	-	2	-	1	-	-	-	2	-	-	-	-	-	-	Fat-hen

Phase	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	Phase
Group	G0292	G0115	G0287	G0344	G0344	G0787	G0326	G0358	G0403	G0100	G0922	G0123	G0921	G0123	G0302	Group
Sample	285	1013	115	337	336	1020	2405	347	2404	976	533	991	560	999	271	Sample
Polygonum aviculare L.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	Knotgrass
Rumex sp	3	-	1	-	1	-	-	-	1	-	-	1	-	-	-	Docks
Raphanus raphanistrum L.	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	Wild radish
cf. Daucus carota	-	1?	-	-	-	-	-	-	-	-	-	-	-	-	-	Wild carrot
Veronica sp.	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	Field-speedwell
Galium aparine L.	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	Cleavers
Tripleurospermum inodorum (L.) Schultz-Bip.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Scentless Mayweed
Bromus hordeaceus/secalinus	10	-	5	15	6	-	3	-	-	-	-	-	-	-	19	Lop-grass/Rye-brome
GRASSLAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GRASSLAND
Plantago lanceolata L.	1	-	-	-	-	-	-	-	1	-	-	-	1	3	-	Ribwort Plantain
Plantago sp.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	Plantain
Rhinanthus sp	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	Yellow Rattle
Centaurea nigra L.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Common Knapweed
Cynosurus cristatus L.	-	-	-	-	-	-	-	-	1	-	-	-	5	-	-	Crested Dog's-tail
Danthonia decumbens (L) DC	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	Heath Grass
HEDGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HEDGE
Sambucus nigra L.	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	Elder
Sambucus nigra L. (u)	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-	Elder
Rubusu fruticosus L. (u)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	Bramble
DAMP OR WET GROUND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WET GROUND
Montia sp	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	Blinks
UNCLASSIFIED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCLASSIFIED
R. acris/repens/bulbosus	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	Buttercup
Atriplex sp	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	Oraches
Polygonum sp.	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	Knotweed
Persicaria sp.	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	Persicaria
Brassicaceae	-	-	-	-	-	1	-	-	-	-	4	-	7	-	-	Brassicas
Vicia sp.	1	-	1	4	1	-	-	-	-	-	-	-	-	1	1	cf Hairy Tare
Vicia type (m)	-	-	-	2	5	-	1	-	-	-	-	-	-	-	-	Vetch
Vicia/Lathyrus (m)	-	-	-	7	-	-	-	1	-	-	-	-	-	-	-	Vetch

Phase	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.3**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**Phase**
Group	**G0292**	**G0115**	**G0287**	**G0344**	**G0344**	**G0787**	**G0326**	**G0358**	**G0403**	**G0100**	**G0922**	**G0123**	**G0921**	**G0123**	**G0302**	**Group**
Sample	**285**	**1013**	**115**	**337**	**336**	**1020**	**2405**	**347**	**2404**	**976**	**533**	**991**	**560**	**999**	**271**	**Sample**
Vicia/Lathyrus (ch)	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	Tare/Vetch/Vetchling
Medicago/Melilotus/Trifolium	5	-	-	-	5	-	3	-	1	1	-	-	8	7	-	Medick/Melilot/Clover
Papaver srhoeas/dubium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Field poppy
Lemna sp. (u)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Duckweed
Crepis sp.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Hawk's-beard
cf. *Beta vulgaris* frag?	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Beet???
Asteraceae (u)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	Daisy Family
Carex spp (2-sided)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sedges
Carex spp (3-sided)	-	-	-	-	2	-	1	1	-	-	-	1	-	-	1	Sedges
Eleocharis sp. (m)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	Spike rush
Poaceae (small)	6	-	2	2	-	-	-	-	5	-	12	1	1	7	-	Grasses
Poaceae (large)	7	-	21	4	27	3	5	1	4	1	-	3	3	6	10	Grasses large
Poaceae flower (u)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	Grass spikelets
Indeterminate seeds	7	3	1	7	10	2	2	2	7	-	-	-	3	9	-	Indeterminate seeds
Capsules	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Capsules
Culm node small	4	-	-	2	9	-	-	1	2	-	-	-	-	-	3	Grass stem
Organic fragments	1	-	-	2	-	-	-	xx	-	-	-	-	-	-	-	Organic fragments
Buds	10	-	-	-	4	-	6	-	-	-	-	-	-	-	-	Buds
Tubers	-	-	-	3	7	-	-	-	-	-	-	-	-	-	-	Tubers
Root/stem charred	-	-	-	x	x	-	-	1	-	-	-	-	-	-	-	Root/stem charred
Total Grains	**37**	**20**	**35**	**29**	**40**	**22**	**32**	**1**	**6**	**17**	**4**	**54**	**4**	**35**	**20**	**Total Grains**
Total Chaff	**14**	**-**	**1**	**-**	**-**	**-**	**4**	**-**	**2**	**-**	**-**	**1**	**-**	**-**	**1**	**Total Chaff**
Total Food items	**1**	**-**	**-**	**39**	**26**	**-**	**-**	**3**	**2**	**1u**	**7**	**1**	**1**	**-**	**1**	**Total Food items**
Total seeds/weeds	**53**	**3**	**34**	**43**	**71**	**7**	**17**	**6**	**36**	**5**	**21**	**6**	**31**	**35**	**35**	**Total seeds**
Total others	**15**	**-**	**-**	**8**	**20**	**-**	**6**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**3**	**Total others**
Ratio weeds/cereal grains	**1.40**	**0.15**	**0.97**	**1.48**	**1.77**	**0.31**	**0.53**	**6**	**6**	**0.3**	**5.25**	**0.11**	**7.75**	**1**	**1.75**	**Ratio**
Total	**120**	**23**	**70**	**119**	**157**	**29**	**59**	**12**	**48**	**23**	**32**	**62**	**36**	**70**	**60**	**Total**
Vol Sieved (L)	**8**	**8**	**6**	**10**	**9**	**8**	**13.8**	**7**	**8.5**	**8**	**10**	**6**	**8**	**7**	**13**	Volume sample, litres
Items/litre	**15**	**2.9**	**11.6**	**12**	**15.4**	**3.6**	**4.3**	**1.7**	**5.6**	**1.8**	**3.2**	**10.3**	**4.5**	**10**	**4.6**	items per litre

Table 147: The Plant Remains: plant remains identified within selected Phase 3 contexts

Phase	**3.1**	**3.1**	**3.1**	**3.1**	**3.2**	**3.2**	**3.4**	**3.5**	**3.5**	**3.5**	**3.5**	**3.6**	**3.6**	**3.7**	**3.8**	**Phase**
Group	**G0784**	**G0324**	**G0419**	**G1207**	**G1395**	**G1228**	**G0910**	**G1388**	**G0487**	**G1387**	**G0931**	**G0947**	**G0491**	**G0955**	**G0967**	**Group**
Sample	**286**	**287**	**246**	**968**	**454**	**918**	**220**	**493**	**330**	**497**	**978**	**960**	**324**	**959**	**950**	**Sample**
Context	**2633**	**2957**	**2808**	**6770**	**4563**	**6402**	**2646**	**4821**	**3644**	**4809**	**6930**	**5096**	**3557**	**6709**	**6565**	**Context**
Feature	**pit**	**layer**	**layer**	**layer**	**layer**	**layer**	**layer**	**pit**		**layer**	**hearth**	**layer**	**layer**	**trample**	**hearth**	**Feature**
Area	**2**	**2**	**2**	**4**	**4**	**4**	**2**	**4**	**3**	**4**	**4**	**4**	**3**	**4**	**4**	**Area**
CEREAL GRAINS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CEREAL GRAINS
Triticum dicoccum /spelta	2	1	9	-	-	-	1	2	1	-	-	-	1	-	-	Glume wheat
Triticum spelta L.	-	-	32	-	-	-	1	-	-	2	35	5	1	9	-	Spelt
Triticum sp(p)	-	1	-	-	-	-	-	-	1	-	-	5	-	-	-	Wheat
Triticum sp grain	-	-	-	5	-	-	-	-	-	-	22	-	-	-	-	Wheat tail-grain
cf *Secale cereale* L.	-	-	6	-	-	-	-	-	-	-	3	-	-	1	-	cf Rye
cf *Secale cereale* L. sprouting	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	cf. Rye sprouting
Hordeum vulgare L.	-	6	13	-	-	-	1	6	1	3	-	7	-	-	4	Barley
Hordeum vulgare L. (hu)	2	-	-	22	6	4	-	-	-	-	15	-	-	11	1	Barley
Hordeum vulgare L. (hu,tw)	-	-	-	-	-	-	-	2	-	-	5	1	-	-	-	Barley
Hordeum vulgare L. Sprouting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Barley sprouting
Avena sp	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	Oat
Cereal indet	8	7	59	11	1	-	3	9	1	3	50	14	2	8	4	Cereal indet
Cereal embryos	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	Cereal
CEREAL CHAFF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CEREAL CHAFF
Triticum spelta L. (gl)	-	10	27	-	-	-	2	-	-	-	3	12	1	-	-	Spelt
Triticum spelta L. (sf)	3	-	3	-	-	-	-	-	-	-	-	1	1	-	-	Spelt
Triticum spelta L. (ra)	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-	Spelt
Triticum dicoccum/spelta (gl)	-	-	4	-	-	-	4	2	-	1	-	6	-	-	2	Emmer/Spelt
Hordeum vulgare L. (ra)	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	Barley
Rachis fragment	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	Rachis fragment
Culm node large	-	2	1	-	-	-	1	-	-	-	-	-	-	-	-	Cereal stem
Cereal awns	-	-	-	-	-	-	-	-	2	-	-	1	3	-	-	straw
LEGUMES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEGUMES
Vicia/Pisum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Vetch/Peas
COLLECTED / CULTIVATED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	FOOD

Phase	3.1	3.1	3.1	3.1	3.2	3.2	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.7	3.8	Phase
Group	G0784	G0324	G0419	G1207	G1395	G1228	G0910	G1388	G0487	G1387	G0931	G0947	G0491	G0955	G0967	Group
Sample	286	287	246	968	454	918	220	493	330	497	978	960	324	959	950	Sample
Vitis vinifera L.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	Grape
Corylus avellana L.	-	1	9	-	-	-	2	2	-	2	-	3	-	-	1	Hazel nutshell
ARABLE OR DISTURBED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WILD
Urtica urens L.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	Small Nettle
Chenopodium sp	1	2	2	-	3	-	3	2	-	-	-	1	-	-	4	Goosefoots
Chenopodium sp (m)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	Goosefoots
Chenopodium album type	-	5	5	-	-	-	2	3	-	2	-	-	5	-	2	Fat-hen
Spergula arvensis L.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	Corn spurry
Stellaria media type	-	-	-	-	-	-	78	-	-	-	-	4	-	-	1	Chickweed
Persicaria maculosa/lapathifolia	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	Redshank/Pale Persicaria
Polygonum aviculare L.	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	Knotgrass
Rumex sp	4	2	5	-	-	-	23	5	-	2	-	-	-	-	3	Docks
Rumex acetosella L.	-	1	3	-	-	-	-	-	-	-	1	-	-	-	-	Sheep's Sorrel
Raphanus raphanistrum L.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
Hyoscyamus niger L.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	Henbane
Lithospermum arvense L.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Field Gromwell
Veronica sp.	1	-	10	-	-	-	-	-	-	-	-	-	1	-	-	Field-speedwell
Galium aparine L.	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	Cleavers
Anthemis cotula L.	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	Stinking Mayweed
Tripleurospermum inodorum (L.) Schultz-Bip.	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	Scentless Mayweed
Bromus hordeaceus/secalinus	6	-	14	-	-	-	13	1	1	2	-	12	-	-	1	Lop-grass/Rye-brome
GRASSLAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GRASSLAND
Potentilla sp	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	Cinquefoil
Potentilla anserina L.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	Silverweed
Medicago sp.	-	-	39	-	-	-	-	11	-	-	-	23	-	-	17	cf. Medick
Plantago lanceolata L.	1	-	19	-	-	-	2	1	-	-	1	14	1	-	-	Ribwort Plantain
Rhinanthus sp	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	Yellow Rattle
Euphrasia/Odontites	-	-	1	-	-	-	7	3	-	-	-	1	-	-	-	Eyebright/Bartsia
Centaurea sp.	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	Knapweed type
Centaurea nigra L.	-	-	9	-	-	-	-	1	-	-	-	1	-	-	-	Common Knapweed

Phase	3.1	3.1	3.1	3.1	3.2	3.2	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.7	3.8	Phase
Group	G0784	G0324	G0419	G1207	G1395	G1228	G0910	G1388	G0487	G1387	G0931	G0947	G0491	G0955	G0967	Group
Sample	286	287	246	968	454	918	220	493	330	497	978	960	324	959	950	Sample
Cynosurus cristatus L.	-	-	27	-	-	-	7	13	2	-	-	4	1	-	1	Crested Dog's-tail
Arrhenatherum elatius (L.) (tu)	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	Onion Couch Grass
Phleum type	-	-	5	-	-	-	5	-	-	-	-	-	-	-	-	Cat's-tails type
Danthonia decumbens (L) DC	1	2	92	-	-	-	2	3	-	-	2	2	1	-	-	Heath Grass
DAMP OR WET GROUND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WET GROUND
Stellaria palustris Retz.	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	Marsh Stitchwort
Lychnis flos-cuculi L.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	Ragged-Robin
Lemma sp. (u)	1															Duckweed
Luzula sp	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-	Wood-rush
Eleocharis palustris/uniglumis	-	2	6	-	-	-	7	-	-	-	-	2	1	-	-	Spike-rush
Eleocharis sp (m)	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	Spike-rush
HEDGE OR WOODLAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HEDGE
Bryonia dioica Jacq.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Bryony
Sambucus nigra L.	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	Elder (ch)
Sambucus nigra L. (u)	1	-	-	-	-	-	-	-	-	-	-	-	-	10	-	Elder (u)
UNCLASSIFIED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCLASSIFIED
Ranunculus sp	-	-	2	-	-	-	-	-	-	-	1	-	1	-	-	Buttercup
R. acris/repens/bulbosus	1	-	1	-	-	-	4	2	1	-	-	-	1	-	-	Buttercup
Papaver rhoeas/dubium	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	Field poppy
Polygonum sp.	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	Knotweed
Malva sp.	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	Mallow
Brassicaceae	-	-	-	-	-	-	-	1	-	-	5	1	-	-	-	Brassicas
Vicia sp.	3	-	-	-	-	-	-	-	1	1	3	-	2	-	1	Vetch
Medicago/Melilotus/Trifolium	5	2	49	-	2	-	7	14	2	2	35	21	5	-	11	Medick/Melilot/Clover
Medicago cf *lupulina*	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	cf. Black Medick
Apiaceae	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	Carrot family
Prunella vulgaris L.	-	-	4	-	-	-	1	-	-	1	-	1	-	-	3	Self-heal
Mentha sp.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Mint
Plantago sp.	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	cf Plantain
Valerianella sp	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	Cornsalad

Phase	**3.1**	**3.1**	**3.1**	**3.1**	**3.2**	**3.2**	**3.4**	**3.5**	**3.5**	**3.5**	**3.5**	**3.6**	**3.6**	**3.7**	**3.8**	**Phase**
Group	**G0784**	**G0324**	**G0419**	**G1207**	**G1395**	**G1228**	**G0910**	**G1388**	**G0487**	**G1387**	**G0931**	**G0947**	**G0491**	**G0955**	**G0967**	**Group**
Sample	**286**	**287**	**246**	**968**	**454**	**918**	**220**	**493**	**330**	**497**	**978**	**960**	**324**	**959**	**950**	**Sample**
Lamiaceae	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	Dead nattle Family
Asteraceae	-	-	4	-	-	-	-	-	-	-	1	5	-	-	-	Daisy family
Crepis sp.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Hawk's beard
Carduus/Cirsium	-	-	4	-	-	-	-	3	-	-	-	-	-	-	-	Thistles
Centaurea sp	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	Knapweeds
Silene sp.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	Campion
Carex spp (2-sided)	1	-	2	-	-	-	5	3	-	1	-	3	-	-	4	Sedges
Carex spp (3-sided)	-	3	3	-	-	-	5	-	-	1	7	8	1	-	6	Sedges
Carex sp (m)	-	-	-	-	3	-	-	-	1	-	3	-	-	-	-	Sedges
Poaceae (small)	-	-	-	-	-	5	25	-	2	1	32	-	-	-	-	Grasses
Poaceae (medium)	-	5	7	-	-	-	11	20	-	-	-	3	2	-	3	Grasses medium
Poaceae (medium) (u)	2	5	10	-	-	-	11	9	-	-	-	11	3	-	-	Grasses medium
Poaceae (large)	7	-	-	-	-	-	-	-	-	-	25	-	-	-	1	Grasses large
Indeterminate seeds	2	10	27	-	1	2	22	17	2	-	22	14	3	-	7	Indeterminate seeds
Indeterminate seeds (u)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	Indeterminate seeds (u)
Capsules	-	-	-	-	-	-	1	-	-	-	-	3	-	-	1	Capsules
Culm node small	5	3	-	-	-	-	4	-	-	-	-	-	-	-	-	Grass stem
Culm fragment (small)	-	-	xx	-	-	-	-	xx	-	-	-	xx	-	-	-	Grass stem fragments
Organic fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Organic fragments
total grains	**12**	**16**	**123**	**38**	**7**	**4**	**6**	**19**	**4**	**8**	**133**	**32**	**4**	**29**	**10**	**total grains**
total chaff	**4**	**12**	**37**	**-**	**-**	**-**	**8**	**2**	**3**	**1**	**3**	**22**	**6**	**-**	**2**	**total chaff**
total food items	**-**	**1**	**9**	**-**	**-**	**1**	**2**	**2**	**-**	**2**	**-**	**3**	**-**	**-**	**2**	**total food items**
total seeds/weeds	**38**	**40**	**379**	**-**	**9**	**7**	**262**	**118**	**15**	**14**	**143**	**137**	**30**	**10**	**75**	**total seeds/weeds**
total others	**5**	**3**	**-**	**-**	**-**	**-**	**5**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**1**	**total others**
Ratio Weeds/Cereal grains	**3.16**	**2.5**	**3.8**	**-**	**1.28**	**1.75**	**65.5**	**6.21**	**3.75**	**1.75**	**1.07**	**4.28**	**7.5**	**0.34**	**7.5**	**Ratio**
Totals	**62.16**	**72**	**548**	**38**	**16**	**12**	**283**	**141**	**22**	**25**	**279**	**197**	**40**	**39**	**91**	Total
Vol Sieved (L)	15	1.25	6	1	8	1	9	10	22.2	8	9	9	18.6	6	8	Volume sample, litres
Items/litre	3.9	57.6	360*	38	2	12	31.4	14.1	1	3.1	31	21.8	2.1	6.5	11.3	items per litre

Table 148: The Plant Remains: plant remains identified within select Phase 4 contexts

Phase	**4.1**	**4.1**	**4.1**	**4.6**	**4.6**	**4.6**	**4.6**	**4.6**	**4.6**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**Phase**
Group	**G0526**	**G0526**	**G0526**	**G0383**	**G1004**	**G1007**	**G1004**	**G1004**	**G515**	**G1013**	**G1017**	**G1032**	**G0731**	**G1032**	**G1038**	**Group**
Sample	**318**	**320**	**322**	**270**	**729**	**675**	**871**	**802**	**212**	**401**	**744**	**717**	**557**	**720**	**411**	**Sample**
Context	**3523**	**3488**	**3590**	**2755**	**5743**	**5551**	**5184**	**5976**	**2532**	**4937**	**5336**	**5699**	**5100**	**5707**	**4356**	**Context**
Feature	**pit**	**pit**	**pit**	**hearth**	**drain**	**gully**	**culvert**	**culvert**	**bone pit**	**p-h**	**layer**	**drain**	**pit**	**layer**	**p-h**	**Feature**
Area	**3**	**3**	**3**	**2**	**4**	**4**	**4**	**4**	**2**	**4**	**4**	**4**	**4**	**4**	**4**	**Area**
CEREAL GRAINS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Emmer/Spelt
Triticum dicoccum /spelta	2	-	-	-	-	-	2	-	-	-	-	-	-	2	4	Spelt
Triticum spelta L.	x	-	-	-	-	4	-	-	-	-	-	-	-	-	-	Spelt
Triticum cf *aestivum*	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Bread Wheat type
Triticum sp. free-threshing	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Free-threshing Wheat
Hordeum vulgare L.	-	-	1	4	-	-	2	-	1	-	-	-	-	-	-	Barley
Hordeum vulgare L. (germd)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Barley
Hordeum vulgare L. (hu)	-	-	-	-	-	2	-	-	-	1	6	-	5	3	4	Barley
Cereal/Poaceae	-	2 u	1	2	6	5	-	-	7	-	2	5	6	-	-	Cereal
Cereal indet	-	2	3	5	-	-	1	-	-	-	-	-	-	-	8	Cereal indet
Cereal embryos	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Cereal
CEREAL CHAFF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CEREAL CHAFF
Triticum spelta L. (gl)	1	1	9	1	-	-	-	-	-	-	-	-	-	-	-	Spelt
Triticum spelta L. (sf)	x	-	2	-	-	-	-	-	-	-	-	-	-	-	-	Spelt
Triticum cf *spelta* L. (gl)	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	cf Spelt
Triticum dicoccum/spelta (gl)	-	-	7	-	-	-	1	-	-	-	-	-	-	-	-	Emmer/Spelt
Triticum spelta spikelet m	20u	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Emmer/Spelt
Triticum sp (ra)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Wheat
Culm node large	6u	2u	2	1	-	-	-	-	1	-	-	-	-	-	-	Cereal stem
Cereal culm base	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	Cereal culm base
LEGUMES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEGUMES
Pisum sativum L.	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pea
Vicia/Pisum	3u	-	-	-	-	-	-	-	1	1	-	-	-	-	-	Bean/Pea
CULTIVATED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CULTIVATED
Papaver somniferum L. (m)	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	Opium poppy
Ficus carica L. (m)	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	Fig

Phase	4.1	4.1	4.1	4.6	4.6	4.6	4.6	4.6	4.6	4.7	4.7	4.7	4.7	4.7	4.7	Phase
Group	G0526	G0526	G0526	G0383	G1004	G1007	G1004	G1004	G515	G1013	G1017	G1032	G0731	G1032	G1038	Group
Sample	318	320	322	270	729	675	871	802	212	401	744	717	557	720	411	Sample
Linum usitatissimum L.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	Flax
COLLECTED / CULTIVATED	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	FOOD
Corylus avellana L.	-	-	-	3	-	-	-	-	-	-	-	-	-	1	-	Hazel nutshell
Prunus spinosa L. (m)	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-	Blackthorn, Sloe
Prunus domestica L. bullace	44	1	-	-	-	-	-	-	-	-	-	-	-	-	-	Bullace
Prunus domestica L. Plums	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Plum
Prunus sp. fragments	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fruit srones
Prunus sp sloe/cherry(m)	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cherry
Malus(m)	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	Apple
Rubus fruticosus L.	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	Bramble
ARABLE OR DISTURBED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WILD
Urtica urens L.	-	2u	-	-	-	-	-	-	-	-	-	-	-	-	-	Small Nettle
Chenopodium sp	-	-	2	-	-	-	-	-	1	-	-	1	5	-	-	Goosefoots
Chenopodium sp (m)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	Goosefoots
Chenopodium album type	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Fat-hen
Stellaria media type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Chickweed
Persicaria maculosa/lapathifolia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Redshank/Pale Persicaria
Rumex sp	-	1u	5	-	-	1	-	-	-	-	2	4	-	-	-	Docks
Rumex acetosella L.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Sheep's Sorrel
Veronica sp.	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	Field-speedwell
Galium aparine L.	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	Cleavers
Anthemis cotula L.	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	Stinking Mayweed
Chelidonius majus	-	-	3	-	23	-	-	-	-	-	-	3	-	-	-	
Bromus hordeaceus/secalinus	1	1u	5	3	-	-	-	-	1	-	-	-	-	-	-	Lop-grass/Rye-brome
GRASSLAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GRASSLAND
Medicago sp.	-	3u	-	-	-	-	-	-	-	-	-	-	-	-	-	cf. Medick
Reseda sp.	1u	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	Mignonette
Plantago lanceolata L.	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	Ribwort Plantain
Centaurea nigra L.	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Common Knapweed
Cynosurus cristatus L.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	Crested Dog's-tail

Phase	4.1	4.1	4.1	4.6	4.6	4.6	4.6	4.6	4.6	4.7	4.7	4.7	4.7	4.7	4.7	Phase
Group	G0526	G0526	G0526	G0383	G1004	G1007	G1004	G1004	G515	G1013	G1017	G1032	G0731	G1032	G1038	Group
Sample	318	320	322	270	729	675	871	802	212	401	744	717	557	720	411	Sample
DAMP or WET GROUND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DAMP or WET GROUND
Eleocharis palustris/uniglumis	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	Spike-rush
HEDGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bryonia dioica Jacq.	-	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	White Bryony
Sambucus nigra L.	1	2	-	2	-	-	1	-	-	-	-	-	-	-	-	Elder
Sambucus nigra L. (u)	-	-	-	-	-	5	-	-	-	-	-	-	6	-	-	Elder
UNCLASSIFIED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCLASSIFIED
Atriplex sp	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	Oraches
Cerastium/Stellaria	1u	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	Mouse-ear/Stitchwort
Malva sp.	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Mallow
Brassicaceae	-	-	-	-	1	-	-	1	-	2	5	-	3	-	-	Brassicas
Vicia sp.	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	Vetch
Vicia/Lathyrus (ch)	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	Vetch/Vetchlings
Medicago/Melilotus/Trifolium	-	-	7	-	4	3	2	-	-	-	-	3	-	1	-	Medick/Melilot/Clover
Prunella vulgaris L.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Self-heal
Solanaceae	1u	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
Asteraceae	-	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	Daisy family
Sonchus sp. (u)	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	Sow-thistle
Carduus/Cirsium	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Thistles
Carex spp (2-sided)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sedges
Carex spp (3-sided)	-	-	-	-	3	-	-	-	-	-	-	-	3	-	-	Sedges
Carex sp (m)	1	2	-	-	4	3	21	-	-	-	-	-	-	-	-	Sedges
Cyperaceae	-	-	-	-	-	2	-	-	-	-	6	-	-	-	-	Sedge Family
Poaceae (small)	-	-	-	-	5	-	-	-	1	-	5	6	3	3	-	Grasses
Poaceae (small) flower	-	-	-	-	-	-	x	-	-	-	-	-	-	-	-	Grasses
Poaceae (medium)	1	1	9	1	-	-	-	-	-	-	-	-	-	-	-	Grasses medium
Poaceae (medium) (u)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Grasses medium
Poaceae (large)	-	1u	6	4	6	4	-	1	3	-	-	6	5	2	3	Grasses large
Poaceae spikelets	2u	1u	-	-	-	-	-	-	-	-	-	-	-	-	-	Grass spikelets
Indeterminate seeds	-	1	6	4	4	3	1	-	2	-	3	3	5	-	-	Indeterminate seeds

Phase	**4.1**	**4.1**	**4.1**	**4.6**	**4.6**	**4.6**	**4.6**	**4.6**	**4.6**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**Phase**
Group	**G0526**	**G0526**	**G0526**	**G0383**	**G1004**	**G1007**	**G1004**	**G1004**	**G515**	**G1013**	**G1017**	**G1032**	**G0731**	**G1032**	**G1038**	**Group**
Sample	**318**	**320**	**322**	**270**	**729**	**675**	**871**	**802**	**212**	**401**	**744**	**717**	**557**	**720**	**411**	**Sample**
Indeterminate seeds (u)	24	29	1	7	-	-	7	13	-	4	-	-	-	2	-	Indeterminate seeds
Capsules	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	Capsules
Culm node small	-	-	4	3	x	-	-	-	-	-	x	x	x	-	-	Grass stem
Culm fragment (small)	xxu	xu	-	-	-	-	-	-	-	-	-	-	-	-	-	Grass stem fragments
Organic fragments	xx	xx	-	-	-	-	-	-	-	-	-	-	-	-	-	Organic fragments
Cereal total	2	5	7	13	6	11	5	-	8	1	8	5	14	4	16	Cereal total
chaff total	27	3	27	2	-	-	1	-	-	-	-	-	-	-	-	chaff total
total food items	92	13	-	3	2	-	-	-	2	1	-	-	-	1	-	total food items
total weeds/seeds	36	50	46	27	50	23	43	15	9	8	24	39	30	9	3	total weeds/seeds
total others	xxx	xx	4	3	-	-	8	-	1	-	-	-	-	-	-	total others
Ratio Weeds/Cereal grains	18	10	6.57	2.07	8.3	2.09	8.6	-	0.12	8	3	7.8	2.14	2.25	0.18	Ratio
Total	**157**	**71**	**84**	**48**	**58**	**34**	**57**	**15**	**20**	**10**	**32**	**44**	**44**	**14**	**19**	Total
Vol Sieved (L)	15.2	11.8	10	116	9	2	8	8	16	6	7	2	10	4	8	Volume sample, litres
Items/litre	8.2	5.6	8.3	2.8	6.4	17	7.1	1.8	1.25	1.6	4.5	16.5	4.1	3.5	2.3	items per litre

Medieval Plant Remains

Introduction

Medieval features with the potential to contain environmental remains were sampled and some deposits fairly rich in charred plant remains were recovered from hearths, ovens and pits. Mineralised remains were poorly represented on this site, only occurring in a few deposits because hardly any cesspits of this date were found. Another type of preservation found here, as at the Shires (Moffett 1993), was described as 'uncharred' where the seeds were not mineralised although the seed coat survived. Some of those from the Shires have been shown to be archaeological by radiocarbon dating (Moffett 1993), and are considered so here where they occur in well-sealed deposits. Samples from a total of 56 contexts were processed by wet-sieving using a 0.5 mm mesh with flotation on a 0.3mm mesh (see above); the samples were assessed and the most productive analysed. The plant remains were identified, counted and tabulated following Stace (1991) in phase order (Table 149).

Medieval Plant Remains

Cereals

Charred grains of wheat and barley with some samples rich in oats and a smaller amount of rye were found. Chaff, which is more diagnostic than grains, was also found to be quite numerous in some samples. The wheat differed from the Roman period being free-threshing wheat and included bread wheat (*Triticum aestivum* sl*)* and rivet or macaroni wheat (*Triticum turgidum/durum*). This is most probably rivet wheat (*T. turgidum*) which has been found in recent years on an increasing number of medieval sites in England (Moffett 1991). It is known from descriptions in post-medieval documents such as Fitzherbert's Book of Husbandry of 1534 (Skeat 1882) and will be referred to as rivet wheat here. Although it cannot be distinguished from macaroni wheat by the chaff here, rivet wheat is know to grow in cooler climates. Bread wheat and rivet wheat are both free-threshing and have similar grains but can be distinguished from each other by their rachis fragments. No spelt glumes (chaff fragments) were found in the samples analysed showing the change from the Roman period. Oats were identified from the grains only and were probably cultivated oats as the grains were large but there were also some smaller oat grains which may be weedy species or tail grains from a crop; rye was identified from grains and rachis fragments but was present only in small amounts here.

Cultivated or collected plants

Legumes were represented only by fragments and incomplete seeds identified as beans or peas (*Vicia/Pisum*) but likely to include field bean and/or peas. A few fruit stones of small plums (*Prunus* sp.) were found in poorly mineralised condition so that they could not be identified further. These are likely to include primitive plums, the stones of which are much smaller than those of the sweet plums known today. The leaves of edible plants such as fat-hen (*Chenopodium album*) may have been consumed and some of the Brassicaceae, cabbage family, may have been wild leaves gathered for salads or pottage. However, some of the latter may represent cultivated plants used as vegetables or food flavouring such as mustards, although this could not be confirmed from the seeds found. Pips from fruits such as blackberry (*Rubus fruticosus*) and elder (*Sambucus nigra*) may represent gathered fruits, the latter was found both charred and uncharred. Elder could have been one of the plants growing on or near the site because it grows on disturbed nutrient rich soils. Nuts represented by charred hazel nutshell fragments were present in many of the samples and were very abundant in Phase 8.3, G252 .

Arable Weeds.

Corn cockle (*Agrostemma githago*) and cornflower (*Centaurea cyanus*) were found and these weeds are often found associated with free-threshing cereals (Jones 1988). Stinking mayweed (*Anthemis cotula*) was also present, as in the Roman period possibly indicating the cultivation of heavy, damp land although this was less abundant here than on other medieval sites, it is often associated with cultivation using the mould-board plough (Greig 1991). In addition, scentless mayweed (*Tripleurospermum* sp.) was found in a few samples which is a plant of lighter soils suggesting more than one source for the cereals. Cleavers *(Galium aparine*), which is often associated with the autumn sown cereals such as wheat and rye, was quite common here. However another group of weeds associated with spring sown crops, garden

cultivation and disturbed ground of settlements were also common including goosefoots (*Chenopodium* sp.). Grasses are also well represented in some samples.

Interpretation of remains in samples

The plant remains were counted to find the proportions of cereal grains, chaff and weed seeds that can indicate the stage of cereal processing or activities on the site (Van der Veen 1992). Deposits with a high proportion of grains represent the cereal product for use, while deposits with a high proportion of chaff and weed seeds represent waste from various stages of cereal processing and cleaning to prepare grain for use. Bread wheat and rye are both free-threshing cereals which are easily threshed from the chaff, so chaff would not be expected to be found in quantity far from where the cereals were grown and an unexpected find in the town. Chaff was sparse at the Shires and Causeway Lane but more common in the suburb at Bonners Lane where it was probably associated with commercial activity (Monckton 2004a). Domestic occupation is typified by a low density scatter of charred cereal grains and weed seeds, probably as waste from food preparation of whole grain foods such as pottage, with the weeds from the final cleaning of the grain and a few spilled grains burnt in the hearth. Richer burnt deposits of grain can represent accidental fires during storage or processing grain for a variety of reasons including malting, this is indicated in some of the deposits of oats found here by germination of the grains. Modern malting shows over 70% germination of the grains but lower levels have been found in medieval deposits, perhaps because the cereals were less uniform (Moffett 1990), and poor preservation and damage by burning makes this more difficult to recognize.

Phase 7: Saxo-Norman

G559, sample 337 from small scale pitting above Insula V, contained about equal amounts of grains of wheat and barley with fewer oats of probable cultivated type. The wheat grains were of free-threshing type and the presence of bread wheat was confirmed by the presence of a couple of fragments of chaff. The sample was dominated by cereal grains, and the most numerous weed seeds were the large grasses which suggests that this was the final cleanings picked from the cereals before use probably mixed with spilled grains from cooking. This is very similar to the domestic refuse found at Freeschool Lane in this phase.

Phase 8: Early medieval

Phase 8.1

G558, sample 238 from a fill of a quarried wall footing beneath Plot Six is an unusual find because it contained more fragments of chaff than grains or weed seeds which suggests that this is cereal threshing waste, and this would not be expected in the town. The cereals identified include bread wheat as the most numerous, with some rivet wheat as a second type of free-threshing wheat. Rye was also represented amongst the chaff fragments. Only four cereal grains were found and of these, one of oat and one of barley were both germinated, although this is too little evidence to suggest that this was malted grain as only one cereal sprout was found. The weed seeds were mainly large grasses with cleavers and stinking mayweed. The deposit was intensely burnt so it is possible other remains were burnt away. It is possible that this may represent burnt thatch (Letts 1999), because rivet wheat has very long straw which was favoured for thatching, although more bread wheat straw was present.

G237, sample 1024 from a hearth beneath Plot Three was dominated by cereal grains with barley most numerous followed by free-threshing wheat with some rye and oats. Seeds are quite varied including both types of mayweed. The sample appears to represent domestic waste from cooking spills into the hearth.

G1044, sample 586 from a pit beneath Plot Four was similar to the previous sample in being dominated by cereal grains but had similar numbers of free-threshing wheat and barley with a little rye and oats. The barley included about 37% of sprouted grains which may suggest waste from malted grains, although the amount of germination is less than in modern malt. There were also detached cereal embryos in the deposit which may be from germinated grains. The wheat included bread wheat identified from chaff, a few beans or peas were found to suggest domestic rubbish, and the varieties of weed seeds included both mayweeds and grasses.

Phase 8.2

G562, sample 216 from a possible hearth within Plot Six differed from the previous samples in being dominated by weed seeds with large numbers of goosefoots and small grasses. A moderate number of cereal grains were mainly oats, both cultivated type and small grains with some of the larger grains being germinated (23%). Chaff fragments of bread wheat, barley and rye were present. The deposit seems to represent cereal processing waste with chaff and seeds cleaned from cereals, possibly including some brewing waste. This is another example of uncleaned cereal within the town.

Phase 8.3

G252, samples 501, 502 and scanned sample 504, from demolition and robbing of a stone lined 'cess' or 'storage pit' in Plot Three were analysed. These samples are unusual in containing very numerous fragments of charred hazel nutshell with moderate numbers of barley grains in the first two samples. Sample 502 also contained a few mineralised plum stones of small plums, although these were partially decomposed, these fruit remains are similar to finds from cesspits. Charred remains are also often found in cesspits with other domestic rubbish. It is suggested that this may be a stone-lined cesspit, although this pit is unusually rich in nutshell for this period.

G257, samples 474 and 522 from backyard pits in Plot Three, both samples contained grains of barley and oats with a few germinated grains of barley. The upper fill, sample 474 was richer in remains, the sample also included free-threshing wheat. Weed seeds were quite numerous, including clover-type plants and small grasses which may represent grassy material used as kindling. This probably represents waste from food preparation from a domestic hearth dumped in the pit.

G676, sample 671 from occupational trample within Masonry Building One (Plot Three) was dominated by cereal grains, mainly of free-threshing wheat with a few grains of barley and oats and a couple of fragments of peas or beans as domestic waste. The weeds included cleavers and both mayweeds which are all arable weeds. Waste from final cleaning of cereals in food preparation is suggested.

Phase 9: Medieval

Phase 9.1

G542, sample 100 from a possible hearth or hearth-furnace enclosed by a timber structure Plot Nine, contained quite numerous cereal grains of about equal amounts of oats and barley, with slightly less wheat and rye. Weeds were also quite numerous with cleavers and stinking mayweed with the large grasses most numerous. This appears to represent domestic waste.

G586, two samples, 123 and 109, from a possible oven or casting-pit in Plot Nine; both were found to contain some chaff with a few grains and more numerous seeds so include cereal cleaning waste. The feature base, sample 123, contained a few free-threshing wheat grains with an indeterminate chaff fragment and seeds of both spring and autumn-sown cereals. The upper sample 109 contained chaff of rivet wheat with some small chaff fragments such as are often deposited in flues of cereal processing ovens. More numerous seeds included cleavers and stinking mayweed with some small grasses and leguminous weeds and damp ground plants such as sedges and spike-rush. This appears to represent cereal cleaning waste from mixed crops. Crops could have been dried for storage, or to facilitate milling, or been cleaned for use in pottage or brewing with the waste burnt in the oven with the fuel.

G642, sample 500 from a pit within Plot Eight contained barley grains as the only identified cereal with slightly fewer seeds mainly of large grasses probably representing cereal waste from food preparation. Barley was used for food for people as well as animals and could have been used for stews and pottage. This is likely to be domestic waste.

Phase 9.2

G833, sample 444 from a pit within Plot Two was similar to sample 500 except that it contained free-threshing wheat as well as barley and oats with a mixture of weeds and probably grassy material used as kindling. This is probably domestic waste burnt in a hearth and dumped or accumulated on the site.

G590, sample 101 from a large pit in Plot Nine contained the most rye grains found in the samples in equal numbers to the barley grains, and bread wheat identified from chaff also with mixed weeds, cleavers and stinking mayweed being most numerous in this sample, with docks and small grasses. The sample has the most legumes from the site which are pea-sized edible legumes. The docks and sheep's-sorrel may be associated with the legumes because this is similar to such samples from Freeschool Lane (Radini 2009).

Discussion

There appear to be two types of activity represented by the charred plant remains in the samples – domestic occupation and trade activity. Firstly, some samples compare with those from Causeway Lane which mostly contained a low-density scatter of domestic waste of mainly cereal grains and weed seeds as waste from probable food preparation. At that site this scatter was accompanied by food remains from cesspits as further evidence of the domestic nature of the remains, however cesspits were not found with mineralised preservation at Vine Street. Most of the samples at Vine Street appear to be domestic in nature comparing with the charred remains at Causeway Lane, however a few samples are different and contain abundant arable weeds which probably represent some types of trade waste from cereal processing.

Bread wheat and rivet wheat were both found in medieval samples from this site, while bread wheat alone was identified at the Freeschool Lane and Vaughan Way sites. Both bread wheat and rivet wheat are species of free-threshing wheat and this shows a change from the Roman period when mainly glume wheat, spelt, was grown. Rivet wheat was identified from 11th to mid- 13th-century date at Causeway Lane (Monckton, 1999a); it was also found from earlier medieval and late medieval phases at the Shires (Moffett 1993). At both these sites it occurred in phases of domestic activity. Very little wheat rachis was found at the Shires and Causeway Lane probably because free-threshing wheat can be supplied as threshed grain which is largely free from chaff. However, if whole grains are used for some purposes such as making pottage, rather than as milled flour alone, sorting the grain for weed seeds and contaminants is necessary before using the grain. In the medieval period pottage was a staple food and cereal grains are constantly present on sites in the town. Rivet wheat is is not favoured for bread making so was possibly used more in pottages and other foods. Rivet wheat is a productive cereal, resistant to disease and bird attack (Moffett 1991), with long straw being used as bedding or roofing material.

Cereals were often used and even grown in mixtures (Greig 1988b). Barley and oats were grown together as a crop called dredge, while bread wheat and rye were grown as maslin for which there is good evidence at the St Margarets site (Monckton 2008); possibly bread wheat and rivet wheat were grown as a mixed crop. Samples with mixtures of cereals were found here but it is unknown if the crops were grown together or mixed in use or during disposal. The consistent presence of cereal grains found in the samples may reflect the way cereals were supplied to the townspeople as whole grains. Bread was usually purchased from bakers (Dyer 1989) and flour ground at mills; if whole grain was purchased ready threshed for other foods there should be little waste unless it was burnt accidentally or because it was spoiled. This may be the case in some of the pits here thought to contain domestic waste.

Secondly, other Samples representing trade activities were found in Phase 8 and 9. In G562 (Phase 8.2), a sample from a pit contained abundant cereal cleaning waste from an oat crop possibly being used for malt for brewing. Another sample of G558 (Phase 8.1) contained mainly wheat chaff as evidence of cereal processing in the town. In G586 (Phase 9.1) two samples contained mainly arable weed seeds from a mixture of spring and autumn sown crops as probable cereal cleaning waste. These samples show that un-cleaned cereals were being brought to the town, and were being cleaned and processed for use in the town. This suggests that cereals were probably produced nearby because transport was expensive and difficult in medieval times (Dyer 2002) and cereal waste contamination would have been minimised before much transport. It seems likely that cereals processed in this area were for supply to nearby people or to the townspeople in general. Little other than domestic activity was found at the Shires and Causeway Lane, but cereal processing has been found at the St Margarets site (Monckton 2008) and now at Vine Street, while evidence of malting for brewing was found at Freeschool Lane (Radini 2009). Hence some sources of supply have been found for the areas of domestic occupation. At Vine Street there is evidence for domestic occupation with additional trade activity in backyards.

Rivet wheat has now been identified from a number of medieval sites south of a curve from Chester, through Stafford and West Cotton (Northamptonshire) to Ipswich (Moffett 1991). The finds of rivet

wheat from Leicester extends the distribution of finds of this cereal to the north-east of the present area. The finds from Leicester are from the 11th century onwards which compares with finds such as Ipswich (11th century) and Stafford (12th century) (Moffett 1991). However it is now known from a pre-Norman conquest context from Higham Ferrers, Northamptonshire, the earliest find to date (Moffett forthcoming). Further work is needed to add to the distribution and date range of cultivation of this cereal. The consistent presence of stinking mayweed with the cereals suggests that they were grown on heavy soils, possibly on clay soils locally although such soils exist throughout the region. Cornflower is also present as a weed of the free-threshing cereals while cleavers are associated with autumn sown cereals such as wheat and rye. Other weeds of spring sown crops such as sorrel and docks were found associated with the legume crops, while other weeds including goosefoots and chickweeds were found with an oat crop.

Conclusions

Saxo-Norman remains compare with those from Freeschool Lane at this period. The sample contained mainly cereal grains of barley and free-threshing wheat with bread wheat identified from a little chaff, and some cultivates oats were present. The weeds included large grasses and the sample was interpreted as domestic waste from small scale cleaning of cereals during food preparation. Phases 8 and 9 also included domestic waste found from the evidence of a scatter or accumulation of charred cereal remains including cereal grains and weeds cleaned from cereals for consumption. This was probably waste from domestic hearths dumped in pits or accumulated in other features on the site. A few samples from other features represented cereal processing, G558 (Phase 8.1) showed waste from processing a wheat of two types, bread wheat and rivet wheat seen from chaff and associated weed seeds; G562 (Phase 8.2) contains evidence of processing an oat crop possibly including some brewing waste; and G586 (Phase 9.1) contains cereal cleaning waste from mixed crops mainly as arable weeds. These samples all show that un-cleaned cereals were brought into the town and processed for supply to the people. The cereals included free-threshing wheat, both bread wheat and rivet wheat were found, with barley and smaller quantities of oats and rye. Charred hazel nutshell was present in many samples but was unusually abundant in G252 (Phase 8.1) and represented gathered food. Fruits included primitive plums possibly cultivated, and possible sloes, blackberry and possibly elder, the latter probably grew on or near the site. Of these the plums may have been cultivated the rest gathered. Only the few plums were mineralised, in G252, as no cesspits were found so fruits are poorly represented on this site. Legumes including peas or beans were consumed with most evidence in G590 (Phase 9.2). The leaves of some edible wild plants may also have been used. Weeds of the crops both autumn and spring sown were found, as well as some weeds of the surroundings. The medieval Phases 8 and 9 contain evidence of both domestic and trade activity from charred plant remains recovered.

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Table 149: The Plant Remains: plant remains identified within select medieval contexts

Phase	**7**	**8.1**	**8.1**	**8.1**	**8.2**	**8.3**	**8.3**	**8.3**	**8.3**	**8.3**	**9.1**	**9.1**	**9.1**	**9.1**	**9.2**	**9.2**	**Phase**
Group	**G0559**	**G0558**	**G0237**	**G1044**	**G0562**	**G0257**	**G0257**	**G0676**	**G252**	**G252**	**G542**	**G642**	**G586**	**G586**	**G833**	**G590**	**Group**
Sample	**237**	**238**	**1024**	**586**	**216**	**474**	**522**	**671**	**501**	**502**	**100**	**500**	**123**	**109**	**444**	**101**	**Sample**
Context	**2753**	**2336**	**4727**	**5222**	**2577**	**4684**	**5037**	**5546**	**4824**	**4872**	**1032**	**4870**	**1256**	**1238**	**4375**	**1140**	**Context**
Area	**2**	**2**	**4**	**4**	**2**	**4**	**4**	**4**	**4**	**4**	**1**	**4**	**1**	**1**	**4**	**1**	**Area**
Feature type	**pit**	**fill**	**hearth**	**layer**	**pit**	**pit**	**pit**	**layer**	**pit**	**pit**	**pit**	**pit**	**oven**	**oven**	**fill**	**pit**	**Feature type**
Cereal chaff																	**Chaff**
Triticum aestivum L. rachis	2	17		2	5										1	4	Bread wheat
Triticum free-threshing rachis		8			2												Wheat, free-threshing
Triticum turgidum type rachis		3												1			Rivet wheat
Triticum rachis		6															Wheat
Secale cereale L. rachis		9			1												Rye
Hordeum vulgare L. rachis					3												Barley
Avena sp. spikelets					1												Oat
Cereal rachis		4											1	1			Cereal
Ceral light chaff, glumes, awns		x			x									x			Light chaff
Cereal culm nodes		3			1												Straw
Cereal grains																	**Grains**
Triticum free-threshing grains	22		14	43	8	6		35	4	3	18		4	1	13		Wheat, free-threshing
Triticum sp. germd.						2											Wheat, sprouted
Secale cereale L.			2			1					8					10	Rye
cf. *Secale cereale* L.			3								3					5	Rye
Hordeum vulgare L. hulled	26		25	25	9	20	15	9	24	35	24	30			12	15	Barley
Hordeum vulgare L. hulled germd.		1		15	1	4	3	3				3					Barley, sprouted
Avena sativa culitivated type	12			6	48	2		2		6	18			7	6		Oats
Avena sp. small	3		5	2	29	3	11				12			4	2		Oats
*Avena*sp. germd.		1			14									1			Oats, sprouted
Cereal/Poaceae					2								2	8			Cereal/grass
Cereal indet.		2	15	11	14	12	13	32			15	12	9		12	25	Cereal indet.
Embryos	1			22	1												Cereal embryos
Sporuts		2															Cereal sprouts
Legumes																	**Legumes**

Phase	7	8.1	8.1	8.1	8.2	8.3	8.3	8.3	8.3	8.3	9.1	9.1	9.1	9.1	9.2	9.2	Phase
Group	G0559	G0558	G0237	G1044	G0562	G0257	G0257	G0676	G252	G252	G542	G642	G586	G586	G833	G590	Group
Sample	237	238	1024	586	216	474	522	671	501	502	100	500	123	109	444	101	Sample
Vicia/Pisum	4			4				2			3				7	40	Beans/Peas
Collected/cultivated																	**Food/crops**
Corylus avellana L. nutshell		2			1				103	112			2	2		5	Hazel nutshell
Prunus sp. Plum, small.										6							Plums, cultivated
Prunus sp. Cherry/sloe										2							Cherry/sloe
?Linum usitatissimum	1																Flax
Arable/Disturbed Ground																	**Arable weeds**
Ranunculus subgen *Ranunculus*		2			2												Buttercups
Chenopodium sp.			1		147			3					2	2	1	4	Goosefoots
Chenopodium album L.					27								1	1			Fat-hen
Gallium aparine	2			3	2	1		2				3	1	1	3	15	Cleavers
Agrostemma githago L.					4												Corn cockle
Polygonum aviculare L.					1									2			Knotgrass
Fallopia convolvulus (L.) A. Love					2								1				Black-bindweed
Persicaria sp.					1												Persicaria
Polygonum sp.														2			Knotweed
Rumex sp.			3	5	2	5		7			4			2	3	18	Docks
Rumex acetosella L.					2												Sheep's-sorrel
Rumex cf. acetosella L.				1		3									2	4	Sheep's-sorrel
Brassica/Sinapis	1			1	1						5			1	1		Cabbage/Mustard
Tripleurospermum sp.			1	4		2		2			8					3	Scentless Mayweed
Centaurea cyanus L.					1								1				Cornflower
Anthemis cotula L.	1		2	5	3	5		2			10	5			1	12	Stinking Mayweed
Bromus hordeaceus/secalinus					10								1	1			Brome grass
Grassland																	**Grassland**
Plantago lanceolata L.				1	6	2							1		4		Ribwort Plantain
Rhinathus sp.					5												Hay rattle
Hedge or Woodland																	**Hedge**
Sambucus nigra L. (u)		3	3	12		8	8	7			43	6			5	12	Elder
Sambucus nigra L. (ch)		6												6			Elder
Unclassified																	**Wild plants**

Phase	**7**	**8.1**	**8.1**	**8.1**	**8.2**	**8.3**	**8.3**	**8.3**	**8.3**	**8.3**	**9.1**	**9.1**	**9.1**	**9.1**	**9.2**	**9.2**	**Phase**
Group	**G0559**	**G0558**	**G0237**	**G1044**	**G0562**	**G0257**	**G0257**	**G0676**	**G252**	**G252**	**G542**	**G642**	**G586**	**G586**	**G833**	**G590**	**Group**
Sample	**237**	**238**	**1024**	**586**	**216**	**474**	**522**	**671**	**501**	**502**	**100**	**500**	**123**	**109**	**444**	**101**	**Sample**
Ranunculus subgen *Ranunculus*													1	3			Buttercups
Stellaria sp.					1								2				Chickweeds
Cerastium/ Stellaria					9									1			Chickweed type
Potentilla sp.		1											3	4			Cinquefoil
Brassicaceae				4		11	3	5			10	5			3	12	Cabbage family
Vicia sp.		2			2								1	3			Vetch
Vicia/Lathyrus														1			Vetch/vetchling
Medicago/Meliolotus/Trifolium		4	2	3	5	11						3	3	1	4		Clover type
Apiaceae					4												Carrot family
cf. *Daucus carota*					2												Wild carrot
Prunella vulgaris L.					2												Self-heal
Veronica sp.					1												Speedwell
Asteraceae					7												Daisy family
Crepis sp.					7												Hawk's-beard
Cirsium/Carduus					2												Thistles
Medicago/Meliolotus/Trifolium												3	3	1	4		Clover type
Eleocharis palustris/uniglumis		2											3	7			Spike-rush
Carex spp (2-sided)		2			1									4			Sedges
Carex spp (3-sided)		5	4	2	6	3	4				8	2		2		6	Sedges
Juncus sp.																2	Rushes
Poaceae (small) m				3		12		5							2	15	Grasses
Poacea (small/medium) ch	5				77						10		4	9		35	Grasses
Poaceae (large)	12			5	21	6	2	3			18	12	6	8	5		Grasses (large)
Indeterminate seeds (ch)	2	7	3	3	22	6	2	5			12	5	1	11	4	21	Indet.
Indeterminate seeds (m)					1								3				Indet (m)
Other																	**Other**
leaf fragments											xx					xx	leaf frags.
buds	**x**							x	xx		x					x	buds
culm node, small	**x**			x		x		xx	xx	x	xx	x				x	grass stem
thorns					1												thorn

Phase	**7**	**8.1**	**8.1**	**8.1**	**8.2**	**8.3**	**8.3**	**8.3**	**8.3**	**8.3**	**9.1**	**9.1**	**9.1**	**9.1**	**9.2**	**9.2**	**Phase**
Group	**G0559**	**G0558**	**G0237**	**G1044**	**G0562**	**G0257**	**G0257**	**G0676**	**G252**	**G252**	**G542**	**G642**	**G586**	**G586**	**G833**	**G590**	**Group**
Sample	**237**	**238**	**1024**	**586**	**216**	**474**	**522**	**671**	**501**	**502**	**100**	**500**	**123**	**109**	**444**	**101**	**Sample**
Total	**94**	**94**	**83**	**182**	**528**	**125**	**61**	**124**	**131**	**164**	**229**	**86**	**53**	**97**	**91**	**263**	Total
Flot, part analyzed	100%	100%	100%	100%	25%	50%	100%	50%	100%	100%	45%	100%	100%	100%	100%	45%	Sorted %
Sample Volume L	6.0	4.0	8.0	5.0	4.0	6.0	2.0	1.0	8.2	8.0	8.0	8.0	15.0	10.0	5.0	8.2	Sample volume (litres)
items per litre of soil	12.2	22.8	10.4	36.4	526	20.8	30.5	124	16	20.5	28.6	10.8	3.5	9.8	18.2	69	Items/litre

m = mineralized
un = uncharred
ch = charred
x = present
xx = common
xxx = abundant

THE CHARCOAL *Graham Morgan*

Species present

Oak	*Quercus* spec.
Elm	*Ulmus* spec.
Poplar	*Populus* or *Salix* spec
Field Maple	*Acer campestre*.
Hazel	*Corylus avellana* or *Alnus* spec.
Hawthorn type	*Crataegus* spec.
Rowan type	*Sorbus* spec.

Table 150: The Charcoal: identified charcoal fragments within Roman contexts

Group	Phase	Cont. No.	Dia.	Rings	Age	Species
G1225	3.5	6043	15	15	15	Hazel
G967	3.8	6565	-	-	-	Par-burnt coal
G974	3.9	6128	30	14	14	Oak
G974	3.9	6128	20	13	13	Oak
G974	3.9	6128	40	12	16	Hazel
G984	4.1	5513	20	20	20	Rowan
G984	4.1	5513	20	12	15	Hazel
G984	4.1	5532	20	6	8	Hazel
G992	4.2	5812	15	6	6	Oak
G992	4.2	5812	40	20	25	Hazel
G992	4.2	5812	30	35	35	Hazel
G992	4.2	5812	15	5	5	Hazel
G995	4.2	5906	20	12	15	Poplar
G995	4.2	5966	15	9	9	Oak
G995	4.2	5966	10	4	4	Poplar
G1004	4.6	5835	50	30	30	Hazel
G1004	4.6	5835	30	14	18	Oak
G1004	4.6	5850	30	30	30	Hawthorn, slow grown
G1004	4.6	5863	40	12	15	Maple
G1004	4.6	6209	15	32	32	Hazel, very slow grown
G1006	4.6	5749	40	20	20	Hazel
G1006	4.6	5749	30	15	15	Elm
G1006	4.6	5749	20	12	12	Poplar
G1006	4.6	5749	20	12	12	Oak
G1006	4.6	5749	30	40	40	Hawthorn, slow grown
G1010	4.6	5539	20	15	15	Hawthorn
G1314	4.7	5375	40	8	10	Oak, slow grown
G816	4.7	5377	40	11	15	Oak
G1028	4.7	5605	15	12	12	Oak
G1028	4.7	5689	30	35	35	Hazel, very slow grown
G1028	4.7	5689	30	18	25	Hazel
G1028	4.7	5689	20	20	20	Hazel
G1028	4.7	5689	15	8	8	Hazel
G1028	4.7	5689	15	6	6	Oak
G1028	4.7	5689	30	25	30	Hawthorn
G1032	4.7	5700	20	12	15	Hazel
G1032	4.7	5700	20	6	10	Hazel

Table 151: The Charcoal: identified charcoal fragments within medieval contexts

Group	Phase	Cont. No.	Dia.	Rings	Age	Species
G833	9.1	4537	20	33	33	Oak, very slow grown
G1048	9.1	5371	40	22	25	Maple
G1048	9.1	5371	30	10	20	Hazel
G1087	9.1	5399	200+	20	80	Oak, fast grown
G1293	10	4586	30	12	12	Poplar
G1293	10	4586	150+	30	100+	Oak with sap wood

THE ANIMAL BONES *Jennifer Browning*

The Roman Animal Bones

Summary

Excavations of the Roman levels at Vine Street have produced a moderately large faunal assemblage and the rare chance to investigate the exploitation of animals in and around a townhouse complex. There is evidence for diachronic change through the period, with declining numbers of sheep bones in the later phases, and a corresponding increase in cattle. While cattle bones dominate the later assemblage, domestic fowl and pig bones become significantly more abundant; both species are associated with increasing adoption of a 'Roman' diet and possibly high-status consumption (Cool 2006, 83-84; 99-100). Wider studies have noted a direct relationship between higher levels of pigs and domestic fowl, perhaps reflecting dietary preference or their suitability for rearing within the urban environment (Maltby 1997, 412). The avian assemblage was dominated by domestic fowl and geese; ducks and wild birds were not extensively exploited.

Both sub-adult and mature cattle were in evidence in all phases, although there was a subtle shift towards older beasts in Phase 3 and Phase 4. Sheep were slaughtered in their first, second and third years, suggesting a husbandry regime centred on meat production. In Phase 3 both cattle and sheep appear to have been slaughtered at a slightly later age than in either the early or the late period. The low incidence of adult pigs in all phases accords with observations from other assemblages.

Bones from other mammals such as dog, cat and horse were relatively scarce. Evidence for puppies in Phases 3 and 4 suggests that dogs were being bred and reared within the town. Size, cranial and post-cranial morphology suggests that the dogs were generally diminutive animals and possibly pets, although the presence of some wild game provides evidence for hunting. Wild animals evidently made only a minor contribution to the diet but the proportion increased in the later phases. Greater species variety was also noted in phases 3 and 4, although this may reflect larger sample sizes. Deer were more likely to be exploited for their antler than for their meat, particularly in Phase 4.

For the most part the bones represented waste from slaughter, butchery and consumption, particularly in the earliest phase. However, a large quantity of waste from the manufacture of pins was recovered in Phases 3 and 4. This was primarily associated with Building F, adjacent to the courtyard house and consisted almost exclusively of cattle metapodials, the distal ends of which had been chopped off and discarded and the shaft broken into long splinters. A small number of partially worked and facetted pieces were also recovered. This waste, coupled with the appearance of antler off-cuts, suggests a more industrial function for the site in Phase 4 at the end of the Roman period. A pit dating to the 4th century contained six partially-articulated red deer limbs, which appeared to have been deliberately placed beneath a stack of building material. The selection of a particular species, together with the articulation of the limbs and the way that they were positioned could represent a ritual act, although it is difficult to state this with certainty.

Introduction

This report presents the results of analysis of the faunal remains recovered from Roman levels during excavations at Vine Street, Leicester. Animal bones retrieved during investigation of the medieval levels are discussed separately.

The analysis of faunal remains from urban sites presents particular challenges; on the one hand assemblages are often large and well-preserved, however, re-working of deposits is common and since bone is not intrinsically dateable, analysis is largely dependent on the integrity of the stratigraphy. Although the entire assemblage (numbering approximately 9000 fragments) was scanned during the assessment, detailed recording proceeded only where contexts could be confidently assigned to phase or were unlikely to contain significant quantities of residual or intrusive material. Further selection criteria were employed to include, where possible, groups of material considered important by the excavators and other finds specialists in order to maximise the potential for integration of data.

Animal bones were recovered from features belonging to three main phases of activity: Early Roman (mid-1st – early 2nd century AD); Mid Roman (mid- 2nd-3rd century AD); and Late Roman (4th century AD).

Methodology

Specimens were identified with reference to comparative modern and ancient skeletal material held at the School of Archaeology and Ancient History, University of Leicester. Information was compiled directly into a database with facility for recording data on species, bone element, state of epiphysial fusion and completeness to elicit information on species proportions, skeletal representation, age and condition. Where possible, the anatomical parts present for each skeletal element were recorded using the 'zones' defined by Serjeantson (1996), with additional zones ascribed to mandibles based on Dobney and Reilly (1988) and a simple system applied to skulls by the author. Four commonly found recordable points were defined on each side of the skull to make assessment of the zones present rapid and comparable: pre-maxilla; upper and lower orbit; and occipital condyle. Skull fragments were also recorded. Condition was assessed on a scale ranging from 'excellent' through 'good', 'medium', 'poor' to 'very poor', where 'excellent' denotes a bone surface with no cracking or flaking and 'very poor' indicates that the fragment is disintegrating into splinters. Joining fragments were re-assembled and the resulting specimen counted as a single fragment. The location and nature of modifications such as burning, gnawing and pathologies were also recorded. Butchery marks were located by zone, where feasible, and described using a simple code. Measurements were taken as appropriate, following von den Driesch (1976) and Payne and Bull (1988) for pigs. Some biometrical information is included in the following report; however, analysis of measurements produced by all the Highcross sites, will be appended later.

Species proportions were calculated using both NISP (Number of Identified Specimens) and a restricted count based on all fragments with a recognisable 'zone'. Minimum Numbers of Individuals (MNI) is not considered an appropriate method of quantification for urban sites (O'Connor 2003, 156) and has consequently only been used when describing material from particular groups. When quantifying carcass components the raw counts were standardised using zones, to ensure that only non-repeatable parts were included and making the results comparable across species by dividing by the number of times the element occurred in the body. Side was not taken into account during this calculation, since most of the bones are likely to result from procurement of joints of meat.

Age at death was assessed for the three main species using a combination of epiphysial fusion and dental eruption and attrition. For the purposes of analysis, 'fusing' specimens (defined as where the fusion line was clearly visible) were considered to be fused. Although there is no definitive sequence and age at which epiphysial fusion of each element occurs, it is possible to use the ranges provided by various authors as a guide. This report follows the figures from Silver (1969), grouping epiphyses into 'early', 'middle', 'late' and 'final' after O'Connor (2003, table 34). Recording of tooth-wear followed Grant (1982) and the resulting mandible wear stages were then grouped into age categories following O'Connor (2003, table 31) (Table 152).

Table 152: The Animal Bones: Definitions of dental eruption and attrition stages used in analysis of age at death After O'Connor (2003: table 31)

Cattle and Sheep Mandibles		
N	Neonatal	DP4 unerupted or just in the process of eruption
J	Juvenile	DP4 in wear, LM1 not in wear
I	Immature	LM1 in wear, LM2 not in wear
SA	Sub-adult	LM2 in wear, LM3 not in wear
SA1		LM3 forming, to just erupting
SA2		LM3 erupting
A	Adult	LM3 in wear
A1		LM3 up to minor dental exposure (stages a and b)
A2		LM3 dentine exposure across central column (stages c and d)
A3		LM3 dentine exposure on distal column (stages e to h)
E	Elderly	Dentine exposure to or beyond stage j
Pig Mandibles		
N	Neonatal	DP4 unerupted or just in the process of eruption
J	Juvenile	DP4 in wear, LM1 not in wear
I	Immature	LM1 in wear, LM2 not in wear

I1		LM2 present in crypt
I2		LM2 erupting
SA	Sub-adult	LM2 in wear, LM3 not in wear
SA1		LM3 present in crypt
SA2		LM3 erupting
A	Adult	LM3 in wear
A1		LM3 with enamel attrition only (stage a)
A2		LM3 with minor dentine exposure (stages b to d)
A3		LM3 dentine exposure merging on mesial cusps (stages e to h)
E	Elderly	Three main zones of dentine exposure across LM3 merging (stage j)

Attempts were made to separate sheep and goat using criteria defined by Boessneck (1969) and Prummel and Frisch (1986), paying particular attention to horn core, skull and teeth, scapula, humerus, femur, metacarpal and metatarsal. In addition, all metacarpals were measured after Payne (1969). Sheep and goat bones are frequently difficult to distinguish and post-cranial fragments were recorded as sheep/goat unless positive goat attributes were present.

Suitable deposits were routinely sampled for charred plant remains and small bones, a strategy supplemented by the taking of spot samples of particularly rich deposits. Selected, well-dated samples were wet-sieved in a York tank using a 0.5mm mesh with flotation into a 0.3mm mesh sieve. Samples were processed in parts up to 10 litres with additional parts processed for contexts with good potential. The purpose of examining the bone from the sieved samples was twofold: (1) to identify bones from small mammal, birds and fish species that would not otherwise be recovered; and (2) to check the recovery rates of the larger species. Typically, a high proportion of this material consisted of tiny fragments of unidentifiable bone. Consequently, the abundance of the bone from each sample was assessed on a scale of 1-3 but only fragments deemed identifiable were added to the faunal dataset. A separate record of the material from coarse fraction and flots was retained (Table 154).

Quantity, condition and preservation

A total of 4795 bone fragments were fully recorded from 170 different contexts. The bulk of this material was hand-recovered.

Table 153: The Animal Bones: relative proportion of assemblage assigned to each phase

Phase	Period	No of fragments	Relative proportion of assemblage %
2	Early Roman (mid-1st - early 2nd century)	625	13
3	Mid Roman (mid-2nd to 3rd century)	1838	38
4	Late Roman (4th century)	2332	49
Total		4795	100

Phase 2 yielded the least number of fragments (Table 153) while the largest proportion of bone, comprising almost half the Roman assemblage, was recovered from Late Roman features (Phase 4). The proportion of identified to indeterminate fragments is relatively high, averaging 52% for Phase 2, 44% for Phase 3 and 46% for Phase 4.

Bones from the excavations were generally in a suitable condition to permit recognition of butchery marks, pathologies and other modifications. Across all phases between 55% and 65% of the bone was deemed ‘good’, while a further 30-40% was classed as ‘medium’. Only a small proportion of the bone was assessed as ‘excellent’, ‘poor’ or ‘very poor’.

The occurrence of gnawing was rare, affecting 3% (n=154) of bones overall, suggesting that bones were rapidly buried and therefore rarely available to scavengers. Four percent of Phase 2 bone was gnawed (n=25). The proportion of gnawed bones was at its highest in Phase 3 (5% gnawed, n=81) and lowest in Phase 4 (only 2% gnawed, n=48). A scan of the numbers of gnawed bones per group did not reveal any particular concentrations.

Species Proportions

Cattle, sheep/goat and pig account for the majority of identified fragments in all phases (Table 154 and Table 155). However, this proportion declines from 96% in Phase 2 to 84% in Phase 3, reducing further to 74% in Phase 4. In Phase 2, the number of identified taxa was 14, rising to 17 in Phase 3 and 18 in Phase 4, indicating increased species diversity in the later phases (Table 154), which may be partly a consequence of the larger assemblage size.

Based on a simple Number of Identified Specimens (NISP) count, sheep/goat are most common in Phase 2 but cattle bones dominate in Phases 3 and 4 (Table 154). The number of cattle bones was vastly inflated by the presence of large quantities of butchered metapodials, representing specialised waste, in Phases 3 and 4. Removing this from the fragment counts maintains cattle as the most common species in Phase 4 by a reduced margin and in Phase 3 the proportions of cattle and sheep/goat are roughly equal.

The sieved samples yielded comparatively few identifiable bones, although small species such as rodents and fish, that would not be recovered during hand-excavation, were retrieved using this method (Table 156). The fish remains have been analysed separately (R. Nicholson this report).

Analysis of the relative proportions of the main domestic species (Figure 163:) suggests that the utilisation of sheep/goat declined throughout the Roman period from 45% in Phase 2 to a mere 22% by Phase 4. A similar situation was seen at Causeway Lane, Leicester, where sheep were the most common species in the early phases but the later phases were dominated by cattle (Gidney 1999, 310). Interestingly, the relative proportion of pig increases at Vine Street, accounting for 19% in the early Roman period, 23% in the mid-Roman and, 26% in the late Roman phase, making them more common than sheep. Larger studies have suggested an association between elevated levels of pork and the adoption of Roman culture (Cool 2006, 83-84). High proportions of cattle and pig have been especially noted on late Roman sites (King 1978, 216; 1991, 17). Domestic fowl was comparatively rare in Phase 2, accounting for 5% of the identified assemblage. However, by Phase 3 the relative proportion has increased to 9%, rising to 10% into the Late Roman period.

The restricted fragment count (Figure 163, Table 155), including only bones with ‘zones’, suggested similar relative proportions in Phase 2 but slightly increased sheep/goat in relation to cattle in Phase 3. The increases in pig and domestic fowl in the later phases are maintained, although the later dominance of pig over sheep is not.

Locally, cattle were the most common species in the late Roman assemblage from Great Holme Street (Gouldwell 1991), the Shires excavations (Gidney forthcoming) and the Roman assemblage at Bonners Lane (Baxter 2004) but pig remains are less well-represented at both sites. By contrast, during the phases of possible military occupation at Bath Lane, almost half the identified mammal bones belonged to pig, although the nature of that assemblage has not been fully assessed (A. Brown in Clay and Mellor 1985, 79).

Table 154: The Animal Bones: number of fragments (NISP) (* sheep and goat totals included in sheep/goat percentage. ~ Badger partial skeleton counted as '1')

Phase	2_02	2_04	2_05	2 Total	%	3_01	3_02	3_03	3_05	3_06	3_07	3_08	3_09	3 Total	%	4_01	4_04	4_06	4_07	4 Total	%
Cattle	25	30	42	97	***30***	8	12	32	41	110	15	2	4	224	***32***	27	28	153	96	304	***32***
Sheep/goat	65	29	38	138	***43***	27	25	16	51	69	10	10	6	214	***31***	6	5	79	56	154	***16***
Sheep*	5															1		3	4		
Goat*			1																		
Pig	14	23	20	57	***18***	12	30	20	30	51	2	2	2	149	***21***	17	12	90	65	184	***20***
Dog	3	1		4	***1***		4	1	9	1				15	***2***	78	1	3	6	88	***9***
Cat				0					1					1	***<1***			1		1	***<1***
Horse		5		5	***2***			1	1	13				15	***2***	3	1	1	7	12	***1***
Red deer			1	1	***<1***								1	1	***<1***	1	60	10	10	81	***9***
Roe deer			1	1	***<1***			1		2	1			4	***1***	3		2		5	***1***
Hare		1		1	***<1***		1			2				3	***<1***	2		6		8	***1***
Human		1	1	2	***1***			1						1	***<1***						
Badger																			48~	1	***<1***
Mole																			2	2	***<1***
Vole										4				4	***1***						
Common shrew											2			2	***<1***						
Domestic fowl		11	5	16	***5***		8	6	10	30	3		1	58	***8***	6	13	38	17	74	***8***
Goose		1		1	***<1***				1	1				2	***<1***	5		9	1	15	***2***
Duck		1		1	***<1***	1								1	***<1***			6	1	7	***1***
Teal/Garganey						1								1	***<1***						
Woodcock							1		1					2	***<1***						
Golden plover																1				1	***<1***
Raven																1				1	***<1***
Coot																		1		1	***<1***
Amphibian																		1		1	***<1***
Total identified	112	103	109	324	***100.0***	49	81	78	145	283	33	14	14	697	***100.0***	151	120	402	265	939	***100.0***
Large mammal	38	51	48	137		27	52	57	86	270	15	5	4	516		33	37	427	231	728	
Medium mammal	31	39	59	129		25	45	29	84	59	22	4	6	274		15	32	86	100	233	
Indeterminate mammal	4	19	10	33		12	12	16	24	23	6	1	1	95		5	2	59	54	120	
Bird-Indeterminate		1	1	2			1	2	5	6	1		1	16		13	1	3	5	22	
Total	**185**	**213**	**227**	**625**		**113**	**191**	**182**	**344**	**641**	**77**	**24**	**26**	**1598**		**217**	**192**	**977**	**655**	**2042**	

Table 155: The Animal Bones: number of identified bones with Zones (* sheep and goat totals included in sheep/goat percentage. ~ Badger partial skeleton counted as '1'

Species	2_02	2_04	2_05	Total	%	3_01	3_02	3_03	3_05	3_06	3_07	3_08	3_09	Total	%	4_01	4_04	4_06	4_07	Total	%
Cattle	23	26	28	77	***29***	6	11	26	28	85	12	1	4	173	***31***	23	19	124	76	242	***31***
Sheep/Goat	58	21	34	113	***44***	19	21	16	48	61	8	8	5	186	***34***	6	5	70	52	133	***18***
Sheep*	3			3												1		3	3	7	
Goat*			1	1																	
Pig	13	20	11	44	***16***	7	25	19	21	39	2		2	115	***21***	14	10	58	54	136	***18***
Dog	3	1		4	***1***		4	1	5	1				11	***2***	71	1	3	5	80	***10***
Cat									1					1							
Horse		5		5	***2***			1	1	6				8	***1***	3	1	1	5	10	***1***
Red deer			1	1	***<1***											1	49	6	1	57	***7***
Roe deer			1	1	***<1***			1		2	1			4	***1***	2		2		4	***1***
Hare		1		1	***<1***		1									1		6		7	***1***
Human		1		1	***<1***			1						1	***<1***						
Badger																1		6	1	1~	***1***
Mole																			2	2	***<1***
Domestic fowl		10	5	15	***6***		8	5	10	21	3		1	48	***9***	6	11	35	16	68	***9***
Goose		1		1	***<1***				1	1				2	***<1***	4		7	1	12	***2***
Duck						1								1	***<1***			5	1	6	***1***
Teal/Garganey						1								1	***<1***						
Woodcock							1		1					2	***<1***						
Golden plover																1				1	***<1***
Raven																1				1	***<1***
Coot																		1		1	***<1***
Total	**100**	**86**	**81**	**267**	***100***	**34**	**71**	**70**	**116**	**216**	**26**	**9**	**12**	**553**	***100***	**135**	**96**	**327**	**217**	**773**	***100***

Table 156: The Animal Bones: identified fragments from sieved deposits

Species	2.4	3.3	3.5	3.6	3.7	3.8	Total	*Phase 3 %*	4.1	4.4	4.6	4.7	Total	*Phase 4 %*
Cattle	1		1	18			19	*37*	3	2	23		28	*54*
Sheep/Goat	1		2	1			3	*6*						
Pig			6	3			9	*18*	1	2	5	4	12	*23*
Cat											1		1	*2*
Dog									2				2	*4*
Hare	1			2			2	*4*	2		1		3	*6*
Bank vole				4			4	*8*						
Common shrew					2		2	*4*						
Mole												2	2	*4*
Domestic fowl	3	1	2	9			12	*23*		2			2	*4*
Goose									1				1	*2*
Amphibian											1		1	*2*
Total	*6*	*1*	*11*	*37*	*2*	*0*	*51*		*9*	*6*	*31*	*6*	*52*	

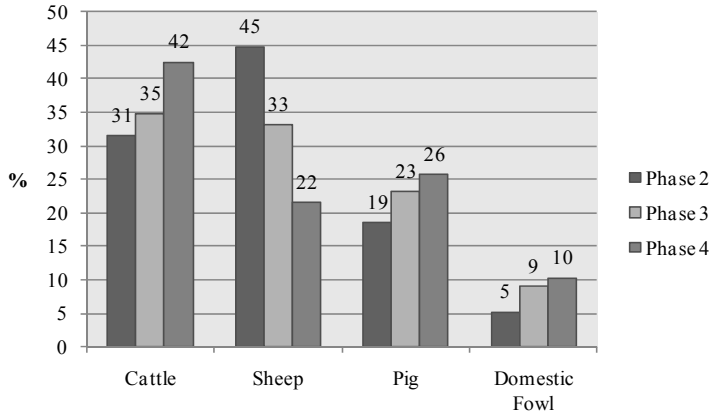

Figure 162: The Animal Bones: relative proportions of the most common species (NISP) by phase (excluding bone-working)

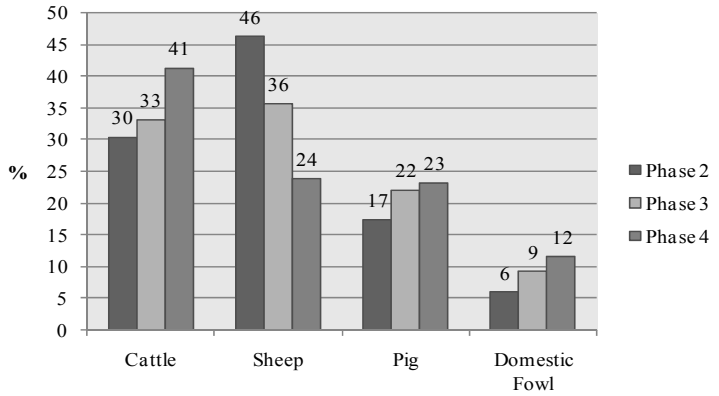

Figure 163: The Animal Bones: relative proportions of the most common species (zones) by phase (excluding bone-working)

The relationship between numbers of bones, the resulting meat yield and actual consumption is problematic. Factors such as age, carcass size, methods of butchery and the proportion of waste are all likely to have a significant impact on the quantity of meat available for consumption. King notes that 70% of a pig carcass is edible as opposed to 50% of a sheep (King 1978, 216) a view seconded by Cool who presents data from a 19th- century military manual that suggests that about half a cattle and sheep carcass would be discarded as waste but three quarters of a pig was considered edible (2006, 81-2). Therefore, even though a higher percentage of bone fragments were attributable to sheep/goat this is not a true reflection of their dietary contribution: sheep numbers would need to exceed those of cattle by a considerable margin before mutton could replace beef as the most commonly consumed meat.

The Main Domesticates

Cattle

Cattle were evidently horned; there is no evidence for any polled animals in this period. Few whole bones in the assemblage meant that only a small number of withers heights could be calculated (based on Matolcsi, quoted in von den Driesch and Boessneck 1974). This was further complicated by the fact that most complete bones were metapodials for which different factors are quoted for male and female specimens. The resulting ranges for the Roman cattle are between 1.09m and 1.27m, averaging 1.18m, with a standard deviation of 0.061.

Table 157: The Animal Bones: withers heights for cattle (using factors by Matolcsi, quoted in von den Driesch and Boessneck 1974)

Context	Phase	Bone	Measurement type	Measurement mm	Withers (m)	Female	Male
6957	3.5	Radius	GL	282.0	1.24		
3256	3.6	Metatarsal	GL	224.0		1.18	1.26
5518	3.6	Metacarpal	GL	193.0		1.17	1.22
5568	4.4	Metacarpal	GL	180.0		1.09	1.14
4117	4.7	Metacarpal	GL	200.0		1.21	1.27
4134	4.7	Metacarpal	GL	181.0		1.10	1.15

Age profiles

Ageing evidence for Phase 2 cattle was fairly sparse (fusion surfaces n=29, ageable mandibles n=5). The fusion evidence tentatively suggests that the animals were slaughtered from their fourth year yet there is no evidence for survival beyond seven years (Figure 164). The small amount of available toothwear data suggests that slaughter was taking place from a younger age (Table 158). Three mandibles derive from sub-adult individuals, aged between 18 and 30 months (Hambleton 1999, 65), while two others were likely to be adult animals in excess of three years.

In Phase 3, 224 epiphysial surfaces were available for study and analysis suggested mortality among small numbers of young cattle, although greater numbers were slaughtered in their third and fourth years. Fused vertebral epiphyses account for 50% of specimens, suggesting half the animals were in excess of seven years of age at time of death (Reitz and Wing 1999, table 3.5). The small amount of dental evidence emphasizes the importance of adult animals (Table 158): no neonates or juveniles were identified. Two mandibles represent sub-adults, probably in their third year (Hillson 2005, table 3.4) but the remainder are adult, including a relatively elderly individual, possibly representing surplus reproductive stock and an animal at the end of its useful life. The overall picture points to a shift towards exploitation of more mature cattle, although the data may not be reliable given the small sample size.

In Phase 4, the patterns shown by epiphysial fusion suggest that slaughter took place predominantly in the fourth year of life. Young animals were represented by a juvenile mandible, denoting an animal no more than a couple of months old. A frontal fragment with horn bud from a neonatal calf was present in a pit deposit (5096) from Phase 4.4. A mandible from a sub-adult, probably aged between two and three years (Hillson 2005, table 3.4), and three from mature adults were recovered. A mandible from a beast classed as elderly was also present. If the vertebrae are representative, the results imply that a greater percentage of cattle were slaughtered between three and a half and seven years of age than in Phase 3.

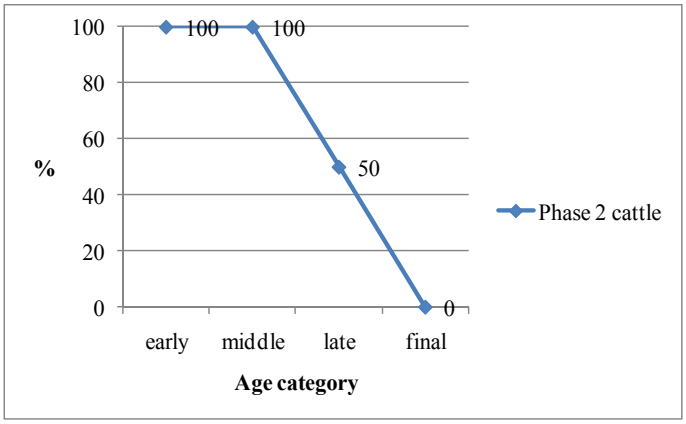

Figure 164: The Animal Bones: epiphysial fusion in Phase 2 cattle bones (n=29). Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-108 months

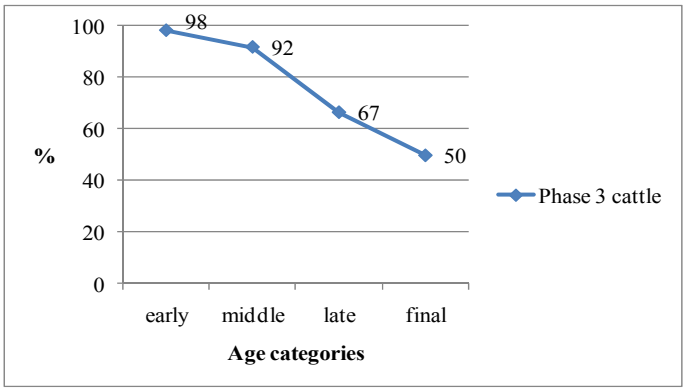

Figure 165: The Animal Bones: epiphysial fusion in Phase 3 cattle bones (n=224). Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-108 months

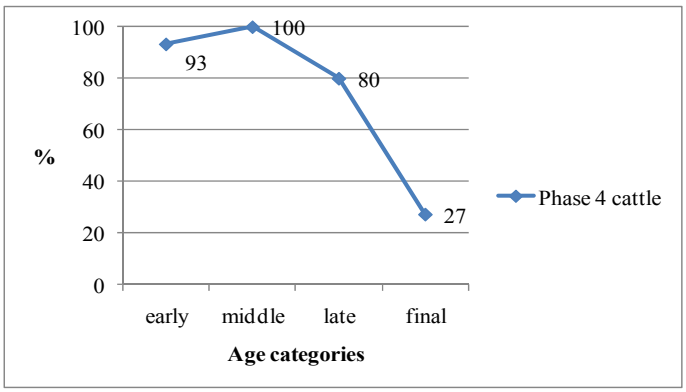

Figure 166: The Animal Bones: epiphysial fusion in Phase 4 cattle bones (n=275). Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-108 months

Table 158: The Animal Bones: toothwear data for cattle: Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly

Phase	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
2	-	-	1	-	2	-	-	2	-	5
%	*0*	*0*	*20*	*0*	*40*	*0*	*0*	*40*	*0*	*100*
3	-	-	-	-	2	-	1	2	1	6
%	*0*	*0*	*0*	*0*	*33*	*0*	*17*	*33*	*17*	*100*
4	1	-	-	-	1	-	-	3	1	6
%	*17*	*0*	*0*	*0*	*17*	*0*	*0*	*50*	*17*	*100*

Carcass representation

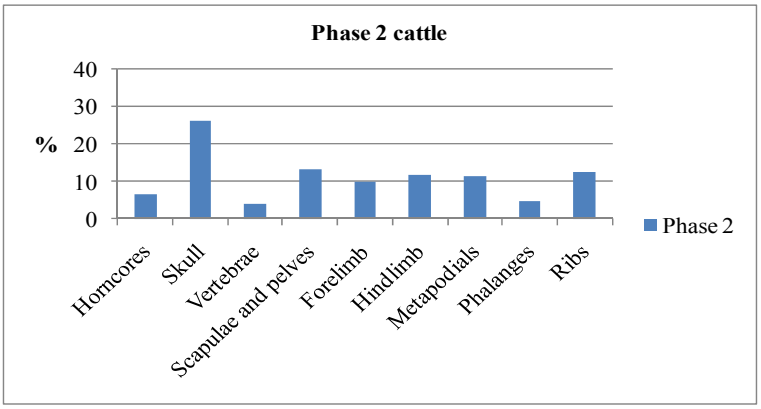

Figure 167: The Animal Bones: carcass components for Phase 2 cattle (n=88)

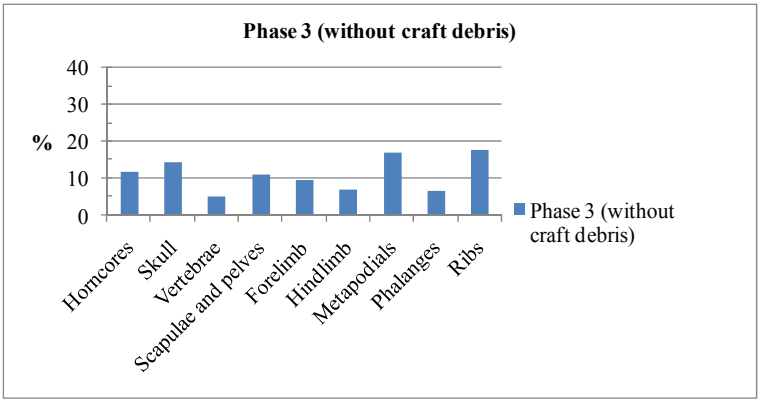

Figure 168: The Animal Bones: representation of the cattle skeleton, *excluding craft debris (Phase 3) (n=215)

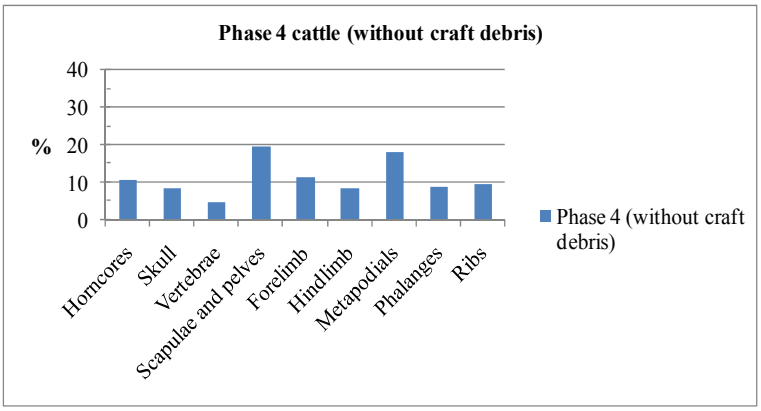

Figure 169: The Animal Bones: representation of the cattle skeleton, *excluding craft debris (Phase 4) (n=216)

The post-cranial skeleton was evenly represented among Phase 2 features but there were increased proportions of elements from the skull, possibly indicative of primary butchery.

Representation of carcass components in Phases 3 and 4 has been complicated by the occurrence of large quantities of metapodials which are thought to represent pin-making. Therefore features containing craft waste were analysed separately to avoid skewing the dataset. Examination of carcass components from the other features suggested that the regions of the body were fairly evenly represented, although there were slightly increased proportions of skull, metapodials and ribs, compared to vertebrae, hind limb and phalanges. Animals were apparently brought onto site whole rather than as joints of meat. Large

quantities of ribs are indicative of food debris, while skull and metapodials are elements more associated with primary butchery.

Scapulae and pelves and metapodials are the most common carcass components in Phase 4, compared with other parts of the body, which are fairly evenly distributed, although there are low numbers of vertebrae.

Sheep/goat

Although bones were cautiously recorded as sheep/goat unless they carried positive goat characteristics, most are believed to be sheep. A tentative goat identification was made on a humerus from an area of trample (G1123) but no other positive visual identifications were made among the Roman assemblage. There were too few distal metacarpals preserved to allow a metrical analysis to be made (following Payne 1969). The virtual absence of goat is consistent with other Leicester assemblages of the period, including Great Holme Street (Gouldwell 1991), Causeway Lane (Gidney 1999), Bonners Lane (Baxter 2004) and the previous Shires excavations (Gidney forthcoming).

No evidence for polled animals was seen in the assemblage, unlike at Causeway Lane, and the previous Shires excavations, where both horned and polled were observed (Gidney 1999, 313; Gidney forthcoming). Horncores were a mixture of shapes, with large D-shaped and smaller oval horns observed, which may represent males and females, variations within a population or even different sheep populations. A fragment of a skull believed to be from a polycerate sheep was recovered from G1022, Phase 4.7. The animal carried a small, weak horn core, with an adjacent extra 'bump', possibly representing a vestigial second horn core.

It was possible to estimate a total of 13 withers heights from complete bones in the assemblage, mostly from phase 3(. These ranged from 0.52m to 0.68m and averaged 0.55m in Phase 2, 0.60m in Phase 3 and 0.59m in Phase 4. Although the numbers are low, the relative uniformity of heights in Phase 2 is notable compared to the other phases, perhaps suggesting that these bones derived from ewes (Figure 170). A general increase in height can be discerned in Phase 3 and 4 but the greater diversity of the results may also reflect the presence of both sexes and/or the utility of different sheep populations. Although the issue is complex, recent investigations have suggested that there is an increase in sheep size between the early and the middle Roman period (Albarella *et al* 2008, 1836).

Table 159: The Animal Bones: estimated withers heights for sheep (using factors by Teichert 1975)

Context	Phase	Bone	Measurement type	Measurement mm	Withers
2631	2	Metatarsal	GL	118.0	0.54
2631	2	Metacarpal	GL	112.0	0.55
2155	2	Metatarsal	GL	120.0	0.54
4675	2	Metacarpal	GL	115.0	0.56
6425	3	Calcaneum	GL	047.8	0.54
3357	3	Metacarpal	GL	119.0	0.58
6736	3	Metacarpal	GL	126.0	0.62
5479	3	Metatarsal	GL	133.0	0.60
5479	3	Metatarsal	GL	150.0	0.68
6364	3	Humerus	GL	121.0	0.52
6565	3	Metatarsal	GL	137.0	0.62
5050	4	Metatarsal	GL	123.0	0.56
5568	4	Tibia	GL	208.0	0.63

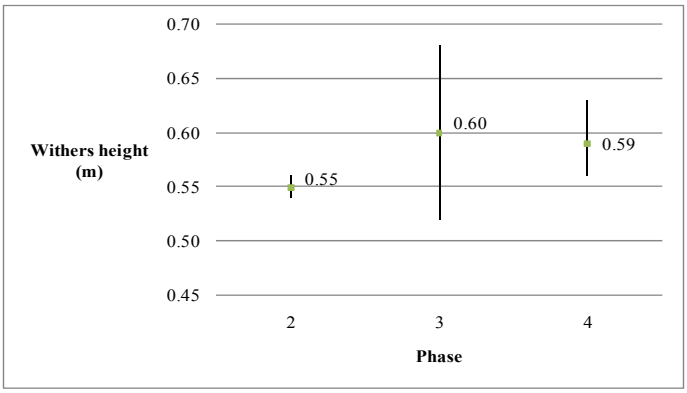

Figure 170: The Animal Bones: withers heights for sheep/goat using Teichert (1975), showing range and average (mean)

Age Profiles

Study of epiphysial fusion for sheep in Phase 2 indicates that mortality occurred even among animals in the earliest fusing category (below 16 months) but peaked among sheep aged 2-3 years (Figure 171). Interestingly, there were no fused epiphyses in the late fusing group but evidence for epiphyses that fuse at a later age. This anomaly illustrates why this type of analysis does not produce a valid mortality profile, an issue highlighted by O'Connor (2003, 166). Figure 171 implies that there was an increase in live animals in the 'final-fusing' group compared with the 'late-fusing' group, which would not be possible if the data reflected age at death for a single population. The bones are actually likely to have reached the site from diverse sources and therefore some individuals may be represented by one bone and others by several. An additional problem is that fact that the chart is based on a very small pool of data. Analysis of patterns of epiphysial fusion can only really suggest trends, and it is tested against toothwear data, which is usually considered more reliable (O'Connor 2003, 165). The dental evidence for Phase 2 presents a slightly different picture. Mandibles from juvenile sheep were present in a proportion (14%) which correlates with the unfused early fusing epiphyses (11%).

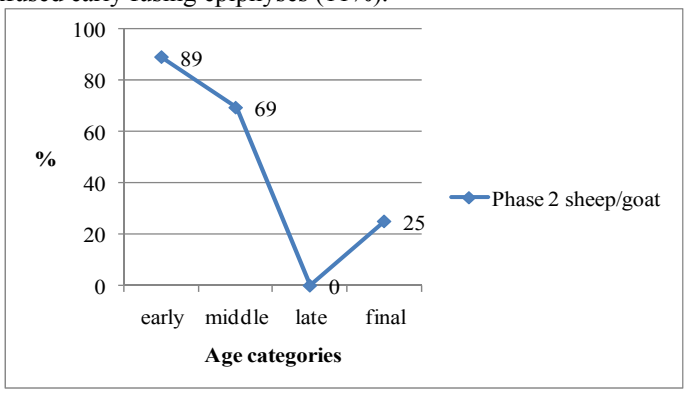

Figure 171: The Animal Bones: epiphysial fusion in Phase 2 sheep/goat bones (n=42): Phase 2 Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

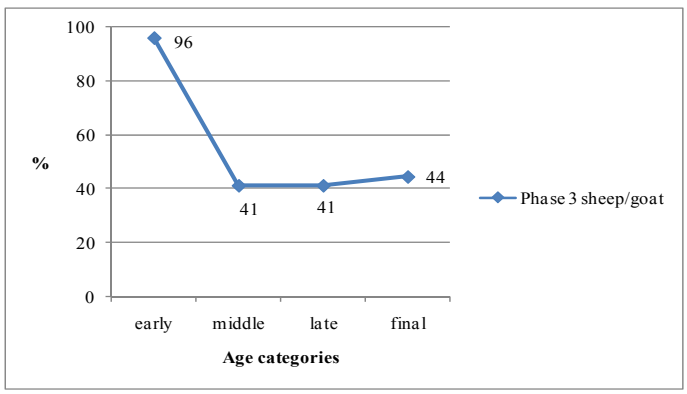

Figure 172: The Animal Bones: epiphysial fusion in Phase 3 sheep/goat bones (n=68) Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

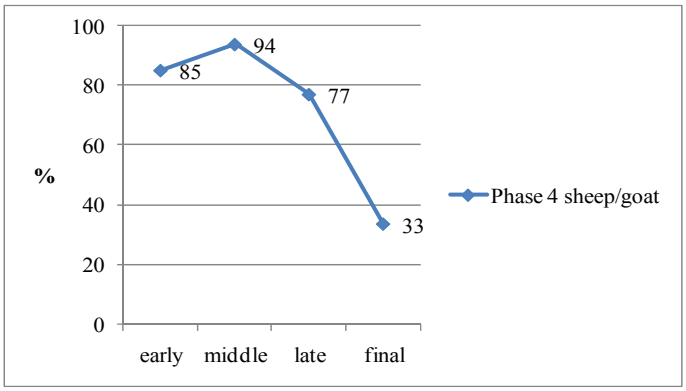

Figure 173: The Animal Bones: sheep/goat epiphysial fusion: Phase 4 (n=61) Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

Table 160: The Animal Bones: toothwear data for sheep/goat: Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly.

Phase	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
2	3	3	1	12	-	1	1	1	-	22
%	*14*	*14*	*5*	*55*	*0*	*5*	*5*	*5*	*0*	*100*
3	3	6	-	3	2	-	2	4	-	20
%	*15*	*30*	*0*	*15*	*10*	*0*	*10*	*20*	*0*	*100*
4	4	1	-	-	-	-	1	2	-	8
%	*50*	*12.5*	*0*	*0*	*0*	*0*	*12.5*	*25*	*0*	*100*

As Table 160 indicates, young animals were common, with sub-adults contributing 55% of mandibles, equating to animals in their late first and second year. These animals do not appear to be fully represented by the fusion data, (early and middle fusing) and possibly suggests that the cranial bones entered the site by different process from the post-cranial ones. Alternatively, the bones of juvenile animals may have been more susceptible to carnivore gnawing or post-depositional destruction. A small number of adults were also identified. Seventeen of the sheep mandibles in this sample were recovered from G0292 (early pits under Building F), these may therefore represent a specific activity or event and may not be typical of sheep in this phase. An attempt to achieve finer age resolution in G0292 was based on cross-referencing the wear stages on the first and second molar (where both toothwear scores were available) with a modern population of known ages (Moran and O'Connor 1994, O'Connor 2003, table 33) (Table 161). This emphasized the young age of the group, particularly indicating slaughter in the second year and therefore suggesting an emphasis on meat production.

Table 161: The Animal Bones: suggested ages for sheep mandibles in G0292, based on wear of the first and second molar after O'Connor and Moran (1994) and O'Connor (2003, table 33). An 'adult' mandible was present but lacked m1 and is therefore not included.

Suggested age	Number	Percentage
Less than a year	5	26%
yearling	2	11%
18-24 months	12	63%
2-4 years	0	-
4-5 years	0	-
5-6 years	0	-
Total	19	

There were 14 examples of specimens described as 'neonatal' or 'juvenile' in the Phase 3 assemblage, not all of which had retained epiphysial surfaces, comprising 6.5% of the sheep/goat assemblage compared with the 4% of unfused epiphyses in the early fusing category (shown in Figure 172). Between the early and middle fusing category, there was evidence for high mortality, accounting for over half of the animals. Subsequently, the proportion of fused bones remained steady into the late and final fusing categories with numbers of fused vertebrae suggesting that *c.*40% of the animals may have survived beyond the age of 60 months. Examination of the toothwear data (Table 160) suggested a slightly

different pattern, in that there was significant evidence for the slaughter of animals under a year old. This discrepancy may highlight taphonomic issues, as juvenile bones, and particular epiphyses, could be more vulnerable to destruction through post-depositional processes than teeth. A rise in mortality was evident among yearlings and animals aged between 1-2 years, correlating with the increase in unfused epiphyses. Another spread of mandibles in the Adult 1 and Adult 2 categories indicated animals possibly aged between just over two and seven (O'Connor 2003, 162).

Figure 173 indicates that there is a low but persistent level of mortality among juvenile and immature sheep in Phase 4. Several juvenile bones were recovered from G0224, (the coin hoard pit). A rise in the proportion of unfused bones occurs between the late and final- fusing bones, possibly representing animals aged between three and a half years and five years. By contrast, the dental evidence (Table 160) suggested high mortality among juvenile animals, aged only a few months old. A yearling was also represented but the remainder were adults. The discrepancy with the fusion data could suggest that the bones on site do not represent whole carcasses but that the mandibles and limb bones belong to different animals. However, the prevalence of juvenile mandibles compared with bones has been observed in each phase and may therefore reflect the taphonomy of the assemblage, which may have mitigated against the survival of younger, less robust bones.

Carcass Representation

In Phase 2, the relative abundance of cranial elements was significantly increased by the large quantity of mandibles recovered from G0292. Limb bones are generally well-represented, perhaps emphasizing the importance of meat and possibly indicating that joints of meat were brought onto the site. Vertebrae are few and phalanges are not-represented in the assemblage, possibly a reflection on recovery rates.

In Phase 3, the data revealed a dominance of metapodials accompanied by an inflated proportion of elements from the skull. As with Phase 2, mandibles are the most common skull elements but horn cores are not represented, possibly suggesting that these were removed before the carcass was brought onto site. Forelimb, hind limb scapulae and pelves, parts of the carcass associated predominantly with meat, were reasonably well-represented.

In Phase 4, elements from the hind limb and metapodials are emphasized in the data and vertebrae and phalanges are considerably under-represented. The remaining categories are relatively evenly distributed.

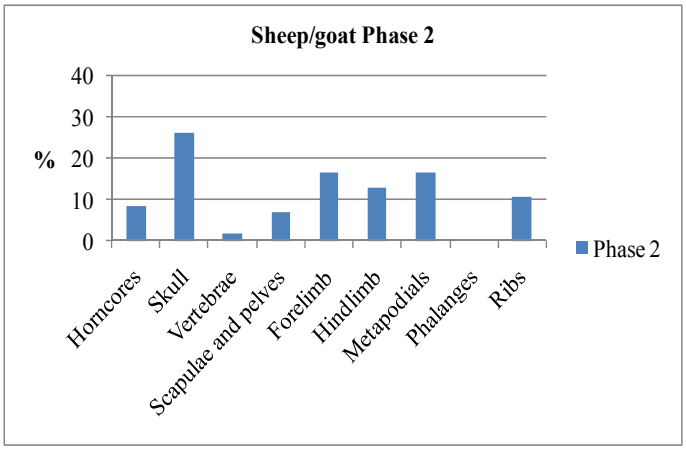

Figure 174: The Animal Bones: representation of the sheep/goat skeleton (Phase 2) (n=171)

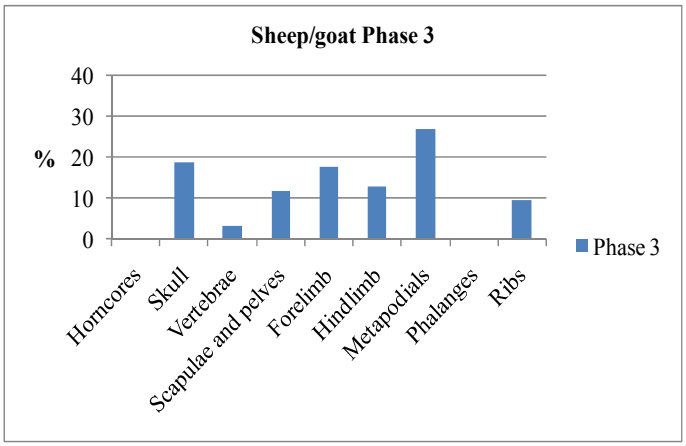

Figure 175: The Animal Bones: representation of the sheep/goat skeleton (Phase 3) (n=298)

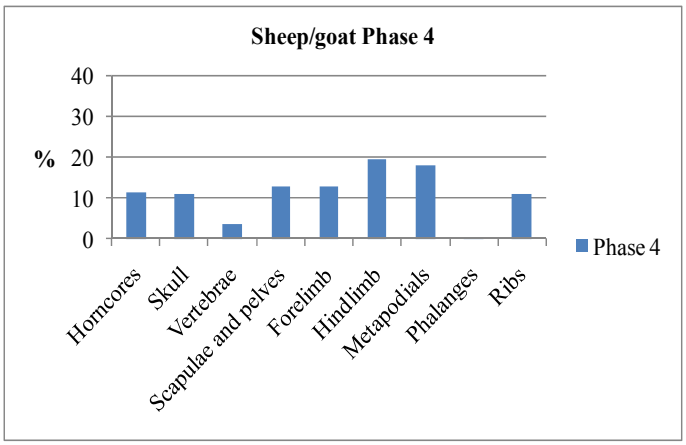

Figure 176: The Animal Bones: representation of the sheep/goat skeleton (Phase 4) (n=227)

Pig

No complete pig skulls were recovered. A single estimation of withers height, from a calcaneum in Phase 4, suggested a stature of 0.74m.

Age profiles

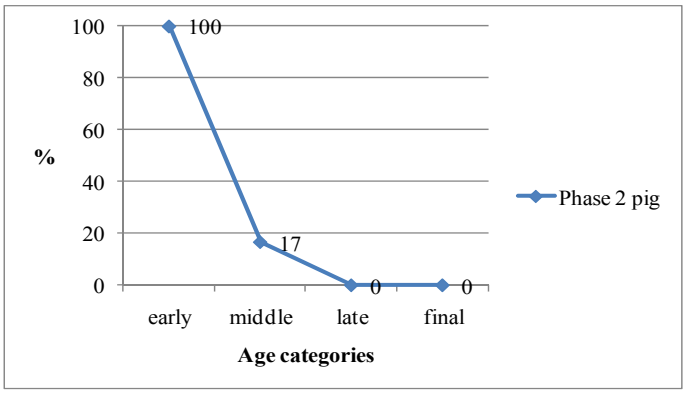

Figure 177: The Animal Bones: epiphysial fusion in Phase 2 pig bones (n=23): Phase 2 Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

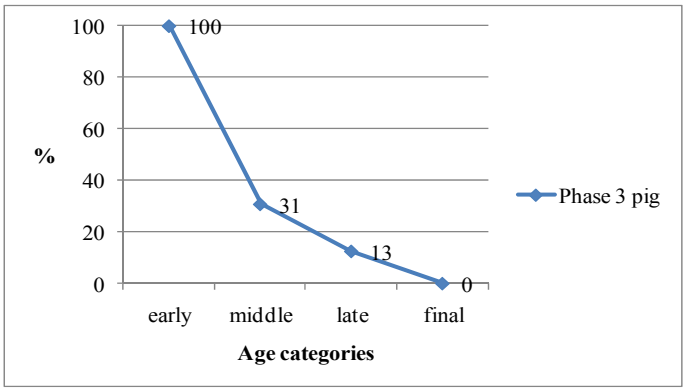

Figure 178: The Animal Bones: epiphysial fusion in Phase 3 pig bones (n=38): Phase 3 Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

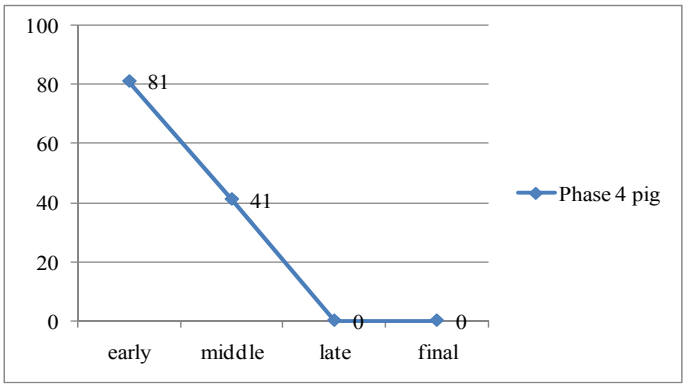

Figure 179: The Animal Bones: epiphysial fusion in Phase 4 pig bones (n=43): Phase 4 Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

For pig, the evidence from epiphysial fusion suggests that mortality largely occurred between 12 and 27 months in Phase 2. The sparse information from dental eruption and attrition is broadly supportive, providing no evidence for fully mature pigs and indicating that the animals were bred and slaughtered for meat. A single juvenile animal possibly aged between 2 and 7 months (Hambleton 1999, 65) was present, while the oldest animal represented has a 3rd molar at wear stage 'b', indicating a possible age of 21-27 months (Hambleton 1999, 65).

Table 162: The Animal Bones: toothwear data for pig: Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly.

Phase	J	I	I1	I2	SA	SA1	SA2	A1	A2	A3	E	Total
2	1	-	-	-	-	-	1	1	1	-	-	4
%	25	0	0	0	0	0	25	25	25	0	0	100
3	1	-	-	-	-	-	-	2	2	-	-	5
%	20	0	0	0	0	0	0	40	40	0	0	100
4	4	-	-	-	-	1	2	-	-	-	-	7
%	57	0	0	0	0	14	28	0	0	0	0	100

In Phase 3, the optimum age for slaughter, as indicated by the fusion data, was also between 12 and 27 months but there is some evidence for the presence of older pigs in their third and even fourth year. The dental evidence provides evidence for a single animal less than a year old, while the remaining specimens are from animals slaughtered just over the age of two, as indicated by the eruption of the third molar (Hillson 2005, 234).

In Phase 4 examples of unfused bones were present in every age category. None of the later-fusing epiphyses were united, suggesting that pigs were slaughtered prior to 36 months. This pattern is emphasized by the dental evidence, which shows no examples of either neonatal or adult animals but does suggest high mortality among juvenile animals, correlating with the early fusing epiphyses, and also among the sub-adults, probably aged up to 24 months. However, in addition to the fusion and toothwear

evidence, small numbers of neonatal pig bones were found in Phase 4.1 deposits (G0526), Phase 4.4 (G0227), Phase 4.6 (G0224, G0515, G1004) and Phase 4.7 (G1022, G1032), which may suggest that breeding of piglets took place on-site.

Carcass Representation

In Phase 2, scapulae and pelves were the most frequent carcass components, accompanied by a slight over-representation of skull and forelimb. In Phase 3 all other parts of the carcass were under-represented compared with the skull, suggesting that the crania and limbs may have been brought in separately rather than as part of a whole carcass. However, this pattern may be taphonomic: cranial and some post-cranial elements are more durable than others. In Phase 4, the pig carcass was strongly represented by the skull, limbs and scapulae and pelves, a pattern perhaps reflecting an emphasis on joints of meat.

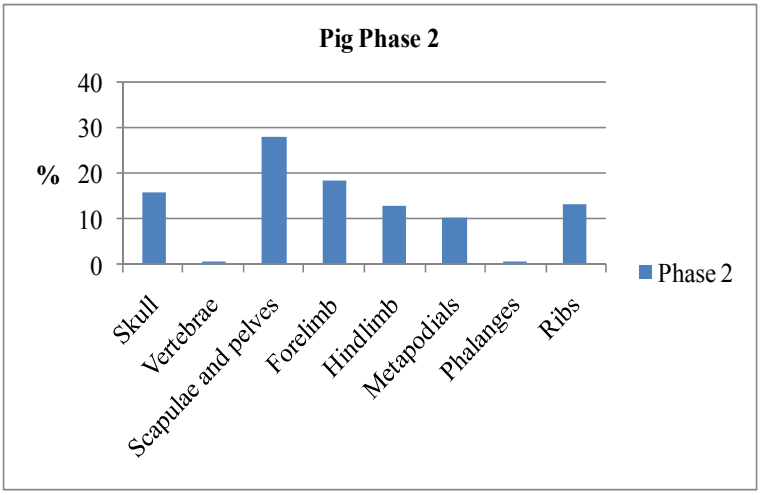

Figure 180: The Animal Bones: representation of the pig skeleton (Phase 2) (n=64)

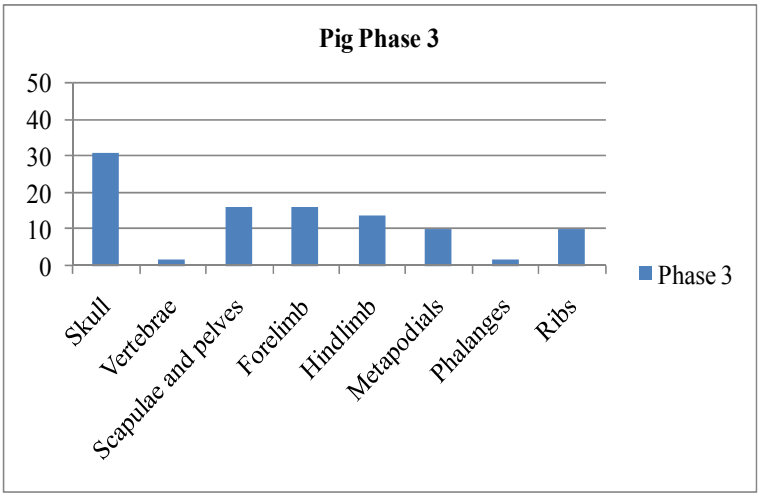

Figure 181: The Animal Bones: representation of the pig skeleton (Phase 3) (n=144)

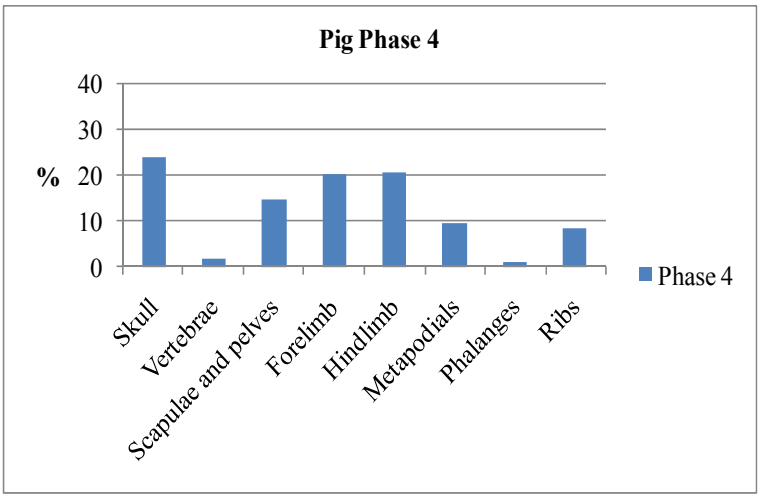

Figure 182: The Animal Bones: representation of the pig skeleton (Phase 4) (n=154)

Butchery

Table 163: The Animal Bones: proportion of butchered bones in Phases 2-4, for the main species

	Phase 2	%	Phase 3	%	Phase 4	%
Cattle	56 (97)	58%	377 (464)	81%	370 (545)	68%
Large mammal	44 (137)	32%	229 (516)	44%	323 (728)	44%
Sheep/goat	20 (138)	14%	40 (214)	19%	41 (154)	27%
Medium mammal	21 (138)	15%	44 (274)	16%	22 (233)	9%
Pig	18 (57)	31%	44 (149)	30%	36 (184)	20%

Table 163 illustrates that, of the three main domesticates, cattle were the most extensively butchered species in each phase, even though sheep were more common numerically in Phase 2. This is due in part to the large size of the animal, requiring higher levels of processing to reduce it to manageable portions. Butchery of the cattle carcass affected nearly every element in all three phases, with the exception of the third phalanx. Substantially higher levels in Phase 3 reflect the appearance of dumps of butchered metapodials, which are discussed below. Although, sheep/goat bones had fewer butchery marks, the proportion increased through Phases 3 and 4, possibly indicating more intensive use of the carcass. By contrast, there was less evidence on pig bones in the later phases, which may suggest different methods of carcass processing or possibly reflects a preference for slightly younger and, therefore smaller, animals, requiring less butchery. For all three species, most butchery was carried out with a cleaver or similar heavy blade, which was used for chopping. Cut marks indicate that a fine blade was also employed, primarily for skinning and filleting. In addition, a number of bones had been deliberately shattered or broken, leaving characteristic fractures but few obvious blade marks. This must have been carried out using a heavy tool and may have been a technique employed to extract marrow. Saw marks only occurred on antler or horn core fragments; until the medieval period saws were generally used in craft work rather than for butchery (Grant 1987, 55).

Heavy butchery of the entire cattle carcass has already been noted. In Phase 2, chops and cut on vertebrae were orientated diagonally or transversely. A very small number were chopped longitudinally off-centre and the lateral processes of lumbar vertebrae were sometimes chopped off, possibly suggesting that facilities for hanging the carcass were available, since it is easier to chop the vertebrae whilst the carcass was hoisted for dismemberment (Seetah 2006, 111). The mandible and the pelvis were frequently butchered but in both cases there was apparently little uniformity in the type of mark. Metacarpals, however, were consistently hacked through the mid-shaft. Many more butchered bones were recovered from Phase 3. Vertebrae were frequently chopped transversely, suggesting division into smaller sections, while cut marks suggested filleting. Divisions on the sagittal plane were usually off-centre, as in Phase 2 and lateral and spinous processes were often cut off. Ribs showed equal numbers of cut and chop marks associated with disarticulation from the spine, division of the rib slab and filleting and it therefore seems highly likely that professional facilities were available (Seetah 2006, 111). The pelvis was a focus for butchery marks, probably inflicted during dismemberment. The scapula had marks around the articulation

representing disarticulation, as well as evidence for trimming and filleting. Limb-bones exhibited evidence for portioning (both near the joints and through the shaft), filleting and also extraction of marrow. The skull appeared to have been quartered or deliberately smashed, presumably in order to fully access the brain and head meat. Butchery around the horncores suggests that horn was routinely exploited. One skull displayed a circular depression, probably a result of pole-axing during slaughter. Mandibles had cut marks associated with disarticulation and removal of the tongue. The chopping or breaking of the jaw, mostly though the premolar toothrow, was consistently observed, which may have been a method of extracting marrow. A number of first phalanges with fine cut marks are indicative of skinning. In Phase 4, there was a high proportion of butchered bone, once again affecting most parts of the carcass, which suggested that butchery practices were continuing in the same way. The skull exhibited evidence that the hornsheath was routinely removed, although the horncore was not always chopped off and the sheath may therefore have been loosened and prised from the core. Evidence for slaughter and primary butchery included possible pole-axing of the skull and chops through the occipital condyles. Fine cut marks suggesting skinning or removal of cheek meat were also observed. The ascending ramus of the mandible was frequently chopped, presumably during disarticulation of the lower jaw. Butchery was frequently observed on the scapula; these marks mostly represented trimming of the spinous process and filleting, therefore implying both preparation of the shoulder for sale and slicing meat from the bone, prior to consumption. By contrast, chops and cut marks on the pelvis indicated that animals were jointed at the hip socket. Where butchery occurred on the limb-bones, they were heavily chopped, often reducing the bone to fragments and again indicating significant exploitation of the carcass for marrow and possibly soups and stews. Butchery on the vertebrae did not differ significantly to previous phases, although lumbar vertebrae appeared more likely to be butchered.

Two cattle scapulae in Phase 3.6 groups (G0947 and G0451), exhibited perforated blades and probably represented smoked or cured shoulders of beef. Another example was present in Phase 4.1 (G0526). Cattle scapulae were common in a Phase 4 pit group (G0997), representing a minimum of nine bones. The frequency of this element is not matched by the adjacent humerus, suggesting that these were disarticulated prior to deposition. Almost all of the scapulae were butchered, mostly exhibiting marks relating to filleting and trimming around the glenoid cavity. It is probable that these also represent preserved shoulders of beef frequently occur in Roman deposits and were evidently a favoured foodstuff. These scapulae normally have a hook hole in the wide part of the blade, from which the shoulder would have been suspended during the curing process but this part of the bone tends to be fragile and it was either missing or fragmented among the G0997 examples. This type of scapula butchery is typically Roman and often found at military or other heavily romanised sites (Cool 2006, 91). A cache of similarly butchered bones, within a group interpreted as shop waste, was identified in the Roman levels of a site at St Nicholas Place (Browning forthcoming). Similar butchery at Vine Street included a pig scapula with a hook perforation (Phase 2.5) and a sheep/goat scapula with a possible hook mark recovered from G1476, (Phase 4.7).

Over 50% of the butchery marks observed on sheep/goat bones were chop-marks, inflicted by a heavy-bladed implement. In Phase 2, although the affected number of bones was low, the sheep carcass was butchered in specific locations, including the pelvis and the tibia. In Phase 3, butchery was observed on a wider range of elements, with the limb bones exhibiting a greater range of chops and cuts. Butchery of the tibia, in particular, appeared to have been carried out rapidly, with the bones usually hacked roughly through the shaft. The mandible appeared to have been disarticulated by chopping through the ramus. However, on the whole there appears to have been little uniformity. In Phase 4, there was greater exploitation of the horncore and skull, with butchery more prevalent on this region of the body. Two sawn horncores were also recorded, indicating exploitation for craft purposes. Femora bore cut marks, which presumably related to both disarticulation and filleting. The tibia and radius were treated in a similar manner; consistently hacked through the lower shaft.

In Phase 2, butchery marks on the pig skeleton were few and occurred most frequently on the mandible, humerus and pelvis. Several mandibles were broken or hacked to expose the medullary cavity, presumably to access the marrow. Chopping through the mandibular symphysis suggested that the head was divided sagitally. Butchery on the humerus was irregular but emphasised dismemberment at the distal articulation. Marks on the pelvis concentrated around the acetabulum, and presumably occurred during disarticulation of the hind leg. In Phase 3, there was further evidence for the sagittal splitting of the skull, which also showed skinning marks and evidence for decapitation. The atlas also displayed chops associated with decapitation; in one case was divided sagittally and occasionally fine cut marks associated with slaughter were observed on the ventral face. Mandibles were divided through the symphysis and also

had fine cut marks likely to denote skinning or the removal of cheek meat or tongue. The ulna and pelvis were both sites of dismemberment, while marks on other bones were less consistent. In Phase 4, the pelvis and the humerus were the foci for butchery but there seemed to be little consistency in either the location or the tool used. Hollowing of the femur and humerus suggested exploitation of marrow. Two astragali exhibited fine cut marks on the dorsal face, probably resulting from dismemberment. Sagittal splitting of the mandible indicated that the methods of carcass distribution observed in previous phases had not significantly altered, although variability of marks on other bones suggested that butchery was had a number of different aims.

The picture suggested by the evidence is of increasing consistency in terms of the location and nature of cattle butchery but also more intensive exploitation. While this is undoubtedly influenced by the larger assemblage sizes, it may also reflect increasing urbanisation. However, there is no clear distinction between the types of butchery of the early Roman period and that of later phases, suggesting that techniques did not alter significantly through the period.

Other Mammals

Deer

Fragments attributable to deer were rare in Phases 2 and 3, although roe deer is marginally more frequent in Phase 3 than Red Deer. In both phases the elements recovered belong to the metapodials, phalanges and mandible. These are all robust bones which tend to survive well but are also elements that could have been brought in with a hide. Although it is evident that deer were occasionally hunted, cervids did not form a significant part of the diet and it could be argued further that there is little direct evidence for consumption of the meat. There was no significant change in this distribution in the Late Roman period for roe deer, whereas, for red deer, a small number of meat-bearing elements were present in the later deposits. Greater exploitation of red deer occurred in Phase 4, to which 9% of the identified assemblage was attributed. A number of antler fragments were recovered from groups in Phase 4.7. These were usually chopped or sawn and are likely to represent off-cuts from object manufacture. The majority of deer bones were deposited in two pit groups, G0227 (Phase 4.4) and G0997 (Phase 4.6). The elements in G0997 represented a single red deer skull. G0227, however, contained the remains of several articulated forelimbs, representing a minimum of two animals, which appear to have been deliberately stacked (M. Morris *pers. comm.*). Several unfused bones showed that the animals were young. Fine cut marks on a metacarpal suggested skinning, while other butchery marks indicated that meat had been removed from the carcasses. A possible ritual purpose was proposed by the excavators for this unusual deposit. In Roman contexts, ritual deposits have often been associated with wells and ritual shafts, for example, a well at Baldock containing two partially-complete skeletons of young red deer was identified as having possible ritual significance (Fulford 2001, 209). At Vine Street, the pit is significant for its high proportion of red deer (50%), which is normally a minority species, and there was clearly a strong element of selectivity since axial bones were not represented. The structured positioning of the bones within the pit lends further weight to a ritual interpretation. It is interesting that the emphasis is not purely on meat, as suggested by bones such as the humerus and femur and pelvis, or on skins, indicated by the phalanges and metapodials. However, a more prosaic explanation should not be ruled out until all the evidence, including finds and environmental and stratigraphic, has been carefully considered.

Dog

Dog bones contributed 1% of identified fragments in Phase 2, 2% in Phase 3 and 9% in Phase 4 (Table 154).

In Phase 2, an articulating skull and mandibles in excellent condition were recovered from G0346 (3606), an early pit in Insula V. Surprisingly, since these look as though they belong to a burial, no other dog bones were retrieved from this group and there were no butchery marks indicating that the head had been severed from the neck. Permanent dentition, which is usually in place by 6-7 months (Hillson 2005, 241) was present but the teeth were not heavily worn. The animal had a long, narrow snout but a rounded skull with a reduced sagittal crest (Figure 183). Dog skulls have been found in abundance at Roman sites and sometimes associated with ritual behaviour (Fulford 2001, 202). A partial cattle skull was recovered from the same group. It would be useful to consider the location and the other finds to explore whether there could be a ritual element to this deposit.

Figure 183: The Animal Bones: dog skull and mandibles in G0346

Small numbers of dog bones were identified in groups belonging to Phases 3.2 (G1229), 3.3 (G0790), 3.5 (G0928, G1388) and 3.6 (G0947). In G0790, an isolated scapula from a substantial animal was quite poorly preserved, suggesting that it may have been lying on the surface for some time and was later redeposited. A small group of bones in G1229 consisted of metacarpals, a tibia fragment and a single vertebra, suggesting that they had been caught up and redeposited with other rubbish. A humerus from G1388 (Phase 3.5) produced an estimated shoulder height of 54cm.

The largest group of bones in Phase 3 came from G0928, which contained skull and mandible fragments belonging to a puppy. The animal had deciduous dentition and although the jaw was perforated in preparation, the first molar was yet to erupt, indicating that the animal was aged less than five months (Hillson 2005, table 3.11). An unfused ulna from the same deposit indicated an animal under 9-10 months at death (Silver 1969, 285, table A), while a tibia (complete and unfused) from G0947 would have belonged to an animal aged below 13-16 months (Silver 1969, 286, table A).

A concentration of dog bones was recovered from a feature in Phase 4.1 (G0526: pits in gardens north of Building F). These pits were excavated in an area originally outside the property and also contained both bone-working waste and food debris. A simple minimum numbers count, based on the right tibia, suggests the presence of at least four dogs; however, the visual variability, echoed in the metrical data, suggests that the bones are more likely to represent five animals. Limb bones, ribs and vertebrae were present but there were very few cranial elements. Most bones were fused but a small number of juvenile bones provide evidence for animals aged less than 18 months (unfused femur, unfused and fusing proximal tibiae) and around 11-12 months (distal radius fusing) (Silver 1969, 286, table A). Examination of the limb bones suggested different morphological types of dog. One animal was small with straight limbs, another was stocky with bowed-legs, while others had bowed limbs but were more lightly built. Shoulder height estimations using the factors of Harcourt (1974) suggest that the dogs range in stature from 31cm to 39cm (Table 164). While they are not diminutive enough to be defined as toy dogs, they are still at the smaller end of the range for Roman Britain; the largest proven by Harcourt was 68cm (quoted in Cram 2000, 172). Although the following comparison infers no similarity in breed or type, heights of around 30cm have been recorded for terriers such as the Jack Russell (Cram 2000, table 1). The mid-shaft diameter index, calculated for the tibiae confirms the different builds of the dogs. One very high index of 11.4 was obtained for a particularly stocky bone, a result which is comparable to an index of 11.5, produced by a tibia from a complete skeleton recovered from Roman phases at York Road, Leicester (Baxter 2006, table 1), although the Vine Street specimen is considerably larger. The straight-limbed dog at Vine Street had the most gracile bones with an index of 6.6 and an associated shoulder height of 39cm, moderately larger than an animal from High Street, Leicester, which was estimated at 30cm tall (Baxter 2006, 20).

The morphology of these animals suggests that they were either pets or perhaps used for hunting smaller game; badger, hare and roe deer, as well as wild birds, were recovered from Phase 4. It is tempting to speculate that the animals were buried in the grounds of their owners' property and the skeletons were later disturbed by the digging of the pit and incorporated into its fill.

Isolated dog bones were recovered from pit fills in 4.7 (G0227), 4.6 (G0224, G0522) and 4.7 (G1476, G0731, G1272). These included a fragmentary mandible from a puppy, still with deciduous fourth premolar *in situ*. A larger mandible with well-spaced teeth was located in G1476; third and fourth premolars and first molar all worn flat.

Table 164: The Animal Bones: dog tibiae from context 3488, G0526, Phase 4.1. Measurements in mm except shoulder heights (following factors from Harcourt 1974) in cm (SD*100)/GL= mid-shaft diameter index

ID	Bone	Side	GL	Bp	Bd	SD	Shoulder height	Mid-shaft Diameter Index	Observations
2328	Tibia	Right	131	25.8	16.2	8.6	39cm	6.6	straight limbed
2329	Tibia	Left	131	25.7	16.2	8.6	39cm	6.6	straight limbed
2330	Tibia	Right	118	31.7	20.9	13.4	35cm*	11.4	bandy-limbed
2331	Tibia	Left			21.7	13.2	-		bandy-limbed
2332	Tibia	Right	111	25.4	17.1	9.6	33cm	8.6	slight medio-lateral bend
2333	Tibia	Left	103	26.6		9.5	31cm*	9.2	slightly bandy-legged
2334	Tibia	Right	111	24.5	15.9	8.4	33cm*	7.6	slightly bandy legged

*The accuracy of shoulder heights deriving from bones with significant curvature is uncertain

Horse

Horse bones were relatively rare in the assemblage, accounting for only 2% of the identified assemblage in Phases 2 and 3 and 1% in Phase 4. A lightly gnawed horse phalanx with skinning marks was recovered from G0710, a pit in the interior of timber structure 2, Insula V. The rest of the horse bones in Phase 2 were retrieved from G0121 (boundary line between timber structures 1 and 2 Insula V) and G0100 (occupational trample and made-up ground), each containing two limb fragments. There were no juvenile bones.

An isolated horse humerus was present in G0790 (external Insula V) in 3.3. Phase 3.6 yielded the largest concentration of horse bones from Roman phases. G0947 (made-up ground, Building A) contained a mandible, in which the second premolar was erupting, indicating an age around 2½ years (Silver 1969, 291, Table C). Tooth fragments, a femur, an astragalus and a third phalanx were recovered from the same feature. Two butchered metapodial fragments were recovered from G1345 (external Insula V), which appear to belong with the bone-working debris.

Horse bones were present in small numbers in Phases 4.4, 4.6 and 4.7. Three limb bones, including a metapodial fragment, were retrieved from G0526 and another chopped distal metapodial was present in the bone-working pits of G0515. Horse bones in 4.7 were mostly isolated fragments and were distributed amongst six different group assemblages: G1022, G1278, G1013, G0525 and G1476.

Cat

Only two cat bones were identified among the Roman phases, a juvenile femur from a drain (G0936) in 3.5 and a phalanx from 4.6 (G1004).

Hare

Hare was recovered sporadically across the site, single fragments occurred in Phases 2.4, 3.2 and 3.6 and Phase 4.1 (G0526) yielded a phalanx and astragalus. A greater concentration of bones occurred in Phase 4.6; in a drain deposit within G1004 a left and a right scapula were recovered, while G0522 contained a metatarsal. There were three bones belonging to hare, a mandible, ulna and tibia, within the fill of the 'coin hoard pit' in Building G, room 16 (G0224). None of the bones showed signs of butchery although the elements identified suggest that the bones may represent both meat and skins.

Badger

A pit in Phase 4.7 (G0731 Insula V pits V) contained a partial badger skeleton. Although the bone surfaces were well-preserved, fragmentation was extensive. The animal was represented by ribs, vertebrae, skull fragments and limb bones. Since badgers dwell primarily in woodland, often on the edge of pasture (Southern 1964, 377), it would be an unusual visitor to the Roman town, suggesting that it was brought back after a hunting trip in the nearby countryside. A cut mark observed on the ventral face of the atlas supports this interpretation. The absence of phalanges and metapodials, which would initially remain in the pelt, may indicate that the fur was removed; alternatively their absence may be simply down to the lack of recovery of small-sized bones. Badgers are not especially common on archaeological sites: a mandible fragment was identified in a 4th century context in Lincoln (Dobney et al 1996, 51) and there was an example from medieval Flaxengate (O'Connor 1982, 41). A fairly complete badger skeleton was recovered from 3rd century Exeter (Maltby 1979, 65).

Small mammals

Small mammal bones were rare, even among the sieved remains. Shrew and vole occurred occasionally in Phase 3 deposits and two bones belonging to mole were found in phase 4.7. It is possible that any these species are intrusive, as Common Shrew live in shallow runways in the soil (Southern 1965, 209) and mole tunnels can vary in depth from a few inches to a few feet (Southern 1965, 202). The vole bones compared best with Bank Vole, also a species that makes shallow burrows (Southern 1965, 279). These creatures have a varied habitat, common in woodland, pasture and even scrub, but they do require some manner of cover, perhaps suggesting that human occupation was not continuously dense.

Human

Human bones were isolated finds and probably residual. There were recovered from Phase 2.4 (G0710, Interior features of timber structure 2 and Phase 3.3 (G0790, External Insula V).

Birds

Domestic fowl, geese and ducks

Bones of domestic fowl, goose and duck were recovered from Vine Street in differing proportions. Domestic fowl were the most frequently recovered bird, present in all phases except 2.2, 3.1 and 3.8. Birds evidently did not make a major contribution to the diet in any phase. However, as previously noted, the proportion of domestic fowl bones increased from 5% to 10% relative to the main domesticates between the earliest and latest Roman phases. This reflects a wider trend of increasing consumption of chicken at Roman sites, compared with Iron Age sites, where it was rare (King 1991, 16). A survey of the quantity of domestic fowl consumed on Roman sites concluded that this was much more common on urban than rural sites (Maltby 1997, 412) and there is some evidence that chicken was eaten by the more socially advanced (Cool 2006, 100). It is possible that the higher poultry levels at Vine Street are indicative of both increasing adoption of Roman cuisine and greater availability in the town. There were no juvenile domestic fowl bones in Phase 2 or 3 however a small proportion was identified in Phase 4, perhaps suggesting that poultry breeding was taking place on or near the site.

The presence or absence of a spur on the tarsometatarsus can indicate the sex of a bird. Of 14 examples in the Roman assemblage, only four were spurred, suggesting that the majority of the birds present were female, as might be expected as eggs were an important resource as well as meat. Eggs are a common ingredient in the recipes of Apicius (Cool 2006, 102). No medullary bone was identified, which would indicate birds in egg-laying condition, but bones were not systematically broken in order to look for this. Small amounts of eggshell were identified in several samples from Phases 2 and 3 (features: G0403, G0784, G0318, G0421, G0487, G0947), which if confirmed as domestic fowl, suggests the consumption of eggs or possibly breeding fowl.

Table 165 illustrates that the domestic fowl skeleton was not completely represented in every phase; elements from the leg, particularly the tibiotarsus and tarsometatarsus occurred in the greatest abundance. Butchery marks were not common and, in total, there were 16 examples from Phases 2-4, affecting 11%

of fowl bones. However, they occur with surprising abundance on the tibiotarsus (9 examples), mostly around the distal trochlea and perhaps represent disarticulation of the lower leg. This is consistent with other sites of the period, in which butchery targeted the feet and wings, the implication being that birds were often cooked whole (Cool 2006, 99).

Neither goose nor duck were common in the Roman phases. A single bone each of goose and duck were present in Phase 2 and only two examples of goose and one of duck in Phase 3. Goose bones were similar in size to modern Graylag, while the duck bones compared well with mallard. It is difficult to say whether these birds were wild or domestic; however, there were no bones from ducklings or goslings, which might have suggested deliberate breeding. Both species occur most frequently in Phase 4.6. Goose bones were retrieved in small numbers from G1004, a drain where they might have ended up following preparation of the carcass, G0522 (made-up ground in gardens north of building F), G0526 (pits in gardens north of building F) and G0224 (coin hoard pit in building G, room 16). Among all groups of Phase 4.6, six goose bones exhibited butchery marks, mostly relating to disarticulation of the carcass but also suggesting filleting of meat. Three goose bones were recovered from two groups in phase 4.7 (G0997 and G1013). All of the duck bones from 4.6 were concentrated in the coin hoard pit G0224 and it is conceivable that they represent one skeleton. A left and a right tibiotarsus were both chopped at their distal end, suggesting removal of the meatless lower legs and feet. A single duck bone was present in the backfill of a well in Phase 4.7 (G0525).

Table 165: The Animal Bones: representation of the domestic fowl skeleton

Carcass region	Bone	2.4	2.5	3.2	3.3	3.5	3.6	3.7	3.9	4.1	4.4	4.6	4.7
Head	Skull					1	1					1	
	Dentary						1						
Vertebrae	Vertebra						4				2		
Sternum and pelvis	Furcula											2	
	Coracoid			3	1	2	2			1	2	4	3
	Scapula	2										1	
	Sternum			1			2				1		
	Pelvis	1				1	2					1	1
	Synsacrum											1	
Ribs	Rib					1						2	
Wing	Humerus	2		1	1	1	1	1			2	1	3
	Radius	2	2				4	1				4	
	Ulna	1	1				4	1				5	4
	Carpometacarpus				1		3				1		
	Wing digit												
Leg	Femur			2			1				1	2	2
	Tibiotarsus	1	1	3	1	2	4			3	3	11	2
	Tarsometatarsus	1	1			2	1		1	2	1	3	2
Phalanges	Phalanx 1	1											
	Total	11	5	10	4	10	30	3	1	6	13	38	17

Table 166: The Animal Bones: representation of the goose skeleton

Carcass region	Bone	2.4	3.5	3.6	4.1	4.6
Head	Skull					
	Dentary					
Vertebrae	Vertebra					
Sternum and pelvis	Furcula					
	Coracoid					1
	Scapula			1	1	
	Sternum					
	Pelvis					
	Synsacrum					
Ribs	Rib					
Wing	Humerus				3	2
	Radius	1				1
	Ulna					
	Carpometacarpus					1
	Wing digit				1	
Leg	Femur					1
	Tibiotarsus		1			1
	Tarsometatarsus					
Phalanges	Phalanx 1					
Total		1	1	1	5	7

Wild birds

Wild birds are infrequent and evidently did not feature heavily in the diet. Although many of the birds listed below would have been consumed, this is not necessarily the case and some may have been incorporated into the features by other means. A moderate increase in the number and variety of species was noted in the Later Roman period but this might also be a consequence of the larger assemblage.

A radius of teal or garganey (*Anas crecca/Anas querquedula*) (G1234) was retrieved from Phase 3.1. These small dabbling ducks are known to overwinter in Britain (Svensson et al 2001, 52) and have been noted in a number of Roman deposits (Yalden and Albarella 2009, 205).

Two woodcock (*Scolopax rusticola*) bones, a radius and humerus, were recovered from Phase 3 (G1204 and G1225). Although some woodcock stay in Britain year round, the harsh winters of Scandinavia and Russia have traditionally brought larger quantities to the region (Hart-Davis 2002, 274) therefore these bones may suggest winter hunting. Woodcock was identified in the Roman phases at Causeway Lane, Leicester (Gidney 1999, 317).

A single bone of Golden Plover (*Pluvialis apricaria*) was identified in Phase 4.1 (G0978). While this species breeds on moors, bogs and upland pastures, it is often found in lowland fields or pastures in winter (Svensson et al. 2001, 234), and therefore may be indicative of a winter kill. Bones of this species were also recovered during excavations at Causeway Lane (Gidney 1999, 317) and the Shires excavations, Leicester (Gidney forthcoming).

Coot (*Fulica atra*) was identified in Phase 4.6 (G0997), represented by a single bone. Their preferred habitats are lakes or slow-flowing rivers (Svensson et al. 2001, 116) and therefore this bird is likely to have dwelt on the Soar. There are similar records from other sites of the period and it is thought to have been consumed widely (Yalden and Albarella 2009, 214).

An element of Raven (*Corvus corax*) from Phase 4.1 (G0526) is likely to have belonged to a bird attracted by the scavenging opportunities of the urban environment. Ravens were far more common in the past and only vanished from towns in Western Europe in the 18th century (Serjeantson 2009, 378). Raven bones are frequently found on Roman sites, which has led to suggestions that they may have had a symbolic significance or even been kept as pets (Cool 2006, 115). In Leicester, ravens have been found in Roman contexts at Little Lane (Gidney 1991), Great Holme Street (Gouldwell 1991) and Causeway Lane (Gidney 1999, 317).

Burning

Burnt bones are generally rare; occurring within a small number of groups and forming only a minor proportion of the bone assemblage. For the most part, these bones have probably become incorporated with other rubbish during backfilling, rather than being directly associated with the function of the feature. There were a small number of exceptions where the burnt bones may have been *in situ*. A hearth in Phase 3.7 (G0950: Building G, Room 6) contained few bones but 80% (n=4) of these were charred. Another possible hearth in Phase 4.6 (G0383: Building F Room 2) contained four burnt bones, comprising 20% of the assemblage. However, there were few identifiable burnt fragments. Four burnt bones (19%) from a hearth in Phase 3.2 (G1201: External yard area west of Building D, Insula V) included a pig tibia and a sheep-size vertebra fragment. The charred bones (n=10, 14%) in G1388 (Phase 3.5: Building D, Insula V) included a sheep/goat tibia and a cattle ulna, which could be associated with cooking activities. Phase 4.7 G1032 (Building G Room 6, Backfilled drain) contained Five charred fragments in a backfilled drain in phase 4.7, (10%) however these may have been part of the same bone.

Not every hearth contained burnt bones: G1202 and G1228: external area west of Building D Insula V; G0931: Building A Insula V hearth residue; and G0952: Building G, Room 6, Insula V, hearth and associated burning. This suggests that the features were regularly cleaned out.

Craft Activities

Pin- making

Bone off-cuts, thought to represent the waste from pin-making activity, were recovered in and around Building F in Phases 3 and 4. The first appearance of a large quantity of butchered metapodials occurs in Phase 3.6; however, with the exception of four examples in Phase 3.7 (G0952 and G0492) this craft debris was not identified in the phases associated with the heyday of the adjacent courtyard building (G) (Phases 3.7, 3.8 and 3.9). Following the decline of Building G, large deposits of metapodial fragments occurred once more, present in a single Phase 4.1 feature (G0526: east of Building G and north of Building F) and were abundant in Phases 4.6 and 4.7 (Table 167). There were no obvious differences in the type of debris, implying that the aim was to produce the same objects, therefore two separate phases of manufacture could have occurred either side of the height of occupation at the courtyard house.

Distal epiphyses were routinely recovered but these were often accompanied by variously-sized longitudinal shaft splinters and 'chunks' from the shaft and proximal end. Although metapodials chopped in this characteristic manner appear in small quantities in many deposits, the bulk of the waste was recovered from the groups listed in Table 167. In addition to the bones recorded from G0515, a large sample of chopped and splintered metapodial shafts and distal articulations, weighing *c.*8.65kg was taken from context 2466 (Sample 205) and therefore the proportion quoted for this group in Table 167 is under-represented.

Table 167: The Animal Bones: location of bone-working waste by Phase and Group

Phase	Group	Group description	Proportion of bone-working waste in Group (distal metapodials and chopped shaft fragments)
3.6	G0399	Building F Room 5 Insula V Hypocaust structure dismantled and backfilled	41%
3.6	G1345	External (Insula V)	45%
3.6	G0448	North of Building F, Insula V, pits	36%
3.6	G0451	External (Insula V)	22%
4.1	G0526	Gardens north of Building F, Insula V Pits	18%
4.6	G0515	Building F, Room 5, Insula V, Bone working pits	18%
4.6	G0522	Gardens north of Building F, Insula V, made-up ground	37%
4.7	G0525	Gardens north of Building F, Insula, backfill of well	26%

Figure 184 shows the representation of various components of the cattle carcass in the features which contain bone-working debris. The results clearly indicate that specific bones were brought onto site for the purpose rather than articulated limbs. Phase 4 groups appear to contain a slightly greater proportion of

other elements than Phase 3, suggesting that a greater quantity of domestic waste has been incorporated in these features. Whether this reflects changing disposal practices in the later period, where the groups are generally larger, or an unintended consequence of prioritising decisions made during the post-excavation process, has not yet been fully determined.

A minimum of 35 cattle in Phase 3 and a further 35 in Phase 4 would have been required to produce the recorded bone-working assemblage, therefore the actual number, taking into account the un-recorded bone, would have been considerably higher. The numbers involved and the concentration of the debris suggests that this was a commercial enterprise rather than a small-scale cottage industry.

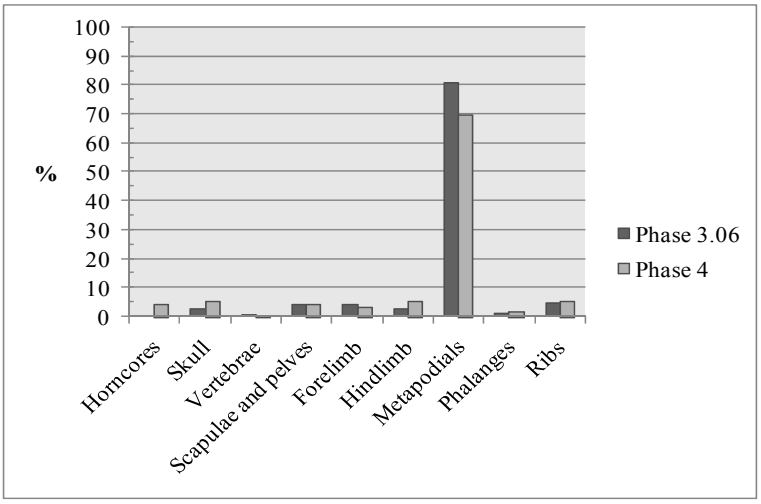

Figure 184: The Animal Bones: cattle carcass components in the bone-working groups

Examples at other Roman sites of smashed diaphyses with the articular ends removed, such as the General Accident Site, Tanner's Row, York (O'Connor 1988, 82), have been interpreted as the remains from marrow recovery or the raw materials for stock or soup. However, unlike Vine Street, the bones represented were a mixture of 'meaty' elements (femur, tibia, tibia and radius). The Vine Street bones are almost exclusively metapodials and therefore may have been supplied by the butcher or more probably the tanner, since metapodials often initially remained with the skin (Albarella 2003, 75). Five horse metapodials were butchered in the same manner (G1345, G0515, G0525 and G0526), but the rest specifically belonged to cattle. The debris was remarkably distinctive and was even recognisable as single examples, presumably residual, among other types of waste. Both metacarpals and metatarsals were utilised, although there appears to have been a slight preference for the latter. The bones were butchered systematically; chopped once or twice through the distal shaft on the dorsal side, removing the distal articulation, which was then discarded. The cleanliness of the chop varied, some were neat and precise, while the cut end was quite ragged on other bones. Recovered sections of distal shaft were often chopped at a steep angle into and towards the severed distal end, producing a facetted effect on the dorsal surface, which may have been a preliminary step towards shaping the fragments (Figure 185). Examples of squared off and hexagonal splinters were recovered from G1345 (3.6), G0522 (4.6) and G1347 (4.6). The latter example was a hexagonal tapered shaft and the top end was shaped with multiple inward-facing facets forming a point. Its original length is unknown due to a break and this, together with a chip from the pointed end, perhaps explained why it was discarded; all of the partially worked splinters appeared to be broken in some way. The shaping had evidently been carried out with a knife. Experiments have shown that soaking bone in water or another solution enables it to be worked almost as easily as wood (MacGregor 1985, 63). As well as finished pins, a number of pin rough-outs were noted during analysis of the small finds (H.E.M. Cool, this report). These first occurred in Phase 3.6 and mostly in the same features as the waste fragments.

Figure 185: The Animal Bones: shaped and facetted metapodial fragments

Figure 186: The Animal Bones: bone-working waste

MacGregor notes that whereas antler is often preferred for making many types of artefact, pins were more commonly made from limb-bones (1985, 114-115). He also comments that there are often few identifying characteristics left in the finished article, meaning that usually the raw material can be identified no more closely than 'limb-bone' (MacGregor 1985, 115). In this particular, the Vine Street assemblage is an incredibly useful aid to understanding the production process.

Antler and horn working

Utilisation of antler seems to have taken place on a smaller scale than the bone-working. Antler handles were noted among the Phase 4.6 and 4.7 Small Find assemblage (H.E.M Cool, this report) and Cool notes that the exploitation of antler is more common in very late Roman deposits than earlier ones. All the antler off-cuts identified among the faunal assemblage were recovered from Phase 4 (G1013, Insula IV pits and G1032, Building G, Room 6, Insula V, backfilled drain). Red deer antler was predominantly utilised and the main tool for working was evidently a saw, although cut marks indicate that a knife was also used. Grooves observed on two different off-cuts suggest that the blade of the saw was 2mm wide.

Fairly direct evidence for hunting is shown by a complete roe deer antler from a mature buck (G0526). The antler had been struck from the head through the pedicle with angled downwards chopping strokes,

apparently achieved by holding the antler up with the other hand. In addition, a series of fine cut marks were observed on the beam.

A Phase 4.7 cattle horn core had been sawn from the skull G0227 (Building G courtyard, Insula V pits); this also had a saw mark around the base of the horn core, presumably to facilitate the removal of the hornsheath. It was possible to record the width of the blade, which was once again 2mm wide. Saw marks were also present on two sheep horn cores, G1032, G0525, both within Phase 4.7. Both were sawn from the skull at their base and then again towards the tip, forming a tubular section.

Pathologies and non-metric traits

A total of 139 bones (2%) exhibited abnormal traits, however, the proportion of pathological bones varied slightly by phase and species. The following is a brief description of the main types of pathological conditions noted in the assemblage. With disarticulated and fragmented bones, it is difficult to make diagnoses for the pathological lesions present, because the whole skeleton is not available to assess the patterning of lesions. Therefore, the best that can be achieved is to provide descriptions and then a list of possible differential diagnoses. In addition, bone tissue can only make a limited set of responses to infection or trauma; therefore widely different conditions could cause a similar reaction in bone tissue (Vann and Thomas 2006).

Table 168: The Animal Bones: prevalence of abnormalities, congenital and non-metric traits

Species	Phase 2	*% affected*	Phase 3	*% affected*	Phase 4	*% affected*
Cattle	9	*9*	29	*6*	29	*5*
Sheep/goat	9	*7*	8	*4*	3	*2*
Pig	1	*2*	11	*7*	1	*1*
Dog		*0*		*0*	6	*7*
Horse	2	*40*	1	*7*	1	*8*
Red deer		*0*		*0*	1	*1*
Hare		*0*	1	*33*	1	*13*
Domestic fowl		*0*	2	*3*	1	*1*
Large mammal	1	*1*	6	*1*	3	*<1*
Medium mammal	1	*1*	4	*1*	3	*1*
Total	2	*4*	13	*4*	49	*2*

Disorders of the jaw and teeth

Calculus occurred regularly throughout the assemblage, primarily on the teeth of cattle and sheep/goat, often having the dark shiny 'metallic' appearance that is particularly associated with the teeth of ruminants (Hillson 2005, 290). Thinning, porosity and abnormal formation around the alveolar bone, probably indicative of periodontal disease, was noted on several mandibles and maxillae of cattle and sheep in Phase 2. In Phase 3, 20% of cattle mandibles and maxillae in Phase 3 (n=5) were affected. However, only one sheep mandible in Phase 3 had similar changes (out of 44). Periodontal disease affected three cattle maxillae in Phase 4, indicated by both bone thinning and abnormal bone formation around the alveolar bone. This constituted 75% of the maxillae recorded in this phase. A sheep maxilla exhibited porosity and pitting on the lateral side. Looking at the Roman phases as a whole, 35% (n=9) of mandibles or maxillae (which included at least part of the toothrow) were affected by periodontal disease. By contrast only 7% (n=2) of sheep/goat were similarly affected, possibly reflecting the fact that these were generally younger animals, therefore less likely to exhibit the pathology.

Malocclusion and congenital absences occurred infrequently. The second premolar was congenitally absent in a sheep mandible in Phase 2. A first molar in a Phase 2 sheep/goat mandible was malocclused, with the distal cusp considerably more worn than the mesial one, which was peaked rather than flat. The deciduous fourth premolar and first molar were crowded in one sheep/goat mandible and an absent premolar was noted in another. In Phase 3 two cattle third molars had congenital abnormities: in one case an absent third cusp and in another case the appearance of an extra cusp on the lingual side. In Phase 4, one cattle lower third molar has an absent third cusp. Within the assemblage, this condition affected 14% of third molars.

Other conditions included a 'bumpy' texture (see Levitan 1982) observed on the basal part of a sheep mandible, particularly noticeable below the deciduous 4th premolar. Levitan (1982) calls this ventral margin disturbance and suggests that it is associated with the eruption of the permanent first molar.

Two Phase 3 pig maxillae exhibited possible lesions caused by the projection of the tooth roots through the maxillary bone and in one case this was accompanied by reduction in bone density on the lingual side of the maxilla (affecting 18% of maxillae in this phase).

Figure 187: The Animal Bones: pathologies observed on cattle maxillae in the assemblage

Abnormalities on post-cranial bones

An increase in cattle abnormalities in Phases 3 and Phase 4 (Table 168) may have been partly due to the large numbers of cattle metapodials: 34% of pathological bones recovered from Phase 3 were metapodials. Most of these abnormalities consisted of osteophytes, splaying (asymmetry) or slight eburnation on the distal condyles. These types of pathologies are often considered to be work-related traumas, associated with use as draught animals (Bartosiewitz *et al.*1997). However, these conditions were still relatively uncommon, affecting approximately 6% of metapodials in Phase 3. In Phase 4, asymmetry, splaying of the distal condyles and slight exostosis was similarly common affecting 6% of cattle metapodials (n=11).

Evidence of trauma was very rare; a Phase 2 cattle humerus exhibited what appeared to be a well-healed fracture above the distal epiphysis as evidenced by remodelling. However, if this abnormality was indeed a healed fracture then the animal must have been very well cared for to heal so completely, since the humerus is a major weight-bearing bone and is not supported by other skeletal elements.

Two Phase 4 cattle pelves had pathological changes in the acetabulum, consisting of thinning of the bone around the acetabular rim and formation of porous-looking bone in the centre of the cavity, which may be a result of degeneration due to age or joint stress.

Abnormalities on large and medium mammal bones in Phase 3 consisted mostly of new bone formation, bony nodules and proliferative lesions on ribs, occurring on the lateral and visceral faces and the cranial border. These are possible evidence for pleural infections. Such conditions affected 3% of rib fragments (Large: n=5, medium: n=4) for both large and medium mammals.

Post cranial pig bones in Phase 3 appeared to be most affected by new bone formation, noted around the articulations of various bones. A bony callous had fused the lateral metapodials of one animal (probably trauma related). A deformity on a pig humerus manifested as increased density and abnormal bone formation around the epicondyloid crests and olecranon fossa, possibly as a result of poor fusion of the epiphysis.

Two domestic fowl bones in Phase 3 had pathological changes. One had a healed mid-shaft fracture of the tarsometatarsus, in which the distal half had been displaced and healed at an angle.

A tibiotarsus from the same phase was abnormally curved; rickets was suggested as the possible cause for tibiotarsi with a similar appearance (Gál 2008, 46). In Phase 4, a tibiotarsus of domestic fowl exhibited abnormal bone growth resembling a bony 'jacket' on part of the shaft, which may either have been a response to trauma or represent osteopetrosis, a contagious and widespread condition in which this bone is often the first affected (Gál 2008, 45).

Figure 188: The Animal Bones: healed fracture on domestic fowl tarsometatarsus

Figure 189 The Animal Bones: tibiotarsus with possible rickets

Several Phase 4 dog bones exhibited unusual features. These were mostly related to the abnormal curvature of the limb-bones, a characteristic that has been previously discussed in this report. All but one example derived from G0526. In addition, two ulnae had pathological changes, the first bony nodules formatted around the olecranon, while another had a particularly pronounced ridge of roughened bone on the cranial surface adjacent to the radius.

A Phase 2 horse radius exhibited severe eburnation and grooving on the medial part of the proximal articular surface, with abnormal bone growth on the cranial, caudal and medial faces. This condition appeared confined to the proximal articulation- the shaft and distal articulation were of normal appearance, which suggests that this was osteoarthritis. A distal horse humerus in Phase 3 had a lesion on the surface of the trochlea. In Phase 4, abnormal bone formation, with a flowing appearance was observed on a tarsal, in this case a condition such as spavin could be responsible, in which case the new bone would eventually ankylose (J. Wooding *pers. comm.*).

The proximal phalanx of a hare-sized mammal in Phase 3 exhibited extra bone formation, lending a bulbous look and possibly resulting from a break.

The Groups

The larger groups of bone from the assemblage are described below, arranged in Phase order.

Phase 2

All 18 groups analysed in Phase 2 belonged to Insula V. Most were relatively small, containing less than 50 fragments (the average number of fragments per group was 35). The groups from Phase 2.2 were early pits associated with activity in Insula V, prior to the timber building phase. Groups from 2.4 and 2.5 were associated with early timber structures, Building 1 and Building 2, mainly representing surfaces and occupation deposits rather than pits.

Table 169: The Animal Bones: groups in phase 2

Phase	**2.2**			**2.4**	**2.5**	
Species	**G0292**	**G0346**	**G0326**	**G0710**	**G1173**	**G1212**
Cattle	12	2	6	12	17	3
Sheep/Goat	38		27	9	22	11
Sheep	2		3			
Goat					1	
Pig	10		3	6	2	12
Red deer					1	
Roe deer					1	
Horse				1		
Dog		3				
Human				1		
Domestic fowl				3		2
Duck				1		
Total identified	*62*	*5*	*39*	*33*	*44*	*28*
Large mammal	14		22	21	20	12
Medium mammal	5		26	6	13	43
Indeterminate mammal			4	5		4
Bird-Indeterminate					1	
Grand total	*81*	*5*	*91*	*65*	*78*	*87*

Phase 2.2

G0326: *Early pits located under room3 and 2 building G Insula* V- four pits located immediately north of the eastern street and *c.*20-30m east of the street-junction.

Sheep/goat were the dominant species in this group (MNI=4, based on pelvis). The sheep were clearly horned, cranial and pelvic elements were most common, although metapodials, scapula, and tibia were also represented more than once. Sheep skulls were chopped sagitally and the pelvis showed disarticulation marks.

G0292: *Early pits found under the small courtyard building F Insula V*- a sub-circular cut with steep sides and flat base, located immediately north of the eastern street and *c.*55m east of the street junction. It contained a significant quantity of mid-late 1st century pottery, a copper alloy brooch spring (SF919), a spindle whorl made from a recycled gray ware vessel base (SF920) and the fragmented upper half of a quern stone (SF921).

Sheep were the most common species and the assemblage was dominated by a large deposit of sheep mandibles (left=10, right=8), some of which appeared to have paired with others in the group. A small number of mandibles belonged to animals under or around a year old but most were remarkably consistent in age, showing LM3 in the early stages of eruption, therefore probably from animals in their second year. The prevalence of sheep mandibles was not matched by numbers of cranial elements, suggesting that they were disarticulated before deposition. A smaller number of pig and cattle mandibles were also present. Two pig mandibles had apparently been opened for marrow, while a small proportion of both cattle and sheep mandibles had fine cut marks on the lateral surface. A fragment of worked cattle-size bone, which appeared to have been partially shaped into a pin, was recovered from the same group.

G0346: *Early pits Insula V - a* small group of bones including a well-preserved dog skull and mandibles, a partial cattle skull and part of a cattle tibia, were recovered from this feature.

Phase 2.4

G0710: *Interior features Timber Structure 2 Insula* - a spread possibly filling an unidentified cut located immediately south of Timber Structure 2. The group also included a circular cut located immediately north and containing a substantial quantity of early-mid- 2nd century pottery. The bone assemblage from the group was small; there were only 33 identifiable fragments, including cattle, sheep/goat, pig, horse, human, domestic fowl and duck. A small number of cattle, sheep, pig and domestic fowl bones (n=10) were heat-affected, suggesting that they were cooked. The human bone was a humerus shaft.

Phase 2.5

The following assemblage groups were the largest in 2.5 but had few characteristics worth comment.

G1212: *External pits associated with Timber structure 1 Insula V* – four features located *c.*10m north of the eastern street and *c.*20-25m east of the street junctionThe small quantity of identified fragments included equivalent numbers of sheep/goat and pig but cattle bones were few. Sheep-size rib fragments were relatively common.

G1173: *External trample areas Timber structure 1 and 2 Insula V* - two layers located *c.*10m north of the eastern street and *c.*35m east of the street junction capping G1172 (Phase 2.4). Both layers contained a reasonable quantity of late 1st – early 2nd century pottery.Cattle and sheep/goat were the most common species. An ovicaprine humerus was identified as probable goat, although it is acknowledged that bones of primitive types of sheep can resemble goat. Roe and Red deer elements were both from the foot.

Phase 3

Phase 3 witnessed the development of a complex of buildings in the south-western corner of Insula V. There was a mixture of large and small faunal groups, averaging 47 fragments per group. Thirty-nine groups from eight sub-phases were prioritised for analysis although many of the individual sub-phases contain little bone. Larger groups are described below.

Table 170: The Animal Bones: groups in phase 3

Phase	**3.1**	**3.2**	**3.5**	**3.6**		
Species	**G1234**	**G0790**	**G1225**	**G0947**	**G0399**	**G1345**
Cattle	5	19	7	51	145	88
Sheep/Goat	23	3	11	35	10	1
Pig	8	9	5	24	11	2
Horse		1		7		4
Dog		1		1		
Human		1				
Hare				1		
cf Bank vole					5	
Domestic fowl		2	2	1	25	2
Duck	1					
Goose					1	
Woodcock			1			
Teal/Garganey	1					
Total identified	*38*	*36*	*26*	*120*	*197*	*97*
Large mammal	24	26	32	66	99	75
Medium mammal	21	7	56	28	15	4
Indeterminate mammal	12	12	10	2	16	1
Bird-Indeterminate			1		6	
Grand total	*95*	*81*	*125*	*216*	*333*	*177*

Phases 3.1 and 3.2

Phases 3.1 and 3.2 were both assigned the same date range; mid-late 2nd century AD. Two Groups associated with the abandonment and demolition of Timber structures 1 and 2 were examined from Phase 3.1. All of the Groups in Phase 3.2 were associated with the external yard area west of building D and extended towards the northern street to the north of Building A. Three hearths were cut into the surface of the central yard. These were shallow sub-circular

cuts, 0.5-1m in diameter, containing deposits of ash and charcoal mixed with burnt bone, shell fragments and organic material (G1201, G1202 and G1228), and were thought to be domestic

G1234: *Demolition and made up ground capping Timber Structure 1 Insula V* – demolition layers of dark greyish-greenish brown sandy silt.

Sheep/goat account for the largest proportion of identified bone and mandibles are the most frequent element, supplying an MNI of 4 (left=4; right=2). One of the mandibles was from a lamb, three were animals with LM3 in crypt, suggesting an age of between 1 and 2 years and one had the LM3 in wear and was probably from an animal aged over 3 years. A bone identified as Teal (Anas crecca) or possibly garganey was recovered.

Phase 3.2

Phase 3.2 is late-2nd century AD. Groups from the alleyway or yard northeast of Building A were included in analysis as well as made up ground east of Building D. No groups from 3.4 were included.

G0790: *External (Insula V)* – a linear cut orientated north-south with sloping sides and concave base, located *c.*3m east of the northern street and *c.*30m north of the street junction.

Cattle bones were the most frequent, with sheep/goat rather scarce. Butchered cattle crania indicated that horn cores were removed for working and a cattle frontal showed evidence for pole-axing. Two cattle metapodials had had their distal portions removed, and these appeared similar to the bone-working material that was particularly prevalent later in the phase. The proximal part of a human humerus was also recovered from the group.

Phase 3.5

Phase 3.5 (late 2nd to early 3rd century AD) included a mixture of groups associated with Buildings A, D and G. The features represented are quite varied and include yard features, pits as well as hearths and beam slots.

G1225: *Buildings A, B and D courtyard Pits* – a sub-circular cut with vertical sides and flat base, 1m in diameter and 0.5m deep, located north of the eastern street. Its fills contained a substantial quantity of late 2nd – early 3rd century pottery and a copper alloy fastening (SF1838) but the upper layers were contaminated with a single sherd of Saxo-Norman pottery and a single sherd of late-medieval pottery. The animal bone from the feature was predominantly from indeterminate large and medium ungulates. Rib fragments were common and butchery seems to have centred round the disarticulation of carcasses, possibly suggesting that this group represents table or butchery waste.

Phase 3.6

Phase 3.6 (early 3rd century AD) contained the largest quantity of bone in Phase 3, particularly groups G0399, within Building F and G0947, a layer covering an area in the south-west corner of Insula V. Much of the activity around Building A, B and D seems to have centred round building up the ground level in preparation for further development. Two infant burials, presumably foundation deposits were made in Building A along with a further burial in Building B. A number of pits close to Building F were examined.

G399: *Building F Room 5 Insula V Hypocaust structure dismantled and back filled* – multiple tips located within the southern half of Corridor 5, filling hypocaust G1369 (Phase 3.4).

G0399 produced the largest assemblage of animal bone in Phase 3. Cattle bones contribute 74% of the identified assemblage and most of these elements were metapodials, allowing calculation of an MNI of 11, compared with an MNI of 1 from other elements. The metapodials were butchered as described in the *Craft Activities* section and appear to represent off-cuts from the production of bone artefacts. The deposits also contained a bone needle (SF792); a bone pin (SF793); and three fragments of worked bone (SF945-946) possibly unfinished pins. Twenty-five bones of domestic fowl were present, providing an MNI of 2. These represented most parts of the skeleton but with an abundance of wing elements. A small number of vole bones (cf *Clethrionomys glareolus*) were also recovered.

G947: *Building A Insula V made up ground* – a widespread layer, covering 15m by 25m area within the south-west corner of Insula V (including both Building A's and Building B's interiors).

In addition to cattle, sheep/goat and pig, small quantities of horse, dog, domestic fowl and hare bones were identified. The horse bones included a pair of mandibles with p2 erupting, therefore possibly indicating an age of around 2 ½ years (Silver 1969, 291, table C). Sheep/goat and pig mandibles are well-represented, providing MNI's of 6 and 4 respectively and denoting both juveniles and adults. The pelvis is the most common cattle element (MNI=5).

Butchery marks are common affecting more than a third of bones and appear to have had a variety of purposes, from slaughter and skinning to disarticulation and bone-working, suggesting that the waste has mixed sources.

G1345: *External (Insula V)* – a sub-circular cut with vertical sides and uneven base (only partially excavated), 1.9m in diameter and 0.6m deep, filled with layers of clayey sand, mixed with scattered small-medium sub-rounded stones and charcoal flecks. Within the upper fills were lenses of bone-working waste (butchered long-bones and small bone shards).

Cattle dominated the assemblage and only a small number of fragments were identified as belonging to other species. The majority of these were metapodials (n=78, 89% of cattle bones) and the number of non-repeatable zones suggests an MNI of 16 (right metatarsal). The metapodials were butchered in a characteristic way with the distal articulation removed, as described in the *Craft Activities* section. A large quantity of large mammal shaft fragments probably belonged to cattle metapodials and represents splinters and off-cuts deemed unsuitable for manufacture.

Phase 3.7

Phase 3.7 (early 3rd century AD) saw Buildings A, B and D incorporated and remodelled to form a single building surrounding a central courtyard, Building G. Relatively speaking, there was very little bone from Phase 3.7. All but one group was located in Building G, the majority in Room 6 and G1277 on the eastern side of the courtyard. An isolated group, G0492, northeast of Building G, was also included.

Phase 3.8 and 3.9

A single group from Phase 3.8, containing few fragments, was analysed and a further two groups from Phase 3.9 (early-mid- 3rd century AD) were also examined.

Phase 4

In phase 4 the final domestic occupation of Building G and the emergence of workshops took place, followed by the abandonment and demolition of masonry building. The bone assemblages from the groups studied were much larger than in previous phases, averaging 101 fragments.

Table 171: The Animal Bone: groups in Phase 4

Phase	**4.1**	**4.4**	**4.5**	**4.6**				**4.7**	
Species	**G0526**	**G0227**	**G0224**	**G0515**	**G0522**	**G0997**	**G1004**	**G0525**	**G0731**
Cattle	65	28	28	74	60	76	18	115	9
Sheep/Goat	5	5	44	2	10	6	9	10	4
Sheep	1		1				2	1	
Pig	12	12	35	2	9	31	8	21	9
Horse	3	1		1				1	
Dog	78	1	2		1				1
Cat							1		
Red deer	1	60			1	7		1	
Roe deer	3		2						
Hare	2		3		1		2		
Badger									48
Domestic fowl	4	13	25		1	5	5		7
Duck			6					1	
Goose	5		2		1	2	4		
Raven	1								
Coot						1			
Total identified	*180*	*120*	*148*	*79*	*84*	*128*	*49*	*150*	*78*
Large mammal	27	37	65	125	92	77	33	120	22
Medium mammal	9	32	35	6	23	5	11	27	26
Indeterminate mammal	5	2	22		19	5	11	8	17
Bird-Indeterminate	13	1	1			1	1	1	1
Grand total	*234*	*192*	*271*	*210*	*218*	*216*	*105*	*306*	*144*

Phase 4.1

Only two groups were selected for analysis from Phase 4.1 (Late 3rd to early 4th century AD). These were pit group G0526, which truncated the masonry structure of Building G and a courtyard deposit G0509, north of Building F.

G0526: *Gardens north of Building F Insula V Pits* – two sub-rectangular cuts both with vertical sides and flat bases located north of Building F and *c.*15m north of the eastern street cutting G445 (Phase 3.4).

The bone assemblage comprises a rich mix of debris. The largest number of identifiable fragments belonged to dog, representing a minimum of four animals (based on numbers of right tibiae). Although many of the bones appeared articulated or paired, no complete skeletons were noted. The animals appeared to be of diverse size and morphology, with both straight-limbed and bow-legged individuals represented. None of the bones were butchered and they therefore seem likely to represent disturbed burials. Cattle were the next most common species. Forty-three of the 65 cattle bones were metapodials, butchered in a characteristic fashion just above the distal articulation and therefore representing debris from bone-working. Other parts of the cattle skeleton are present including a number of cranial fragments, one of which bears a heavy chop across the frontal reminiscent of pole-axing. A cattle scapula has a hook mark through the blade suggesting that it may have been a smoked or cured shoulder of beef; a number of similar examples were recovered from a pit at St Nicholas Circle (Browning unpublished). The butchered antler (chopped from the skull with downward strokes), mandible and metacarpal of roe deer were recovered and a chopped red deer tibia was also present. Domestic fowl elements were from the legs (tibiotarsii and tarsometarsii) and could represent drumsticks or trimmings, while the goose bones were all from the wing and several humeri had butchery marks denoting disarticulation at the proximal end. A whole wing could have been used as a brush or weaving fan and feathers were also used for down, fletching arrows and quill pens (Serjeantson 2002, 43). A small number of hare bones and an element belonging to raven were also identified.

Phase 4.4

A single group in Phase 4.4 (early to mid- 4th century) was analysed. This was located within the courtyard of Building G and the excavators believed it may have a ritual purpose.

G0227: *Building G Courtyard Insula V Pits* – an oval cut with vertical sides and flat base, 1.6m by 1.2m and 0.65m deep, containing six articulated red deer forelegs (SF1292-1297) seeming deliberately placed beneath a deposit of horizontally stacked *tegula*, granite and slate. This was located on the western side of the courtyard adjacent to Room 7 cutting G113 (Phase 3.2). Both the material surrounding the legs and the final backfill contained a moderate quantity of Early to mid- 4th century pottery.

The assemblage within G0227 is highly unusual. Red deer dominated the group, with 60 elements attributable to these taxa. Most of the bones are from the foreleg, with both left and right represented. However, elements from the hind leg, including femur and metatarsal were also present. The number of phalanges (foot bones) suggests that a minimum of six feet would be required to form the assemblage and this is supported by the number of right humeri, which suggests an MNI of two. Observations during excavation and the presence of small and easily scattered elements, such as carpals and peripheral phalanges suggest that some of the bones were articulated. The distal parts of the limb, such as the phalanges and metapodials are in markedly better condition than bones higher up in the limb such as the humeri. The limb bones appear to have been chopped and possibly opened up for marrow extraction, while a metacarpal has fine cut marks perhaps suggesting skinning and a carpal and femur have cut marks that may indicate disarticulation.

A cattle horn core was removed from the skull using a saw. A domestic fowl vertebra appears to have been chopped to remove the head. Juvenile domestic fowl elements were present and part of a neonatal/juvenile cattle skull complete with horn bud.

Phase 4.6

The largest proportion of the assemblage was recovered from Phase 4.6 (mid- 4th century AD). The analysed groups were spread across the southern part of Insula V in both internal and external contexts.

G0224: *Building G room16 Insula V Coin Hoard pit*-an L-shaped feature running parallel against Room 16's southern and western walls. At the base of the fill was a scattered coin hoard containing 542 copper coins dated to AD 320-335 possibly within decayed fragments of a box.

Sheep/goat bones were most common, followed by pig. The assemblage contained almost equal numbers of cattle and domestic fowl bones, although obviously they would have made a very different contribution to the diet. Duck and goose were also represented. A very small number of metapodial fragments appear to be bone-working debris, although their small quantity suggests that they could be residual or intrusive. Butchery marks on cattle, sheep/goat

and pig bones seem mainly to represent dismemberment and filleting. On the whole there seems to be an emphasis on limb bones, which might imply that the debris is butchery and domestic waste.

G0515: *Building F Room 5 Insula V Bone working pits* – two small cuts spaced less than 0.5m apart at the southern end of Room 5. The southernmost was a circular cut with steep sides and flat base, filled with mid-dark orange-brown sandy silt, mixed with abundant small fragments of worked and waste bone (generally less than 10mm long). To the north-east a second sub-circular cut was filled with similar material but also contained some larger fragments of worked bone and discarded epiphyses. Its fill contained a small quantity of 4th-century pottery.

The assemblage from G0515 contained a large quantity of cattle metapodials and an even greater proportion of splinters and shaft fragments. The metapodials were all butchered in the same way, by chopping off the distal articulations and splitting the shaft. A horse metapodial was butchered in a similar manner. The majority of bones were contained within context 2532 but a small quantity of similar material was also retrieved from context 2544. In addition to the bones recorded, a large sample of chopped and splintered metapodial shafts and distal articulations, weighing *c.*8.65kg was taken from context 2466 (Sample 205). A tibia from a neonatal pig was present amongst the small amount of material unrelated to bone-working.

G0522: *Gardens north of Building F Insula V MADe up ground* – a layer located north of Building F and *c.*15m north of the eastern street capping G521 (Phase 4.1). It contained a significant quantity of late 3rd – 4th century pottery, fragments of four bone pins (SF884, SF887, SF889 and SF1001), a bone needle (SF885), two fragments from a colourless glass bowl or cup (SF894), twenty-seven iron nails (SF893 and SF1237) and two unidentifiable iron objects (SF886 and SF888).

The greatest proportion of the bone from G0522 consisted of further bone working debris, consisting of the discarded ends of cattle metapodials. Some partially shaped and prepared shaft fragments, rough-outs for pin-making, provide good evidence of continuity between the raw material and the finished pins. In addition to the craft waste, which accounted for two thirds of the identified cattle bones, there were elements of cattle, sheep/goat, pig and red deer bearing marks of dismemberment and filleting, suggestive of food debris.

G0997: *Building G Courtyard Insula V Pits* – a sub-oval cut with vertical sides and uneven base, containing large quantities of building waste and domestic refuse (bone, charcoal and oyster shell) and overlain by a substantial quantity of diamond shaped roof slates. The feature was located within the south-western corner of Building G's courtyard within an alcove created by the junction of Corridor 5 with Room 4.

Cattle were the most common species, with pig half as frequent and sheep/goat scarce. Cattle scapulae represented a minimum of nine bones (left: four and right: five). The frequency of this element is not matched by the adjacent humerus, suggesting that these were disarticulated prior to deposition. Almost all of the scapulae are butchered, mostly exhibiting marks relating to filleting and trimming around the glenoid cavity. It is possible that these represent smoked or cured shoulders of beef, which frequently occur in Roman deposits and were evidently a favoured foodstuff. These scapulae normally have a hook hole in the wide part of the blade from which the shoulder would have been suspended during the curing process but this part of the bone was missing or fragmented in the G0997 examples. Other bones in the assemblage also appear to have been food debris, including lumbar vertebrae with filleting marks that could have been part of a sirloin. A small number of bone appear to be slaughter waste, including a probably decapitated sheep skull that was also split sagitally, presumably to extract the brain and a cattle-size hyoid with cut marks. Cranial and maxillary elements represent a single red deer skull. It is not clear whether this was male or female since the part of the skull that carries the antlers is missing. A bird bone identified as coot (*Fulica atra*) was present.

G1004*: Building G room 6 Insula V Reuse of stone culvert as drain* **-** a north-south linear cut with vertical sides and flattish base, filled with multiple thin layers of greyish green and white chalky cess mixed with scattered small rounded pebbles, tesserae, orange sand, clay, bone and metal fragments. Here the culvert appeared to have been crudely repaired at its northern end, where it passed to the west of Room 21 and prior to it exiting Room 6.

The number of identified fragments was not as high as some of the other features but cattle were the most common species. The bone included a small quantity of waste from bone working, in the form of a chopped metacarpal and a number of chopped 'chunks' of metapodial shaft. Much of the rest of material appeared domestic in nature; butchery marks were present on bones of cattle, sheep, pig, large mammal, medium mammal and goose. A right and left scapula of hare were identified, one among the hand-recovered and one among the sieved assemblage.

Phase 4.7

By Phase 4.7 (mid-late 4th century AD) occupation appears to have ceased in Building G. The groups analysed were recovered from pits or wells, with the exception of two groups representing trample layers in Building G, Room 6.

G0525: *Gardens north of Building F Insula Backfill of well* **–** These were located to the north of Building F infilling well G524 (Phase 4.6). They contained a moderate quantity of 3rd – 4th century pottery.

G0525 yielded a large group of bone waste, the largest proportion of which was contributed by cattle. Pig bones were twice as common as sheep/goat but both were relatively scarce. Once again cattle metapodials were by the most frequent element and were butchered using the familiar method of chopping through the distal shaft to remove the articulation, while numerous splinters and chunks of shaft were also present. A horse metapodial was shaped in a slightly different manner, with chops on either side of the distal articulation angling in towards the inner trochlea. Other cattle limb bones are fragmentary and heavily chopped suggesting either that they were also used for craft or were extensive processed for stock, soup or marrow. The non-craft assemblage included a red deer humerus. Pig bones were also chopped, although these are most likely to represent food waste.

G0731: *Insula V Pits V* **–** two large sub-circular cuts both with vertical sides (only partially excavated), containing charcoal, mortar, granite, roofing slate, tile and occasional oyster shells were located adjacent to each other immediately north of Building G's north-western corner cutting G793 (Phase 3.1). The upper fill of one contained a moderate quantity of 3rd – 4th century pottery and the other a small quantity of 4th century pottery but one was contaminated with a very small quantity of early medieval pottery.

Also recovered from one were two bone hairpins (SF1027 and SF1076) and from the other an unidentifiable iron object (SF1066).

G0731 contained a small number of cattle, sheep/goat, pig and domestic fowl bones. A number of these were butchered indicating dismemberment and splitting of the carcasses. However, the bulk of the identifiable bones belonged to a partial badger skeleton, which was located in one of the lower fills of pit 4954. The bones were considerably fragmented but parts of the skull, vertebrae, ribs and several limb bones were recovered and the epiphyses present were united. The only discernable butchery was fine cut marks on the ventral face of the atlas, which may suggest slaughter.

Appendix: Additional Tables

Groups included in the analysis in each phase, with number of bone fragments recorded (descriptions from site database)

Table 172: The Animal Bones: Phase 2 - Early Roman (mid- 1st to early 2nd century AD)

Phase	Group	Group Description	Number
2.2	G0292	Early pits found under the small courtyard building F Insula V	81
2.2	G0326	Early pits located under room 3 and 2, building G Insula V	91
2.2	G0346	Early pits Insula V	5
2.2	G0347	Early pits north of building F, Timber phase Insula V	5
2.2	G0358	Early Pits Insula V	3
2.4	G0100	Occupational trample and made up ground Timber structure 2 Insula V	76
2.4	G0101	Interior surfaces and features Timber structure 2 Insula V	6
2.4	G0121	Boundary line between Timber Structures 1 and 2 Insula V	27
2.4	G0123	External trample deposits associated with Timber structure 2 Insula V	15
2.4	G0341	Trample deposits located to the north east of Timber structure 1 and 2 Insula V	7
2.4	G0485	Mortar surfaces located to the north east of Timber structure 1 and 2 Insula V	5
2.4	G0710	Interior features Timber Structure 2 Insula V	65
2.4	G1181	External pts Timber Structure 1 Insula V	12
2.5	G0102	Layers of trample associated with Timber structure 2 Insula V	10
2.5	G0117	Post holes external structures associated with Timber structures 1 and 2 Insula V	32
2.5	G0428	Timber structure 1 Insula V demolished	20
2.5	G1173	External trample areas Timber structure 1 and 2 Insula V	78
2.5	G1212	External pits associated with Timber structure 1 Insula V	87
			625

Table 173: The Animal Bones: Phase 3 - Mid Roman (mid- 2nd to 3rd century AD)

Phase	Group	Group Description	Number
3.1	G0784	External occupational trample or made up ground associated with timber structures 1 and 2 Insula V	18
3.1	G1234	Demolition and made up ground capping Timber Structure 1 Insula V	95
3.2	G1201	External yard area west of Building D Insula V Hearth feature	21
3.2	G1202	External yard area west of Building D Insula V Hearth feature	54
3.2	G1204	External yard area west of Building D Insula V Trample deposit	39
3.2	G1228	External yard area west of Building D Insula V Hearth feature	5
3.2	G1229	External yard area west of Building D Insula V Post holes	72
3.3	G0163	Alleyway or yard north east of Building A Insula V Made up Ground	1
3.3	G0165	Alleyway or yard north east of Building A Insula V made up ground	51
3.3	G0209	External (Insula V)	2
3.3	G0790	External (Insula V)	81
3.3	G1187	East of Building D Insula V made up ground	47
3.5	G0217	External (Insula V)	28
3.5	G0490	North east of Building D Insula V Post Hole and beam slot	13
3.5	G0928	Building A Insula V Cess pit	37
3.5	G0931	Building A Insula V Hearth residue	20
3.5	G0936	Building G Courtyard Insula V Drain	43
3.5	G1225	Buildings A, B and D courtyard Pits	125
3.5	G1266	Building G Courtyard Insula V Metal working waste	3
3.5	G1387	Within Building D Insula V Demolition	3
3.5	G1388	Building D (Insula V)	73
3.6	G0399	Building F Room 5 Insula V Hypocaust structure dismantled and back filled	333
3.6	G0447	North of Building F Insula V pits	10
3.6	G0448	North of Building F Insula V pits	45

Phase	Group	Group Description	Number
3.6	G0451	External (Insula V)	45
3.6	G0453	Building 3 Room 6 Insula V Plunge pool backfilled	37
3.6	G0947	Building A Insula V made up ground	216
3.6	G1345	External (Insula V)	177
3.6	G1380	Building B Insula V Small pits or post holes	13
3.6	G1382	Building B Insula V Infant Burials	6
3.7	G0492		10
3.7	G0950	Building G Room 6 Insula V Hearth and associated burning	5
3.7	G0951	Building G Room 6 Insula V Sunken stone lined feature	17
3.7	G0952	Building G Room 6 Insula V Hearth and associated burning	5
3.7	G0954	Building G Room 6 Insula V Possible pits	6
3.7	G1277	Building G Courtyard Insula V Post pads	34
3.8	G0967	Building G Room 6 Insula V Trample	24
3.9	G0377	Courtyard north of Building F Insula V Tile and Granite spread	6
3.9	G0442	Garden area north of Building F Insula V Garden soils	20
			1840

Table 174: The Animal Bones: Phase 4 - Late Roman (4th century AD)

Phase	Group	Description	Number
4.1	G0509	Courtyard east and north of Building F Insula V Made up ground	5
4.1	G0526	Gardens north of Building F Insula V Pits	234
4.1	G0978	Building G Room 6 Insula V Pits	21
4.4	G0227	Building G Courtyard Insula V Pits	192
4.6	G0224	Building G room16 Insula V Coin Hoard pit	271
4.6	G0383	Building F Room 2 Insula V Possible hearth	20
4.6	G0515	Building F Room 5 Insula V Bone working pits	211
4.6	G0522	Gardens north of Building F Insula V Made up ground	218
4.6	G0697	Gardens north of Building F Insula V Pits	22
4.6	G0997	Building G Courtyard Insula V Pits	216
4.6	G1004	Building G room 6 Insula V Reuse of stone culvert as drain	105
4.6	G1006	Building G room 6 Insula V Hammer scale deposits and burnt spreads	7
4.6	G1256	Building G Room 18 Insula V Pit	14
4.6	G1313	Building G Courtyard Insula V Pit	10
4.6	G1347	Gardens north of Building F Insula V Pits	3
4.7	G0525	Gardens north of Building F Insula Backfill of well	306
4.7	G0731	Insula V Pits V	144
4.7	G1013	Insula IV Pits	42
4.7	G1022	Building G Room 6 Trample layers, dumped tessera and building material	28
4.7	G1032	Building G Room 6 Insula V Backfilled drain	50
4.7	G1272	Building G Room 17 Insula V Pit	69
4.7	G1278	Building G Courtyard Insula V Pits	56
4.7	G1476		88
			2332

Epiphysial Fusion tables (Age of fusion after Silver (1969)

Key: P= proximal; D=distal

Table 175: The Animal Bones: cattle epiphysial fusion

Cattle		Phase 2		Phase 3		Phase 4	
Bone	**Age (mo)**	**Fused**	**Unfused**	**Fused**	**Unfused**	**Fused**	**Unfused**
Pelvis	7-10	4		16		17	
Scapula D	7-8	2		9		16	
1st Phalanx P	13-15	2		14	1	28	2
Humerus D	15-18	2		6		4	1
Radius P	15-18	1		6		10	
2nd Phalanx P	18	2		10		9	3
Metacarpal D	24-36	1		50	7	60	
Tibia D	24-30	1		6	1	3	
Metatarsal D	27-36			69	2	83	
Femur P	42	1		3		1	
Calcanuem P	36-42	1	1		1	4	1
Radius D	42-48	1	1	1		2	1
Ulna P	42-48		1		3	0	
Humerus P	42-48					1	1
Femur D	42-48			2		3	
Tibia P	42-48			2		5	1
		18	3	194	15	246	10

Table 176: The Animal Bones: sheep epiphysial fusion

Sheep		Phase 2		Phase 3		Phase 4	
Bone	**Age (mo)**	**Fused**	**Unfused**	**Fused**	**Unfused**	**Fused**	**Unfused**
Pelvis	6-10	2		10		5	1
Scapula D	6-8	4		6		3	
Humerus D	10	5	1	5		5	
Radius P	10	3	1	1	1	3	1
1st Phalanx P	13-16	2		2		1	1
2nd Phalanx P	13-16						
Metacarpal D	18-24	2	1	4	4	1	
Tibia D	18-24	2	2			13	1
Metatarsal D	20-28	3	1	3	4	1	
Ulna P	30		1		2		
Femur P	30-36		1		1		
Calcaneum P	30-36			2			
Radius D	36		2			1	1
Humerus P	36-42			2	2	2	1
Femur D	36-42		1	1	2	4	
Tibia P	36-42			2	3	3	1
		23	11	38	19	42	7

Table 177: The Animal Bones: pig epiphysial fusion

Pig		Phase 2		Phase 3		Phase 4	
Bone	**Age (mo)**	**Fused**	**Unfused**	**Fused**	**Unfused**	**Fused**	**Unfused**
Scapula D	12	2		4		4	
Humerus D	12	5		3		1	3
Radius P	12	1		2			
Pelvis	12	6		4		7	2
2nd Phal P	12	1		2		1	
Metac D	24		2	1	4	1	2
Tibia D	24		1			1	4
1st Phal P	24			2		2	1
Calc P	24-30		1		2	1	1
Metat D	27	1	1	1	3	2	2
Ulna P	36-42		2		2		2
Humerus P	42						

Radius D	42						3
Femur P	42				2		
Femur D	42						
Tibia P	42						3
Total		16	7	19	13	20	23

Toothwear (after Grant (1982) and O'Connor (2003)

Table 178: The Animal Bones: cattle toothwear scores

Phase	Group	Species	Dp4	p4	m1	m2	m3	MWS	Age Stage
2.2	G0292	Cattle			g	g	e	34	A3
2.2	G0292	Cattle	l		j	g	U	31	SA2
2.4	G0100	Cattle					g	37-46	A3
2.5	G1212	Cattle			j	f	0.5	29	SA2
2.5	G1173	Cattle	k		f	b		19	SA
3.1	G1234	Cattle				j	g	41-42	A3
3.5	G1388	Cattle			k	g	d	36	A2
3.6	G1380	Cattle			k		g	39-42	A3
3.6	G0453	Cattle		g	l	k	k	46	E
3.6	G0453	Cattle	k						
3.6	G0448	Cattle	k		h	f	0.5	28	SA2
3.6	G0447	Cattle	k		j	f	0.5	29	SA2
4.1	G0526	Cattle			j	f		29	
4.6	G0522	Cattle	b					3	J
4.6	G1004	Cattle		f	k	j	g	41	A3
4.6	G1004	Cattle			k	j	g	41	A3
4.6	G0997	Cattle		a					
4.7	G1272	Cattle		g	k	k	g	42	A3
4.7	G1476	Cattle			k	f	E	29	SA2
4.7	G0525	Cattle		h	l	k	k	46	E

Table 179: The Animal Bones: sheep/goat toothwear scores

Phase	Group	Species	Dp4	p4	m1	m2	m3	MWS	Age stage
2.2	G0292	S/G	l						
2.2	G0292	S/G			g				
2.2	G0292	S/G				E		10-15	I
2.2	G0292	S/G	j		e	V		12	I
2.2	G0292	S/G	g		f	E		14-15	I
2.2	G0292	S/G	h		f	b		19	SA1
2.2	G0292	S/G	j		g	b		20-21	SA1
2.2	G0292	S/G	k		g	c	C	21	SA1
2.2	G0292	S/G	l		f	d	C	21	SA1
2.2	G0292	S/G			g	c	C	21	SA1
2.2	G0292	S/G	g		g	c	C	21	SA1
2.2	G0292	S/G	h		g	c	C	21	SA1
2.2	G0292	S/G			g	c		21-24	
2.2	G0292	S/G	l		h	c	C	22	SA1
2.2	G0292	S/G			g	d		22-25	
2.2	G0326	S/G	n		g	d		22-25	SA1
2.2	G0292	S/G	l		h	d	C	23	SA1
2.2	G0292	S/G	m		g	d	V	23	SA1
2.2	G0292	S/G	l		h	d	C	23	SA1
2.2	G0292	S/G	l		g	f		24-26	
2.2	G0326	S/G					b	29-32	A1
2.2	G0326	S/G		g	g			29-36	
2.2	G0292	S/G				f	c	31-32	A2
2.2	G0292	S/G	f		0.5			4-6	J
2.2	G0292	S/G	f		0.5			4-6	J
2.4	G0123	S/G	g						
2.4	G0710	S/G			h	g	f	36	A3

Phase	Group	Species	Dp4	p4	m1	m2	m3	MWS	Age stage
2.5	G1212	S/G	e						
2.5	G1173	S/G			g	b		20-21	SA
2.5	G1173	S/G	k		g	d		22-25	
2.5	G1212	S/G	c		E			3-5	J
3.1	G1234	S/G	g		d			10-12	
3.1	G1234	S/G	g		e	V		12	I
3.1	G1234	S/G			g	c	C	21	SA1
3.1	G1234	S/G	m		g	d	C	22	SA1
3.1	G1234	S/G		V	g	e	C	23	SA1
3.1	G1234	S/G		f	h	g	c	33	A2
3.2	G1204	S/G			g				
3.2	G1204	S/G			g	c		21-24	
3.2	G1229	S/G	n		g	f	E	26	SA2
3.2	G0790	S/G	f		E			4-5	J
3.3	G1187	S/G	m		g	c		21-24	
3.3	G0165	S/G		g	h			29-36	
3.5	G1388	S/G	g		f			13-22	
3.5	G1388	S/G				f	0.5	27	SA2
3.5	G0928	S/G	e		E			3-5	J
3.5	G0936	S/G			k	h	g	40	A3
3.5	G0217	S/G	f		E			4-5	J
3.5	G1388	S/G			c			9-11	
3.6	G0947	S/G	g		d	V		11	I
3.6	G0947	S/G	g		f	V		13	I
3.6	G0453	S/G	c		V			2	J
3.6	G0947	S/G	n		g	d		28	
3.6	G0947	S/G			g	g		28-36	
3.6	G0947	S/G		g	h			29-36	
3.6	G0947	S/G	e		C			3	J
3.6	G0947	S/G			h	f	c	32	A2
3.6	G0448	S/G	e		E			3-4	J
3.6	G1380	S/G		h	h	g	e	35	A3
3.6	G0447	S/G			h	g	g	37	A3
3.6	G0947	S/G			m	k	h	45	A3
3.7	G1277	S/G	e						
3.7	G0954	S/G	j		g	f		25-26	
3.9	G0377	S/G	g		f			13-17	
4.1	G0526	S/G	f		d	C		10	I
4.6	G0522	S/G		g					
4.6	G0997	S/G	l		g			23-27	
4.6	G1004	S/G		V	g	d		25	
4.6	G0224	S/G	c					2-6	J
4.6	G0515	S/G		f	g	g	d	33	A2
4.6	G0522	S/G	d		E			3-5	J
4.6	G1004	S/G		j	l	g	g	40	A3
4.6	G1004	S/G		k	m	h	g	42	A3
4.6	G0224	S/G	e		a			7-8	J
4.7	G1278	S/G	g		0.5			4-6	J

Table 180: The Animal Bones: pig toothwear scores

Phase	ContGroup	Species	Dp4	p4	m1	m2	m3	MWS	Age stage
2.2	G0292	Pig					b	27-37	A2
2.2	G0292	Pig			g	e	a	28	A1
2.4	G0100	Pig			f	c	E	22	SA2
2.4	G0710	Pig	c					2-8	J
3.5	G0217	Pig					b	27-37	A2
3.6	G0947	Pig		f	k			30-34	
3.6	G0448	Pig				g	c	34-38	A2
3.6	G0947	Pig					a	23-35	A1

Phase	ContGroup	Species	Dp4	p4	m1	m2	m3	MWS	Age stage
3.6	G0947	Pig				f	a	31-34	A1
3.6	G0947	Pig	e		a			7	J
4.1	G0526	Pig				b	C	18	SA1
4.6	G0224	Pig			e	c	E	21	SA2
4.6	G0522	Pig		e	k			30-34	
4.6	G0997	Pig					0.5	22-29	SA2
4.6	G0997	Pig	c		E			3-5	J
4.7	G1022	Pig	U					5-6	J
4.7	G1476	Pig	c		E			3-4	J
4.7	G0525	Pig			0.5			4-5	J

Carcass Representation

Table 181: The Animal Bones: carcass representation – cattle

Cattle Element	Phase 2	Phase 3 (non-bone working)	Phase 3 (bone-working)	Phase 4 (non-bone working)	Phase 4 (bone-working)
Horncore	1	4	0	4	2
Skull UO	2	4	3	4	1
Skull LO	1	2	1	0	3
Skull OC	0	4	0	6	1
Maxilla	3	6	1	1	2
Mandible	7	7	2	5	4
Atlas	2	2	0	1	1
Axis	3	0	0	1	0
Scapula D	4	7	3	14	2
Humerus P	1	0	1	2	0
Humerus D	1	5	2	3	0
Ulna P	2	2	0	0	1
Radius P	1	3	2	5	5
Radius D	2	1	2	2	0
Metacarpal P	3	5	3	4	2
Metacarpal D	1	9	46	8	50
Pelvis	2	6	1	11	4
Femur P	1	2	1	2	2
Femur D	2	1	1	3	1
Tibia P	0	2	0	4	1
Tibia D	2	2	0	4	1
Astragalus	2	2	0	3	4
Calcaneum	3	3	0	6	3
Metatarsal P	3	4	1	4	3
Metatarsal D	0	5	70	11	68
Phalanx 1	2	13	3	23	7
Phalanx 2	3	9	1	10	2
Phalanx 3	4	5	1	7	1
Total	58	115	145	148	171
Large mammal					
Rib (zoned)	11	41	4	22	12
1/3 rib fragments	14	37	18	25	18
Total ribs	25	78	22	47	30
Vertebrae	9	26	3	25	2

Table 182: The Animal Bones: carcass representation – Sheep/Goat

Sheep/Goat Element	Phase 2	Phase 3	Phase 4
Horncore	2	0	5
Skull UO	1	5	2
Skull LO	2	13	13
Skull OC	2	16	19
Maxilla	5	0	2
Mandible	28	34	11
Atlas	0	2	1
Axis	1	1	2
Scapula D	6	9	7
Humerus P	2	7	5
Humerus D	9	12	7
Ulna P	2	2	2
Radius P	7	9	9
Radius D	6	8	7
Metacarpal P	5	16	11
Metacarpal D	4	13	6
Pelvis	5	10	8
Femur P	5	1	3
Femur D	6	4	10
Tibia P	9	0	3
Tibia D	8	0	0
Astragalus	0	2	0
Calcaneum	0	2	1
Metatarsal P	8	16	9
Metatarsal D	7	17	6
Phalanx 1	2	3	2
Phalanx 2	0	0	0
Phalanx 3	0	0	0
Total	132	202	151
Medium Mammal			
Rib (zoned)	31	44	42
1/3 rib fragments	18	27	21
Total ribs	49	71	63
Vertebrae	3	21	19

Table 183: The Animal Bones: carcass representation – Pig

Pig Element	Phase 2	Phase 3	Phase 4
Skull UO	2	8	1
Skull LO	1	2	6
Skull OC	0	1	1
Maxilla	0	7	4
Mandible	4	7	11
Atlas	0	5	2
Axis	0	2	1
Scapula D	5	5	6
Humerus P	0	3	4
Humerus D	5	5	11
Ulna P	2	6	7
Radius P	1	3	3
Radius D	0	2	1
Metacarpal P	2	5	4
Metacarpal D	2	5	4
Pelvis	7	6	6
Femur P	0	2	0
Femur D	2	2	2
Tibia P	2	3	8
Tibia D	2	7	7
Astragalus	0	2	6
Calcaneum	1	3	5
Metatarsal P	3	6	8
Metatarsal D	2	4	5
Phalanx 1	0	2	3
Phalanx 2	1	2	1
Phalanx 3	0	1	0
Total	44	106	117
Rib (zoned)	2	9	11
Rib fragments (1/3 med mammal)	18	27	21
Total ribs	20	36	32
Vertebrae (pig + 1/3 med mammal)	1	7	8

Butchery tables

Table 184: The Animal Bones: butchery – Phase 2 Cattle and large mammal

Phase	Species	Bone	Smash	Chop	Cut	Total
2	Cattle	Skull		1	2	3
2	Cattle	Skull & horncore		1		1
2	Cattle	Mandible		4	1	5
2	Cattle	Atlas		2	1	3
2	Cattle	Axis		5	3	8
2	Cattle	Scapula	2	4	1	7
2	Cattle	Humerus	1	1		2
2	Cattle	Ulna		1	1	2
2	Cattle	Radius	4	2		6
2	Cattle	Metacarpal	3			3
2	Cattle	Pelvis		3		3
2	Cattle	Femur	2		1	3
2	Cattle	Tibia		2		2
2	Cattle	Calcaneum		1		1
2	Cattle	Metatarsal	1	2		3
2	Cattle	Phalanx 1			1	1
2	Cattle	Sacrum		1		1
2	Large mammal	Rib (zoned)		6	2	8
2	Large mammal	Vertebrae		6	2	
		Total	13	42	11	66

Table 185: The Animal Bones: butchery – Phase 3 Cattle and large mammal

Phase	Species	Bone	Depression	Hole/hook	Smash	Chop	Cut	Total
3	Cattle	Horncore				1		1
3	Cattle	Skull & horncore				2		2
3	Cattle	Skull	1				1	2
3	Cattle	Maxilla					2	2
3	Cattle	Mandible			1	7	2	10
3	Cattle	Atlas				1	1	2
3	Cattle	Scapula	1	2		16	1	20
3	Cattle	Humerus			2	6	1	9
3	Cattle	Ulna				3	1	4
3	Cattle	Radius			4	3		7
3	Cattle	Metacarpal			1	3	1	5
3	Cattle	Metapodial				3		3
3.6	Cattle	Metacarpal			1	56	5	62
3.6	Cattle	Metapodial			1	81	1	83
3	Cattle	Pelvis			3	12	2	17
3	Cattle	Femur			1	6	3	10
3	Cattle	Tibia			4	9	2	15
3	Cattle	Astragalus				1	2	3
3	Cattle	Metatarsal			1	7	1	9
3.6	Cattle	Metatarsal			1	80	6	87
3	Cattle	Phalanx 1				1	5	6
3	Cattle	Phalanx 2					1	1
3	Cattle	Sacrum				7	2	9
3	Large mammal	Rib (zoned)				12	12	24
3	Large mammal	Vertebrae				17	8	25
		Total	2	2	20	334	60	418

Table 186: The Animal Bones: butchery – Phase 4 Cattle and large mammal

Phase	Species	Bone	Hole/hook	Smash	Chop	Saw	Cut	Total
4	Cattle	Horncore				2	1	3
4	Cattle	Skull & horncore			1		1	2
4	Cattle	Skull			4		3	7
4	Cattle	Maxilla			1			1
4	Cattle	Mandible		1	7		1	9
4	Cattle	Atlas			1			1
4	Cattle	Axis			2			2
4	Cattle	Scapula	1	1	13		10	25
4	Cattle	Humerus			3		1	4
4	Cattle	Ulna			4		1	5
4	Cattle	Radius		3	8		1	12
4.1	Cattle	Metacarpal		2	11			13
4.6	Cattle	Metacarpal		1	29		2	32
4.7	Cattle	Metacarpal			17		2	19
4.1	Cattle	Metapodial			8			8
4.6	Cattle	Metapodial			45		1	46
4.7	Cattle	Metapodial			33			33
4	Cattle	Pelvis			13		3	16
4	Cattle	Femur			5		1	6
4	Cattle	Tibia		2	5		1	8
4	Cattle	Astragalus			1		2	3
4	Cattle	Calcaneum			4		1	5
4.1	Cattle	Metatarsal			26		2	28
4.4	Cattle	Metatarsal		1				1
4.6	Cattle	Metatarsal		2	33		2	37
4.7	Cattle	Metatarsal		1	33		2	36
4	Cattle	Phalanx 1			1		3	4
4	Cattle	Carpal			1			1
4	Cattle	Tarsal			1			1
4	Large mammal	Rib (zoned)			3		3	6
4	Large mammal	Vertebrae			15		6	21
		Total	1	14	328	2	50	395

Table 187: The Animal Bones: butchery – Phase 2 Sheep, sheep/goat and medium mammals

Phase	Species	Bone	Smash	Chop	Cut	Total
2	Sheep	Horncore		1		1
2	Sheep	Skull		2		2
2	S/G	Mandible		1	2	3
2	S/G	Axis		2		2
2	S/G	Radius			1	1
2	S/G	Metacarpal		1		1
2	S/G	Metapodial		1		1
2	S/G	Pelvis		3	1	4
2	S/G	Femur		1		1
2	S/G	Tibia	3	1	1	5
2	S/G	Metatarsal			1	1
2	Medium mammal	Rib (zoned)		3	4	
2	Medium mammal	Vertebrae		1		
		Total	3	13	6	22

Table 188: The Animal Bones: butchery – Phase 3 Sheep, sheep/goat and medium mammals

Phase	Species	Bone	Smash	Chop	Cut	Total
3	S/G	Skull		1		1
3	S/G	Mandible		2	2	4
3	S/G	Atlas		1		1
3	S/G	Axis			1	1
3	S/G	Scapula		2	1	3
3	S/G	Humerus	1	1	2	4
3	S/G	Radius	1	4		5
3	S/G	Metacarpal		2		2
3	S/G	Pelvis		3	2	5
3	S/G	Femur		1	4	5
3	S/G	Tibia	6	2		8
3	S/G	Astragalus			2	2
3	S/G	Metatarsal			1	1
3	Medium mammal	Rib (zoned)		15	5	20
3	Medium mammal	Vertebrae		5	2	7
		Total	8	39	22	69

Table 189: The Animal Bones: butchery – Phase 4 Sheep, sheep/goat and medium mammals

Phase	Species	Bone	Hole/hook	Smash	Chop	Saw	Cut	Total
4	Sheep	Horncore			1	2		3
4	Sheep	Skull			3			3
4	S/G	Skull			2		1	3
4	S/G	Mandible			1			1
4	S/G	Atlas			1			1
4	S/G	Axis					2	2
4	S/G	Scapula	1		1			2
4	S/G	Humerus		1	2		1	4
4	S/G	Radius		3	2		1	6
4	S/G	Metacarpal			1			1
4	S/G	Pelvis			1		2	3
4	S/G	Femur		1	2		5	8
4	S/G	Tibia		5	4		2	11
4	S/G	Sacrum			1			1
	Medium mammal	Rib (zoned)			7		3	10
	Medium mammal	Vertebrae			3			
		Total	1	10	29	2	17	59

Table 190: The Animal Bones: butchery – Phase 2 Pig

Phase	Species	Bone	Hole/hook	Smash	Chop	Cut	Total
2.4	Pig	Skull				1	1
2.4	Pig	Mandible			4	1	5
2.5	Pig	Scapula	1			2	3
2.5	Pig	Humerus		3	3		6
2.4	Pig	Pelvis			1	2	3
2.2	Pig	Femur		1			1
		Total	1	4	8	6	19

Table 191: The Animal Bones: butchery – Phase 3 Pig

Phase	Species	Bone	Depression	Smash	Chop	Saw	Cut	Total
3	Pig	Skull			5		2	7
3	Pig	Maxilla					1	1
3	Pig	Mandible			4		1	5
3	Pig	Atlas			4		2	6
3	Pig	Axis			2			2
3	Pig	Scapula	1			1	3	5
3	Pig	Humerus		2	2		1	5
3	Pig	Ulna			2		1	3
3	Pig	Radius		1			1	2
3	Pig	Metacarpal					1	1
3	Pig	Pelvis			3		1	4
3	Pig	Tibia		1				1
3	Pig	Astragalus					1	1
3	Pig	Rib (zoned)			1			1
		Total	1	4	22	1	13	44

Table 192: The Animal Bones: butchery – Phase 4 Pig

Phase	Species	Bone	Smash	Chop	Cut	Total
4	Pig	Skull		1	1	2
4	Pig	Maxilla				0
4	Pig	L canine		1		1
4	Pig	Mandible		2		2
4	Pig	Atlas		2		2
4	Pig	Scapula		1	1	2
4	Pig	Humerus	3	2	2	7
4	Pig	Ulna		1		1
4	Pig	Radius	1			1
4	Pig	Metapodial			1	1
4	Pig	Pelvis		2	2	4
4	Pig	Femur	1			1
4	Pig	Tibia		2		2
4	Pig	Astragalus			2	2
4	Pig	Metatarsal			1	1
4	Pig	Other		1		1
4	Pig	Rib (zoned)		1	3	4
4	Pig	Vertebrae		1		1
		Total	5	17	13	35

The Medieval Animal Bones

Summary

The faunal assemblage in Phase 8.2 was dominated by the main domestic mammals. Sheep/goat were the most common species across the phase as a whole, although cattle were more abundant on particular plots. This echoes trends observed at Freeschool Lane (Browning forthcoming), where sheep/goat were also dominant in Phase 8. Although the evidence suggests that sheep account for the majority of ovi-capine bones, goats were identified on plots 3 and 4, where the elements recorded suggest working of horns and skins, as opposed to the utilisation of the complete carcass. Two distinct age groupings were noted among the sheep assemblage; sub-adults less than two years and older adult animals, possibly aged five or six, a pattern suggesting exploitation for both meat and wool.

There is evidence for slaughter of some young cattle but the majority appear to have been mature. Pigs were comparatively infrequent and predominantly slaughtered below the age of two, in common with many other sites from different periods and locations. Domestic fowl were not particularly abundant but were twice as common as goose. Other domestic mammals, such as horses, dogs and cats, as well as wild birds and mammals, were rare.

Exploration of differences between plots and features indicate that the assemblages were not homogenous. The majority of bones represent domestic waste from food preparation and consumption. The abundance of sheep and goat horncores and metapodials on plot 3 and, particularly, plot 4 has already been noted but small-scale craft and industrial activities are also indicated by antler fragments, partial horse skeletons and goose wing bones. Markedly less bone was recovered from plots 5, 6 and 7. Features in Plot 7 contained disarticulated human bone, indicating re-working of deposits from St. Michael's cemetery.

Introduction

A large quantity of animal bone, estimated during the assessment as 12,500 fragments, was recovered during excavation of medieval contexts at Vine Street, Leicester. The presence of the medieval cemetery had resulted in considerable re-working of deposits on the site. Consequently, contexts contaminated by significant quantities of residual material or disturbed by later intrusion were considered to be of low importance and were not included in the analysis. The following report is based on material recovered from sealed, well-dated and discrete features from Phase 8.2, dating to the Earlier Medieval period (*c.*1100-1250) and selected in consultation with the Site Director and pottery and environmental specialists.

A total of 2468 bone fragments were recorded from 36 different contexts within nine Groups (see Appendix for full list). The bulk of this material was hand-recovered. Suitable deposits were routinely sampled for charred plant remains and small bones, a strategy supplemented by the taking of spot samples of particularly rich deposits.

Methodology

The methodology employed for the recording and analysis of the bone was detailed in the report on the Roman bones from the site, with additional refinements listed below.

Attempts were made to separate sheep and goat using criteria defined by Boessneck (1969), Halstead and Collins (2001) and Prummel and Friesch (1986), paying particular attention to horn core, skull and mandible, scapula, humerus, femur, metacarpal and metatarsal. In addition, all sheep/goat metacarpals were measured and the results plotted after Payne (1969). As sheep and goat bones are frequently difficult to distinguish, post-cranial fragments were recorded as sheep/goat unless positive goat attributes were present.

No pig bones from Phase 8.2 were complete enough to permit calculation of withers heights and examples from cattle were rare, as whole bones were few. Withers heights were obtained from 14 sheep/goat bones. Over 1500 measurements were taken from Phase 8.2 bones, including teeth and

articular distal ends, for analysis alongside the data from the other phases. The original aim was to examine the metric data produced by the Highcross sites together, in order both to increase sample size and facilitate meaningful results; the results to be appended.

Carcass representation for the three main domestic species has been considered by plot, in an attempt to investigate any potential differences in animal usage; however, Plot 7 did not yield a sufficient amount of bones from any of the species for analysis and the results are not included below. Full lists of anatomical elements are included in the appendix and are summarised by carcass unit in the following text.

Condition and preservation

Table 193: The Animal Bones: Condition of the bone from Phase 8.2

Condition Index	Percentage of Assemblage
Very poor	<1%
Poor	1%
Medium	45%
Good	53%
Excellent	<1%

The proportion of identified to unidentified fragments is relatively high at 52%, and bone surfaces were sufficiently well-preserved to allow identification of butchery marks, pathologies and other modifications. More than half of the bones examined were in a 'good' condition (53%) and a further 45% was classed as 'medium'. Only a tiny proportion was considered to be in 'excellent', 'poor' or 'very poor' condition (Table 193).

Gnawing affected 4% (n=99) of fragments and in most cases appeared to have been inflicted by dogs. Two bones, both domestic fowl, had been apparently pierced by cat teeth. The relative proportion of gnawed bones in each feature varied between 2% and 5%, being most common in G1043 (Table 194). The gnawing frequency is comparable to the proportion observed during the Roman period and suggests that bones were deposited quickly and were no more accessible to dogs than they had been in the earlier period.

Table 194: The Animal Bones:proportion of gnawed bones in each main group

Group	Total Number	Gnawed bones	Percentage Gnawed
G0232	25	0	-
G0254	214	8	4%
G0539	310	5	2%
G0549	193	3	2%
G0557	105	3	3%
G0562	102	7	3%
G0994	91	3	3%
G1026	130	4	3%
G1043	1298	66	5%
Total	2468	99	4%

Species Proportions

The three main domesticates, sheep/goat, cattle, and pig account for 86% of identified fragments (Table 195), with domestic fowl and goose bones together contributing a further 10%. Based on a simple Number of Identified Specimens (NISP) count, sheep/goat bones are more common than cattle in Phase 8.2 with numbers of pig considerably lower. A restricted count, including only those bones with an identifiable 'zone' and therefore excluding extraneous fragments and loose teeth, produced a similar result but with an increased emphasis on sheep/goat. The minimum number of cattle required to produce the cattle and pig assemblages was eight (proximal metacarpal and ulna respectively) compared with 26 (mandible) for sheep. Although cattle bones are considerably more numerous than pig, the Minimum Number of Individuals (MNI) for Phase 8.2 is the same for both species. This suggests that cattle bones are more fragmented but also reflects the frequency of pig ulnae, which are more numerous than other elements.

The relationship between numbers of bones and the resulting meat yield is complex. Factors such as age, carcass size, methods of butchery and the proportion of waste are all likely to have a significant impact on the quantity of meat for consumption. Therefore although sheep have produced the largest number of bones, beef is still likely to have been the most frequently eaten meat. Other domestic mammals, wild mammals and wild birds are infrequently represented, suggesting that they were of minor economic importance on the site.

Table 195: The Animal Bones: species proportions from Phase 8.2 based on Number of Identified Specimens (NISP) and bones with 'zones' ('^' included with sheep/goat; '*' partial skeletons counted as '1', actual numbers in brackets)

Species	NISP	Percentage	'Zones'	Percentage
Cattle	383	34%	308	33%
Sheep/goat	399	39%	335	41%
Sheep	29	^	27	^
Goat	14	^	13	^
Pig	147	13%	124	13%
Horse	10* (94)	1%	8* (66)	1%
Dog	4* (83)	<1%	4* (54)	<1%
Red deer	7	<1%	4	<1%
Roe deer	5	<1%	5	<1%
Human	17	1%	0	-
Cat	2	<1%	2	<1%
Hare	1	<1%	1	<1%
Domestic Fowl	74	7%	63	7%
Goose	30	3%	28	3%
Duck	1	<1%	1	<1%
Woodcock	1	<1%	1	<1%
Total Identified	**1124**		**924**	
Large mammal	580			
Medium mammal	390			
Indeterminate mammal	197			
Other mammal (cat/hare size)	2			
Indeterminate Bird	11			
Grand Total	**2364**			

The Main Domesticates

Cattle

Cattle bones were the second most abundant taxa after sheep/goat and were present in all the groups examined. They were the most common species in G0562 (plot 6), G0232 (plot 3), G0539 (plot 5), G0557 (Plot 6) and G0994 (Plot 7). No evidence for polled cattle was seen in the assemblage, an observation that accords with other Leicester assemblages including Freeschool Lane (Browning forthcoming) and Causeway Lane (Gidney 1999). Horncores belonging to juvenile animals were recovered from G0254 and G1043. Measureable horncores from adult animals ranged in length from 100-150mm (n=4), which would belong to the small and short-horn categories, as defined by Sykes and Symmonds (2006, table 1).

It was only possible to calculate a small number of withers heights (based on Matolcsi, quoted in von den Driesch and Boessneck 1974) and the complete bones were metapodials for which different factors are quoted for male and female specimens (Table 196). The resulting ranges for the medieval cattle are between 1.02m and 1.18m, averaging 1.10m, which is consistent with other sites of this date and suggests that the cattle at the site were of a relatively small stature, not dissimilar to unimproved Iron Age cattle (Armitage 1982, 53).

Table 196: The Animal Bones: Cattle withers heights (Matolcsi, quoted in von den Driesch and Boessneck 1974)

Context	Phase	Bone	Measurement type	Measurement mm	Female withers estimation	Male withers estimation
1023	8.2	Metacarpal	GL	186.0	1.13	1.18
2642	8.2	Metacarpal	GL	185.0	1.12	1.17
3117	8.2	Metacarpal	GL	169.0	1.02	1.07
4443	8.2	Metacarpal	GL	168.0	1.02	1.06
4874	8.2	Metatarsal	GL	203.0	1.07	1.14

Age Structure

Age at death was assessed for the three main species using a combination of epiphysial fusion and dental attrition. For the purposes of analysis, 'fusing' specimens (designated when the fusion line was clearly visible) were considered fused.

Table 197: The Animal Bones: Phase 8.2: Cattle epiphysial fusion based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Cattle					
	Bone	**Age (mo)**	**Fused**	**Fusing**	**Unfused**
Early	Pelvis (acet)	7-10	15		2
	Scapula D	7-8	8	1	
	1st Phal P	13-15	34		1
	Humerus D	15-18	6	1	
	Radius P	15-18	11	1	
	2nd Phal P	18	9		
Middle	MetaC D	24-36	13		4
	Tibia D	24-30	4		1
	Metat D	27-36	9		7
	Calc P	36-42	3		2
Late	Femur P	42		1	1
	Radius D	42-48	3		5
	Ulna P	42-48			3
	Humerus P	42-48			
	Femur D	42-48	1		1
	Tibia P	42-48			1
Final	Vertebral centrum	84-108	7		14
	Total		123	4	42

Overall, the majority of cattle bones were fused. Of the early fusing bones, a small number of unfused specimens indicate the presence of very young animals. However, the proportion of fused bones declines considerably in the middle and late fusing categories (Figure 190). Although the chart cannot show percentage survival, since the bones are likely to originate from several different populations, it does suggest the main peak of slaughter. Using these data, cattle appear to have been predominantly killed in their second and third year, which suggests that meat production was a major objective. The chart does however suggest that *c.*30% of animals survived to skeletal maturity.

Of the few ageable mandibles recovered (Table 198), most were considered to be adult or elderly (Age category: A1, A3 and E). A mandible from a single immature individual, probably less than 18 months old, was recovered. While this is not sufficient evidence to build up a mortality profile, it does broadly correlate with the epiphysial fusion data, and also demonstrates the presence of some elderly individuals. These animals were not represented by the epiphysial fusion evidence and were possibly animals that had previously been used for milk or traction.

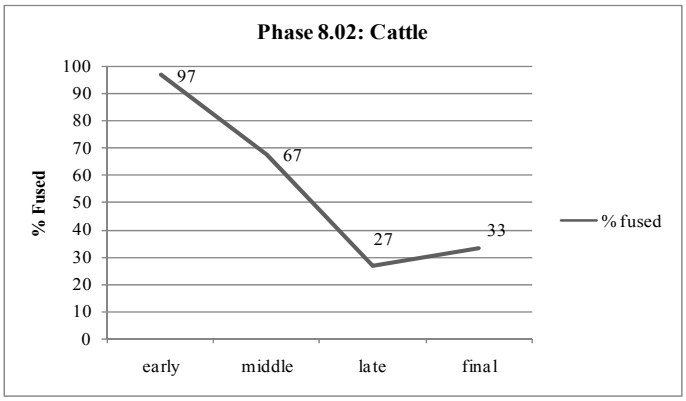

Figure 190: The Animal Bones: proportion of fused to unfused bones in age categories, based on the data in Table 197 Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Table 198: The Animal Bones: toothwear data for Phase 8.2 cattle: Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
n	-	-	1	-	-	-	1	-	1	3	6
%	*0*	*0*	*17*	*0*	*0*	*0*	*17*	*0*	*17*	*50*	*100*

Carcass Representation

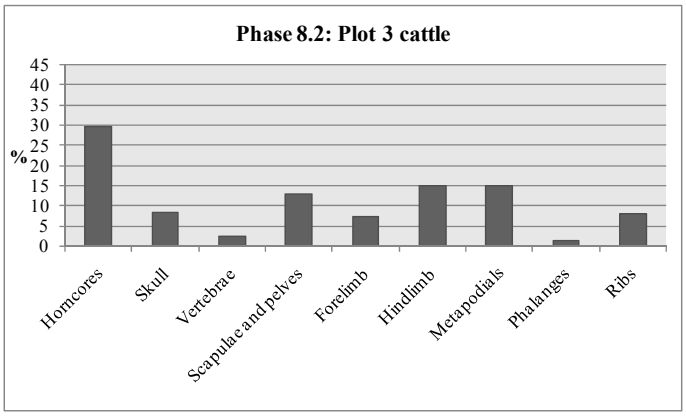

Figure 191: The Animal Bones: Cattle carcass components Plot 3 (n=58)

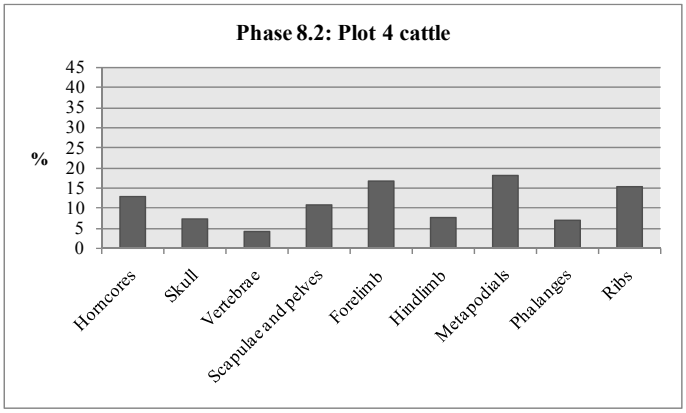

Figure 192: The Animal Bones: Cattle carcass components, Plot 4 (n=281)

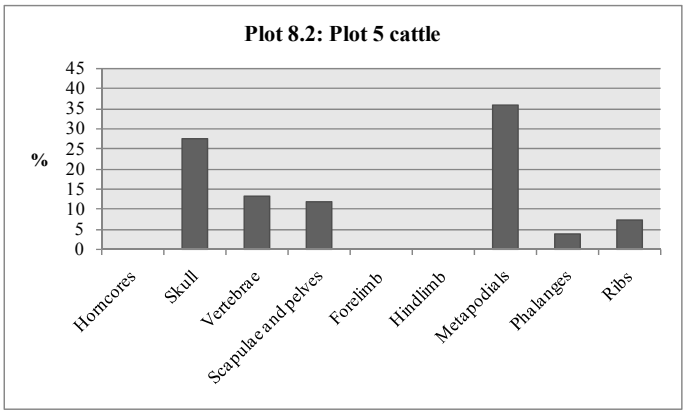

Figure 193: The Animal Bones: Cattle carcass components Plot 5 (n=29)

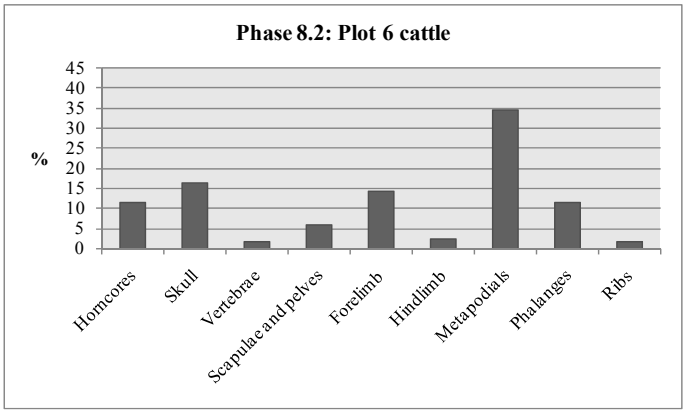

Figure 194: The Animal Bones: Cattle carcass components, Phase 6 (n=42)

Looking at the site as a whole, the cattle carcass was fairly well-represented with no part of the skeleton absent. The metapodials and the distal humerus were abundant and mandibles and horncores were also relatively common. The elements normally regarded as prime meat bones, such as the femur, proximal humerus and scapula appeared under-represented. There was correlation between the proportion of radius and ulna, suggesting that these elements were deposited together. The phalanges were typically under-represented.

The distribution of elements on individual plots was examined, but only plot 4 contained a large enough sample for reliable analyses. Plot 3 contained more horncores than other elements, perhaps hinting at craft activities (Figure 191). Other parts of the body were relatively evenly represented, except for particularly low numbers of phalanges and vertebrae.

The entire carcass was represented on plot 4 with relatively minor variations in the proportion of different parts (Figure 192). Elements from the forelimb, metapodials and ribs were slightly higher, while the skull, vertebrae, hindlimb and phalanges were under-represented. Distal humeri were particularly abundant (n=12) but there was no correspondingly high proportion of ulnae or proximal radii, suggesting separation at the elbow joint. A number of distal humeri recovered from this plot were butchered through the trochlea.

Observations on plot 5 are presented with caution, due to the particularly low numbers of cattle elements (Figure 193). However, there is an emphasis on skull and metapodials, elements that are generally associated with primary slaughter and activities such as tanning. Metapodials feature prominently amongst the rather small plot 6 cattle assemblage, with other parts of the carcass represented with less regularity (Figure 194). Since these are robust and dense bones, taphonomic reasons for their prevalence cannot be discounted.

Sheep and Goats

Sheep/goat were the most abundant species overall and were present in all groups, but most frequent in G0254 (plot 3), G0549 (plot 6), G1026 (plot 4) and G1043 (plot 4). Horned, polled and multi-horned animals were all observed in the assemblage. Out of all the frontals observed in the assemblage, almost a quarter (n=5) were polled, although this is likely to be an over-estimation since it does not include loose horncores. There was evidence for different types of horns; some, presumably belonging to rams, were large and D-shaped with a degree of torsion but most others were smaller and oval. A small number of juvenile examples were also present. A single polycerate animal was identified and although the horncores were incomplete, it was evident that one horncore would have pointed upwards and the other downwards, in a similar manner to the modern Jacob sheep. Polycerate sheep have been previously identified in Leicester assemblages, including Causeway Lane (Gidney 1999) and the Roman phases at Vine Street.

Withers heights, estimated using the factors of Teichert (1975) from 14 bones, ranged from 0.54m-0.68m, clustering at the lower end of the range (Table 199 and Figure 195). The mean height is 0.59m. It is likely that the outlier (0.68m) represents a particularly large ram.

Table 199: The Animal Bones: Sheep/goat withers heights (using factors of Teichert (1975))

Context	Bone	Measurement type	Measurement (mm)	Withers Height (m)
4398	Metacarpal	GL	111.0	0.54
4719	Metacarpal	GL	112.0	0.55
2540	Metacarpal	GL	112.0	0.55
4719	Calcaneum	GL	049.0	0.56
4605	Radius	GL	140.0	0.56
4983	Metacarpal	GL	117.0	0.57
4719	Metacarpal	GL	117.0	0.57
4398	Metacarpal	GL	119.0	0.58
4874	Metatarsal	GL	130.0	0.59
4605	Calcaneum	GL	053.1	0.61
4983	Metacarpal	GL	126.0	0.62
4874	Metacarpal	GL	126.0	0.62
4874	Metacarpal	GL	129.0	0.63
1323	Metacarpal	GL	139.0	0.68

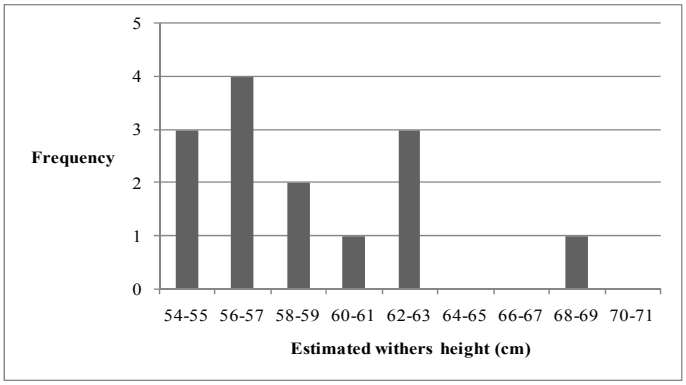

Figure 195: The Animal Bones: Sheep/goat withers heights

Proportions of sheep and goats

Although bones were cautiously recorded as sheep/goat unless they carried positive goat characteristics, most are believed to be sheep. Goats were only clearly distinguished in Plots 3 and 4 (Groups, G0232, G0254 and G1043). Goat elements identified with varying degrees of confidence were skull and horncore fragments, a mandible, metapodials, a phalanx and an ulna. Measurements taken on the distal metacarpals were plotted after Payne (1969) and appear to confirm the visual identifications (Figure 196 and Figure 197). If both sheep and goats are present the data should fall into two distinct clusters. The black diamond

to the top of the graphs was a measurement from an animal positively identified as goat and its position is distinct from the rest of the group, therefore indicating that the rest of the bones are likely to represent sheep.

Of 19 horncores from the phase, nine were attributed to sheep, seven to goat and three were undetermined. Although the difficulty in differentiating post-cranial sheep and goat bones is acknowledged, the evidence does suggest that goat horncores were over-represented compared with their post-cranial bones. The goat horncores recovered were of a typical scimitar shape and measurements suggest that they ranged in length from 110mm to 175mm, with basal circumferences of 80mm-126mm. This wide size range suggests that both males and females were utilised. Goat bones have been recovered in varying proportions from most British and European towns and the goat assemblage is frequently dominated by bones from the head and foot (Noddle 1994, 120). Similarly, the Vine Street evidence does not suggest that goats were widely slaughtered for meat and it is possible that they were brought into the town primarily as skins, procured for the preparation of goat leather and horn-working. Evidence from other European sites supports the idea of a trade in goatskins, supplied with the valuable horncores still attached and these may even have been shipped from the continent (Albarella 2003, 81).

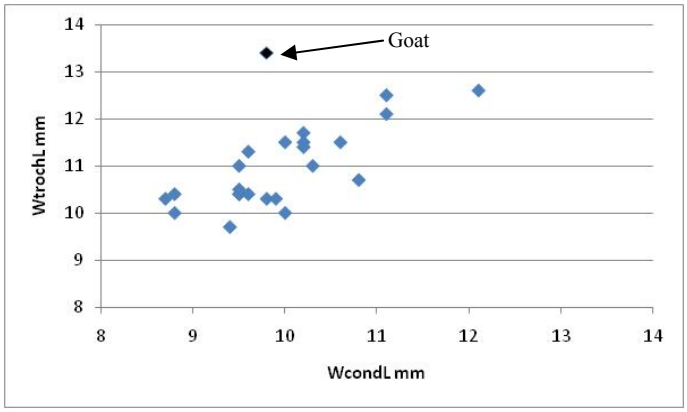

Figure 196: The Animal Bones: metacarpal (lateral) measurements of the condyle and trochlea, plotted to show sheep/goat distinction (after Payne 1969)

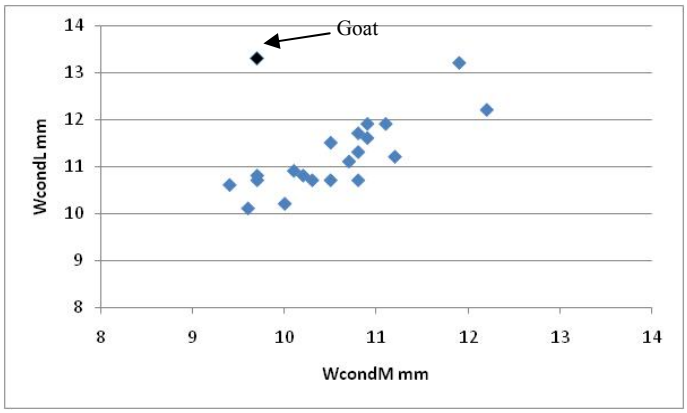

Figure 197: The Animal Bones: metacarpal (medial) measurements of the condyle and trochlea, plotted to show sheep/goat distinction (after Payne 1969)

Age structure

Examination of epiphysial fusion suggests that although there is a slight decline from the early to the middle fusing category, the majority of animals were surviving to about 30 months. Subsequently, there is a rapid decline in the numbers of fused bones, indicating that slaughter peaked in the third and fourth year of life. Even lower numbers of fused vertebrae suggest that further slaughter took place during the fourth and fifth year. The overall shape of the graph closely resembles the results from Freeschool Lane (Browning forthcoming).

Table 200: The Animal Bones: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Sheep					
	Bone	**Age (mo)**	**Fused**	**Fusing**	**Unfused**
Early	Pelv (acet)	6-10	19		1
	Scapula D	6-8	4	1	
	Humerus D	10	11	2	
	Radius P	10	19		2
	1st Phal P	13-16	11	2	
	2nd Phal P	13-16			
Middle	Metac D	18-24	20	1	7
	Tibia D	18-24	12	1	3
	Metat D	20-28	13		3
	Ulna P	30	3		1
Late	Femur P	30-36			8
	Calc P	30-36	3		
	Radius D	36	4	1	7
	Humerus P	36-42		1	2
	Femur D	36-42			3
	Tibia P	36-42	1		3
Final	Vertebral centrum	48-60	6		39
	Total		126	9	79

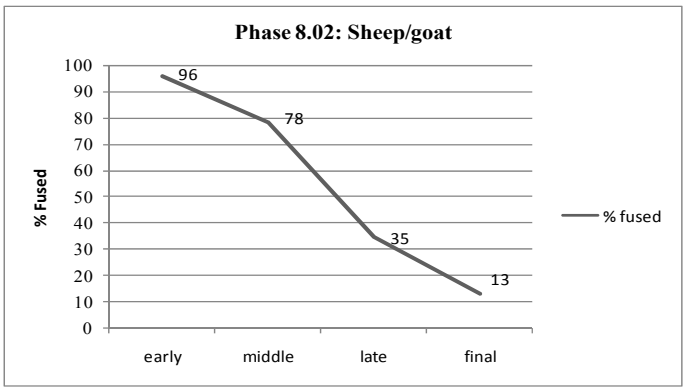

Figure 198: The Animal Bones: proportion of fused to unfused bones in age categories, based on the data inTable 200. Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

Table 201: The Animal Bones: toothwear data for Phase 8.2 sheep/goat: Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly

	N	**J**	**I**	**SA**	**SA1**	**SA2**	**A1**	**A2**	**A3**	**E**	**Total**
n	0	1	4	2	10	2	0	6	22	0	47
%	*0*	*2*	*9*	*4*	*21*	*4*	*0*	*13*	*47*	*0*	*100*

Looking at the mandibles from the phase as a whole, two peaks emerge, one in the sub-adult age range (SA1) and a larger peak among mature adults (A3). Two groups (G0254 and G1043) contained particular concentrations of sheep mandibles and it is possible that these represent specialised dumps of waste; therefore may be unrepresentative of the slaughter pattern for the phase as a whole. However, a much smaller sample from Phase 8 at Freeschool Lane (Browning forthcoming) echoes the results described here, with juvenile animals represented but strong evidence for culling in the sub-adult (SA1) and adult (A3) categories. At Vine Street, there was a group of seven mandibles in G0254 from the younger end of the range. Five of these were very tightly clustered (MWS 21-23) and were found together with a lamb (MWS 2) and an elderly animal (MWS 44-46). The majority of mandibles (n=44) were recovered from G1043, with concentrations in contexts 4719, 4983 and 5026. These did not form such a tight age cluster as the examples from G0254 but the groups were dominated by adult animals, particularly those in the upper age range. As the rate of tooth attrition is diet dependant and can vary between different populations of sheep (O'Connor 2003, 164) it can be difficult to establish the chronological age suggested

by the distributions. Hillson notes that eruption of the second molar takes place at about a year, while the third molar does not erupt until two years of age (2005, 231). The wear stages on the first and second molar (where both toothwear scores were available) were cross-referenced with a modern population of known ages (Moran and O'Connor 1994, O'Connor 2003, table 33) in an attempt to refine the ages of the animals in G1043. The results suggest that the younger cluster may have been aged between 18 and 24 months. Further resolution was achieved amongst the older group of mandibles and it is evident that although a number may have been aged 4-5 years at death (n=5), a higher proportion (n=11) were likely to have been aged 5-6 years. These groupings strongly suggest both slaughter for meat at a young age and maintenance of a significant proportion of the sheep population for wool, before they entered the urban food chain.

Table 202: The Animal Bones: suggested ages for sheep mandibles based on wear of the first and second molar after O'Connor and Moran (1994) and O'Connor (2003, table 33)

Suggested age	Number	Percentage
yearling	2	5%
18-24 months	13	34%
2-4 years	8	21%
4-5 years	4	11%
5-6 years	11	29%
	38	100%

Carcass Representation

Mandibles are the most common element in the sheep/goat assemblage, as noted in the previous section but their occurrence is particularly associated with plot 4. Overall, there were low numbers of phalanges and tarsals, possibly due to poor recovery bias of small bones. Bones of the upper fore- and hind-limb are infrequent (scapula, humerus and femur) but those of the lower limbs (radius, tibia and metapodials are more common), which may be taphonomic or indicate selection of parts of the body with lower meat yields, implying poorer cuts of meat.

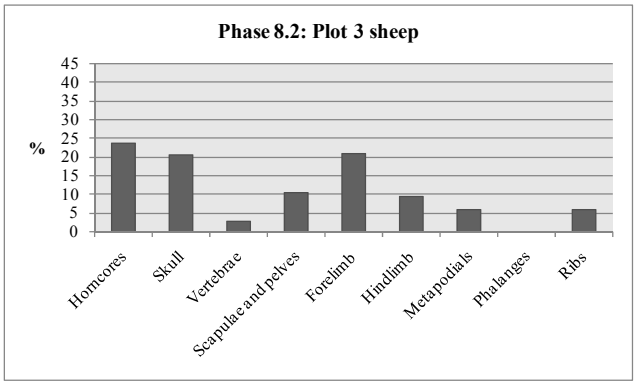

Figure 199: The Animal Bones: sheep carcass components, Plot 3 (n=66)

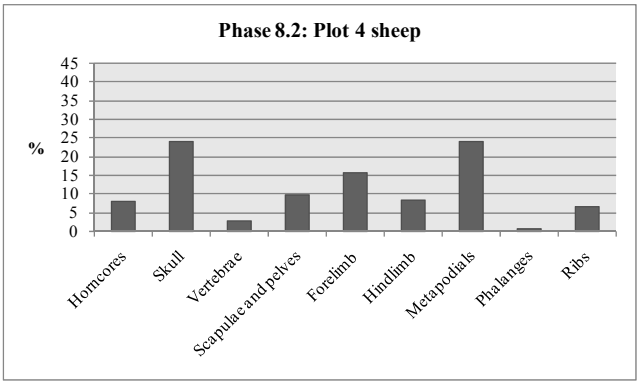

Figure 200: The Animal Bones: sheep carcass components Plot 4 (n=399)

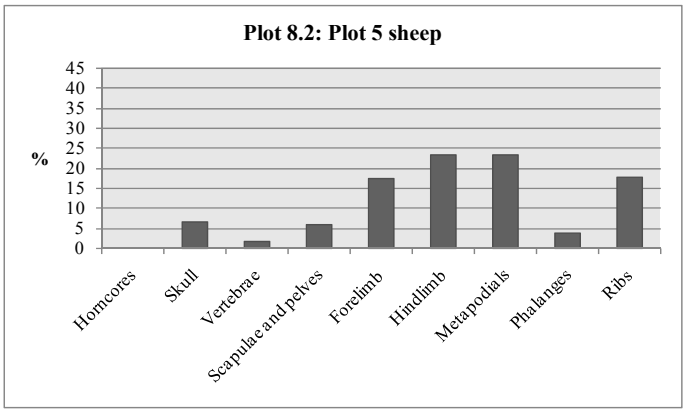

Figure 201: The Animal Bones: sheep carcass components, Plot 5 (n=31)

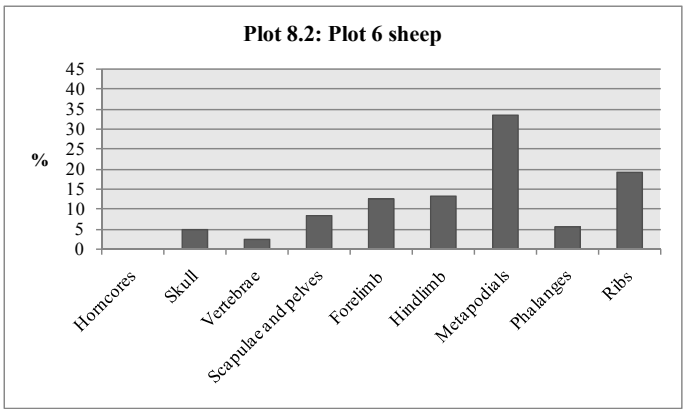

Figure 202: The Animal Bones: sheep carcass components, Plot 6 (n=46)

Horncores and skull were well-represented among the bones of plot 3, as are the bones of the forelimb, while other components had a lower frequency (Figure 199). In addition to sheep, several goat bones, mostly horncores, were recovered from plot 3.

The substantial bone assemblage from plot 4 allowed a more confident analysis than is possible for the other plots. Cranial elements and metapodials were equally emphasised, perhaps suggesting an abundance of slaughter waste or the processing of sheepskins (Figure 200). The low numbers of phalanges may be due to lack of recovery. Several goat horncores and metapodials were also recovered from plot 4, all within G1043.

Low numbers of bones from Plot 5 make it difficult to assess the significance of the evidence. The relative abundance of limb bones and ribs suggest a possible emphasis on joints of meat (Figure 201). Although the assemblage is again small, analysis suggests a high proportion of metapodials in Plot 6, compared to other elements (Figure 202). The absence of a correlating proportion of skulls implies that processing of skins was not the predominant activity and it is likely that the assemblage represents waste from a number of activities. On both plots the elements represented may be attributed more to taphonomic factors than selective deposition, with the more robust elements surviving best.

Pig

Pigs were far less frequent than sheep/goat or cattle, representing just 13% of the identified bones. This is consistent with the decline of pig though the medieval period noted in other towns (Albarella 2006, 74). No complete long bones were present from which withers heights could be calculated. There were no complete skulls but it is likely that the animals resembled the long-snouted unimproved type previously observed in Leicester assemblages.

Age Structure

Table 203: The Animal Bones: epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

	Pig				
	Bone	**Age (mo)**	**Fused**	**Fusing**	**Unfused**
Early	Scapula D	12	1	2	
	Humerus D	12	1		1
	Radius P	12	3	1	2
	Pelvis (acet)	12	9		2
	2nd Phal P	12			
Middle	Metac D	24	1		5
	Tibia D	24	1		5
	1st Phal P	24	1		2
	Calc P	24-30			4
	Metat D	27	1		3
Late	Ulna P	36-42			10
	Humerus P	42			
	Radius D	42	1		3
	Femur P	42		1	2
	Femur D	42			2
	Tibia P	42	1		2
Final	Vertebral centrum	48-84			10
	Total		20	4	53

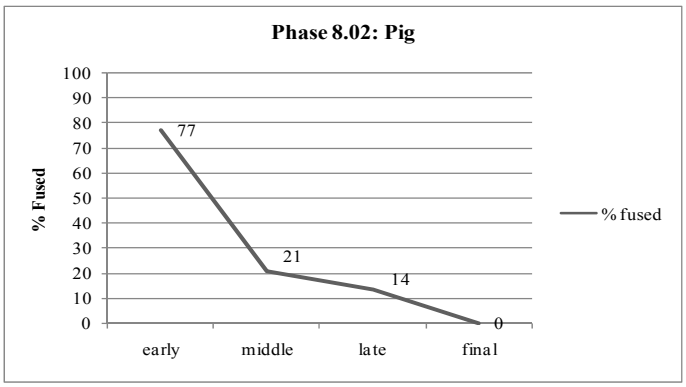

Figure 203: The Animal Bones: proportion of fused to unfused bones in age categories, based on the data in Table 203 Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Table 203 shows that low numbers of epiphyses were recovered from Phase 8.2 compared with the other main species, however it was still possible to discern a pattern. Figure 203 suggests that 20% of early-fusing epiphyses were unfused, indicating the proportion were killed before the end of their first year. There was a sharp contrast between the proportion of fused bones in the early compared with the middle-fusing age categories, which suggest that slaughter occurred predominantly in the 1-2 year age group, a prime age for pork and bacon production (Albarella 2006, 83). The Vine Street profile differs slightly from that observed at Freeschool Lane (Browning forthcoming) where there was no evidence for survival after the third year.

Few mandibles with ageable teeth were recovered for pig (Table 204). While this inhibits analysis of the slaughter pattern, the available evidence supports the trend suggested by epiphysial closure. No adults are represented, instead, all the mandibles derived from immature and sub-adult animals. A single mandible came from a piglet of only a few months old and a small number of neonatal elements were present on plots 4 and 5, which provide evidence for either breeding of swine or consumption of suckling pig.

Table 204: The Animal Bones: toothwear data for Phase 8.2 pigs: Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly

Phase	N	J	I	I1	I2	SA	SA1	SA2	A1	A2	A3	E	Total
n	-	1	1	1	1	1	-	1	-	-	-	-	6
%	0	17	17	17	17	17	0	17	0	0	0	0	100

Carcass representation

With the exception of plot 4, numbers of pig bones were too low to permit meaningful analysis: plots, 3, 5, 6, and 7 contained less than 20 zoned bones each.

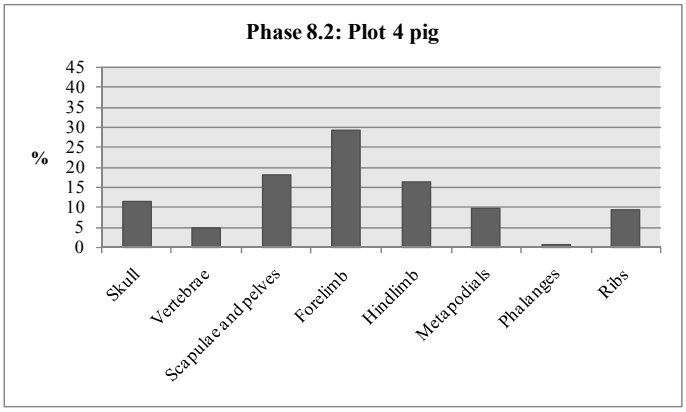

Figure 204: The Animal Bones: pig carcass components Plot 4 (n=134)

The forelimb was the most abundant carcass unit on Plot 4. Breaking this down into individual elements, the ulna was over-represented compared with the other parts of the skeleton (n=12) and the high number does not correlate with the numbers of adjacent bones, such as distal humerus or proximal radius. Interestingly, most of the examples were recovered from G1043 (ulnae comprise 14% of zoned elements). No butchery marks were observed, either on the ulnae themselves or associated bones, which might help explain this abundance.

Other Mammals

Deer

Deer bones were rare in Phase 8.2. Both roe deer and red deer have been identified but no remains were attributed to fallow deer. Recent research suggests that fallow deer were introduced by the Normans in the late 11th century (Sykes 2004, 81) and Yalden notes that by the late 13th century they were more numerous than red or roe deer (1999, 156). It seems likely that fallow deer had been introduced around Leicester at this time; a hunting agreement for Charnwood Forest and Bradgate Park, dated 1247, appears to refer to fallow rather than roe deer (Yalden 1999, 156). At Freeschool Lane (Browning forthcoming) fallow deer was very rare until Phase 10 (c.1400-1500), when it became the most common deer species.

G1043 in Plot 4 produced four roe deer bones including two tibia fragments (a left and a right), a partial scapula and a mandible, although these were not all from the same context. A complete left metacarpal was recovered from G0557 in Plot 6. Bones of red deer were recovered from G1043 (*n*=5) and G0254 (*n*=2). G1043 yielded a large fragment of shed antler, comprising the burr and part of the beam. This had a massive cross-section and was butchered, suggesting that it was used in the manufacture of objects. A lower tibia shaft, phalanx and tooth were recovered from the same feature, while a right scapula and radius were recovered from G0254. It would therefore appear that hunting, either legal or illicit, took place on a limited basis, supplementing the diet. However, strict hunting laws may have meant that venison did not often find its way into the urban food supply.

Dog

Isolated dog bones were recovered from G1043 and G0549 and had probably been incorporated during re-working of deposits. G0539 was dominated by dog, due to the presence of an almost complete and very well-preserved skeleton. All the major limb bones were present and many of the smaller bones such as carpals and phalanges were also recovered. Although not all teeth were *in situ*, most were recovered loose and the socket pattern indicated that permanent dentition was in place. Calculation of the shoulder height using Harcourt's (1974) factors and averaging the results from the long bones (range 0.47-0.49m) indicates that the animal stood 0.48m high. There seems little doubt that this animal was deposited complete and un-butchered, suggesting that it was a companion animal or perhaps used to hunt small game.

Horse

Horse bones were infrequent: small numbers were recovered from G0254, G0549, G0562 and G1026. No bones belonging to juveniles were identified. A particular concentration of horse bones were retrieved from G1043, representing a minimum of three individuals (based on numbers of right pelvis). Bones were present in contexts 4396, 4398, 4443, 4718 and 4874 but the majority were from context 4719. These included articulated parts of the upper spine, comprising atlas, axis, cervical and thoracic vertebra, ribs, pelvis, two partial sacra and skull. It is significant that only the axial parts of the skeleton were present; limb bones are absent, with the exception of a tibia fragment (context 4874). No butchery marks were observed, yet the evidence suggests that the limbs have been deliberately removed. A partial skeleton recovered from a pit in an equivalent phase at St Nicholas Circle, Leicester offers a parallel (Browning unpublished archive report). The St Nicholas Circle bones were better preserved than those at Vine Street and composed of spine, ribs and skull but the limbs had been removed. Fine cut marks on the skull indicated utilisation of the hide.

Cat

Only two cat bones were identified, both within G1043. One was a juvenile metacarpal from context 4874. A complete tibia recovered from context 5026 had an unfused proximal articulation. The fusion of the distal end occurs between 40 and 52 weeks, while union at the proximal end is complete by 76 weeks (Smith 1969, 526), indicating that this individual died between twelve and eighteen months of age.

Hare

A single hare femur was recovered from G1043. Cut marks on the lateral side of the shaft indicated filleting of meat from the bone.

Human

A total of 17 fragments of human bone were recovered from context 3117, G0994 in Plot 7, comprising a large proportion of the identified assemblage. These bones represent various parts of the skeleton and almost certainly indicate that G0994 contained a significant quantity of material redeposited from the cemetery.

Birds

Domestic fowl, geese and ducks

Domestic fowl were the most frequently recovered bird and were present in all the examined features, representing 6% of the total assemblage for the phase. Duck was represented by a single bone in G1043, an ulna chopped at the olecranon process. The majority of domestic fowl bones (82%) were mature, however juvenile bones were present in G0254, G0539, G0549, G0562 and G1043 suggesting that the birds may well have been bred in the backyards of the town. The presence or absence of a spur on the tarsometatarsus can be an indicator of sex; of seven examples in Phase 8.2 only two bore traces of a spur. One of these spurs was chopped off and purposeful removal is a distinct possibility in the second case, although actual butchery marks were absent. This could be evidence for cock-fighting; sometimes the natural spur was removed or enhanced with an artificial one, made of metal or bone (Serjeantson 2009, 327).

In all plots, elements from the leg and wing were more common than bones from the meatier sternum and pelvic regions. Butchery marks were comparatively rare (n=11) but focused on the tibiotarsus (butchered n=8), which were routinely chopped mid-shaft or butchered at the distal end.

Table 205: The Animal Bones: representation of the domestic fowl carcass

Species	Bone	Plot 03	Plot 04	Plot 05	Plot 06	Plot 07
Head	Skull					
	Dentary					
Vertebrae	Vertebra		1			
Sternum and pelvis	Furcula		1			
	Coracoid	2		1		
	Scapula			1		
	Sternum		2	1	1	1
	Pelvis					
	Synsacrum					
Ribs	Rib					
Wing	Humerus		10	2		
	Radius	1	3			1
	Ulna	1	4	1	1	
	Carpometacarpus					
	Wing digit					
Leg	Femur	1	12			
	Tibiotarsus	4	10	3	1	1
	Tarsometatarsus	2	5			
Phalanges	Phalanx 1					
Total		11	48	9	3	3

Most of the goose bones were recovered from plot 4 (G0549 G1026 and G1043), with fewer bones in plot 3 (G0254) and only a single tibiotarsus in plot 7 (G0994). Overall, goose bones were half as frequent as domestic fowl. In G1043 goose bones were proportionally close to domestic fowl, comprising 3% of the identified assemblage compared with the 4% contributed by domestic fowl. There were no juvenile goose bones within the assemblage and the birds may have been wild or domestic. The bones of the wing, especially the carpometacarpus, were abundant compared with the rest of the skeleton. Cut marks were noted on the proximal articulations of two carpometatarsi, indicating disarticulation at this joint. A radius, ulna and pelvis also had knife marks. Only one goose bone, a radius, was chopped. A whole wing could have been used as a brush or weaving fan and feathers were also used for down, fletching arrows and quill pens (Serjeantson 2002, 43). A large group of carpometacarpi and associated phalanges recovered from a 15th century pit in Leicester was interpreted as craft waste from making quill pens or arrow flights (Gidney 1992).

Table 206: The Animal Bones: representation of the goose carcass

Carcass region	Bone	Plot 3	Plot 4
Head	Skull		
	Dentary		
Vertebrae	Vertebra		
Sternum and pelvis	Furcula	1	
	Coracoid		
	Scapula		
	Sternum		
	Pelvis	1	
	Synsacrum		
Ribs	Rib		
Wing	Humerus		4
	Radius	1	4
	Ulna	1	6
	Carpometacarpus		10
	Wing digit		
Leg	Femur		
	Tibiotarsus		1

Carcass region	Bone	Plot 3	Plot 4
	Tarsometatarsus		
Phalanges	Phalanx 1		
	Total	5	25

Wild birds

Wild bird bones are extremely rare among the deposits from Phase 8.2. A single woodcock bone was recovered from G1043. Although some woodcock stay in Britain year round, the harsh winters of Scandinavia and Russia have traditionally brought larger quantities to the region (Hart-Davis 2002, 274), therefore this could suggest winter hunting.

Butchery

A quarter of Phase 8.2 bones had butchery marks (Table 207).

Table 208 illustrates that of the three main domesticates, the cattle and sheep carcass were most extensively butchered. Unsurprisingly, domestic fowl showed the least number of butchery marks, since their small carcasses meant that less butchery was required. The percentage of butchered domestic fowl bones was greater than in the Roman phases, suggesting that medieval patterns of preparation and consumption were different. In general, the location of butchery marks was more consistent than in the Roman phases.

Table 207: The Animal Bones: percentage of butchered bones in each group

Group	Group Description	Number	Butchered bones (n)	Butchered bones (%)
G0232	Plot 4 :medieval Structure, back yard pits	25	6	24%
G0254	Backyard pits in the rear of burgage plot 5 north of Grape Street	214	71	33%
G0539	Backyard pits in the south of medieval plot 7 south of Grape Street	310	34	11%
G0549	Plot 6 medieval building 1	193	38	20%
G0557	Occupation backyard pits of Burgage plot 8 east of Vine Street and north of Grape Street	105	48	46%
G0562	Occupation backyard pits of burgage Plot 8 east of Vine Street and north of Grape Street	102	16	15%
G0994	Occupation back yard pits of burgage Plot 8 east of Vine Street and north of Grape Street	91	15	18%
G1026	Plot 6 medieval building 1	130	24	18%
G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	1298	364	28%
Total		2468	616	25%

Table 208: The Animal Bones: percentage of butchery on bones of the main domestic species

Species	Butchered bones	Total bones	Percentage
cattle/large mammal	298	963	31%
sheep/goat/medium mammal	254	832	31%
pig	38	147	26%
goose	6	30	20%
domestic fowl	11	74	15%

For all species chop marks were the most common, indicating that the majority of butchery was carried out with a heavy blade, such as a cleaver. Cut marks resulting from the use of a fine blade were considerably less common. Chopping was slightly more common than knife marks on domestic fowl carcasses. Signs of deliberate shattering, potentially to remove marrow, were comparatively rare and only occurred on cattle and sheep bones. Saws were used on occasion, particularly in the processing of horncores. Since the saw was generally the tool of the craftsman rather than the butcher (Grant 1988, 55), this may indicate that trade activity was occurring nearby.

Overall, a slightly lower proportion of cattle bones were butchered compared with the Roman period. For cattle, chopping with a cleaver or similar accounted for 75% of butchery marks noted. Ribs and humerus were particularly affected. Cuts and chops relating to the removal of the horn-sheath were identified. There was also evidence for skinning or filleting of the cheek or head meat. The majority of marks on the mandible suggest that it was disarticulated by chopping through the ramus. The scapula was butchered in a variety of ways: marks were usually concentrated around the distal end and were related to disarticulation but there was also evidence for trimming of the articulation and filleting. The pelvis was frequently chopped through the ilium but sometimes disarticulated at the acetabulum or pubis. Humeri were consistently chopped or broken through the lower shaft, although a smaller number showed signs of disarticulation at the joint. The femur was generally chopped through the shaft but there was variation in the location. Both the radius and the tibia were heavily and irregularly chopped, presumably to access the nutritious marrow. Metapodials were routinely hacked mid-shaft but some also display marks associated with skinning. Skinning, as well as possible disarticulation marks, were also observed on the first phalange. Thirty-two percent of the vertebrae were chopped sagitally, with a further 30% chopped off-centre down the main axis of the bone, sometimes specifically to remove the lateral processes, and certainly indicate that the early stages of butchery were carried out with the carcasses hoisted.

Much of the butchery on sheep and goat skulls was focused on the removal of the horn sheath. Cut marks indicated that the horncore itself was not always chopped from the skull during the process and may also suggest careful removal of the skin around the horns. The use of a saw was noted on three goat horncores. Examples of decapitation through the occipital condyles were recorded and one skull had a penetrating fracture, possibly indicating stunning during slaughter. Crania were also divided, usually off-centre, presumably to better access the brain and head meat. The pelvis was fairly consistently dismembered through the shaft of the ilium. Humeri and femora were butchered mid-shaft, as well as disarticulated at the proximal and distal ends. The radii and tibiae were also quite uniformly butchered mid-shaft; this was usually rough hacking rather than neat chopping. Metapodials were heavily butchered and mostly hacked transversely through the middle of the shaft, in a similar manner to the cattle metapodials. Of the vertebrae, 59% were chopped sagitally, indicating uniform division of the carcass. The remainder of butchery marks suggested division of the spine into sections. The rib slab was treated in a similar way to that of cattle, disarticulated from the spine and chopped into sections.

The pig carcass was apparently less intensively butchered than either cattle or sheep, although as noted previously the sample size was small. As with the other two main species, the pelvis was frequently targeted, with butchery tending to occur around the acetabulum. The femur was usually chopped or deliberately broken through the centre of the shaft but one bone exhibited cut marks around the proximal head, denoting disarticulation at the hip joint. Mandibles were chopped in various ways, to disarticulate the jaw from the skull and to access the marrow cavity. Division through the anterior part of the mandible (symphysis) demonstrated sagittal splitting of the carcass. Other elements also had butchery marks but these were sporadic examples from which it was difficult to extrapolate a pattern.

Burning

Burnt bones occurred occasionally within groups G0254, G0539, G0557, G0562, G1026 and G1043. For the most part, these isolated fragments were probably incorporated with other rubbish prior to deposition. Partial scorching on two cattle distal humeri and, sheep radii in G1043 and G0254, may have resulted from roasting of joints of meat. Greater concentrations of burnt bones were observed in G562, where 22% of bone was either calcined or charred. These were predominantly elements from the lower leg and feet; three articulating cattle phalanges were particularly noteworthy. Phalanx 1 was completely charred with vitrified patches, phalange 2 showed extensive but incomplete burning, while the third phalanx was scorched only on the dorsal surface. Several cattle metapodials and a horse astragalus were charred. A number of other elements including a cattle calcaneum, skull fragments and tooth root, and a sheep radius were calcined.

Table 209: The Animal Bones: percentage of burnt bones in each group

Plot	Group	Group Description	Number	Burnt bones (n)	Burnt bones (%)
3	G0232	Medieval Structure Back yard pits	25	0	-
3	G0254	Backyard pits	214	6	3%
4	G0549	Medieval building 1	193	0	-
4	G1026	Medieval building 1	130	5	4%
4	G1043	Large pits	1298	7	<1%

5	G0539	Backyard pits	310	1	<1%
6	G0557	Occupation backyard pits	105	1	<1%
6	G0562	Occupation backyard pits	102	22	22%
7	G0994	Occupation back yard pits	91	0	-
	Total		2468	42	2%

Pathologies

Pathological conditions were recorded on a total of 79 bones, comprising 3% of the assemblage (Table 210).

Table 210: The Animal Bones: prevalence of pathological conditions and non-metric traits in Phase 8.2

Species	Phase 8.2	*% affected*
Cattle	30	*8%*
Sheep/goat	19	*5%*
Sheep	1	*3%*
Goat	3	*21%*
Pig	1	*<1%*
Horse	18	*22%*
Domestic fowl	2	*3%*
Large mammal	3	*<1%*
Medium mammal	2	*<1%*
Total	79	*3%*

Amongst the cattle assemblage, a significant proportion of pathologies occurred upon phalanges (37%, n=11). These were predominantly osteophytes occurring around the margins of articular surfaces but not always encroaching upon them. The first and second of an articulating set of phalanges exhibited deep grooving and eburnation on the proximal surface, indicating osteoarthritis. The metapodials were also affected by pathological conditions. Exostoses were noted on the proximal shaft of a metatarsal. In another example, the condyles of a distal metatarsal were distinctly splayed and eburnation was noted on the medial condyle, possibly indicating work or age- related osteoarthritis.

Abnormalities also typically affected the jaw but to a lesser extent than in the Roman phases. Recession of the alveolar bone, porosity and abnormal bone formation were noted on three cattle mandibles and two maxillae. The second premolar was congenitally absent in one mandible and there was crowding and potential malocclusion between the first permanent molar and the emerging fourth premolar. Three cattle upper molars had straw-like roots (hyper-cementosis).

Abnormal bone formation was noted on a number of cattle bones; the acetabulae of two cattle pelves were affected. One example particularly displayed eburnation and erosion of the acetabular surface, indicating osteoarthritis. Abnormal bone growth had occurred in the supracondyloid fossa of a cattle femur. A cattle-size rib had a thin layer of grey bone formation on both the visceral and lateral face possibly suggesting a periosteal reaction to a respiratory infection. A deep lesion, accompanied by some porosity in the surrounding bone, was observed on the ventral side of a thoracic spine.

The majority of sheep/goat pathologies were located within the jaw. Several cases of heavy calculus were observed but some more serious conditions were also noted. A maxillary third premolar was rotated in the jaw and crowding was noted around a mandibular first molar and fourth deciduous premolar. Tooth loss was observed in one example, which exhibited a remodelled socket where a premolar had evidently been lost ante-mortem. Alveolar recession and thinning of the bone, together with abnormal bone formation, was observed on five mandibles and three maxillae, accounting for approximately 10% of combined mandibles and maxilla. A goat mandible exhibited excessive wear on the premolars and first molar, reducing the molar into two fragments. One possible cause could be ingestion of soil and chronic periodontal disease possibly related to grazing for example ingestion of soil (J. Wooding pers. comm.). In another example, the second premolar of a sheep/goat mandible was congenitally absent. Slight 'dimpling' was noted close to the tip of a goat horncore, possibly suggesting nutritional deficiency during horn formation similar to that observed on sheep horncores elsewhere (Albarella 1995).

Two pathological sheep metacarpals were observed; one exhibiting osteophytes, while the other displayed an ossified ligament at the proximal end of the shaft. Conditions such as these could indicate trauma or joint stress.

The only pathologies in the horse assemblage occurred on the spine of one of the animals from G1043; these consisted of osteophytes observed on the anterior margins of several of the vertebrae in the thoracic region.

Two domestic fowl bones exhibited pathological changes, including a tarsometarsus with a smooth and seemingly uninfected bony protuberance on the medial side of its proximal shaft. A tibiotarsus had a severe but healed fracture, which had healed with a callous of new bone growth. However, the broken ends were displaced, healing adjacent to each other and the injury would have resulted in a shortening of the leg.

The Plots and Groups

The bone assemblage for each group is reviewed in the following text. Bone from Plots 3, 4, 5, 6 and 7 was examined, with the largest quantity of bone deriving from Plot 4 groups, in particular G1043. Despite the overall prevalence of sheep/goat, there is some variation in species proportions between groups. It is notable that cattle are more abundant on plots 5, 6 and 7.

Table 211: The Animal Bones: NISP counts from each medieval group (* skeleton counted as '1')

	Plot 3		*%*	**Plot 4**			*%*	**Plot 5**	*%*	**Plot 6**		*%*	**Plot 7**	*%*
	G0232	**G0254**		**G0549**	**G1026**	**G1043**		**G0539**		**G0557**	**G0562**		**G0994**	
Cattle	9	39	***34***	13	26	200	***28***	21	***37***	21	40	***60***	15	***32***
Sheep/Goat	4	46	***35***	25	32	246	***35***	18	***31***	14	8	***22***	6	***13***
Sheep		7	***5***	2	5	15	***3***		***0***			***0***		***0***
Goat	1	5	***4***			8	***1***		***0***			***0***		***0***
Pig		12	***9***	15	5	90	***13***	8	***14***	5	7	***12***	5	***11***
Horse		1	***1***	2	1	87	***10***		***0***		3	***3***		***0***
Dog			***0***	1		1	***0***	1*	***2***			***0***		***0***
Cat			***0***			2	***0***		***0***			***0***		***0***
Red deer		2	***1***			5	***1***		***0***			***0***		***0***
Roe deer			***0***			4	***0***		***0***	1		***1***		***0***
Hare			***0***			2	***0***		***0***			***0***		***0***
Human			***0***				***0***		***0***			***0***	17	***36***
Domestic fowl	1	10	***8***	11	5	32	***6***	9	***16***	1	2	***3***	3	***6***
Goose		4	***3***	3	1	21	***3***		***0***			***0***	1	***2***
Duck			***0***			1	***0***		***0***			***0***		***0***
Woodcock			***0***			1	***0***		***0***			***0***		***0***
Total identified	*15*	*126*	***100***	*72*	*75*	*55*	***100***	*57*	***100***	*42*	*60*	***100***	*47*	***100***
Large mammal	8	45		43	26	346		49		19	22		22	
Medium mammal	2	35		57	29	158		49		40	9		11	
Indeterminate mammal		6		17		75		74		4	11		10	
Indeterminate bird		2		4		3		1					1	
Total	25	214		193	130	1299		230*		105	102		91	

Plot 3

G0232: *Medieval Structure, Backyard pits* - G0232 yielded 25 bone fragments of which 14 were identified (Table 211).

G0254: *Backyard pits in the rear of burgage plot 3, north of Grape Street* - this feature comprised four features located centrally in the middle of plot 3, immediately west of masonry building 1.

Sheep/goat bones were more prolific than cattle in G0254, contributing 46% of bones compared with 31%. Several goat horncores, one with part of crania attached, a possible goat ulna and radius were recovered from this feature, which also contained several sheep horncores and crania. A naturally polled sheep skull was also recovered from the feature. The sheep and goat horncores appear to have been processed separately, since a saw was used on the goat horncores but those belonging to sheep have bear only chop and cut marks and were not so extensively butchered. A red deer scapula had been disarticulated at the shoulder. Butchery marks were common on both cattle and sheep ribs, often divided into regular-sized sections, as well as carrying cut marks close to the vertebral end where they had been disarticulated from the spine and further down the shaft where meat had been filleted.

Plot 4

G0549: *Plot 4 Medieval building 1*- A rectangular feature 1.1m by 0.7m and 0.6m deep, located within the southern half of Plot 4.

The domestic fowl assemblage consists almost exclusively of humeri and femora, representing a minimum of three birds. A small number of juvenile domestic fowl bones were present. Cranial elements from young sheep were also noted.

G1026: *Plot 4 Medieval building 1*- G1026 consisted of two intercutting features located immediately north of G546.

This feature contained a notable number of large and medium mammal rib fragments. At least one of the sheep present was polled and there was evidently a mix of horned and polled animals. No goat was identified. Domestic fowl bones were few but were predominantly femora.

G1043: *Large pits in Plot 4 fronting on to Vine Street and south of Grape Street* - G1043 consisted of a cluster of six intercutting sub-circular and oval pits with vertical sides, ranging from 1.03-3.44m in diameter and 0.35-2.04m in depth.

The assemblage from G1043 was considerably larger than any other group. There was more sheep/goat than cattle bones but considerably fewer bones from pig. The large numbers of large and medium mammal rib fragments were commonly divided into sections but many also bore cut marks suggesting both disarticulation from the spine and filleting of meat. Vertebrae were frequently chopped transversely indicating that the spine was divided into sections. A smaller number of large and medium mammal vertebrae were chopped sagittally, suggesting division of the carcass while hoisted.

A large fragment of sawn red deer antler represented an off-cut from object manufacture. Further evidence for crafts was found among the cattle assemblage. Horn sheaths had been removed from at least two horncores. A metapodial had been sawn at the proximal end and was partly shaped but appeared to have been abandoned before being shaped into an object. Skinning marks were also noted on the skull and metapodials.

There was no evidence for polled cattle skulls but both adult and juvenile animals were represented among the horncores. Sheep skulls demonstrated a variety of morphological types. Two naturally polled skulls were noted, one with a depression on the frontal and another with a vestigial horncore. Yet another skull exhibited polycerate features; although both horncores were incomplete, it was evident that the larger horn would have pointed upwards and the smaller one downwards. The weak nature of the horncore may suggest that the animal was female. The multi-horned trait is associated with modern primitive type sheep breeds, for example the Jacob and Manx Loghtan, but in the past this may have been an abnormality. The goat horncores have a straight scimitar shape.

G1043 produced a large number of horse bones (n=87) comprising the fragmented remains of skull, loose, teeth, vertebrae, ribs, sacra and pelves. A single limb bone (tibia) was also recovered. At least some of the bones were articulated and from numbers of zones of the pelvis, it appears that at least three horses were represented, contained within two different pits (cut number: 4400: 1 horse and 4718: two horses). Gnawing was observed on some of the remains but no butchery marks were evident.

The goose bones were all from the wing and represented a minimum of five birds (right carpometacarpus). There were no juvenile bones and a small number of bones were butchered. The limb bones of domestic fowl were well-represented but elements of the sternum, ribs and vertebrae were considerably less common. Most the elements are adult but at least one juvenile bird was represented.

Plot 5

G0539: *Backyard pits in the south of medieval plot 5, south of Grape Street* - This group contains three dispersed cuts located along the western edge of the excavation and contained the well-preserved skeleton of a dog (context 1024), which is described in an earlier section.

Plot 6

G0557: *Occupation backyard pits of burgage plot 6 east of Vine Street and north of Grape Street* - This was an irregular oval cut with vertical sides and sloping base, 0.9m by 0.8m and 0.4m deep.

Cattle were the most common species in G0557, but sheep/goat, pig domestic fowl and roe deer were also retrieved. The mandible and scapula of a lamb were recovered. Medium mammal ribs were frequently chopped into sections and vertebrae were divided sagitally. Three cattle metapodials had been chopped above the articulation and the close resemblance to the bone-working waste recovered from the Roman phases suggests that they may be residual. A complete roe deer metacarpal was also recovered from the feature.

G0562: *Occupation backyard pits of Burgage Plot 6 east of Vine Street and north of Grape Street* - G562 was a sub-oval pit with vertical sides and flat base, 2.06m by 1.18m located north of G561 cutting G414 and G843 (Phase 8.1). The relatively small identified assemblage was dominated by cattle but a small number of sheep/goat, pig, horse and domestic fowl bones were also recovered. The cattle bones were predominantly metapodials, phalanges and elements from the skull; there were few limb bones.

G0994: *Occupation back yard pits of burgage Plot 7 east of Vine Street and north of Grape Street* - G0994 consisted of two intercutting pits located on the southern edge of Plot 7.

The bones were generally fragmented, exhibiting both fresh and old breaks and the assemblage was dominated by shaft fragments. The usual range of domestic species was present, including cattle, sheep/goat, pig, domestic fowl and goose. A number of human bones were also recovered from this group within context 3117. The bones were a mixture of elements from the ribs, vertebrae, shoulder, forearm and hand and were not articulated. It seems likely that they are residual or intrusive and represent reworking of the deposit.

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Appendix: Additional Tables

Table 212: The Animal Bones: contexts and groups included in the analysis in Phase 8.2

Plot	Group	Group Description	Context	Number of Fragments
Plot 03	G0232	Plot 4 Medieval Structure , Back yard pits	6545	25
Plot 03	G0254	Backyard pits in the rear of burgage plot 5 north of Grape Street	4104	18
Plot 03	G0254	Backyard pits in the rear of burgage plot 5 north of Grape Street	4103	6
Plot 03	G0254	Backyard pits in the rear of burgage plot 5 north of Grape Street	4605	166
Plot 03	G0254	Backyard pits in the rear of burgage plot 5 north of Grape Street	5842	24
Plot 05	G0539	Backyard pits in the south of medieval plot 7 South of Grape Street	1023	72
Plot 05	G0539	Backyard pits in the south of medieval plot 7 South of Grape Street	1024	89
Plot 05	G0539	Backyard pits in the south of medieval plot 7 South of Grape Street	1029	149
Plot 04	G0549	Plot 6 Medieval building 1	1257	193
Plot 06	G0557	Occupation backyard pits of Burgage plot 8 east of Vine Street and north of Grape Street	2540	105
Plot 06	G0562	Occupation backyard pits of Burgage Plot 8 east of Vine Street and north of Grape Street	2577	28
Plot 06	G0562	Occupation backyard pits of Burgage Plot 8 east of Vine Street and north of Grape Street	2642	42
Plot 06	G0562	Occupation backyard pits of Burgage Plot 8 east of Vine Street and north of Grape Street	2653	6
Plot 06	G0562	Occupation backyard pits of Burgage Plot 8 east of Vine Street and north of Grape Street	2655	24
Plot 06	G0562	Occupation backyard pits of Burgage Plot 8 east of Vine Street and north of Grape Street	2654	2
Plot 07	G0994	Occupation back yard pits of Burgage Plot 8 east of Vine Street and north of Grape Street	3117	91
Plot 04	G1026	Plot 6 Medieval building 1	1326	33
Plot 04	G1026	Plot 6 Medieval building 1	1320	4
Plot 04	G1026	Plot 6 Medieval building 1	1322	42
Plot 04	G1026	Plot 6 Medieval building 1	1323	13
Plot 04	G1026	Plot 6 Medieval building 1	1324	17
Plot 04	G1026	Plot 6 Medieval building 1	1325	21
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4964	18
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4874	66
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4719	330
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4983	201
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4396	168
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4443	102
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4399	106
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4398	63
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4975	13
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4397	5
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	5026	109
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and	4280	69

Plot	Group	Group Description	Context	Number of Fragments
		south of Grape Street		
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4394	29
Plot 04	G1043	Large pits in Plot 6 fronting on to Vine Street and south of Grape Street	4718	19
			36	2468

Toothwear tables (after Grant 1982 and O'Connor 2003)

Table 213: The Animal Bones: Cattle toothwear (medieval phases)

Group	Species	Dp4	p4	m1	m2	m3	MWS	Age category
G0562	Cattle	k						
G1026	Cattle	l						
G1043	Cattle	k						
G1026	Cattle		0.5	j			29-38 (35)	
G1043	Cattle			c			10-16	I
G0539	Cattle		V	k	g	b	34	A1
G1043	Cattle					g	38-46	A3
G0562	Cattle		h	l	k		42-46 (45)	
G0254	Cattle		g	l	j	k	45	E
G0562	Cattle		h	m	l	l	49	E
G1043	Cattle				k		46-50	E

Table 214: The Animal Bones: Sheep/Goat toothwear (medieval phases)

Group	Species	Dp4	p4	m1	m2	m3	MWS	Age category
G0232	S/G			k	g	f/g	37-38	A3
G0254	S/G		j	m		h	44-46	A3
G0254	S/G	b					2	J
G0254	S/G	g		g	b		20-21	SA
G0254	S/G	n		g	d	C	22	SA1
G0254	S/G	m		g	d	C	22	SA1
G0254	S/G	l		g	d	C	22	SA1
G0254	S/G	k		g	d	V	23	SA1
G0549	S/G			g	d		22-25	SA
G0549	S/G		V	g	d	V	23	SA1
G1026	S/G			l	h	g	41	A3
G1026	S/G		E	g	d	C	22	SA1
G1026	S/G		0.5	g	e	E	25	SA2
G1043	S/G	n						
G1043	S/G			g	g		31-34	
G1043	S/G	h		e			12-21	
G1043	S/G	l						
G1043	Goat		j	m	j	g	43	
G1043	S/G		f	h			33-37	
G1043	S/G		V	g	e		23-25	
G1043	S/G		g	j			34-39	
G1043	S/G		E	g			23-27	
G1043	S/G					d	32-34	A2
G1043	S/G		g	h	g	c	33	A2
G1043	S/G		f	g	g	c	32	A2
G1043	S/G		g	h	g	c	33	A2
G1043	S/G		f	g	g	c	32	A2
G1043	S/G		g	j	g	c	34	A2
G1043	S/G					e	34-38	A3
G1043	S/G		h	m	g	g	41	A3
G1043	S/G		l	m	h	g	42	A3
G1043	S/G		j	m	h	g	42	A3

Group	Species	Dp4	p4	m1	m2	m3	MWS	Age category
G1043	S/G			m	h	g	42	A3
G1043	S/G			h	g	e	35	A3
G1043	S/G				m	h	47	A3
G1043	S/G		g	g	g	e	34	A3
G1043	S/G					g	36-45	A3
G1043	S/G		h	l	g	g	40	A3
G1043	S/G		g	g	f	e	33	A3
G1043	S/G			m	g	g	41	A3
G1043	Goat			n	k	g	45	A3
G1043	S/G			m	g	g	41	A3
G1043	S/G				h	e	38-39	A3
G1043	S/G		f	h	g	e	35	A3
G1043	S/G		h	k	g	f	38	A3
G1043	S/G		h	m	h	g	42	A3
G1043	S/G		h	j	g	f	37	A3
G1043	S/G		j	m	g	g	41	A3
G1043	S/G	h		f	b		19	I
G1043	S/G	h		f	E		14-15	I
G1043	S/G	h		f	V		13	I
G1043	S/G	h		g	E		15	I
G1043	S/G					C	14-23	SA1
G1043	S/G	n		g	d	V	23	SA1
G1043	S/G			g	e	V	24	SA1
G1043	S/G				d	V	23-24	SA1
G1043	S/G	n		h	e	E	26	SA2

Table 215: The Animal Bones: Pig toothwear (medieval phases)

Group	Species	Dp4	p4	m1	m2	m3	MWS	Age category
G1043	Pig	c		V			2	J
G1043	Pig	j						
G0562	Pig	k		c			9-7 (17)	I
G0562	Pig			e	a		17-18	I2
G1043	Pig				V		20-24	I1
G1026	Pig			h	f		31-33	SA
G1043	Pig			f	c	E	22	SA2

Carcass Representation

Table 216: The Animal Bones: carcass representation – cattle and large mammal (LM) (medieval phases)

cattle	plot 3	plot 4	plot 5	plot 6	plot 7
Horncore	4	6		1	
Skull UO		3	2		
Skull LO	1	3	1		
Skull OC	1	2	3		
Maxilla	1	2			
Mandible	2	6	1	5	3
Atlas		1			
Axis					1
Scapula D	2	5	1	1	
Humerus P		2	1		
Humerus D		12			1
Ulna P	2	5		2	
Radius P	2	7		2	
Radius D	0	7		1	
Metacarpal P	2	7	3	4	2
Metacarpal D	2	6	2	4	1
Pelvis	3	9		1	
Femur P	2	4			1
Femur D	3	3			1

cattle	plot 3	plot 4	plot 5	plot 6	plot 7
Tibia P	3	2			
Tibia D	3	2			
Astragalus		4			
Calcaneum	1	7		1	
Metatarsal P	1	11		2	1
Metatarsal D	3	10	1	2	2
Phalange 1	2	27		6	
Phalange 2		5	1	3	
Phalange 3		7	1	3	
(LM) Rib (zoned)	6	38	2		3
(LM) 1/3 rib fragments	8	55	2	2	2
(LM) V cervical	1	8	2		
(LM) V thoracic	1	15	4		
(LM) V lumbar	3	4	1	1	
sacrum		1	1	1	
Total	59	286	29	42	18

Table 217: The Animal Bones: carcass representation – sheep/goat and medium mammal (MM) (medieval phases)

Sheep/goat (excluding specimens positively identified as goat)	plot 3	plot 4	plot 5	plot 6	plot 7
Horncore	4	7			
Skull UO	2	17			
Skull LO		4			
Skull OC		6			
Maxilla	2	11	1		
Mandible	8	41		1	
Atlas		4			
Axis		3	1	1	
Scapula D		8		1	
Humerus P	1	6			2
Humerus D	2	12	1		2
Ulna P		0	1	1	
Radius P	8	19	1	2	
Radius D	4	17			
Metacarpal P		24	2	2	
Metacarpal D		22	2	1	
Pelvis	2	17	1		1
Femur P	4	3		1	
Femur D	3	6			
Tibia P		14	1	1	2
Tibia D	2	15	1	3	3
Astragalus	1	1	2		
Calcaneum	2	1	1		
Metatarsal P	1	18		3	
Metatarsal D	3	19		2	
Phalange 1		8	1	4	
Phalange 2		0			
Phalange 3		0	1		
(MM) Rib (zoned)	11	50	3	12	5
(MM) 1/3 rib fragments	2	23	7	3	1
(MM)V cervical		5	2	1	
(MM)V thoracic	2	13	1	4	
(MM) V lumbar	2	9	1	3	2
Total	66	403	31	46	18

Table 218: The Animal Bones: carcass representation – Pig (medieval phases)

Pig	plot 3	plot 4	plot 5	plot 6	plot 7
Skull UO		2	1		1
Skull LO	1			1	
Skull OC		1			
Maxilla	1	1			
Mandible	1	4		2	
Atlas		2			
Axis		1			
Scapula D		3			
Humerus P		2			1
Humerus D		3	1		1
Ulna P	2	12		1	
Radius P	1	6			
Radius D		5			
Metacarpal P		5	1		
Metacarpal D		5	1		
Pelvis	1	7		1	1
Femur P		4			
Femur D	1	6			
Tibia P		4		1	
Tibia D		4		1	
Astragalus		1			
Calcaneum		3		2	
Metatarsal P		4			
Metatarsal D		3			
Phalanx 1		2	1		
Phalanx 2					
Phalanx 3					
Rib (zoned)	1	6		1	
(MM) 1/3 rib fragment)	2	23	7	3	
V cervical		4		1	
V thoracic		2			
V lumbar		1	1		
1/3 vertebrae (MM)	1	9	1	2	
Total	12	135	14	16	4

Butchery tables

Key Bt= butchered

Table 219: The Animal Bones: cattle butchery

Phase 8.2	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	17	2	12		2	1			3
	skull	29	6	21		3	3			6
	maxilla	6	0	0						0
	mandible	34	7	21		7	1			8
	atlas	4	2	50		1	1			2
Vertebrae	axis	3	1	33		1				1
	cervical vertebrae	20	8	40		9	1			10
	thoracic vertebrae	36	10	28		10				10
	lumbar vertebrae	23	8	35		6	2			8
	sacrum	4	2	50		2				2
Scapula/pelvis	scapula	20	10	50	1	13			1	15
	pelvis	22	12	55		13	2			15
Forelimb	humerus	23	19	83	2	17			1	20
	ulna	12	6	50		5	2			7
	radius	24	10	42						0
Hindlimb	femur	16	9	56		4	5		1	10
	tibia	11	5	45	1	4			1	6

Phase 8.2	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
	astragalus	4		0						0
	calcaneum	9	1	11			1			1
Metapodials	metacarpal	27	8	30	1	7				8
	metatarsal	28	14	50	6	6	3			15
Phalanges	phalanx 1	36	3	8		1	2			3
	phalanx 2	9	0	0						0
	phalanx 3	11	0	0						0
Ribs	Ribs (zoned)	49	34	69		34	9			43
Total		*477*	*177*	*37*	*11*	*145*	*33*	*0*	*4*	*193*
%					*6*	*75*	*17*	*0*	*2*	*100*

Table 220: The Animal Bones: goat butchery

Goat	NISP	n Bt	%Bt	Chop	Cut	Saw	Total
horncore	7	6	*86*	4	1	3	8
skull	2	1	*50*	1			1
mandible	2	0	*0*				0
Metacarpal	1	1	*100*	1			1
Metatarsal	1	0	*0*				0
	14	*8*	*57*	6	1	3	*10*

Table 221: The Animal Bones: sheep/goat butchery

Phase 8.2	Sheep/Goat	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	15	7	*47*		6	1			7
	skull	28	13	*46*		12			2	14
	maxillae	18	1	*6*			1			1
	mandible	65	1	*2*			1			1
	atlas	5	3	*60*		2	1			3
Vertebrae	axis	6	4	*67*		4				4
	cervical vertebra	11	7	*64*		7				7
	thoracic vertebra	28	15	*54*		16	1			17
	lumbar vertebra	20	10	*50*		10				10
	sacrum	1	1	*100*		1				1
Scapula/pelvis	scapula	11	3	*27*		3				3
	pelvis	26	15	*58*		15	3			18
Forelimb	humerus	18	5	*28*	1	5				6
	ulna	8	0	*0*						0
	radius	33	12	*36*		11	1	1		13
Hindlimb	femur	19	9	*47*		9	2			11
	tibia	33	13	*39*	5	7		1		13
	astragalus	4	1	*25*			1			1
	calcaneum	4		*0*						0
Metapodials	Metacarpal	40	5	*13*	2	1	2			5
	Metatarsal	40	16	*40*	5	9	2		1	17
Phalanges	phalanx 1	13	0	*0*						0
	phalanx 2	0	0	*0*						0
	phalanx 3	1	0	*0*						0
Ribs	Ribs (zoned)	85	46	*54*			54	7	2	63
Total		***532***	***187***	*35*	***13***	***118***	***70***	***9***	***5***	***215***
					6	55	33	4	2	100

Table 222: The Animal Bones: pig butchery

Phase 8.2	Pig	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	skull	11	0	0						0
	maxillae	3	0	0						0
	mandible	13	3	23		3	1			4
	atlas	2	1	50		1				1
	axis	1	1	100		1				1
Vertebrae	cervical vertebra	5	2	40		2				2

Phase 8.2	Pig	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
	thoracic vertebra	2	0	0						0
	lumbar vertebra	2	1	50		1				1
	sacrum	0	0							0
Scap/pelves	scapula	4	2	50		1	1			2
	pelvis	14	5	36		6	1			7
Forelimb	humerus	6	3	50		3	1			4
	Ulna	16	1	6		1				1
	Radius	7	1	14		1				1
Hindlimb	femur	9	6	67	2	1	2		1	6
	tibia	8	1	13		1	1			2
	astragalus	1	1	100			1			1
	calcaneum	5	0	0						0
Metapodials	metacarpal	6	1	17			1			1
	metatarsal	5	0	0						0
Phalanges	phalanx 1	3	0	0						0
	phalanx 2	1	0	0						0
	phalanx 3	0	0							0
Ribs	Ribs (zoned)	9	3	33		3	1			4
Total		*133*	*32*	*24*	2	25	10	0	1	38
%					5	66	26	0	3	100

THE FISH REMAINS *Rebecca A. Nicholson*

Introduction

Three, relatively small assemblages of fish remains were recovered from Vine Street, Freeschool Lane and Vaughan Way, from 95 of the sieved soil samples (1-11L) and by hand collection. While many of the identified bones and scales were from features and deposits dated to Phase 7 (Saxo-Norman, AD 850-1100) and Phases 8-10 (medieval, AD 1100-1500) many of the identified remains from Vine Street came from deposits associated with the various phases of Roman occupation (2nd-4th century AD). The great majority of approximately 1400 fragments submitted for analysis came from soil sample flots, which is unusual in British archaeology and is likely to be a reflection of the light, sandy nature of the sediments together with the partial sorting of sample residues from two of the sites. While all residues have been sorted from Freeschool Lane, only a small selection from Vine Street and none of the residues from Vaughan Way were sorted (Monckton pers. comm.). Consequently and unusually, many of the fish assemblages are dominated by scales and scale fragments. In addition, 169 bones were hand collected during the excavations.

The bones from Vine Street were well preserved, with tiny bones and scales identifiable. Most of the fish assemblage was recovered from Roman contexts which included a considerable range of deposit types including: pit fills, floors and oven fills as well as datable backfill contexts within features such as post-holes, robber trenches, make-up levels and a hypocaust. The majority of fish remains were extracted from the flots during sorting for charred plant remains. Residues under 4mm were only sorted if they were considered to be rich in remains (A. Monkton pers. comm.). This approach will inevitably favour the recovery of items which float, in this case tiny bones and fish scales, at the expense of larger items which remain in the residue.

Methodology

Bones and scales were identified to species, or other taxonomic level where appropriate, using the author's personal comparative collection. Bones not considered identifiable to family or species level included bones such as those of the branchial arch and fins, which are difficult to speciate. Spines were only identified where specifically diagnostic (for example the spines of the three-spined stickleback *Gasterosteus aculeatus*). Where scale fragments could be identified and were numerous, they have been scored as 1 scale to avoid grossly over representing taxa with scales which break easily (for example those of the carp family – Cyprinidae). Even so, taxa such as the cyprinids (carp family) and perch, which have large, robust scales are liable to over-representation by number of identified fragments if scales and bones are considered together. Hence the numbers of bones and scales are given separately in Table 223 and Table 224. Identifications are to species where possible but otherwise to genus or family. Bones which were not identified but which were considered potentially identifiable (i.e. could be identified to skeletal element) are recorded as unidentified while fragments of bones and scales considered not to be potentially identifiable are recorded as indeterminate. Where large numbers of tiny indeterminate fragments were present their numbers have been estimated. Nomenclature for taxa follows Wheeler (1978). Bone condition was recorded as 'poor', 'fair' or 'good' and other aspects of bone condition (e.g. fragmentation, evidence of chewing, burning) are given as comments in the full data record which has been submitted for inclusion with the site archive.

Most skeletal elements did not merit biometrical analysis due to their small size and small numbers, but fish sizes were subjectively categorised as 'small', 'medium' or 'large', with these sizes relating to the growth patterns of live fish and estimated by comparison with bones from fish of known length.

Results

Only thirty-nine bones and scales were identified from A24.2003, and 103 from A22.2003, although in addition numerous unquantified scale fragments classified as indeterminate were probably largely from cyprinids (*Table 223 and Table 224*). Nine bones or fragments of fish bone were hand recovered.

Roman

Almost all the fish represented in Roman deposits were freshwater taxa, or in the case of the migratory eel (*Anguilla anguilla*) euryhaline. Several cyprinids, most of them tiny, included bream (*Abramis brama*), gudgeon (*Gobio gobio*) and roach (*Rutilus rutilus*) or dace (*Leuciscus leuciscus*). In addition, small and tiny perch (*Perca fluviatilis*), pike (*Esox lucius*), trout (*Salmo trutta*) and grayling (*Thymallus thymallus*) were identified in a number of different features, the last almost exclusively from scales. Marine fish were scarce in Roman deposits but included herring (*Clupea harengus*), right-eyed flatfish possibly including dab (*Limanda limanda*), gurnard (Triglidae), sea bream (Sparidae) and mackerel (Scombridae). Smelt (*Osmerlus eperlanus*) which were recorded in Late Roman cess pit fills in G526 (Phase 4.1) and early Roman pit fills in G358 (Phase 2.2) are migratory shoaling fish which enter the lower reaches of rivers to spawn.

Late Roman fills, particularly context 3488 (sample 320) within cess pit G526 (Phase 4.1) from north of Building F and adjacent to Building G, Insula V, included remains of herring, eels, smelt, perch, small cyprinids and grayling together with head bones and vertebrae from a large barbel (*Barbus barbus*) well in excess of 46cm long. Gurnard skull fragments together with a small flatfish post temporal and several chewed herring vertebrae and an otic bulla were the only remains of sea fish found in this context. Cessy concretions within this feature, together with typical evidence that some herring, eel and smelt bones had been chewed (see Jones 1984 and Nicholson 1993b) demonstrates the faecal source of some of the bones. However, the presence of what is likely to have been a complete or partially complete barbel skeleton indicates other waste, probably from the table, was also dumped into the pit. Early Roman pit fill G344 (Phase 2.2) in Insula V (particularly sample 347) contained remains from smelt, perch, eel, herring and also trout.

A sea bream vertebra, almost certainly from Gilthead bream, *Sparus aurata*, was recovered from the late Roman fill of culvert G1000 (Phase 4.7) while a mackerel (Scombridae) vertebra from late 3rd to early 4th-century soil G496 (Phase 4.1) located under Building H, Insula V, was much more similar to Spanish mackerel *Scomber japonicus* than to common mackerel *Scomber scombrus.* Spanish mackerel are common in the Mediterranean and rarely seen north of the English Channel (Muus and Dahlstrøm 1974). Spanish mackerel has also been identified in Roman deposits in Chester (Jacques *et al.* 2004) and at Great Holts Farm and is likely to have been imported from the Mediterranean, an indication of direct links with the heart of the Roman Empire.

Four hand-collected bones included two very large cyprinid vertebrae (probably barbel) and a branchiostegal ray from the early 4th-century cess pit fill in G526 (Phase 4.1) together with a large pike dentary from a middle Roman context (5128) amongst construction trample G1154 (Phase 3.7) in Building G Corridor 18.

Medieval

In contrast to the Roman deposits, sieved medieval contexts contained occasional gadids including whiting (*Merlangius merlangus*) and haddock (*Melanogrammus aeglefinus*) in addition to herring and eel and small flatfish, small cyprinids, pike and perch. The general paucity of medieval fish remains is unusual for an urban site, even one so far inland, but can probably be explained by the small size of samples, which were in the range 1 - 11 litres of soil, and the small numbers of residues which were sorted.

Of four hand-collected bone fragments, only a cleithrum fragment from ling (*Molva cf. molva*) from context 1246 in pit G585 (Phase 9.1), within Plot Nine, was identifiable.

Discussion

Roman fish assemblages from British sites outside London are generally small, even from sites where quite extensive sieving programmes have been implemented. This could be taken as an indication that fish were not favoured or were generally unavailable to the Romans and the native British population, although in the heart of the Roman Empire fish were very highly esteemed, as indicated by their appearance on artworks (wall paintings and mosaics) and writings by authors such as Columella (Locker 2007). Archaeologically, however, fish remains tend to be found in middens, rubbish and cess pits and organic-rich occupation surfaces, and these are often rare on Roman sites. What is recovered will only

ever represent a small proportion of the food consumed and by and large the deeper the features and the faster the accumulation of rubbish and/or cess within them, then the better the bone preservation.

At Vine Street, only late 1st to early 2nd-century pit fill G344 (Phase 2.2) and early 4th-century cess pit G526 (Phase 4.1) produced quantities of fish remains, but this largely reflects the nature of the site, where few large pits were excavated and sampled. Many more deposits produced small quantities of fish bones and scales, but many were backfill deposits, so the provenance of the remains is less clear. The range of fish identified is typical of other Roman assemblages from the Midlands, where eel, cyprinids, salmonids, pike, perch, herring and flatfish dominate, with clupeids (herring and sprat), smelt and gurnards also present. At Vine Street the numerical dominance of scales over bones in most sample flots has inflated the relative significance of cyprinids, perch and pike, since these fish have large and robust scales. The dominance of freshwater over marine fish is particularly evident, however, when samples from Roman deposits are compared to those dated to the medieval period. Bones and, particularly, scales from freshwater fish were relatively much less common in the medieval deposits, and records of cod family fish (Gadidae) are almost entirely confined to the medieval and later centuries. As was discussed for the assemblages from Causeway Lane and The Shires, there appears to be a genuine change from the consumption of mainly small freshwater fish and the euryhaline eel in the Roman period, to a focus on marine species, in particular herring and gadids, supplemented by a small but consistent amount of freshwater fish. This trend is mirrored across Britain and reflects the rapid expansion of sea fishing, particularly for herring and large gadids, from around AD 1000 (Barrett *et al.* 2004).

With the exception of Spanish mackerel, all the fish identified at Vine Street could have been caught locally or in coastal waters off eastern England. The eels, small cyprinids, perch, grayling, trout and pike represented in the Roman deposits are likely to have been caught in nearby rivers and streams. Trout and grayling both favour clean, well-oxygenated water. Evidence for Roman fish ponds in Britain is sparse, but does exist throughout the Roman period, for example at the villa Bancroft, Milton Keynes (Zeepvat 2007). On the continent Roman fish ponds are more common; in Italy freshwater ponds were frequently fished for profit and even marine fish were kept in ponds attached to villas (*ibid.*).

Like mackerel, sea breams seem to be particularly favoured by the Romans. Both giltheads (*Sparus aurata*) and Couch's sea bream (*Sparus pagrus*) can be found in waters off southern England; however it is perhaps more likely that these fish were salted and imported together with the Spanish mackerel. Spanish mackerel are one of the fish most commonly found in amphorae, salted and either whole or portioned, as '*salsamentum*' (van Neer and Ervynck 2004). Sea breams were also among the more common fish recorded as salted and exported all over the Roman empire (Cutting 1962, 21). Not all marine fish need have been preserved. Well served by roads, fresh fish could have been transported dead or even, perhaps less likely, alive in vats from the Wash and further afield and the flatfish may well have been so transported. Marine fish seem to have been preferred by the Romans over freshwater fish, as demonstrated by documented price differences (Alcock 2001, 49). By contrast, for the inhabitants of an inland town small river fish are likely to have been relatively cheap and plentiful.

Table 223: The Fish Remains: number of fish bones and scales (sc) from soil samples from Vine Street (A22.2003). *Note that numbers of scales excludes many indeterminate fragments.*

SPECIES	Late 1st-early 2nd century	Early-mid- 2nd century	Mid-late 2nd century	Late 2nd-early 3rd century	Early-mid- 3rd century	Late 3rd century	4th century	Saxo-Norman	Earlier Medieval	Medieval	unphased	Grand Total
Clupeidae – herring fam.				1			5					6
Clupea harengus-herring	1						8		2	4		15
Salmo trutta-trout	2									1		3
Osmerus eperlanus-smelt	1						1					2
cf. Osmerus eperlanus							2					2
Thymallus thymallus-grayling		(1sc)	(1sc)	(1sc)	(1sc)							4
cf. Thymallus thymallus							1					1
Anguilla anguilla-eel	1						8		2	1		12
Cyprinidae- carp fam.	1	3 (2sc)	(2sc)	(4sc)	1		6 (1sc)	1			(2sc)	23
Barbus barbus-barbel							6					6
Barbus barbus/Abramis brama							1					1
Gadidae – cod fam.									1			1
Gadus morhua - cod											(1sc)	1
Melanogrammus aeglefinus-haddock									3			3
Esox lucius-pike				(1sc)							(2sc)	3
cf. Esox lucius			(1sc)									1
Perca fluviatilis-perch	(1sc)		1	(5sc)			1 (1sc)			1		10
cf. Perca fluviatilis				1			1					2
Triglidae – gurnard fam.							1					1
Scomber japonicus-spanish mackerel				1								1
Flatfish							2					2
cf. Limanda limanda – dab				1								1
Indeterminate	15 (5sc)		(26sc)	1 (36sc)	3	1 (3sc)	88 (8sc)	1	1	1	2(19sc)	210
Unidentified	1						8 (3sc)			(1sc)	(1sc)	14
Grand Total frags	**22 (6sc)**	**3 (3sc)**	**1 (30sc)**	**5 (47sc)**	**4(1sc)**	**1 (3sc)**	**140 (13sc)**	**2**	**9**	**8 (1sc)**	**2 (26sc)**	**327**

Table 224: The Fish Remains: numbers of fish bones and scales (sc) from soil samples from Vine Street (A24.2003). *Note that numbers of scales excludes many indeterminate fragments*

SPECIES	Early Roman	Mid 2nd century	Early-mid- 2nd century	Late 2nd -early 3rd century	Middle Roman	early 4th century	4th century	Early Medieval	Early Modern	Unphased	Grand Total frags
Salmo trutta -trout									1		1
Thymallus thymallus-grayling							2				2
Clupea harengus-herring								4			4
Anguilla anguilla-eel				1			2	1			4
Cyprinidae – carp fam.				1 (2sc)	(5sc)			(1sc)		(1sc)	10
Barbus barbus-barbel					1						1
Leuciscus/Rutilus sp. Dace/chub/roach				(1sc)							1
Gobio gobio- gudgeon				1							1
cf. Abramis brama-bream					(3sc)						3
Merlangius merlangus-whiting								1			1
cf. Merlangius merlangus						1					1
Esox lucius-pike				(3sc)	(1sc)						4
Sparus sp. –sea bream							1				1
Perca fluviatilis-perch								1			1
Pleuronectidae –R. eyed flatfish							2	1			3
Indeterminate	1	(4sc)	(2sc)	1 (13sc)			14	3		(3sc)	40
Unidentified	(1sc)			1	1		4				7
Grand Total	1 (1sc)	(4sc)	(2sc)	5 (19sc)	2 (9sc)	1	23	11(1sc)	1	(4sc)	85

THE OYSTER SHELLS *Alistair Hill*

Introduction

A number of marine mollusc shells were recovered from various contexts dating from the early 2nd century to the late Roman period during the excavations carried out at the Vine Street, Leicester site between 2004 and 2006. The vast majority of the shells recovered were of the native or flat oyster (*Ostrea edulis*) with a few individual mussel (*Mytlilus* sp.), common whelk (*Buccinum undatum*) and common cockle (Cardium edule*) shells.* The oyster shell assemblage was analysed by measuring the width and length dimensions of each shell and, following microscopic examination, a record was made of the infestation or encrustation by marine organisms and descriptive shell characteristics in order that an intra and inter-site comparison could be made. A comparison of the size and infestation of oyster shells from archaeological contexts was used by Winder (1992) to examine the sources and exploitation of oysters in the past and the methods used in this report follows those guidelines.

A selection of 576 oyster valves (344 left and 232 right), suitable for measurement, from seven contexts and attributed to the various phases were recovered during the excavation. The minimum number of individual oysters present (the largest number of either left or right valves totalled for the context groups including broken shells) in the assemblage was calculated at 363. The percentage of broken immeasurable shells was also recorded (Table 225).

Methods

Following excavation, the shells were allowed to dry and then stored inside sealed polythene bags, labelled and weighed. During the post excavation examination process the shells were carefully washed under gently running water with a soft-bristled paint brush and air dried. They were subsequently sorted into left and right valves and the length and width measured and recorded using the method outlined by Jessica Winder (Winder 1992). The measurements were taken by placing the internal surface of each shell downwards on a sheet of 10mm graph paper with the hinge or umbonal end placed on a point marked zero. The width is then taken as the maximum distance between this point and the opposite edge of the shell. The length measurement is subsequently taken as being the maximum distance between the edges of the shell at right angles to the width measurement (Winder 1992 – Figure 205).

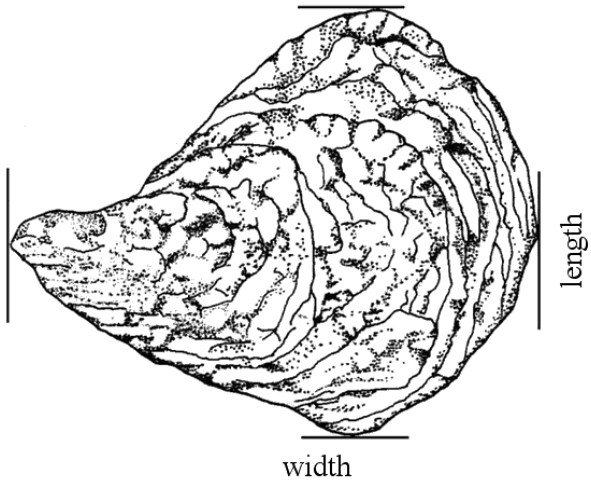


Figure 205: The Oyster Shells: left valve measurement

The shells were also examined for infestation by marine worms, sponges, barnacles, other organisms and for the attachment of young oysters. The condition and any unusual characteristics of the shells, such as irregular shape, were also recorded together with the presence and position of notches or cut marks.

Infestations, characteristics, size and shape

The percentage of each infestation or character present in all measured shells from the various contexts and phases was calculated and are shown in Table 225.

Table 225: The Oyster Shells: percentage frequency of infestation, descriptive characteristics and measurements

Period	Early Roman	Mid Roman	Late Roman	Late Roman	Later Roman	Late Roman	Late Roman	Medieval
Phase	**2.4**	**3.6**	**4.4**	**4.6**	**4.7**	**4.7**	**4.7**	**9**
Context	**6902**	**3573**	**3335**	**3508**	**5524**	**5669**	**4000**	
Group	**G100**	**G448**	**G1413**	**G526**	**G997**	**G997**	**G1286**	
INFESTATION	%	%	%	%	%	%	%	%
Polydora ciliate	45.5	47.1	63.3	52.3	31.6	23.9	85.9	65.5
Polydora hoplura	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0
Cliona celata	0.0	0.0	0.0	6.8	0.0	0.0	3.9	3.4
Calc. Tubes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barnacles	0.0	11.8	10.0	4.6	10.5	14.1	18.0	24.1
Polyzoa	9.1	55.9	10.0	18.2	36.8	60.1	9.0	6.9
Boreholes	0.0	0.0	6.7	0.0	0.0	5.6	0.0	13.8
Sand tubes	0.0	2.9	0.0	0.0	0.0	1.4	0.0	0.0
CHARACTERISTICS	%	%	%	%	%	%	%	%
Thin	54.6	67.7	46.7	13.6	43.4	69.0	44.9	75.9
Thick	45.5	29.4	46.7	86.4	51.3	29.6	55.1	44.8
Heavy	45.5	29.4	40.0	86.4	14.5	29.6	55.1	24.1
Chambered	9.1	2.9	6.7	38.6	25	8.5	5.1	6.9
Chalky deposit	5.5	0.0	20.0	0.0	13.1	2.8	0.0	13.8
Worn	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flaky	27.3	0.0	30.0	2.3	5.3	7.0	2.6	10.3
Colour/stain	0.0	8.8	0.0	2.3	0.0	8.5	2.6	13.8
Oysters att.	18.2	20.6	10.0	20.5	13.2	19.7	26.9	3.4
Irreg. Shape	54.6	58.8	70.0	63.6	63.16	76.1	68.0	31.0
Cuts	9.1	8.8	13.3	25.0	6.6	21.1	20.5	10.3
Ligament	0.0	0.0	0.0	2.3	0.0	0.0	0.0	3.4
MEASUREMENTS								
Measured left – total	11	34	30	44	76	71	78	29
Broken left – total	15	0	0	2	0	1	1	19
Measured right – total	9	22	29	2	63	50	57	28
Broken right – total	8	0	0	0	0	3	3	13
Total measured	20	56	59	46	139	121	135	57
% broken	53.5	0	0	1.1	0	3.2	2.9	14.6
Minimum no.	26	34	30	46	76	72	79	48
Mean LVMD (mm)	71.09	78.32	81.73	96.18	78.74	78.3	70.97	70.38
Standard deviation	10.05	6.936	11.54	11.26	8.472	8.301	5.866	11.70

The most useful dimension for comparison is the largest diameter, either width or length, of the left, cupped valve. This gives the maximum size of the live oyster as the flat, right valve lies inside it. This measurement (left valve maximum diameter, LVMD) is used for the survey of modem oyster populations. The mean of the maximum left valve diameter and standard deviation for each context group was calculated (Table 225) and using t-tests the resultant data was used to assess whether the means of the groups are statistically different from each other (Table 226). A comparison of the size frequency distribution of the groups was also carried out using the Kolmogorov – Smirnov test, a statistical test that does not rely on a normal distribution and the results are also included in Table 226.

t values greater than 2 are significantly different results of t-test at 0.05level of probability
K Kolmogorov-Smimov cumulative frequency test
(+) = Significant difference.
(Nsd) = No significant difference at 0.01 level of probability

Table 226: The Oyster Shells: comparison of Oyster Contexts from Vine Street

	3573		3335		3508		5669		4000		5524	
	t	K	t	K	t	K	t	K	T	K	t	K
6902	2.2	Nsd	2.9	Nsd	7.2	+	2.3	Nsd	0.04	Nsd	2.4	Nsd
3573	-	-	1.4	Nsd	8.6	+	0.01	Nsd	5.4	+	0.3	Nsd
3335	-	-	-	-	5.3	+	1.5	Nsd	4.9	+	1.3	Nsd
3508	-	-	-	-	-	-	9.1	+	13.8	+	8.9	+
5669	-	-	-	-	-	-	-	-	6.2	+	0.3	Nsd
4000	-	-	-	-	-	-	-	-	-	-	6.6	+

Histograms of the percentages of shells in successive 5mm size classes were plotted for each of the resultant groups (Figure 206). These appear to show that the shells from contexts 6902, 3573, 5669, 4000 and 5524 have a normal distribution of sizes indicating that they were from a single source. However, the shells from the late Roman contexts 3335 and 3508 have a size distribution with more than one mode indicating that they may be representative of an assemblage with more than one source of origin.

The general shape of the oysters was quantified for each context by calculating the proportion of shells with width as the greatest dimension to those with length as the greatest dimension and the results are shown in Table 227.

Table 227: The Oyster Shells: general shape classification

Period	**Early Roman**	**Mid Roman**	**Late Roman**	**Late Roman**	**Later Roman**	**Late Roman**	**Late Roman**
Phase	**2.4**	**3.6**	**4.4**	**4.6**	**4.7**	**4.7**	**4.7**
Context	**6902**	**3573**	**3335**	**3508**	**5524**	**5669**	**4000**
Group	**G100**	**G448**	**G1413**	**G526**	**G997**	**G997**	**G1286**
Long : Broad	1:10	1:5	1:5	1:6	1:3	1:6	1:5
% Long	9.1	14.7	16.7	13.6	26.3	14.1	16.7

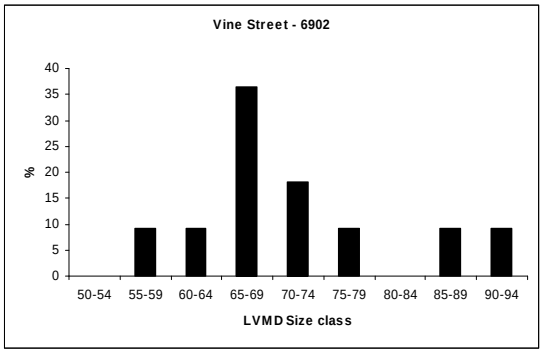
The biological width is from the hinge to the opposite edge while the biological length is 90º to this across the shell. Hence shells which have the length as the greater dimension appear rounded or fan shaped, a small proportion of the shells from Vine Street have this characteristic.

A more detailed analysis of relationship between the width and length of the oysters from the Vine Street contexts was considered by plotting scattergrams (see examples - Figure 207) of the width against the length of the left valve and calculating the regression line (Table 228*)*. The correlation co-efficient shows the proximity to the regression line of the point groups. A co-efficient of 1.0 would demonstrate that all the points representative of the shells width and length were on the regression line. The degree of correlation between the width and length decreases in line with decreases in the co-efficient figure.

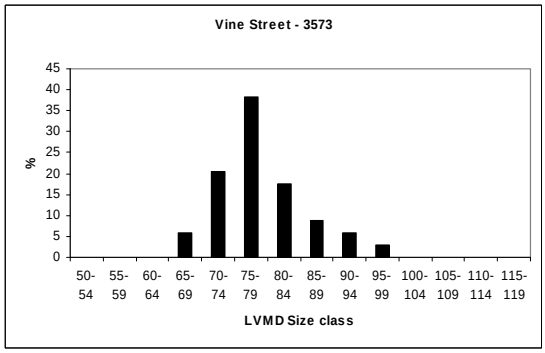
Table 228: The Oyster Shells: regression of width against length of left valves. Note. An angle of slope of 45º would indicate a rounded shell, i.e. width and length would be equal. Angles less than 45º show a progression towards less rounded shells

Context	**Phase**	**Intercept**	**Slope**	**Angle**	**Coefficient**
6902	Early Roman	7.706625	1.017876	45.51	1.500573
3573	Mid Roman	35.79530	0.602752	31.08	0.871863
3335	Late Roman	36.92212	0.609709	31.37	0.763539
3508	Late Roman	35.63809	0.688776	34.56	0.922232
5669	Late Roman	35.92239	0.596298	30.81	0.74084
4000	Late Roman	38.47593	0.491176	26.16	0.635385
5524	Late Roman	48.53317	0.401694	21.89	0.563202

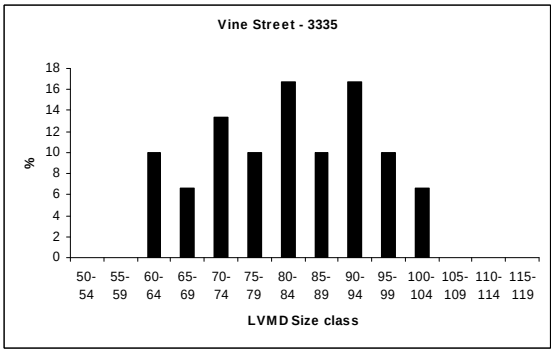
Shape difference has been found to reflect the oyster's response to the type of sediment associated with its environment (Winder 1992) with rounded shells being an adaptation to the softer sediments, common to river estuaries and sandy shores, whilst ovoid shells reflect a firmer substrate origin in deeper waters.



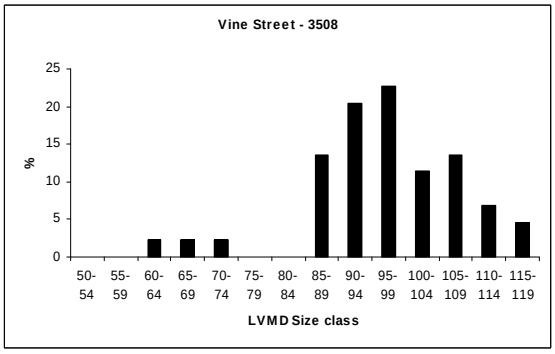
a) 6902 (G100) – Early Roman



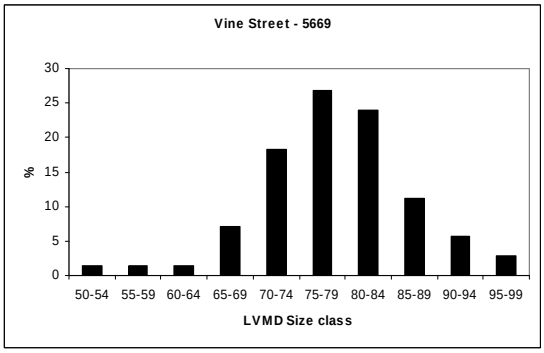
b) 3573 (G448) – Middle Roman



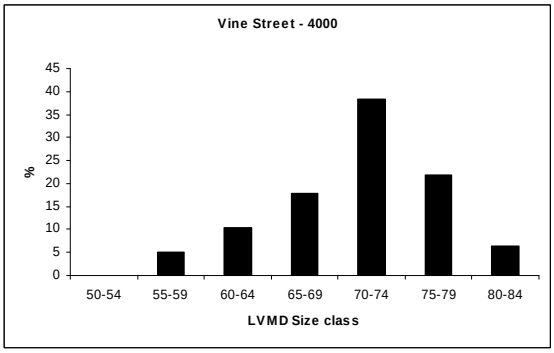
c) 3335 (G1413) – Late Roman



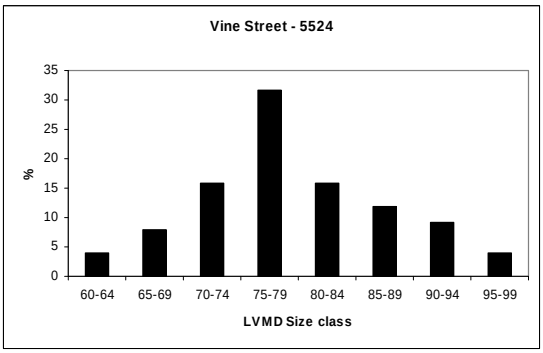
d) 3508 (G526) - Late Roman



e) 5669 (G997) – Late Roman

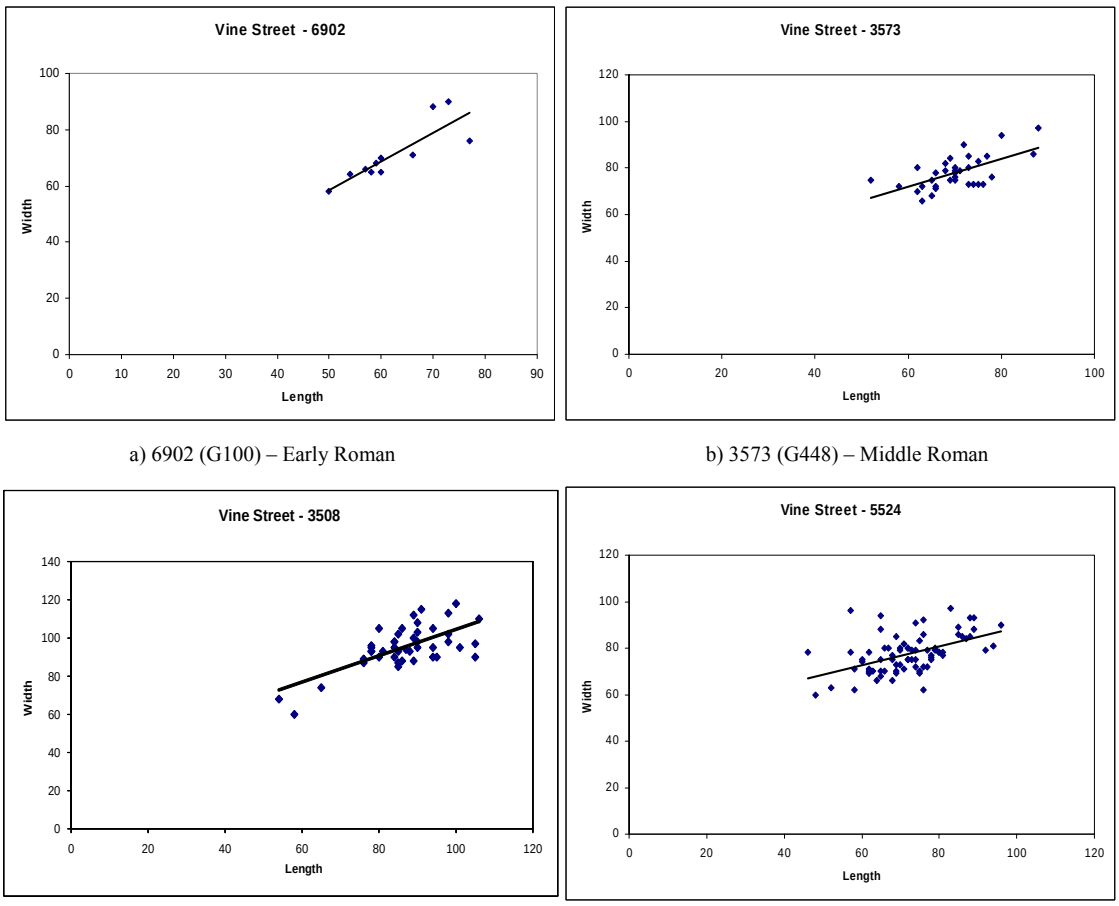


f) 4000 (G1286) – Late Roman



g) 5524 (G997) – Late Roman

Figure 206: The Oyster Shells: percentages of shells in successive 5mm size classes for each context group



a) 6902 (G100) – Early Roman

b) 3573 (G448) – Middle Roman

c) 3508 (G526) - Late Roman

d) 5524 (G997) – Late Roman

Figure 207: The Oyster Shells: scattergrams demonstrating the relationship between width and length of oyster shells within select context groups

Discussion

Size

The results from the left valve dimensional analysis of each phase represented in the assemblage of the Vine Street oysters were compared with those from other sites from the Roman period including the Shires – Leicester (Monckton 1994), Causeway Lane – Leicester (Monckton 1999b), Newport Roman Villa - Isle of Wight (Winder 1989), Pudding Lane – London (Winder 1984), North Shoebury – Essex (Murphy 1995), Tort Hill – Cambridgeshire (Winder 1996) and Alchester – Oxfordshire (Hill 2008) – see Table 230. As can be seen:

Early Roman context 6902

The oyster shell from Vine Street's Early Roman (Early-Mid 2nd century) context 6902 – occupational trample associated with Timber Structure 2 situated along the south western edge of Insula V – show no significant difference to the shells from and the Shires F186.992.1263 (late 2nd century) and Causeway Lane's late 1st to 2nd and late 2nd to mid- 4th-century contexts (Phases 1-4 and 5 respectively). The shells from context 6902 also had similarities with those from Pudding lane 3218, all the North Shoebury shell groups, Tort Hill 5069 and 507/508 and the Civilian, Military and Rest groupings from Alchester.

Middle Roman context 3573

The oyster shell from this middle Roman pit context located in the 'garden' area immediately north of building F show no significant difference to the shells from the Shires F186.1264 (late 2nd century), Causeway Lane 1991.F763 (post 300AD) and Phase 6, all of the North Shoebury contexts and the Civilian grouping from Alchester.

Late Roman contexts

The shells from the contexts dated to the late Roman phases can be split into two groups. Those from contexts 3335, 5669 and 5524 show no significant difference to the shells from the middle Roman phase (3573) at Vine Street, the Shires F186.1264 (late 2nd century), Causeway Lane 1991.F763 (post 300AD) and Phase 6, all of the North Shoebury contexts and the Civilian grouping from Alchester. The second group is composed of the shells from the late Roman contexts 3508 and 4000. Context 4000 – a late Roman pit within building G's central courtyard associated with a general phase of neglect and demolition towards the end of building G's inhabited phase and the late Roman cess pit context 3508 in the 'garden' area between buildings F and H – were the least comparable in terms of dimensional analysis with the other contexts from Vine Street and those from other sites. In particular, the 3508 shells were shown to be significantly larger to all other shell assemblages regardless of site. The shells from Vine Street 3508 also had the largest average diameter with a mean LVMD of 92.18mm and a size distribution with more than one mode indicating that the assemblage may be composed of shells originating from several sources (Figure 206c).

Infestation

The various infestation percentages calculate for each of the Vine Street context groups were considered (Table 225). The most commonly occurring infestation shell damage was caused by the marine burrowing worm, *Polydora ciliata*, which affected between 23.9 - 85.9% of the shells within the contexts. The levels of incidence of the encrusting organism, *Polyzoa*, also varied across the contexts and affected between 9-60.1% of the shells. However, it should be noted that the evidence for *Polyzoa* can be lost in poorly preserved shells. Damage to the shell surface caused the boring sponge *Cliona celata* was found in only a small number for shells from contexts 4000 and 3508. Barnacle attachment was found on every context with the exception of the shells from the early Roman context 6902. The level of barnacle evidence was however at a generally lower level than that of *Polydora ciliate* and *Polyzoa* and ranged between 4.6 - 18%. Shells with evidence of boreholes (caused by predatory gastropods) and sand tubes was limited and only occurred in individual shells from contexts 3573 and 5669 (middle and late Roman contexts respectively).

Possibly the most significant evidence was the probable presence of *Polydora hoplura*, a larger species of burrowing worm and related to *Polydora ciliata*, found in two shells from the late Roman context 3508. This species, absent from both modern and archaeological oyster assemblages collected from the East Anglian coastline, is believed to be restricted to a southern coastal water habitat (Winder 1996) and has not been found previously in Roman oyster assemblages from Leicestershire. The shells from this context were also the largest, in terms of their LVMD, of all the shells found at Vine Street.

Characteristics

The percentage frequency of the physical characteristics of the shells in each of the context samples was calculated and recorded in Table 225. In general, the shells were in a reasonable state of preservation. However, a high incidence of chalky and flaky shells was evident in those shells from contexts 6902 and 3335 (early and late Roman contexts respectively). In most cases the number of thin to thick and heavy shells across the various contexts/periods was relatively equal with the exception of contexts 3573 (mid-Roman), 5669 and 3508 (late Roman). This later assemblage was dominated by thick and heavy shells (86.4%) and also contained the highest level of chambered shells (38.6%). Chambering is indicative of rapid changes in the internal shape of the shell that may have occurred following spawning or as a result of changes in the salinity of the surrounding marine environment. Chambering can also occur as an adaptation to any restriction taking place during the oyster's growth cycle.

The high levels of shape irregularity found in all of the Vine Street oyster contexts indicates that they were most likely to have originated from natural populations where shell growth was hindered due to overcrowding. The supposition that the Vine Street oysters originated from natural beds is also supported by the fact that a significant number of oysters from each context/period had small spat oysters attached. The attachment of small spat oysters provides evidence for an oyster population that is self perpetuating by means of a natural breeding cycle.

The method of opening the shell, by probably inserting and twisting a knife point, was evident in the number of deep triangular cuts/notches identified around the rim of the shell either opposite the hinge or

halfway between the hinge and the opposite rim edge. As each context contained cuts/notches located in both areas no standard method or change in method could be identified.

A comparison of the infestation and character evidence from the Vine Street oysters was made with the evidence from other Roman sites. The percentage incidence of infestation by the burrowing worm *Polydora ciliata* ranged from 23.9 – 85.9% at Vine Street compared to a range between 24.5 - 61.3% in the shells from the Roman contexts at Causeway Lane, Leicester and 45-90% at North Shoebury, Essex. However, these levels on average comfortably exceed those found at the Shires, Leicester (16.3-18.8%), Pudding Lane, London (11.7-21.3%) and Tort Hill, Cambridgeshire (35-37%). The occurrence of *Cliona celata*, the boring sponge, across the range of site is comparable in terms of its low levels of incidence. However, the range of the percentage incidence of barnacles and *Polyzoa* at Vine Street is higher (4.6 – 18% and 9-55.9% respectively) than those found at the Shires (4.5-6.5% and 12.4-13.8%) and Causeway Lane (5.2-14.5% and 3.3-9%) and considerably higher than Pudding Lane (0-2% and 0.2-0.8%) and Tort Hill (1% barnacles and 6% *Polyzoa*).

Size and frequency comparisons were made between the Vine Street oysters and those from other sites and it was found that Vine Street contexts 3573, 3335, 5669 and 5524 were similar to the Shires cellar context 1264, Causeway Lane F763 and Phase 6, all four groups from North Shoebury, Essex and the Civilian group from Alchester. Contexts 6902 and 4000 had size and frequency similarities to the Shires Roman group, Causeway Lane Phases 1-4 and 5 and the Alchester Military group. No similarity was found with the contexts from 1714 Pudding Lane, Newport Roman Villa or Tort Hill. No size comparison was found between Vine Street context 3508 and any other group.

The analysis of the oyster shells from the Vine Street excavations reveals that although the size distribution of four of the six context groups show a normal distribution curve indicative of a common source of origin within the group. There is sufficient variation in size, infestation, in particular the absence of *Polydora hoplura*, and shell characteristics to suggest that the assemblage as a whole is composed of oyster shells from a number of different sources. However, comparisons with other sites which have been suggested to have oyster shells from East coast origins would indicated that the vast majority of the Vine Street oysters also originated from Eastern coastal waters but not necessarily from identical sources to those from the Shires, Causeway Lane, North Shoebury and Alchester. The high incidence of infestation damage, normally associated with shallow warmer water, would also support the suggestion that the bulk of the Vine Street oysters have an East coast origin, possibly the Essex estuary and creeks.

The evidence of *Polydora hoplura* damage in the Vine Street oyster shell from the late Roman context 3508 was comparable with only one other site – Tort Hill 5069 where it was concluded that the oysters were from a south coast origin and added to the evidence for the long distance trading of shellfish through the utilisation of the Roman coastal, road and river network (Winder 1996). The shells from context 3508 were also distinct in terms of their size (having the largest LMVD at 96.18mm), shape (roundest of any from the late Roman contexts) and having the highest percentage frequency of thick, heavy and chambered shells. This evidence suggests that these shells are not only from a different source from the other assemblages found at Vine Street but are an entirely unique group distinct from any other shell assemblage found in Roman contexts in Leicester to date.

It is known that oysters will survive up to a period of 10-14 days if kept in cool and moist conditions (Winder 1985).The oyster beds along the Essex coastline as well as areas of the Thames estuary could therefore have been potential sources of the Vine Street assemblage. The survival travel time would also make the South coast oyster beds of Dorset, Hampshire and Sussex possible sources for some from context 3508.

The route taken during the Roman period is unknown but could have involved coastal barges followed by inland transportation along the rivers and roads. However, it is interesting that the excavations at Tort Hill – Cambridgeshire (Winder 1996), the only other site covered by this study where Southern coastal oysters have been found, was part of a project involving sites alongside Roman Ermine Street (London to Lincoln). This major Roman thoroughfare may also therefore have played a part in their transportation to Leicester in the late Roman period.

A breakdown of the small number of mussel (*Mytlilus* sp.), common whelk (*Buccinum undatum*) and common cockle (Cardium edule*)* shells found various context assemblages is shown in Table 228. Due to

their less robust shell, mussels do not survive as well as oysters in archaeological contexts and therefore may be under-represented in comparison to oyster. The whelk and cockle shell remains were badly fragmented and therefore it could not be determined whether or not they were of a size suitable for consumption. It is likely that they would have arrived at the site amongst the deliveries of oyster and other seafood.

Table 229: Other shellfish

Context	Period	Phase	Mussels	Whelks	Cockles
6902	Early Roman	2.4	-	5	-
3573	Mid Roman	3.6	-	-	1
5524	Late Roman	4.7	-	-	1
5669	Late Roman	4.7	2	3	3

Medieval phase

A small quantity of oyster shell from medieval contexts was also recovered during the excavation work at Vine Street. As the quantity involved was limited it was decided to group all the shells from medieval contexts together. Only 29 left valves were in a suitable condition to be measured and when compared with those from the other contexts from Vine Street were found to have no significant difference to those from contexts 6902 and 4000, early and late Roman contexts respectively (see Table 230). Comparisons were also made with the Roman and Medieval (where applicable) phased shells from the Shires, Causeway Lane, Newport Roman Villa, Pudding Lane, North Shoebury, Tort Hill and Alchester sites. As can be seen from Table 230 the Vine Street medieval shells were found to be significantly from those from the Shires Roman group F186.1264 and those from the Shires medieval contexts, Causeway Lane 1991 F763 and Phase 6, Newport Roman Villa, all of the North Shoebury contexts and the Alchester civilian shells. The Vine Street medieval shells were however found to have no significant difference from those from the Causeway Lane medieval contexts. The mean size of the Vine Street medieval shells (LVMD = 70.38mm) compares with the medieval Causeway Lane shells (LVMD = 68.42mm) but differs significantly to the Shires medieval shells (LVMD = 56.90mm). It is also clear that unlike the Shires medieval shells there is no significant size decrease over time with the Vine Street shells. The relationship of the Vine Street medieval shells, in terms of their width and length, was examined by plotting a scattergram of the width against length of the left valve and calculating the regression line (see Figure 208a and Table 231).

Comparing the angle of slope of the Vine Street medieval shells (Table 231) with those from the Vine Street Roman contexts as shown in Table 228 it can be seen that they are similar to those from contexts 3573 (mid- Roman), 3335, 3308 and 5669 (late Roman). The general shape of the Vine Street medieval oysters was quantified by calculating the proportion of shells with width as the greatest dimension to those with length as the greatest dimension and it was found that the ratio of long to broad shells was 1:4 with 20.7% long. Comparing these results with those in Table 227 it can be seen that the general shape is comparable with those from contexts 3573 (mid- Roman), 3335, 3308 and 5669 (late Roman).

A histogram of the percentages of shells in successive 5mm size classes was plotted for each of the resultant groups (Figure 208b). From this it can be seen that the size distribution of the Vine Street shells from the medieval contexts have a size distribution with more than one mode indicating that they may be representative of an assemblage with more than one source of origin.

The infestation of the shells from the medieval contexts was considered against those from the Roman phase shells. The infestation incidence of the burrowing worm Polydora ciliata is at its highest level in the medieval shells as is the incidence of barnacles and boreholes. However, the incidence of Polyzoa is lowest in the medieval assemblage (see Table 225).

The characteristics for the medieval shells also showed variation from those from the Roman phase. The medieval shell assemblage contained the greatest level of thin shells. They also showed the lowest levels of attached young oysters (spat) and incidence of irregularity (see Table 225)

.

Table 230: The Oyster Shells: comparison of left valves

	Early Roman		Mid Roman		Late Roman		Late Roman		Late Roman		Late Roman		Late Roman		Medieval		LVMD	Total shells	SD
	6902		3573		3335		3508		5669		4000		5524		Various				
	t	K	t	K	t	K	t	K	t	K	t	K	t	K	t	K			
Vine St 6902	-	-	2.2	Nsd	2.9	Nsd	7.2	+	2.3	Nsd	0.04	Nsd	2.4	Nsd	0.2	Nsd	71.09	11	10.05
Vine St 3573	-	-	-	-	1.4	Nsd	8.6	+	0.0	Nsd	5.4	+	0.3	Nsd	3.2	+	78.32	34	6.94
Vine St 3335	-	-	-	-	-	-	5.3	+	1.5	Nsd	4.9	+	1.3	Nsd	3.8	+	81.73	30	11.54
Vine St 3508	-	-	-	-	-	-	-	-	9.1	+	13.8	+	8.9	+	9.4	+	92.18	44	11.26
Vine St 5669	-	-	-	-	-	-	-	-	-	-	6.2	+	0.3	Nsd	3.3	+	78.31	71	8.30
Vine St 4000	-	-	-	-	-	-	-	-	-	-	-	-	6.6	+	0.3	Nsd	70.97	78	5.87
Vine St 5224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5	+	78.78	76	8.47
Vine St Medieval	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70.38	29	11.10
Shires F186.992-1263	1.1	Nsd	2.8	+	3.3	Nsd	11.8	+	3.1	+	3.6	+	3.5	+	1.8	Nsd	74.50	233	11.00
Shires F186.1264	2.6	Nsd	0.6	Nsd	1.2	Nsd	9.5	+	0.7	Nsd	9.1	+	0.3	Nsd	3.8	+	79.11	301	10.32
Shires RB rest	0.5	Nsd	3.9	+	4.0	+	12.5	+	4.4	+	1.8	Nsd	4.8	+	1	Nsd	72.80	134	9.00
Shires Medieval	4.5	+	14.7	+	10.9	+	20.7	+	16.5	+	13.1	+	17.0	+	5.8	+	56.90	144	10.00
Causeway Lane 1991.F763	2.9	Nsd	1.2	Nsd	0.7	Nsd	8.2	+	1.4	Nsd	8.0	+	1.1	Nsd	4.2	+	80.21	123	10.42
Causeway Lane Phases 1-4	0.2	Nsd	4.3	+	4.3	+	12.6	+	4.8	+	0.7	Nsd	5.1	+	0.6	Nsd	71.82	128	10.55
Causeway Lane Phase 5	0.4	Nsd	3.9	+	4.0	+	12.3	+	4.4	+	1.3	Nsd	4.7	+	0.9	Nsd	72.45	140	10.77
Causeway Lane Phase 6	2.7	Nsd	0.8	Nsd	1.0	Nsd	8.9	+	0.9	Nsd	8.2	+	0.6	Nsd	3.9	+	79.47	167	10.33
Causeway Lane Medieval	0.7	N/A	3.8	N/A	4.3	N/A	9.7	N/A	4.0	N/A	1.1	N/A	4.1	N/A	0.6	N/A	68.42	26	11.70
Newport Roman Villa 37	4.7	+	5.8	+	1.8	Nsd	6.1	+	6.8	+	18.8	+	6.5	+	6.9	+	85.60	700	10.70
Pudding Lane 1714	4.8	+	5.1	+	2	Nsd	4.8	+	5.6	+	12.2	+	5.3	+	6.6	+	86.50	106	11.20
Pudding Lane 3218	0.4	Nsd	4.9	+	4.4	+	13.9	+	5.8	+	1.8	+	6.3	+	0.9	Nsd	72.20	739	8.20
North Shoebury 299	3.1	Nsd	1.7	Nsd	0.3	Nsd	7.4	+	1.9	Nsd	7.7	+	1.6	Nsd	4.4	+	81.10	98	11.30
North Shoebury 422	2.7	Nsd	0.9	Nsd	0.9	Nsd	8.5	+	1	Nsd	7.6	+	.07	Nsd	3.9	+	79.79	156	11.70
North Shoebury 446	2.7	Nsd	0.9	Nsd	0.9	Nsd	8.2	+	0.9	Nsd	6.8	+	0.7	Nsd	3.8	+	79.70	143	13.10
North Shoebury 917b	3.3	Nsd	2	Nsd	0.3	Nsd	6.9	+	2.2	Nsd	7.8	+	1.9	Nsd	4.6	+	81.80	93	11.80
Tort Hill 5069	1.3	N/A	1.8	N/A	2.7	N/A	10.2	N/A	2.0	N/A	3.4	N/A	2.3	N/A	2	N/A	75.37	54	8.20

	Early Roman		Mid Roman		Late Roman		Late Roman		Late Roman		Late Roman		Late Roman		Medieval		LVMD	Total shells	SD
	6902		3573		3335		3508		5669		4000		5524		Various				
	t	K	t	K	t	K	t	K	t	K	t	K	t	K	t	K			
Tort Hill 507/508	1.5	N/A	1.6	N/A	2.5	N/A	10.5	N/A	1.8	N/A	4.3	N/A	2.1	N/A	2.3	N/A	75.86	113	9.87
Alcester – Civilian	2.2	Nsd	0.01	Nsd	1.4	Nsd	8.2	+	0.01	Nsd	4.8	+	0.3	Nsd	3.1	+	78.30	43	8.92
Alcester – Military	0.4	Nsd	2.8	+	3.4	Nsd	8.0	+	2.9	+	0.5	Nsd	3.1	+	0.3	Nsd	69.43	14	10.80
Alcester – Rest	0.7	Nsd	4.8	+	4.9	+	11.6	+	5.0	+	1.3	+	5.7	+	0.7	Nsd	68.55	73	14.30

Table 231: The Oyster Shells: regression of width against length of left valves from medieval contexts

Context	Phase	Intercept	Slope	Angle	Coefficient
-	Medieval	30.06353	0.650371	32.41	0.942855

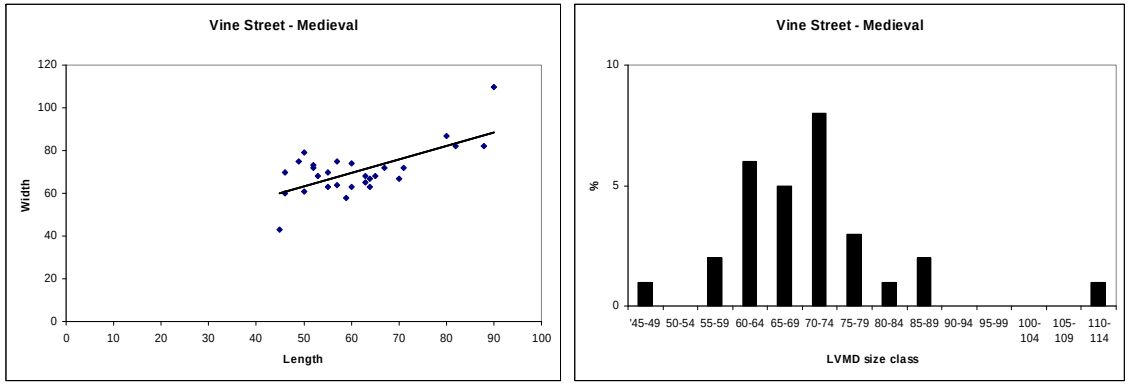


Figure 208:a: The Oyster Shells: medieval context groups b: The Oyster Shells: medieval context groups

High levels of attached oysters and shell shape irregularity are seen as being indicative of oysters growing in a natural environment where space may be at premium resulting in crowding. The greatly reduced incidence of oyster attachment and shell shape irregularity may be an indicator in this instance that the oysters from the medieval contexts from Vine Street suggests that some of the oysters originated from managed east coast oyster beds where regular dredging would result in the detachment and spread of young oysters, therefore reducing the likelihood of oyster attachment and the overcrowding that results in shell irregularity.

However, as can be seen in Table 230, despite the various infestation and character differences between the medieval and Roman shells from Vine Street, there is similarity in size between the shells from Roman contexts 6902 and 4000 and the medieval shells from the Shires. As this is a distinct group of smaller shells this could suggest that they may be, like the medieval shells from Causeway Lane, residual Roman shell (Monckton 1999b).

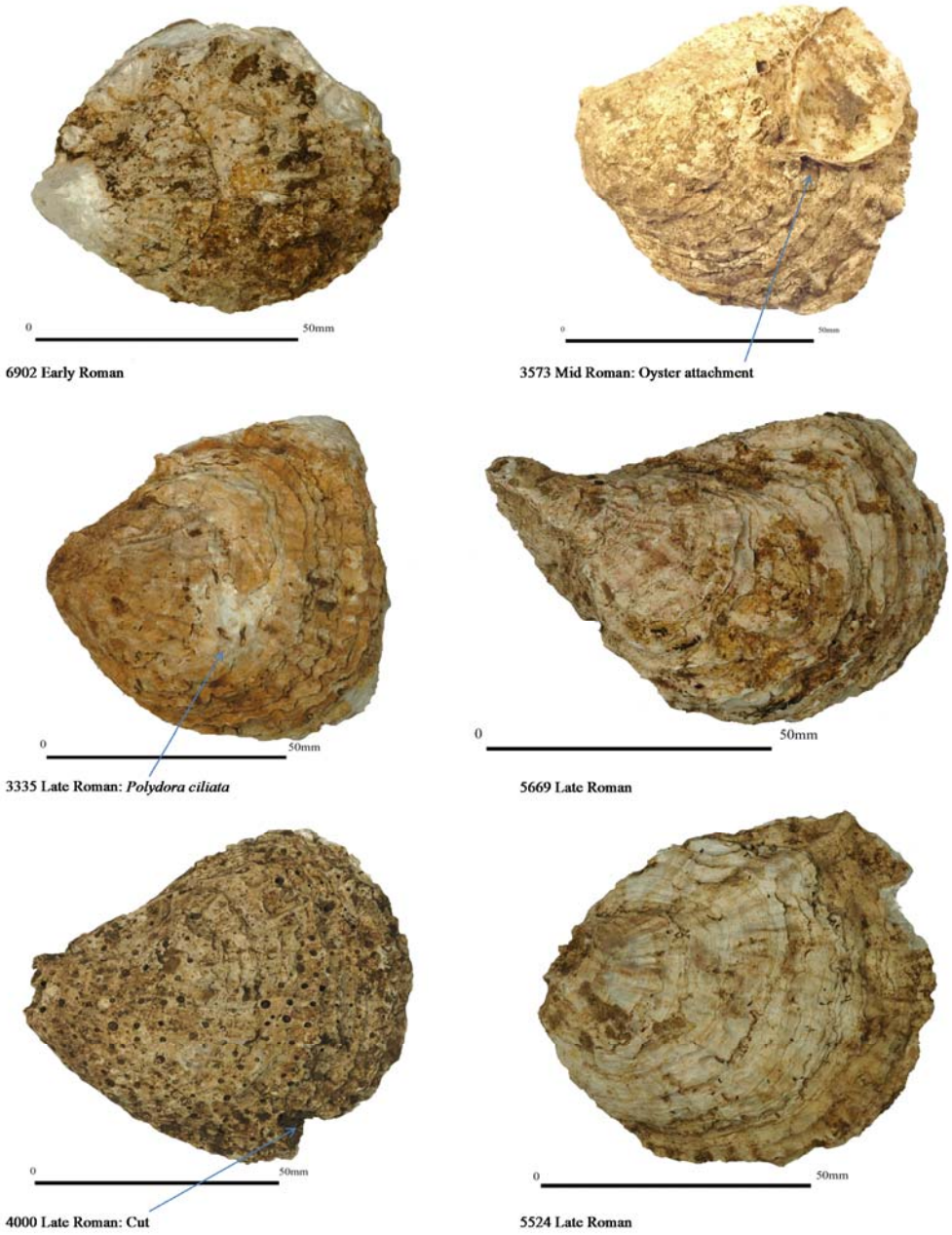


Figure 209: The Oyster Shells: examples of oyster shells recovered from early to late Roman contexts

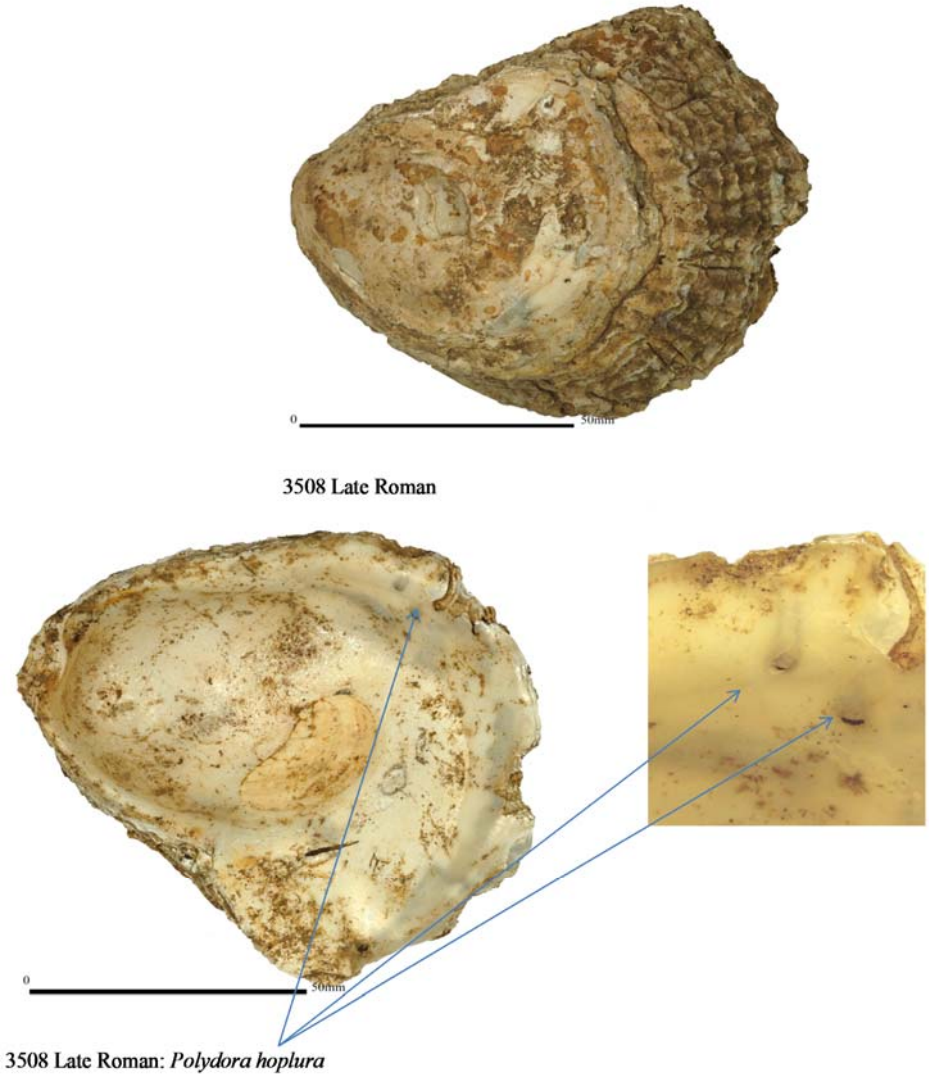


Figure 210: The Oyster Shells: details of oyster shell recovered from a late Roman context

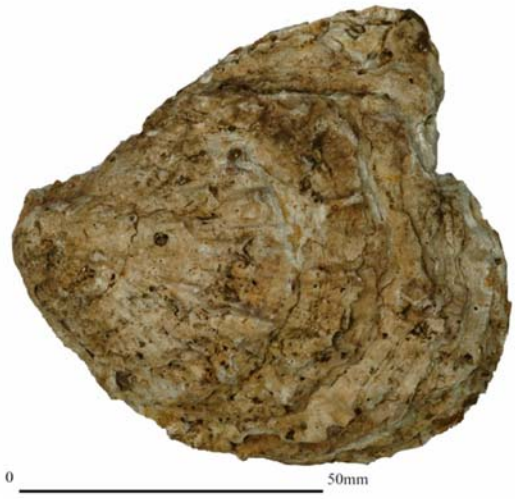


Figure 211: The Oyster Shells: example of an oyster shell recovered from a medieval contexts

THE PARASITES *John Carrott*

Introduction

An archaeological excavation was carried out by University of Leicester Archaeological Services (ULAS) at Vine Street, Leicester (centred on NGR SK 583 049). The works were undertaken between 2004 and 2006 in advance of the Highcross Quarter retail development.

Features and deposits reflecting several phases of Roman and medieval occupation, with possible hints of early-middle Anglo-Saxon activity and limited post-medieval and modern remains were encountered. Roman features included gravel extraction pits, early timber structures later replaced by stone buildings which included a courtyard house, bath houses and a substantial public building (possibly a warehouse or granary). Medieval evidence included surfaced lanes, numerous pits, wells, floor surfaces and wall remnants suggesting burgage plots, and St. Michael's church (thought to be pre-Conquest in origin) and associated cemetery.

A total of 21 small sediment subsamples and spot samples of coprolites/cess from Roman and medieval deposits were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an investigation of their content of the eggs of intestinal parasites.

Methods

The samples were examined for the eggs of intestinal parasites using the 'squash' technique of Dainton (1992). Measurements were made using a calibrated eyepiece graticule at 600x magnification and determined to the nearest one quarter of a graticule division which calibrated to 0.63 of a micron; this may be taken as a standard +/- error for all quoted measurements.

Methods for the concentrating of parasite eggs (see, for example, MAFF 1971, 1-16) were not employed and, consequently, numbers of parasite eggs per gram of deposit were not calculated. Dainton (1992, 58-59) discusses the problems of adopting the quantitative methods of parasitology for use on archaeological deposits but also provides a comparison of the numbers of eggs seen from the semi-quantitative 'squash' and calculated counts of eggs per gram of sample from corresponding subsamples of the same material prepared following the modified Stoll method (MAFF 1971, 3-4) sometimes employed by environmental archaeologists (for example, Jones and Hutchinson 1991; Boyer 1999). He concludes that the semi-quantitative 'squash' records accord well with data obtained using the alternate method and that numbers of eggs seen in the 'squash' samples, recorded as 'trace' (1 to 5), 'few' (6-10), 'some' (11-20), 'many' (20-100), 'very many' (more than 100), may therefore be used as an estimate of the degree of faecal content/contamination of deposits in the manner outlined by Jones (1985).

Although primarily for the detection of intestinal parasitic nematode eggs the 'squash' technique routinely reveals other microfossil remains, and where present, these have also been noted.

The size range quoted for *Trichuris trichiura* (Linnaeus) follows that given by Ash and Orihel (1984); although significantly larger *T. trichiura* eggs are occasionally reported in modern parasitological samples this is usually in response to the use of anthelmintics, or may on occasion be a confusion with *T. vulpis* which children sometimes acquire through geophagia. Size ranges for the eggs of trichurids of other common domestic animals are from several sources including Kassai (1998) and the WWW pages of the College of Veterinary Medicine, University of Missouri-Columbia.

Results

The results of the initial investigations to determine the presence/absence and state of preservation of parasite eggs are presented below in context number order by phase. Where eggs were present the results of any additional work undertaken are also given. Archaeological information provided by the excavator is presented in square brackets.

Phase 2.2 – early Roman (mid- 1st to early 2nd century)

Context 2975 [G326; fill of early cess filled pit in Insula V]
Sample 2406

The 'squash' was entirely inorganic. No parasite eggs or other identifiable microfossil remains were recorded.

Context 3721 [G358; fill of early cess filled pit in Insula V, with fish remains and a few fruit stones]
Sample 347

The 'squash' was almost entirely inorganic, with a trace of organic detritus and a few fungal hyphae fragments. No parasite eggs were seen.

Phase 3.5 – mid- Roman (mid- 2nd to 3rd century)

Context 4888 [G928; fill of cesspit within Building A (Insula V), with some mineralisation and a fly puparium]
Sample 725

The 'squash' was almost entirely inorganic, with a trace of organic detritus. No parasite eggs were seen.

Context 5767 [G928; fill of cesspit within Building A (Insula V) – same feature as Context 4888 (above)]
Sample 737

The 'squash' was almost entirely inorganic, with a trace of organic detritus and a few fungal hyphae fragments and pollen grains/spores. No parasite eggs were recorded.

Phase 4.1 – late Roman (late 3rd – early 4th century)

Context 3512 [G526; fill of cesspit north of Building F and immediately east of Building G (Insula V), with some mineralisation]
Sample 314

The 'squash' was mostly inorganic (though some remains were, perhaps, of mineralised organic detritus). A single very poorly preserved (mineralised, lacking both polar plugs and with significant decay of the outer egg structure) *Trichuris* egg was recorded (measuring 49.26 by 24.63 microns; the larger dimension being the maximum length without polar plugs and the smaller the maximum width), but there were also twenty or more structures that *may* have been the mineralised remains of the inner parts of trichurid eggs (all measurements for these remains were, within the accuracy of the measuring instrument, the same at 44.07 by 20.74 microns). There was also a single structure that was tentatively identified as a decorticated and mineralised *Ascaris* egg (partially obscured on the slide and not measurable).

Three additional 'squash' slides were prepared and revealed an additional 13 records for very poorly preserved mineralised *Trichuris* eggs. Each of these retained traces of the outer egg structure but no polar plugs were present and only measurements of the inner part of the eggs could be obtained (all of these were effectively the same, as noted above, at 44.07 by 20.74 microns). There were also numerous (30+) records for further *possible* mineralised inner parts of trichurid eggs (again, with the same dimensions – from a subsample of eight measured). There were three tentative records for *Ascaris* eggs – all of these were mineralised and decorticated, with the two more rounded ones perhaps being remains of fertilised eggs (measuring 57.03 by 49.91 microns and 67.41 by 51.85 microns) and the third, more elongated one (72.59 by 44.07 microns) unfertilised. Occasional ?phytolith fragments were also noted from these slides.

Context 3526 [G526; fill of cesspit, with abundant mineralised fruit stones and seeds, organic fragments and possible coprolite fragments – same feature as Context 3512 (above)]
Sample 318

The 'squash' was almost entirely inorganic, with a trace of organic detritus and some fungal hyphae. No parasites eggs were seen.

There were also separately submitted subsamples of 'cess' and a ?coprolite. A 'squash' on the 'cess' material proved to be almost entirely inorganic, with just a few fragments of fungal hyphae seen. No parasite eggs were recorded.

The initial 'squash' from material from the ?coprolite was also mostly inorganic but with a trace of organic detritus, a few possible phytolith fragments and a small number of parasite remains. The last comprised two *Trichuris* eggs, one of which was quite well preserved and retained both polar plugs (total length 54.44 microns by 24.63 microns wide; maximum length without polar plugs 48.61 microns) whereas the other was rather poorly preserved and had lost both plugs (maximum length without polar plugs 47.96 microns by 24.63 microns wide). Both eggs appeared mineralised.

Examination of the ?coprolite sample using a low power (x7 to x45) binocular microscope revealed that it appeared to consist largely of mineral concretion, with occasional embedded stones (to 12 mm) and a few small (1 or 2 mm), dark, 'rusty'-brown patches that perhaps had some faecal content. The initial 'squash' slide was taken from one of these ?faecal areas and the presence of the two trichurid eggs confirmed at least a low level of faecal content. A further ten

'squash' slides were prepared, three of which were from the faecal areas and revealed four more mineralised *Trichuris* eggs. Two of these had lost both polar plugs and only one of these two was measurable (maximum length without polar plugs 49.26 microns by 24.63 microns wide). Of the other two eggs, one retained both polar plugs (total length 55.09 microns by 25.27 microns wide; maximum length without polar plugs 47.96 microns) and the other retained just one plug (maximum length including one polar plug 53.12 microns by 24.63 microns wide; maximum length without polar plugs 49.26 microns). The faecal areas on the surface of the concretion were used up by this process and the further seven 'squash' slides prepared from other areas were wholly mineral in nature giving no additional records of parasite eggs.

There were no records of ascarid eggs from any of the 'squash' slides prepared from material from this context.

Phase 4.6 – late Roman (mid- 4th century)

Context 5743 [G1004; fill of re-used culvert as drain in Building G Room 6 (Insula V), with cess or lime and a few mineralised fragments]
Sample 734

The 'squash' was almost entirely inorganic, with a little mineralised organic detritus. No parasite eggs were recorded but approximately 40 pollen grains/spores were seen.

Context 5985 [G1004; fill of culvert in Building G Room 6, with possible coprolite - same feature as Context 5743 (above)]
Sample 807

The 'squash' was almost entirely inorganic, with a trace of organic detritus and a few fungal hyphae fragments. No parasite eggs were seen.

Context 6217 [G1004; fill of culvert in Building G Room 6 - same feature as Context 5743 (above)]
Sample 882

The 'squash' was almost entirely inorganic, with a trace of organic detritus and some pollen grains/spores. No parasite eggs were seen.

Context 6233 [G1004; fill of culvert in Building G Room 6, with lime or cess - same feature as Context 5743 (above)]
Sample 883

The 'squash' was almost entirely inorganic, with a trace of organic detritus and a few fungal hyphae fragments. No parasite eggs were seen.

Phase 4.7 – late Roman (mid- 4th century)

Context 5600 [G1000; accumulation of soil in stone culvert in Building G Room 5 (Insula V), with some fish remains and mineralised leaf fragments]
Sample 700

The 'squash' was almost entirely inorganic, with a trace of organic detritus and a few fungal hyphae fragments. No parasite eggs were seen.

Context 5700 [G1032; backfill of drain G1004 in Building G Room 6 (Insula V), with some fish remains and slag fragments – same culvert as Contexts 5985, 6217 and 6233 (above) but following re-use of Room 6 as a workshop]
Sample 719

The 'squash' was almost exclusively inorganic, but with a little mineral-replaced organic detritus, a few ?mineralised pollen grains/spores and a few fungal hyphae fragments. No parasite eggs were seen.

Phase 8.3 – earlier medieval (1100 to 1250 AD)

Context 4824 [G252; fill from re-use of a demolished stone-lined pit as a cesspit within Plot Three, with coprolite fragment]
Sample 501

The 'squash' was mostly inorganic but with a moderate amount of organic detritus (including ?charcoal), some pollen grains/spores and a few fungal hyphae. Four mineralised and decorticated ?*Ascaris* eggs (?fertilised) were seen, two of which were measurable (measurements were 66.11 by 51.85 microns and 70.00 by 51.85 microns).

Three additional 'squash' slides revealed just two additional ?*Ascaris* – both were decorticated, mineralised and probably fertilised but only one was measurable (57.04 by 46.67 microns) as the other was partially obscured.

There was also a separately submitted "cess" spot sample from this deposit. However, two squash subsamples from this material both proved to be wholly inorganic, with no parasite eggs or other identifiable microfossils present, and it would seem to be a largely mineral concretion.

Context 4872 [G252; fill from re-use of a demolished stone-lined pit as a cesspit within Plot Three, with coprolite fragments - same feature as Context 4824 (above)]
Sample 502

The 'squash' was approximately equal parts inorganic and organic detritus (including some ?charcoal). Many pollen grains/spores were noted, together with some plant tissue fragments, fungal hyphae, ?phytolith fragments and a few pieces of ?micro-invertebrate cuticle. Fifteen mineralised, decorticated and probably all fertilised *Ascaris* eggs were seen of which eleven were measurable (dimensions were 70.00 by 51.85, 70.00 by 50.56, 67.41 by 49.26, 70.00 by 49.91, 64.81 by 47.96, 67.41 by 49.26, 70.00 by 49.91, 64.81 by 47.96, 67.41 by 49.26, 64.81 by 45.37 and 64.81 by 47.31 microns).

A separately submitted coprolite spot sample (C1) from this deposit was examined using a low power binocular microscope. It contained fairly large fragments of embedded bone (to 9 mm) and a little charcoal; it seems most likely that this was a dog coprolite. A 'squash' subsample proved to be almost entirely inorganic, with just traces of charcoal and some fungal hyphae. No parasite eggs were seen.

There was also a separate spot sample of "cess" (C9) some areas of which appeared somewhat vitrified. A 'squash' subsample on this material was almost entirely inorganic but did contain traces of organic detritus, a few fungal hyphae and some parasite eggs; all of the organic remains appearing somewhat mineralised. A single decorticated, fertilised *Ascaris* egg (measurements 67.41 by 49.26 microns) and three *Trichuris* eggs were recorded. Of the latter, two had lost both polar plugs but were otherwise of fair preservation (46.67 by 23.98 microns and 46.67 by 24.63 microns; the larger dimension being the maximum length without polar plugs and the smaller the maximum width) and the third was generally better preserved and retained both polar plugs (total length 55.74 by 25.93 microns, maximum length not including polar plugs 48.61 microns).

Eight additional slides were prepared in an attempt to record additional measurements for trichurid eggs in particular. However, only one possible mineralised trichurid egg was seen (on the third slide examined) and this was represented by just the inner part of the egg structure and consequently its measurements (44.07 by 20.74 microns) were of no value for comparison with modern data. The sixth slide gave an additional decorticated, mineralised and fertilised *Ascaris* egg which measured 59.63 by 47.96 microns).

Context 4880 [G252; fill from re-use of a demolished stone-lined pit as a cesspit within Plot Three, with textile - same feature as Context 4824 (above)]
Sample 504

The 'squash' was mostly inorganic, with some organic detritus including a few plant tissue fragments (some of which appeared mineralised). A few phytoliths were noted and there were many pollen grains/spores. Two structures were tentatively identified as mineralised, decorticated ascarid eggs and two others may have been the inner parts of trichurid eggs (also mineralised).

Context 4223 [G826; fill from re-use of a demolished stone-lined pit as a cesspit within Plot Three]
Coprolite spot sample (no sample number)

The coprolite spot sample was examined using a low power binocular microscope. It was very similar to that from Context 4872 (see above), again containing fairly large fragments of embedded bone (to 8 mm) and a little charcoal, and it seems most likely that this was also a dog coprolite. A 'squash' subsample proved to be mostly inorganic, with a trace of organic detritus (most of which was from charcoal) and a few fungal hyphae. No parasite eggs were seen.

Discussion

Remains of the eggs of intestinal parasitic nematodes were identified from just three of the samples, two from late Roman (mid- 4th century, Phase 4.6) deposits (Contexts 3512 and 3526 – both fills of the same cesspit; G526) and one of medieval (1100 to 1250 AD, Phase 8.3) date (Context 4872 – a spot sample of 'cess' from a fill from the re-use of a demolished stone-lined pit as a cesspit; G252). One other, Context 4824 (from the same period and feature as Context 4872) gave two more cautious records of ascarid eggs.

For *Trichuris* eggs, each of the three deposits gave a few positively identified and measurable remains. The majority of the records were more tentative and were of remains that appeared to represent just the mineralised inner part of the egg structure and hence lacked the distinctive lemon-shape of well preserved or modern eggs. Subjectively, the measurements taken for these remains were consistent with eggs of the trichurids of either humans or pigs but they were of no more definitive value. Identification of trichurids to species from their eggs is problematic even for well preserved remains in that the size ranges for different species often overlap significantly (see Figure 212). In the case of both the Roman and medieval remains from this site (see Figure 213 and Figure 214) the problem would be to distinguish between

Trichuris trichiura, the whipworm of humans, and *T. suis* (Schrank), of pigs – a particularly difficult task given that the usual size range for the eggs of *T. trichiura* is a wholly contained subset of that for *T. suis* – but not possible for these only tentatively identified remains.

The small numbers of trichurid eggs from Contexts 3512, 3526 and 4872, were somewhat better preserved, retaining the outer egg layer (and hence their characteristic shape), but only three (two from Context 3526 and one from Context 4872) retained both of their polar plugs, with an additional egg from Context 3526 retaining one. It was therefore possible to extrapolate an approximation of total length for those eggs present which had lost both polar plugs as, on average, 15.1% greater than their maximum length without plugs. A similar exercise undertaken on data from eggs in medieval deposits at another archaeological site (Brayford North, Lincoln – Carrott 2002), where greater numbers of better preserved (and not mineralised) eggs both with and without polar plugs were present, gave a corresponding value of 12.6%. The slightly higher value from the Vine Street material may be a reflection of the nature of the preservation, the limited data available or some combination of these and other factors and, clearly, the calculated values for total length including polar plugs should be viewed with some caution given that changes in egg morphology resulting from taphonomic differences are (to the author's knowledge) unresearched. Figure 212 shows the measurements (with extrapolated plug to plug values used for maximum length where applicable), with commonly quoted size ranges for *T. trichiura* and other trichurids of some common domesticated animals given as boxed overlays (these being based on limited sets of published 'modern' data). Figure 213 shows the same measurements on shorter scale axes including error bars. As previously noted with regard to calculating the original lengths inclusive of polar plugs, no real study of changes in egg morphology caused by varying ground conditions and states of preservation has been undertaken and comparison with modern data, though valid, must, of necessity, be cautious. However, most of the measurements fall within the range for modern *T. trichiura* and all within the range for *T. suis*. All of the plotted values that fall within the range for *T. trichiura* lie within the upper quadrant of the comparative modern size range (see Figure 212 and Figure 214) for eggs of this species which might hint that they actually represent *T. suis* though the archaeological contexts in which these remains were detected would perhaps favour their being *T. trichiura*.

A similar problem exists in the separation of the ascarids *Ascaris lumbricoides* (Linnaeus) and *A. suum* (Goeze), the maw worms of humans and pigs, respectively (though some parasitologists believe that there is just one species of *Ascaris* that infests both humans and pigs), as their eggs are almost identical (also, Kassai 1998, p.101, notes that cross-infection between humans and pigs is possible though patent infections very rarely develop in the alternate host). The measurements obtained for the, again rather tentatively identified, mineralised (and mostly probably fertilised) *Ascaris* eggs seen in these samples (Contexts 3512, 3526 and 4872, and possibly also Context 4824) could indicate the presence of either human or pig faeces, or perhaps both. Taylor (1955) has remarked that a high ratio of *Ascaris* to *Trichuris* eggs may indicate pig rather than human faeces (and that the opposite also applies), but here the poor preservation and consequent tentative nature of most of the identifications prevents any such comparison – also taphonomic factors, such as differential preservation, may again have a role to play and one should consider that although a single female *Trichuris* may produce 1,000 to 7,000 eggs per day a single *Ascaris* may produce 200,000 (Schmidt and Roberts 1981, 448 and 485, respectively).

Two of the possible coprolite spot samples submitted, from Context 4223 (1100 to 1250, Phase 8.3 – fill from re-use of a demolished stone-lined pit as a cesspit; G826) and Context 4872 (see above) contained large fragments of bone and were almost certainly formed from dog faeces.

In summary, some of the samples from both Roman and medieval cess pit fills did indeed contain faecal material, as indicated by the presence of the eggs of intestinal parasitic nematodes. However, relatively small numbers were present which, in well preserved material, would indicate only a minor faecal component (or background level of faecal contamination) to these deposits. Here, however, the small numbers of remains recorded may be attributable to the extremely poor preservation evinced rather than a true reflection of the original composition of the deposits.

It has not been possible to determine definitively the source of the faecal content but the recorded parasite remains suggest human and/or pig faeces. Given the archaeological contexts, the deposits probably contained human waste but there is the possibility that the medieval deposits (at least) also contained pig faeces as pigs were often kept in towns at this period (see Albarella 2006, 79). In York in 1498 (and repeated in 1574) an ordinance was issued forbidding butchers to keep swine in the City, because of 'the fould corruption and stench that proceeds of the same', but an exception was made in respect of 'little

ones' (The Company of Butchers of York 1975, 23). There is evidence of pigs from Roman and medieval/post-medieval deposits at Freeschool Lane and Vine Street (Browning this report) as well as other sites in Leicester, at Causeway Lane for example (Gidney 1999) where the remains from both periods showed an emphasis towards juvenile animals; Gidney (1999) also cites Thompson (1879, 66) for documentary evidence for the keeping of pigs within the town. Rather better preserved and more numerous trichurid and ascarid eggs were also recorded from Roman and medieval deposits at Causeway Lane (Boyer 1999), with the majority showing far larger numbers of the former relative to the latter and so, perhaps, more likely to reflect concentrations of human faecal waste (see above). Overall, at Vine Street, it seems quite likely that both human and pig faeces could be present within the deposits; there certainly seems to have been foul matter from more than one source in Context 4872 at least as it contained what was probably a dog coprolite.

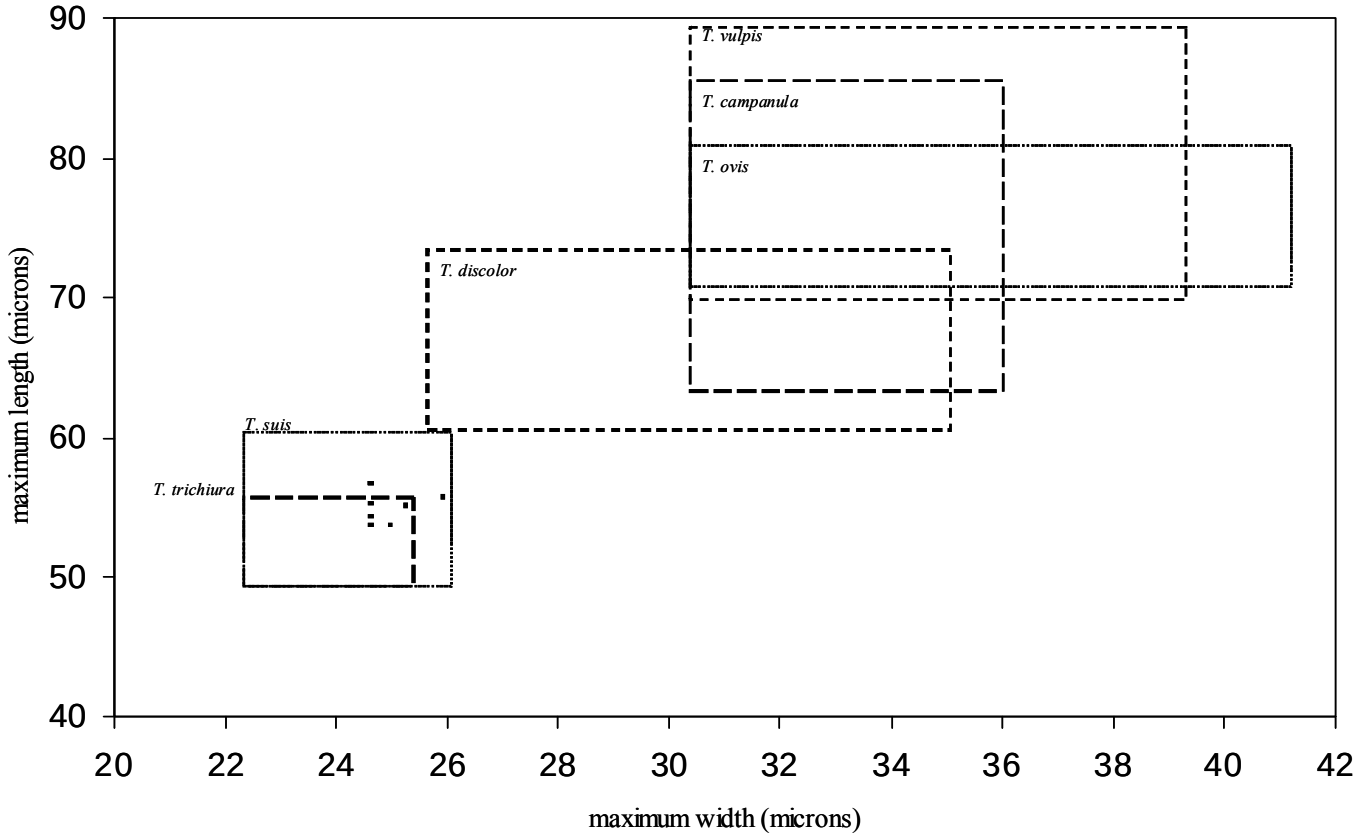


Figure 212: The Parasites: plotted trichurid egg measurements with overlay of size ranges for eggs of trichurids of several common domesticated animals and Trichuris trichiura. Some maximum lengths are calculated values for the original length including both polar plugs (see text). NB: there are three coincident measurements at 56.70 by 24.63 microns.

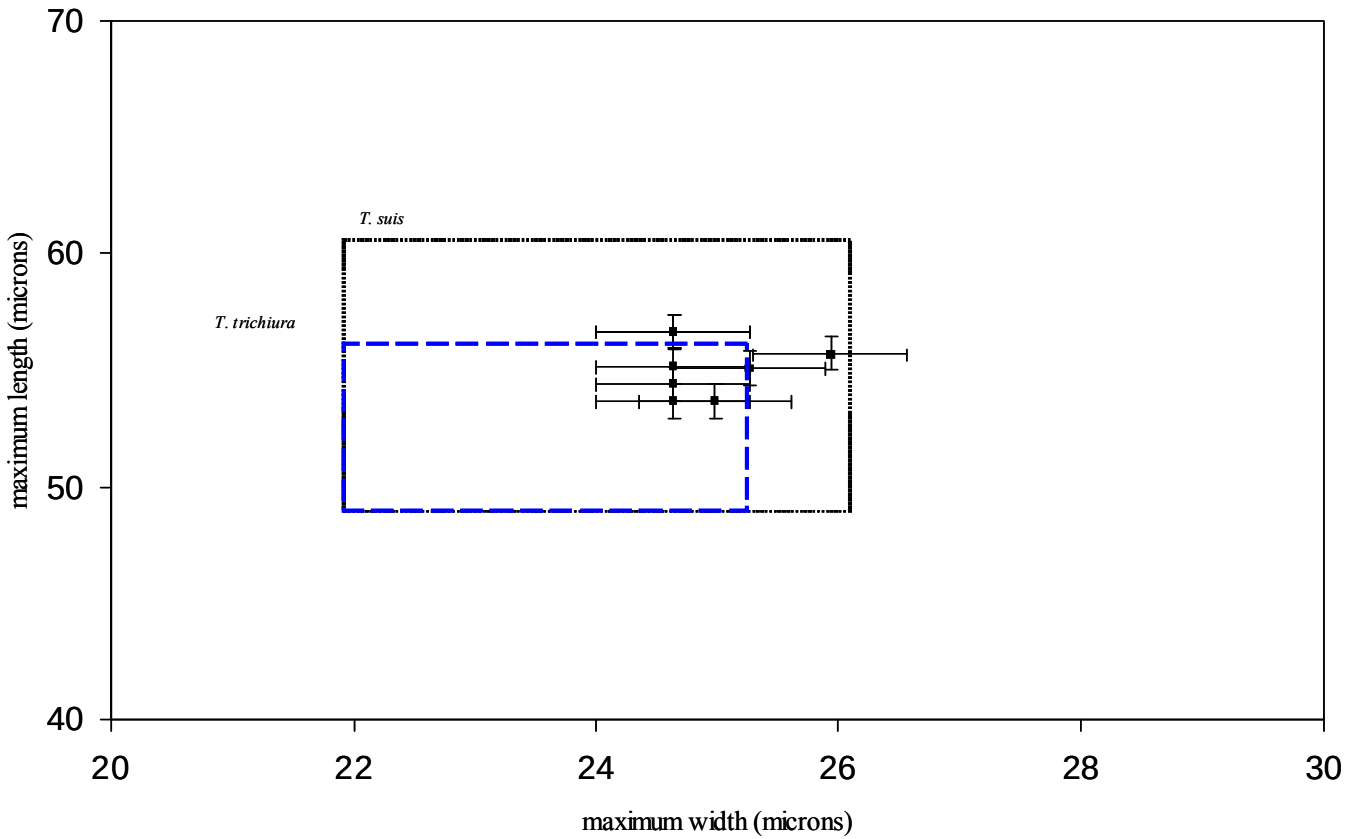


Figure 213: The Parasites: plotted trichurid egg measurements with overlay of size ranges for eggs of Trichuris trichiura and T. suis. Some maximum lengths are calculated values for the original length including both polar plugs (see text). Error bars are +/- 0.25 of a graticule division or 0.63 of a micron for maximum width and 0.73 microns for maximum length (i.e. 0.63*1.151) representing the resolution of the measurements and, for calculated lengths, also their scaling. NB: there are three coincident measurements at 56.70 by 24.63 microns.

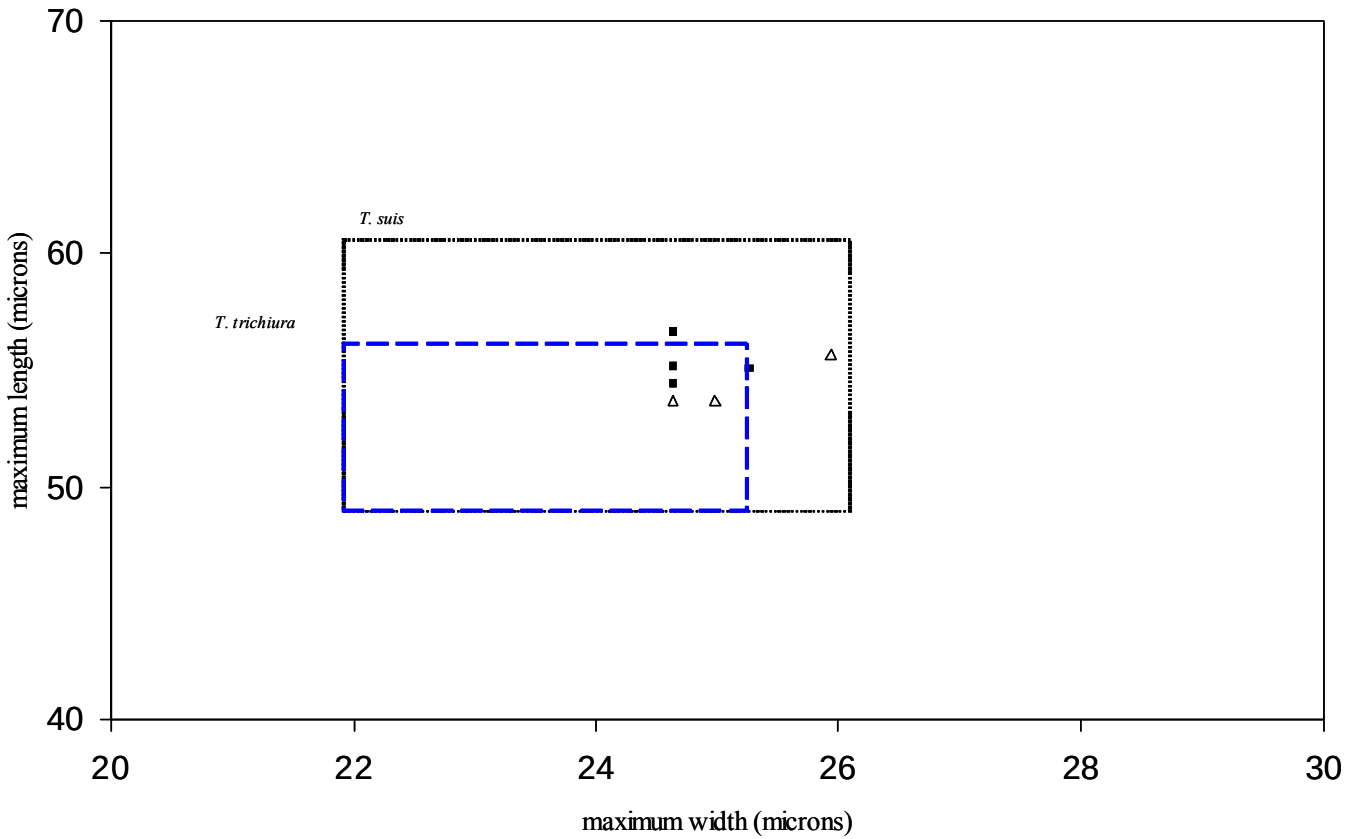


Figure 214: The Parasites: plotted trichurid egg measurements for remains from the two Roman deposits (solid squares) and one medieval deposit (outline triangles) with overlay of size ranges for eggs of Trichuris trichiura and T. suis. Some maximum lengths are calculated values for the original length including both polar plugs (see text). NB: there are three coincident measurements at 56.70 by 24.63 microns (all Roman)

THE INSECTS (FLY PUPAE) *David Smith*

(Institute of Archaeology & Antiquity, The University of Birmingham)

Introduction

During the processing of material from plant macrofossil analysis it was found that a number of deposits from pits, cesspits and culvert features from Roman Vine Street, Leicester contained mineralised fly puparia. These were sent for identification and this report outlines the implications of this work.

Methods

The material was initially sorted from the plant macrofossil flots by Angela Monckton and Anita Radini, University of Leicester Archaeology Service. Relevant insect remains were then resorted and examined under a low-power binocular microscope at Birmingham. The system for 'intensive scanning' of faunas as outlined by Kenward *et al*. (1985) was followed.

The dipterous (fly) puparia were identified using the drawings in K.G.V. Smith (1973, 1989) and, where possible, by direct comparison to specimens identified by Peter Skidmore.

Results

The identified remains were all those of the puparia of Diptera (Flies). The insects recovered are listed in

Table 232. The taxonomy used for the Diptera is that of Smith 1989.

G0526 Pit fill, Phase 4.1
Samp 320.1 (3488) Four tubes from Flot, some puparia and other frags.
Samp 320.3 (3488) Four tubes, some puparia and strange frags and 'soil larvae worms'.

G0358 Cesspit, Phase 2
Samp 347.1 (3721) Poss woodlice frags and millipedes.

G0391 Surface layer, Phase 3.5
Samp 239.3 (2777) small puparia

G0399 Backfill, Phase 3.6
Samp 224 (2660) small frag.
Samp 223 (2619) small puparia and soil larvae.

G0526 Pit fill, Phase 4.1
Samp 313.2 (3509) From Flot, puparia

G1004 Culvert, Phase 4.6
Samp 871 (5184) ?insects
Samp 883 (6233) 'soil larvae'

G526 Cesspit Phase 4
Samp 318.1 (3526) Puparia from Flot and larger from *c.*Fraction.
Samp 318.2 (3526) Puparia from Flot.

Discussion

The insect and arthropod faunas from these samples were often preserved by mineralisation with any organic material being replaced. This did make the identification of some of the fly pupae, where some external features were missing, problematic.

The 6 samples from Vine Street which contained fly puparia were dominated by the larvae of the appropriately named 'latrine fly' *Fannia scalaris* which uses the prominent air filled spikes on its body to float on the surface of liquid cess and waste (Skidmore 1999: Smith, K.G.V. 1973, 1989; Robinson 2005). Sample 3526 also produced two individuals of *Eristalis tenax*, 'the rat tailed maggot' or the 'drone fly'.

Larvae of this species are rather specialised inhabitants of water and wet compost containing high concentrations of faecal material and other foul matter. It floats just below the surface or on the bottom of shallow ponds of faecal material and uses its 'rat tail' as a snorkel (Skidmore 1999: Smith, K.G.V. 1973, 1989; Robinson 2005).

Conclusion

It is clear from the species of insect recovered that these deposits are primarily from the fills of cesspits and rubbish pits. It is also clear that conditions within these pits had been allowed to become very foul with material in exceptionally advanced state of decay and often with standing water present in the pits. The number of fly pupae recovered also indicates that the pits must have been 'fly blown', unsanitary and particularly smelly. It is also clear that the human population of Leicester may have taken periodic remedial measures to lessen this problem. Many of the fly pupae recovered were almost ready to 'hatch' but the fly failed to emerge. This suggests that the pupae had been killed suddenly. This is most clearly seen with some of the specimens of *T. zosterae* where the 'shadow' of the near adult flies was clearly to be seen with the pupae. This suggests a 'sudden kill off' event. Skidmore (1999) recorded puparia in a similar condition from the pits at the Causeway Lane site in Leicester and suggested that this probably indicated that 'liming' is one form of behaviour that could result in this pattern. Similar remains and conditions were also recorded from the medieval site at the Southampton French Quarter where again 'liming' seems to have been the cause of the non emergence of the adult flies (Smith 2008).

Table 232: The Insects (fly pupae): the fly fauna recovered from various features on Vine Street, Leicester.

Site	Vine Street			
Sample no.	239	320	318	871
Context no.	2777	3488	3526	5184
description	surface	pit fill	Cesspit	Culvert
Phase	2	4	4	4
DIPTERA				
Syrphidae				
Eristalis ?tenax (L.)			++	
Sphaeroceridae				
Thoracochaeta zosterae (Hal.)			+	
Drosophilidae				
Drosophilia sp.				
Fanniinae				
Fannia scalaris (F.)	+	+++++	++++	++

The numbers of individual insects present is estimated using the following scale:

+ = 1-2 individuals

++ = 2-5 individuals

+++ = 5-10 individuals

++++ = 10-20 individuals

+++++ = 20- 100individuals

++++++ = more than 100 individuals

THE SOIL POLLEN ANALYSIS OF THE ROMAN TURF STREET *James Greig*

Summary

The three samples showed rather similar pollen floras with signs of possibly local grassland and weeds, together with signs of hay, straw and other cereal material. Parasite ova which were also present suggest sewage, especially in the lowest sample. This is a fairly typical urban assemblage.

Samples

A section across the east-west Roman street (section 118.1) was sampled for a possible buried soil, and three pollen samples taken: sample 112 (context 1354 – G280, Phase 2.3) from the top, overlying a gravel infilled impression within; sample 113 (context 1356 – G280, Phase 2.3) from the middle; and sample 114 (context 1366 – G284, Phase 2.1) from the bottom of the section. The material was a sandy soil.

Laboratory work

Pollen analysis

The three pollen samples were processed using the standard method; about 1 cm^3 subsamples were dispersed in dilute NaOH and filtered through a 70µm mesh to remove coarser material. The finer organic part of each sample was concentrated by swirl separation on a shallow dish. Fine material was removed by filtration on a 10µm 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. The pollen types have been listed in taxonomic order according to Kent (1992), in Table 233.

Results

The sampled material was sandy, and pollen survival in it could not be predicted, as there were no signs of the preservation of organic material which could be seen in the field. However, the pollen proved abundant enough for reasonable counts to be made using nearly the whole of each slide. The main pollen type was Lactuceae, a group including a number of yellow daisy-like flowers such as dandelions, hawkbits and cat's ears in grassland, and sow thistles (Table 233). This pollen is robust and resists destruction in the soil, and the presence of so many often rather poorly preserved Lactuceae grains shows that there had been some degradation and destruction of pollen in the soil. However, the presence of better preserved grains together with some rather delicate ones such as Cyperaceae, and a fairly large flora, shows a certain amount of good pollen preservation as well.

The habitats indicated by the pollen flora are mostly grassland, the habitat of most of the Lactuceae, together with *Centaurea nigra* (knapweed) which suggests hay meadow, *Ranunculus* (buttercup etc.), possible *Trifolium* (clover) and *Plantago lanceolata* (ribwort plantain). Poaceae (grass) pollen, which was present, can represent a great range of habitats beside grassland. Pollen spectra such as these, with high Lactuceae and other signs of grassland, are often obtained from urban archaeological samples, usually from places that were not waterlogged.

Signs of woodland and scrub include *Alnus* (alder), *Corylus* (hazel), *Betula* (birch), *Quercus* (oak) and *Ulmus* (elm), which could be the pollen background which was being blown round the countryside and including these wind-pollinated trees, which probably grew in many places, as they are rarely absent from archaeological pollen spectra such as these, even those from occupied sites. Their presence here does not say much about whether the surroundings were much wooded or not, as their pollen is so widely and readily dispersed. Some heathland is shown by the presence of Ericales (heather) pollen.

Crops and weeds are suggested by occasional grains of Chenopodiaceae (fat hen etc.), *Artemisia* (mugwort) and Cerealia (cereals). The weeds could have been growing locally, but the cereals may have been brought in to the site.

Wetland and aquatic vegetation are suggested by one or two grains of *Persicaria bistorta* (bistort), Cyperaceae (sedges etc.) and *Sparganium* (bur-reed), although this cannot have been a significant aspect of the surroundings, as the signs are so few.

Finally, there were records of *Trichuris* (whipworm) and possibly of *Ascaris* (roundworm) ova, particularly in the lowest sample. These indicate sewage or animal droppings, again a feature of some urban deposits.

The pollen spectra contain indications of a range of habitats. It would appear that to some extent these were some of the habitats in the general surroundings, such as grasses, weeds and some woodland, from pollen which had been dispersed from them by natural means. However, some other aspects of the pollen record could represent whole plant materials which contained pollen, such as hay or animal dung derived from it, because *Centaurea nigra* (knapweed) is a tall grassland plant more suggestive of hay meadows than urban vegetation. The Ericales (heather) pollen could also be partly or wholly from heather brought to the site, rather than having grown in the surroundings or blown in from further away, and the cereal pollen record could also be from straw, chaff or other material derived from cereals, as a more likely source than cornfields themselves. The presence of parasite ova and hence of sewage indicates a possible source of cereal pollen. All three spectra are rather similar, although the lowermost one (5) has the most parasite ova.

Acknowledgements

Thanks to Angela Monckton for involving me in this work.

Table 233: The Soil Pollen Analysis: pollen, spores and parasite ova

Spores	**Sample 112**	**Sample 113**	**Sample 114**	
Pteridium	2	4	-	bracken
Polypodium	+	-	-	polypody
Pollen				
Pinus	+	-	-	pine
Ranunculus-tp.	1	-	-	buttercup, crowfoot
Ulmus	-	-	1	elm
Quercus	2	-	-	oak
Betula	-	3	1	birch
Alnus	14	8	2	alder
Corylus	19	3	5	hazel
Chenopodiaceae	1	2	2	goosefoot
Persicaria bistorta-tp.	2	?	-	bistort etc.
Brassicaceae	-	1	1	brassicas
Ericales	5	3	1	heathers
cf. Trifolium	1	-	-	clover
Plantago lanceolata	1	-	1	ribwort plantain
Centaurea nigra	1	1	7	knapweed
Lactuceae	92	37	121	a group of composites
Aster-tp	1	1	4	daisies etc
Artemisia	1	1	1	mugwort
Cyperaceae	-	1	2	sedges
Poaceae	33	12	21	grasses
Cerealia-tp.	1	3	4	cereals
Sparganium	-	1	-	spike-rush
Total pollen	**175**	**77**	**174**	
Parasite ova				
Trichuris		2	15	whipworm
cf. Ascaris			1	roundworm

THE SOIL MICROMORPHOLOGY, CHEMISTRY AND MAGNETIC SUSCEPTIBILITY *Dr R. I. Macphail and Dr J. Crowther*

(Institute of Archaeology, University College London and Archaeological Services, University of Wales)

Introduction

The Roman site at Vine St, and the Roman and medieval site at Freeschool Lane, Leicester, respectively, were visited (21-02-2006) and discussed with Angela Monckton, Alex Beacock, Jen Browning, Tim Higgins (site director, Vine Street) and John Coward (site director, Freeschool Lane) (University of Leicester Archaeology Services). The potential of the sites, in terms of the archaeological information that could be elucidated through microstratigraphic investigations (soil micromorphology, chemistry and magnetic susceptibility), was evaluated (Macphail, 2006: 'Freeschool Lane and Vine Street, Leicester: soil evaluation', report to University of Leicester Archaeology Services, Leicester). Roman soils, interior and exterior floors, surfaces and deposits, and both Roman and medieval dark earth and occupation deposits were focused upon.

Samples and Methods

From the 16 monoliths available, 12 subsamples were taken for soil micromorphological analysis (Vine Street Areas A, B and D; Freeschool Lane Areas 1, 4 and 10). This produced 5 thin sections from Vine Street and 7 thin sections from Freeschool Lane, respectively; 22 contexts were included in these thin sections. In fact, the identification of sub-units within these contexts necessitated the counting and description of 32 layers, 17 from Vine Street and 15 from Freeschool Lane (see Table 237 and Table 239). Two sub-units within Context 5067 (MVS1A – G967 *Phase 3.8*) were also the focus of a microprobe investigation. 15 bulk analyses (see below) were also carried out on 15 contexts.

Chemistry and magnetic susceptibility

Each sample was analysed for: loss-on-ignition (LOI), which provides an estimate of the organic matter (including charcoal) concentration; pH; estimated carbonate content, which is likely to be derived from carbonate-based mortar/flooring materials and/or ash; total phosphate (phosphate-P), enrichment of which is associated with inputs of organic materials, e.g. excreta, food wastes and, especially, bone (see reviews by Bethel and Máté, 1989; Crowther, 1997; Heron, 2001); magnetic susceptibility, which is indicative of burning (Clark, 1996; Scollar *et al.*, 1990); and lead (Pb), zinc (Zn) and copper (Cu), enrichment of which is likely associated with metal processing activity.

Analysis was undertaken on the fine earth fraction (i.e. <2 mm) of the samples. Phosphate-P_i (inorganic phosphate) and phosphate-P_o (organic phosphate) were determined using a two-stage adaptation of the procedure developed by Dick and Tabatabai (1977) in which the phosphate concentration of a sample is measured first without oxidation of organic matter (P_i), using 1N HCl as the extractant; and then on the residue following alkaline oxidation with sodium hypobromite (P_o), using 1N H_2SO_4 as the extractant.

In addition to χ (low frequency mass-specific magnetic susceptibility), determinations were made of χ_{max} (maximum potential magnetic susceptibility) by subjecting a sample to optimum conditions for susceptibility enhancement in the laboratory. χ_{conv} (fractional conversion), which is expressed as a percentage, is a measure of the extent to which the potential susceptibility has been achieved in the original sample, viz: (χ/χ_{max}) x 100.0 (Tite, 1972; Scollar *et al.*, 1990). In many respects this is a better indicator of magnetic susceptibility enhancement than raw χ data, particularly in cases where soils have widely differing χ_{max} values (Crowther and Barker, 1995; Crowther, 2003). χ_{conv} values of $\geq$ 5.00% are often taken as being indicative of some degree of susceptibility enhancement. A Bartington MS2 meter was used for magnetic susceptibility measurements. χ_{max} was achieved by heating samples at 650°C in reducing, followed by oxidising conditions. The method used broadly follows that of Tite and Mullins (1971), except that household flour was mixed with the soils and lids placed on the crucibles to create the reducing environment (after Graham and Scollar, 1976; Crowther and Barker, 1995). LOI (loss-on-Ignition) was determined by ignition at 375°C for 16 hours (Ball, 1964).

Soil micromorphology

The 12 monolith subsamples (MVS 1A, 1B, 2, 3A, 3B, 4 and 7 – from Vine St; MFS 2, 4, 5, 8, 9, 11A and 11B – from Freeschool Lane) were impregnated with a clear polyester resin-acetone mixture; samples were then topped up with resin, ahead of curing and slabbing for 75x50 mm-size thin section manufacture by Spectrum Petrographics, Vancouver, Washington, USA (Goldberg and Macphail, 2006; Murphy, 1986). Thin sections (Figure 215-Figure 229) were analysed using a petrological microscope under plane polarised light (PPL), crossed polarised light (XPL), oblique incident light (OIL) and using fluorescent microscopy (blue light – BL), at magnifications ranging from x1 to x200/400. Thin sections were described, ascribed soil microfabric types (MFTs) and microfacies types (MFTs) (see Table 237 and Table 239), and counted according to established methods (Bullock *et al*., 1985; Courty, 2001; Courty et al., 1989; Goldberg and Macphail, 2006; Macphail and Cruise, 2001; Stoops, 2003). In addition, previous investigations of similar archaeological sequences from both European and English Roman and early medieval settlements were consulted (Cammas, 2004; Gebhardt and Langohr, 1999; Macphail, 2003; Macphail *et al*., 2007; Macphail *et al*., 2004; Milek, 2006).

Microprobe analysis was carried out on Context 5067, employing both the mapping of individual elements (Al, Ca, Cu, Fe, K, Mg, Mn, Na, P, Pb, Si and Zn), and a vertical quantitative line analysis (100 points) of these same elements (see Table 5 and Fig 21). These analyses were not only employed to examine the microfabric and inclusions, but also supplemented a lack of bulk sample data for this specific context.

Results

The analytical results are presented in

(LOI, pH, carbonate, phosphate-P, magnetic susceptibility, Pb, Zn and Cu) and 3 (phosphate fractionation). Here, a broad overview of the analytical data for each property is presented. Key evidence of anthropogenic influence in individual samples is highlighted in Table 235 and the accompanying footnotes.

1. LOI (organic matter and charcoal)

Several of the samples contain appreciable amounts of charcoal. In these cases LOI therefore reflects a combination of soil organic matter and charcoal. The samples exhibit quite marked variability in LOI, with values ranging from 1.03–15.8%. Four samples are almost entirely minerogenic (LOI <2.50%), and it seems likely that these are derived primarily from subsoil materials. The remaining samples show some degree of enrichment in organic matter and/or charcoal. The majority, identified in Table 2 as being 'slightly enriched', have LOI values in the range 2.50–4.99%. Contexts 5281 and 5322 (both from Freeschool Lane) have notably higher values of 7.04% ('enriched') and 15.8% ('strongly enriched'), respectively. Although context 5281 (Saxo-Norman dark earth) contains some charcoal, it seems likely that in this case the relatively high LOI is largely attributable to soil organic matter. In contrast, the much higher LOI recorded in context 5322 (early? Medieval hearths) is likely attributable largely to the charcoal-rich nature of the material.

2. Carbonate and pH

Apart from two of the minerogenic contexts, all the samples contain at least traces of carbonate and five are classified as 'calcareous'. The carbonate is likely to be of anthropogenic origin, and could potentially be derived from carbonate-based mortars/flooring, ash deposits, etc. Thin section evidence should provide specific insight into the source(s) of the carbonates. As would be anticipated in view of the carbonate content, the contexts are neutral to alkaline in reaction (pH range, 7.0–8.3).

3. Phosphate (phosphate-P, P_i, P_o, P_i:P, P_o:P)

Phosphate-P (total phosphate) exhibits very wide variability, with concentrations ranging from 1.13–13.8 mg g^{-1}. Apart from the four minerogenic samples (which have a maximum concentration of 2.45 mg g^{-1}), the samples all appear to show some degree of enrichment. Concentrations of > 5.00 mg g^{-1} are not commonly found in archaeological contexts, and these are identified in

as being either 'enriched' (5.00–9.99 mg g^{-1}) or 'strongly enriched' (10.0–19.9 mg g^{-1}). Such high values undoubtedly reflect high levels of anthropogenic enrichment, some of which is likely to be bone-derived – indeed, small fragments of bone were observed in five of the samples.

As is usually the case in archaeological contexts, most of the phosphate present is in an inorganic form, with phosphate-P_i:P values ranging from 82.7–96.3%. The fact that the two contexts identified as being strongly enriched in phosphate have very high phosphate-P_i:P ratios (95.1 and 95.5%) further supports the idea that at least some of the enrichment is from (minerogenic) bone sources.

4. Magnetic susceptibility (χ, χ_{max} and χ_{conv})

Magnetic susceptibility (χ) also exhibits very wide variability (range, 29.1–510 x 10^{-8} SI). The maximum potential susceptibility (χ_{max}), although relatively less variable (range, 934–2980 x 10^{-8} SI), nonetheless indicates significant variation in Fe content across the site. In these circumstances, fractional conversion (χ_{conv}) provides a better basis for assessing the degree of susceptibility enhancement and this has been used in categorising the magnetic susceptibility data in Table 2. Under UK conditions, χ_{conv} values of ≥ 5.00% are often taken as being indicative of enhancement through burning. Values in the ranges 5.00–9.99%, 10.0–19.9% and 20.0-39.9% are taken to be indicative of 'enhancement', 'strong enhancement' and 'very strong enhancement', respectively. On these criteria, five of the contexts are either strongly or very strongly enhanced. As would be anticipated, these include 5322 (from early? medieval hearths), which has a χ_{conv} of 18.6%. More interestingly, the other high values are from one of the Roman floor samples (context 1319) from Freeschool Lane, and from three of the various floor/room/workshop samples from Vine Street. This could indicate either *in situ* burning or the incorporation of previously burnt material within the matrix of the floor deposits (e.g. use of lime-based mortar).

5. Heavy metals (Pb, Zn and Cu)

Of the three metals investigated, Pb shows by far the greatest signs of anthropogenic enrichment, with concentrations ranging from 8–2560 mg g^{-1}. In the absence of background 'control' samples, a somewhat conservative lower threshold of 500 mg g^{-1} has been taken as indicative of some degree of enrichment – it may well be that a threshold of 250 mg g^{-1} would be more appropriate. Here, Pb concentrations in the ranges 500–999, 1000–1990 and 2000–3990 μg g^{-1} have been categorised as slightly enriched, enriched and strongly enriched, respectively. The two strongly enriched contexts (6450 from Freeschool Lane and 6664 from Vine Street) could well be associated with some form of Pb processing activity. The enriched contexts (3674(U), 3674(L) and 3690 from Freeschool Lane) are all associated with the Roman soil and are less easily interpreted. Two possibilities are that the Pb may be residual from an earlier phase of occupation or that it is derived from the addition of manures to the garden soil that were enriched in Pb.

Overall, the Zn and Cu concentrations are lower than Pb, and have been categorised as follows: 'slightly enriched' (100–249 μg g^{-1}), 'enriched' (250–499 μg g^{-1}) and 'strongly enriched' (500–990 μg g^{-1}). Slight enrichment in Zn and Cu was recorded in several of the contexts (as highlighted inTable 235). However, only context 6664 (Vine Street) stands out as being strongly enriched in Cu (845 μg g^{-1}). This latter result, combined with the strong enrichment in Pb, further suggests that this context may be associated with some form of metal working activity.

Soil micromorphology and discussion

Count and descriptive data are presented in Table 237 and Table 239, and illustrated in Figure 215-Figure 229. An archive of all thin section scans, photomicrographs and microprobe maps are in the accompanying CD-ROMS. As noted above, 32 layers within the analysed contexts were counted and described, 15 from Freeschool Lane and 17 from Vine Street These findings are presented by site and by Area, with each sub-unit/context being described and interpreted, and then discussed in its local and sometimes wider context. The micromorphology identified two sub-units within 5067 (5067a and 5067b), and these were also investigated through microprobe mapping (Figure 215 and Figure 229) and quantitative analysis, employing 40 points and 60 points, respectively (Table 238).

Internal surfaces associated with Building A's Southern Room (Insula V), subsequently Building G Room 6 (Phase 3.6-4.4: early 3rd – mid- 4th century)

This sequence was studied employing three thin sections, two bulk analyses and microprobe analysis of Context sub-units 5067a and b.

Sample MVS2

5069 (G947 – Phase 3.6: early 3rd century): This is a very open, biologically mixed and burrowed, moderately ashy deposit. It is mixed with humifying organic matter (dung?). It also contains very high amounts of fragmented cess, which embed bone fragments, as well as much bone, leached bone (from cess?), burned bone, charcoal and other background anthropogenic materials, that include burned mineral material and possibly slightly melted quartz sand (see Figure 217 and Figure 218). The cess is probably of human origin, because it is strongly autofluorescent under blue light, as found in reference cess pit deposits and known human coprolites (nematode egg studies), which have also been shown to have a Ca-P chemistry (microprobe)(Courty *et al*., 1989; Macphail and Goldberg, In press). Bulk studies show this level to be slightly enriched in organic matter, enriched in phosphate-P, and slightly enriched in Cu and Zn; it has a strongly enhanced magnetic susceptibility.

This is an ashy midden deposit, which was also used for dumping waste from a latrine/cess pit; the cess fragments are not primary deposits (as in cess pits). There is much biological working, but no strong weathering or wash effects of rainfall, which suggests middening took place within a roofed/protected area. For example, it has not the weathered and biological-worked characteristics as described for several 'dark earth' contexts at Freeschool Lane (e.g., 6450), and is in fact similar to middening in what was once a domestic room at Roman 60-63, Fenchurch St, London (Macphail in Birkbeck and Schuster, In preparation). Such changes in use of 'domestic' space were not uncommon, even in historic times (Evans, 1957). Amongst the debris entering this midden, strongly burned sand grains may infer the local presence of high temperature hearths, consistent with the strongly enhanced magnetic susceptibility, but while enrichment in Cu and Zn may also reflect local industrial inputs, heavy metal contamination may also be associated with human waste concentrations (cf. Roman and medieval London Guildhall; Macphail *et al*., 2007, Forthcoming/2008).

It can also be noted that the *in situ* construction of the clay 'lining' (5066 – G980) much higher and later in the sequence, probably led to mobilized clay washing down as deep as this context.

5068: This 3rd Century context was initially recorded as darkish ashy burrow fills and an example of reddish clay channel inwash in section, but was subsequently excavated as three separate contexts, 6678, 5068 and 6089.

Here, burrow mixing of Context 6678 into the upper part of 5069 is identified. The more ash-rich deposits of 6678, 5068 and 6089, as described in MVS1B (see below) contrast with more humic 5069. Again, the presence of reddish inwashed clay can be probably associated with clay floor construction in 5066 above.

Sample MVS1B

5068 is divided into three sub-units, subsequently identified as 6678, 5068 and 6089 (Table 237 andTable 239).

6678 (G952 – Phase 3.7: early 3rd century): This context is dominantly a micritic ash, with much coarse charcoal, and embedded quartz sand, some of which shows edge alteration due to high temperature (Figs 23-24). In addition, there are coarse examples of calcined (very strongly burned) bone, consistent with this suggested high temperature (Figs 25-26). The context is also affected by minor iron and phosphate staining, and burrowing.

This layer appears to be an ash and charcoal dump from a hearth, with calcined bone, and partially altered quartz sand indicating that some high temperatures (>1000ºC) were attained, implying that a furnace employing bellows was in use (Berna *et al*., 2007, table 3; Courty *et al*., 1989; Macphail and Goldberg, In press). Workshop activity is therefore a possibility. A subsequent burned hearth deposit here (Context 6151, G1321 – Phase 3.9) is slightly enriched in Zn, strongly enriched in phosphate-P and shows very strongly enhanced magnetic susceptibility, while contemporary pit fill 6664 (G951 – Phase 3.7), which

included off-cuts of copper sheet (Angela Monkton, pers. comm.), is similar in character and in addition demonstrates very strong enrichment in Cu and Pb (Table 2). Both datasets are consistent with possible industrial/workshop hearths being present (see microprobe analysis of 5069, below).

5068 (G965 – Phase 3.8: early – mid- 3rd century): This layer is moderately homogenized (by very small mesofauna and trampling) and a sometimes finely layered, weakly humic and ashy silty sand. It contains much fine burned mineral, with charcoal, which for example occurs as a compact 5 mm thick layer with twigwood and bark present. Layers with ash aggregates and traces of burned eggshell and very fine oyster shell also occur.

In contrast to the ash dump below, this appears to be a trample (beaten floor deposit) of domestic hearth ash, charcoal, some food waste and background floor deposits/soils (silt and sand from the local soils – see Freeschool MFS2). The floor deposit (Cammas, 1994; Cammas *et al*., 1996; Gé *et al*., 1993; Macphail *et al*., 2004) has been mixed and slightly weathered by trampling and working by very small mesofauna.

6089 (G967 – Phase 3.8: early – mid- 3rd century): This layer is a compact, heterogeneous mixture of ash and articulated phytoliths; some layered phytoliths are adhering to a large fragment of burned daub/hearth. There are also ash concentrations, mixed ash and sand, alongside shell, bone and burned inclusions. Some burrow mixing (as in Context 5067 above), occurs.

These deposits appear to be trampled fragments from cereal processing (employing a hearth) and hearth ash, with background food processing debris.

Sample MVS1A

5067b (G967 – Phase 3.8: early – mid- 3rd century): This lowermost sub-unit is composed of fine layers of phytolith and articulated phytoliths, with very fine ash in some layers and fine silt in others. There are also fine burned (rubefied) mineral grains, charred cereal? hairs, and a possible charred seed, present (Figure 221 and Figure 222). More than 12 phytolith-rich laminae can be seen. Scrutiny of the thin section under blue light showed noticeable impregnation of the layers with probable secondary calcium phosphate (see microprobe data below, Table 238), probably as hydroxyapatite which is autofluorescent under blue light (Figure 223 and Figure 224).

These are phytolith and ash cereal processing spreads, recording a period of cereal processing dominating this internal space that includes more than 12 processing episodes; these are not simply trample spreads but probably *in situ* cereal processing waste accumulations.

5067a (G967 – Phase 3.8: early – mid- 3rd century): Upwards these deposits become a more ash-rich massive deposit with much wood charcoal, burned mineral, mortar and phytolith-rich fragments; some were likely trampled from earlier 5067b deposits (Figure 229). Coprolitic bone, examples of bark, oyster shell and an earthworm granule are also present.

This is an interior compact trample of domestic origin, ashy hearth debris, sands, mortar, wood working (bark) and an earthworm granule from exterior space (see formation processes involved in interior beaten floors in Cammas *et al*., 1996; Matthews, 1995; Matthews *et al*., 1997, and from Butser Experimental Farm and London Roman and Saxon sites in Macphail *et al*., 2004).

Microprobe elemental mapping and quantitative vertical line analysis through 5067a and 5067b were carried out (Figure 229). High amounts of Si are obviously associated with silt and sand-size quartz minerals, but also record the very abundant and layered opal silica phytoliths present in 5067b (see map of Si). Other associated elements are Ca, K and Mg, which also confirm the presence of finely layered ash deposits. P is much more strongly concentrated, with phosphate in 5067b producing a mean amount of 6.46% P compared to 4.86% P in 5067a. In both cases this shows very strong phosphate enrichment, often as calcium phosphate, namely: secondary hydroxyapatite staining, mineralized cess (also hydroxyapatite) and as bone apatite (as shown by Ca and P concentrations in the microprobe maps). Small amounts of heavy metals are also present.

Sub-units 5067a and 5067b document the change in use of space in Room 6 of Building G, from a specialist cereal processing space to general domestic use. It can be noted that a burned down Saxon grain store at Whitefriars, Canterbury, produced a floor deposit of fused and melted phytoliths (Macphail

and Crowther, 2007). The presence of bark in the beaten floor deposits could imply that a low status room/structure is present (see Freeschool Lane 5280).

5066 (G980 – Phase 4.3: early 4th century): These 5067 sub-units occur below a 35mm thick layer of highly compact, reddish fine and medium sandy loam. This includes gravel and charcoal, and is characterised by many 'argillic' clayey textural pedofeatures features (matrix coatings and intercalations; see Goldberg and Macphail, 2006, 280-283), which are abundant in the uppermost 2.5 mm of this 'sealant?' layer. Bulk analysis of this context also indicates that it is composed of natural, unburned and uncontaminated soil. 5066 is a constructed 'clay' floor (Figure 215) probably manufactured from local coarse silt to medium sandy loamy sediments and occasionally mixed-in Bt horizon soil, consistent with the expected local argillic brown earth soils (Dunnington Heath and Flint soil associations, respectively; Ragg *et al*., 1983, 1984). It can be clearly compared to brickearth clay floors constructed in Roman (Saxon and medieval) London and Canterbury; often these 'clay floors' had such thin (2.5 mm) 'mud plastered' surfaces (Macphail and Crowther, 2006b, 2007a); mud-plastering being recorded world-wide (Boivin, 1999; Macphail and Crowther, 2007b; Matthews *et al*., 2000). The construction of 5066 also seems to have led to clay downwash affecting underlying and earlier deposits (e.g., 5069)

5065 (G993 – Phase 4.4: early to mid- 4th century): Clay floor 5066 occurs below a loose, coarsely fragmented layer of mortar (Goldberg and Macphail, 2006, 270-276). The mortar is composed of sand, brick and utilized earlier manufactured mortar as temper. It has a fine calcitic (micritic) lime matrix; the presence of brick may imply that it is possibly an hydraulic mortar.

5065 is the fragmented *in situ* or trampled remains of mortar floor construction, including likely use of hydraulic mortar. Hydraulic mortar could have been constructed over the 'clay layer' (5066) below, which may have acted as a floor foundation layer, the mud-plastered surface also acting as a sealant layer.

Pit within external yard activity associated with Timber Structure 1 (Phase 2.4: early – mid- 2nd century)

Sample MVS7

5445 (G1181 – Phase 2.4: early-mid- 2nd century): The lower most deposits analysed are microlaminated, and once-humic/organic, well-sorted silts and sand. These are interbedded with rather pure ash (with examples of included charcoal and burned mineral grains) that has become ferruginised (reddish) and/or stained with amorphous yellow probable iron phosphate, that gives the deposit an overall yellowish colour. The loamy fill also shows oriented clay/textural micropanning.

These phosphate and iron-rich and once-organic silty sand loam pit 'silting' deposits, occurred alongside the deposition of occasionally inwashed ash and rare coarse burned debris. The fill probably resulted from the drainage of humic and phosphate-rich material, and is not an *in situ* cess pit deposit.

5440 (G1181 – Phase 2.4: early-mid- 2nd century): This is a humic silt and sandy loam with a microaggregate fine structure over a 20 mm thick layer of compact 'red plaster' fragments, and fragments of burned daub/hearth; the plaster is tempered with silt and very fine sand. This layer is also affected by many yellow amorphous infills and staining by iron phosphate.

This is a possible pit-sealing layer of dumped constructional waste, mainly composed of fine 'red plaster', over which accumulations were bioworked by very small invertebrate mesofauna, indicating a period of zero infilling. This layer was itself later affected by subsequent phosphate contamination/seepage.

External activity pre-dating and associated with Timber Structures 1 and 2 (Phase 1 – 2.5: pre-Roman – mid- 2nd century)

Sample MVS4

5414 (G122 – Phase 1: pre-Roman): This is a massive and highly compact layer composed of well sorted silt and fine and medium sand loam, with occasional dusty clay intercalations, and shows slight fissuring and iron and some rare iron-phosphate staining in topmost few mm (Figure 216, Figure 225 and Figure 226).

This is a floor/surface carefully constructed from silt, and fine to medium sand-size loam components; it has not simply employed subsoil clay as in 5066, but possibly an alluvial parent material. There are internal slacking features (dusty clay) indicative of it being purposely compacted when moderately wet, and can perhaps be considered as a form of 'rammed earth'. The topmost few mm of the surface seem to have been affected by activity forming 5413. Bulk analysis of 5414 confirms it is constructed from 'clean' natural deposits and soil (Table 235). [This is implied to be a floor surface but every site record indicates this cannot be possible, it is natural subsoil – editor]

5413 (G114 – Phase 2.1: late 1st – early 2nd century): This context is a moderately biologically open, 'poorly humic' silt and sandy loam (as 5414 below), but with many included fragments of humified organic matter, traces of plant fragments, organic excrements, charcoal and bone; most of the last is embedded in amorphous yellow isotropic iron-phosphate, of hypothetical pig slurry origin (Figure 216, Figure 225 and Figure 226)(Macphail, 2000; Macphail and Crowther, 2007a). The amorphous phosphate is very dominantly non-autofluorescent under blue light, although rare areas exhibit very poor autofluorescence. Also present are silty micropans/inwash features containing fine fragments of humified organic matter and which are again essentially isotropic.

This area seems to have been re-used for the penning of pigs being fed on plant refuse and middening material (bones). Little ash or cereal processing material has been incorporated, as found commonly in middening deposits at Freeschool (e.g., 3690, 6450), and the pigs have mainly mixed soil from silty sandy loam used to construct 5414 below. Typically, pigs churn and mix up soil layers (Gebhardt, 1995). This was probably an open area with slurry and micropan formation, as noted elsewhere (Saxon road deposits studies employing soil micromorphology, chemsitry and microprobe at Whitefriars, Canterbury; Macphail and Crowther, 2007a). The soil was mainly worked by small invertebrate mesofauna rather than by earthworms, possibly because of local acidic and anaerobic conditions as found in modern day pig manure deposits.

Sample MVS3B

5412c (G114 – Phase 2.1: late 1st – early 2nd century): This is a moderately open and biologically mixed and burrowed moderately ashy deposit, mixed with humifying organic matter (dung?), with patchy concentrations of yellow and black staining amorphous cess (pig slurry?), with charcoal, ash concentrations, and patches of phytolith-rich concentrations (see 5413) upwards; possible silty micropans occur.

5412c is an ashy midden deposit, which was also used for dumping waste from a latrine waste, and influenced by likely *in situ* pig activity/penning, which produced an amorphous yellow slurry with included amorphous and plant and tissue fragments. It is weakly compacted and mixed, and biologically worked, but shows little evidence of strong weathering (or biogenic calcite granule evidence of earthworms). It is possible that this area of middening and associated pig activity was protected, albeit poorly, by a roof. Suggested pig pens and/or pig scavenging have also been tentatively identified at Roman No 1 Poultry and at 60-63, Fenchurch St, London (Macphail in Birkbeck and Schuster, In preparation; Macphail and Linderholm, In press).

5412b (G114 – Phase 2.1: late 1st – early 2nd century): This sub-unit has characteristics very similar to 5412c below, but in addition its formation process included major inputs/dumps of ashed cereal processing waste.

5412a (G114 – Phase 2.1: late 1st – early 2nd century): This is again a moderately open and biologically mixed and burrowed moderately ashy deposit, which includes humifying organic matter (dung?), with patchy concentrations of yellow amorphous cess, charcoal, ash concentrations, burned mineral, hearth fragments and other background anthropogenic materials.

As 5412b, this is ashy midden deposit, which was also used for dumping waste from a latrines; evidence of *in situ* pig penning is better evidenced in 5412c and especially in 5413 below. This middening activity seems to have occurred under a poorly roofed area. Bulk analysis of 5412 as a whole clearly shows that a slightly organic matter enriched and phosphate-P enriched deposit had formed, which also included burned material as evidenced by its strongly enhanced magnetic susceptibility (Table 235).

Sample MVS3A

5411 (G119 – Phase 3.1: mid-late 2nd century): At the top of the sampled sequence, 5411 is a highly compact reddish fine and medium sandy loam with included gravel, bone and charcoal, and which is characterized by many 'argillic' clayey textural pedofeatures (matrix coatings and intercalations) features from 'internal slaking'; these are concentrated in different layers.

This appears to be a substantial clay floor or ground raising foundation, which is composed of local reddish clay loam subsoil, which was constructed in layers as wet 'daub'. It thus has characteristics similar to Contexts 5414 and 5066.

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Table 234: The Soil Micromorphology: details of samples analysed

Context	Area	Location	Phase	Description
5066 (G980)	A	Building G Rm 6	4.3	early 4th century rooms/workshops?
6151 (G1321)	A	Building G Rm 6	3.9	early-mid- 3rd century rooms/workshops?
6664 (G951)	A	Building G Rm 6	3.7	early 3rd century rooms/workshops?
5069 (G947)	A	Building A Southern Rm	3.6	early 3rd century rooms/workshops?
5412 (G114)	D	Insula V	2.1	External make-up/soil
5414 (G122)	D	Insula V	1	Natural subsoils

Table 235: The Soil Micromorphology: Analytical data (phosphate fractionation data presented in Table 236)

Context	LOI [a] (%)	pH (water)	CO_3 [b] (est, %)	Phosphate-P [c] (mg g^{-1})	□ □□□$^{-8}$ SI)	□$_{max}$ (10^{-8} SI)	□$_{conv}$ [d] (%)	Pb [e] (□g g^{-1})	Zn [f] (□g g^{-1})	Cu [f] (□g g^{-1})
5066	1.53	8.3	5*	1.93	29.9	1760	1.70	39	36	10
6151	4.06*	7.9	5*	11.1***	510	1970	25.9***	451	148*	109*
6664	4.11*	7.6	5*	5.40**	295	2980	9.90*	2550***	144*	845***
5069	3.42*	7.7	5*	6.76**	274	2740	10.0**	465	134*	223*
5412	3.3*	7.5	2	7.47**	338	1790	18.9**	51	92	33
5414	1.03	7.4	0.1	1.13	39.2	948	4.14	8	15	4

[a] LOI: * = slightly enriched (2.50–4.99%), ** = enriched (5.00–9.99%), *** = strongly enriched (10.0–19.9%)
[b] Carbonate: Asterisked figures indicate 'calcareous' samples
[c] Phosphate-P: * = slightly enriched (2.50–4.99 mg g^{-1}) , ** = enriched (5.00–9.99 mg g^{-1}), *** = strongly enriched (10.0–19.9 mg g^{-1})
[d] □$_{conv}$: * = enhanced (5.00–9.99%) , ** = strongly enhanced (10.0–19.9%), *** = very strongly enhanced (20.0–39.9%)
[e] Pb: * = slightly enriched (500–999 □g g^{-1}), ** = enriched (1000–1990 □g g^{-1}), *** = strongly enriched (2000–3990 □g g^{-1})
[f] Zn and Cu: * = slightly enriched (100–249 □g g^{-1}), ** = enriched (250–499 □g g^{-1}), *** = strongly enriched (500–990 □g g^{-1})

Table 236: The Soil Micromorphology: phosphate fractionation data

Context	Phos-P_i (mg g^{-1})	Phos-P_o (mg g^{-1})	Phos-P (mg g^{-1})	Phos-P_i:P (%)	Phos-P_o:P (%)
5066	1.84	0.092	1.93	95.2	4.8
6151	10.6	0.505	11.1	95.5	4.5
6664	5.16	0.235	5.40	95.6	4.4
5069	6.40	0.362	6.76	94.6	5.4
5412	7.20	0.273	7.47	96.3	3.7
5414	0.987	0.145	1.13	87.2	12.8

Table 237: The Soil Micromorphology: – samples and counts

Monolith Sample	Thin section	Rel. Depth	Context	Area	Microfacies	SMT	Voids	Laminated	Red clay/loam	Burned red loam	Charcoal	Articulated phytoloths
VS1	MVS1A	0-10 mm	5065	Area A	D1	4a	40%				aaa	
	MVS1A	10-35 mm	5066	Area A	C1	3a	5%		aaaaa		a	
	MVS1A	35-55 mm	5067a	Area A	A1	2a	25%	ff			aaa	aaa
	MVS1A	55-75 mm	5067b	Area A	B1	1a	15%	fffff			aa	aaaaa
	MVS1B	75-95 mm	6089	Area A	B1(A)	1a (2b, 2c)	25%	fff			aa	aaaaa
	MVS1B	95-135 mm	5068	Area A	A3	2c	20%	ff			aa(aaaaa)	
	MVS1B	135-150 mm	6678	Area A	A2	2b	35%				aaa	
VS2	MVS2	70-150mm	6678	Area A	A4/A3							
		70-150mm	5069	Area A	A4	2d	40%				aaa	(a)
VS3	MVS3A	0-30mm	5411	Area D	C1	3a	15%		aaaaa		a	
	MVS3A	30-75mm	5412a	Area D	A4	2d(10a)	30%				aa	
	MVS3B	75-100/120mm	5412b	Area D	B2(A4)	1b	35%				aaa	aaaa
	MVS3B	100/120-150mm	5412c	Area D	A5	2d	35%				aa	aa
VS4	MVS4	30-75mm	5413	Area D	A6	2e	35%(10%)				aa	a
	MVS4	75-110mm	5414	Area D	C2	3b	5%(20%)				a*	
VS7	MVS7	50-80mm	5440	Area B	J1	11a	30%			aa	aa	
		80-130mm	5445	Area B	J2	11b	10-40%	fffff			aa	

Table 237cont.: The Soil Micromorphology: – samples and counts

Thin section	Context	Ash	Mortar	Red 'plaster'	Bark?	Coprolite (human, dog)	Coprolitic bone	Bone	Cess	Pig cess?	Brick' B. daub	Oyster? shell
MVS1A	5065		aaaaa								a	
MVS1A	5066											
MVS1A	5067a	aaaaa	aa		a-1		a-2				a-2	a-1
MVS1A	5067b	aaa(aaaaa)	a									
MVS1B	6089	aaaaa	a					a			a	a*
MVS1B	5068	aaaaa			a*	a*	a*	a			a*	a*
MVS1B	6678	aaaaa			a-1			a-2	a*?			
MVS2	6678											
	5069	aaaa	a*			aaaa	aa	aa	(aaaa)		a	
MVS3A	5411						a-1					
MVS3A	5412a	aaaa	a*						aa		a	
MVS3B	5412b	aaaaa				a					a*	
MVS3B	5412c	aaaa				a	a			aa	a*	
MVS4	5413	a								aaaaa		
MVS4	5414											
MVS7	5440	a		aaaaa					(aaa)		a	
	5445	(aaa)							(aaaaa)			

Table 237cont.: The Soil Micromorphology: – samples and counts

Thin section	Context	Burned eggshell	Melted quartz	Biogenic Calcite	Dusty Cly. Coatgs.	Yellowish Cly Coatgs.	Secondary Ca-P	2ndary Fe-P	2ndary Fe	Broad Burrows	Very thin Burrows	Very Broad Excremts
MVS1A	5065									aaa		
MVS1A	5066									(aa)		
MVS1A	5067a			a-1						aaa		
MVS1A	5067b						aa			aa		
MVS1B	5068			a-1						aa		
MVS1B	5068	a*									aaaa	
MVS1B	5068	a-1	a						aa	aaa		
MVS2	5068											
	5069		a*	a*						aaaaa	aaa	
MVS3A	5411			(a-1)	(aaaa)					(aaa)		
MVS3A	5412a									aaaaa	aaaa	a
MVS3B	5412b									aaaaa	aaaa	
MVS3B	5412c							aa		aaaaa	aaaa	
MVS4	5413							aaaaa	a	aaa	aaaaa	
MVS4	5414				(aa)			a*	aaa			
MVS7	5440		a-1?					aaa			aaaa	
	5445							aaaaa	aaaaa	aa		

* - very few 0-5%, f - few 5-15%, ff - frequent 15-30%, fff - common 30-50%, ffff - dominant 50-70%, fffff - very dominant >70%
a - rare <2% (a*1%; a-1, single occurrence), aa - occasional 2-5%, aaa - many 5-10%, aaaa- abundant 10-20%, aaaaa - very abundant >20%

Table 238: The Soil Micromorphology: quantitative microprobe analysis (%) of context 5067 (MVS1A); vertical line (*n*=100), and sub-units 5067a and 5067b

5067	**Na**	**S**	**Cl**	**Si**	**Pb**	**Ca**	**Mg**	**Fe**	**K**	**Al**	**Mn**	**P**	**Cu**	**Ti**	**Zn**	***Count***
Minimum	0.03	0.03	0.04	23.25	0.00	0.38	0.01	1.20	0.23	0.94	0.00	0.06	0.00	0.00	0.00	*100*
Maximum	1.23	4.22	46.52	96.97	0.31	49.68	1.07	18.42	9.26	29.41	5.20	17.23	0.07	0.38	0.45	*100*
Average	0.40	0.42	2.31	53.16	0.05	17.70	0.32	7.98	2.93	9.40	0.38	4.82	0.01	0.06	0.07	*100*
5067a	**Na**	**S**	**Cl**	**Si**	**Pb**	**Ca**	**Mg**	**Fe**	**K**	**Al**	**Mn**	**P**	**Cu**	**Ti**	**Zn**	***Count***
Minimum	0.03	0.03	0.07	25.54	0.00	0.38	0.01	1.20	0.23	0.96	0.00	0.06	0.00	0.00	0.00	*40*
Maximum	1.21	0.85	46.52	96.97	0.22	43.32	0.87	18.42	7.30	24.28	5.20	10.64	0.06	0.34	0.45	*40*
Average	0.36	0.22	3.65	59.29	0.06	13.26	0.27	8.27	3.4	10.29	0.56	2.61	0.01	0.07	0.07	*40*
5067b	**Na**	**S**	**Cl**	**Si**	**Pb**	**Ca**	**Mg**	**Fe**	**K**	**Al**	**Mn**	**P**	**Cu**	**Ti**	**Zn**	***Count***
Minimum	0.03	0.03	0.04	23.25	0.00	1.37	0.01	1.36	0.27	0.94	0.02	0.19	0.00	0.00	0.00	*60*
Maximum	1.23	4.22	43.14	94.83	0.31	49.68	1.07	17.62	9.26	29.41	2.93	17.23	0.07	0.38	0.36	*60*
Average	0.44	0.60	2.70	49.45	0.05	21.09	0.37	7.89	2.95	9.09	0.36	6.46	0.01	0.06	0.09	*60*

(NB: Cl usually records void areas infilled with resin)

Table 239: The Soil Micromorphology: Descriptions and preliminary interpretations

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
Area A: Phase 3-4 (early 3rd – mid- 4th century) rooms/workshops within Building G Room 6			
MFT D/SMT 4	MVS1A	0-10 mm (5065) SM: heterogeneous; *Microstructure*: massive with open medium aggregates; *Coarse Mineral*: C:F, 90:10 (aggregates); *Coarse Organic and Anthropogenic*: dominantly coarsely fragmented mortar, composed of earlier mortar fragments, brick, coarse silt to fine sand-size quartz and flint and much charcoal, example of fine bone; *Fine Fabric*: SMT 4 (hydraulic? mortar): often dotted pale yellowish orange grey (PPL), high interference colours (open and close porphyric, crystallitic b-fabric, XPL), grey, whitish and brownish grey (OIL); patches of abundant fine charred OM and charcoal; *Pedofeatures*: *Depletion*: abundant thinning of calcitic fine matrix; *Fabric*: many broad burrows.	*5065 (G993 – Phase 4.4: early to mid- 4th century)* Loose coarsely fragmented mortar, with mortar composed of sand, brick and earlier mortar as temper, with fine calcitic (micritic) lime matrix; possible hydraulic mortar. *Fragmented in situ or trampled remains of mortar floor construction, including likely use of hydraulic mortar.*
MFT C/SMT 3a	MVS1A	10-35 mm (5066) SM: Homogeneous; *Microstructure*: massive, 5% voids, very fine channels (coarse vertical fissure and burrow); *Coarse Mineral*: C:F, 60:40, moderately sorted coarse silt, fine and medium rounded and sub-rounded sand-size quartz with few ironstone, flint and siltstone gravel (4mm), and charcoal; *Coarse Organic and Anthropogenic*: rare coarse (1mm) charcoal; patched of burned clay and gravel; *Fine Fabric*: SMT 3: dusty reddish brown (PPL), moderately low interference colours (close porphyric, speckled and grano-striate b-fabric, XPL), bright orange (OIL); traces of amorphous and humified OM; *Pedofeatures*: *Textural*: many clayey intercalations and argillic grain 'coatings', which are abundant in uppermost 2.5mm; *Fabric*: example of broad burrow and fissure.	*5066 (G980 – Phase 4.3: early 4th century)* sealant layer?) 35mm thick highly compact reddish fine and medium sandy loam with included gravel and charcoal, with many 'argillic' clayey textural pedofeatures features, which are abundant in uppermost 2.5mm. *Constructed 'clay' layer manufactured from local? coarse silt to medium sandy loamy sediments and occasionally Bt horizon soil (cf brickearth clay floors in London and Canterbury); 2.5 mm-thick 'mud plastered'surface .*
MFT A/SMT 2a MFT B/SMT 1a	MVS1A	35-75 mm (5067; 5067a 35-55 mm) SM: Heterogeneous upper (MFT B) and homogeneous laminated lower (MFT A); *Microstructure*: finely (<1-2mm) laminated, becoming part massive part laminated upwards; 15-25% voids (upwards), fine (max 1.5mm) vughs, chambers and horizontal fissures *Coarse Mineral*: C:F (Coarse:Fine limit at 10 µm), 70:30 and 60:40 upwards; mainly well sorted medium rounded sand-size quartz, with some laminae high in silt-size quartz (examples of oolite, ironstone); *Coarse Organic and Anthropogenic*: MFT B (5067b): very abundant, phytoliths dominated, horizontally oriented, articulated phytoliths up to 2-3mm long – silica pseudomorphs of 'straw'; rare sand to gravel-size mortar; occasional fine burned quartz and other minerals; occasional fine charcoal (cereal hairs?, possible example of charred seed); very abundant ash in some layers; MFT A (5067a): many, articulated phytoliths; occasional sand to gravel-size mortar; occasional fine burned quartz and other minerals; example of argillic Bt soil; many fine wood charcoal fragments; very abundant ash; examples of cellular plant material with brownish colour (inner bark?) up to 1.5mm long; 2 coprolitic yellowish bone (3.5mm); examples of 'brick',	*5067a (G967 – Phase 3.8: early – mid- 3rd century)* Ash-rich mainly massive deposit with much wood charcoal, burned mineral, mortar and phytoliths-rich fragments (some trampled from 5067b), with coprolitic bone, examples of bark, oyster shell and earthworm granule. *Interior compact trample of domestic origin, ashy hearth debris, sands from weathered mortar, mortar, wood working (bark) and earthworm granule from exterior. Change in use of room from specialist cereal processing to general domestic use.(Presence of bark could imply low status room/structure where bark has been left on the wood; on drying this bark peels off and could become incorporated into floor deposits (Damian Goodburn, MoLAS, pers. comm.)* *5067b (G967 – Phase 3.8: early – mid- 3rd century)* Phytolith and articulated phytoliths-dominated finely laminated with very fine ash in some layers, fine silt in others; fine burned

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
		(oyster?) shell and weathered biogenic calcite (earthworm) granule; *Fine Fabric*: SMT 1 (5067b): pale yellowish to yellowish grey, dotted (PPL), isotropic to high interference colours (open to close porphyric, crystallitic b-fabric, XPL), grey (OIL); patches of very weak humic staining, very abundant phytoliths and occasional charred monocot/cereal material; fine ash; SMT 2 (5067a): speckled and dotted greyish and reddish brown areas (PPL), moderately high to high interference colours (close porphyric, crystallitic b-fabric, XPL), greyish brown to dark brown (OIL); very abundant fine charred OM and ash (more coarse), with patches of very abundant phytoliths; *Pedofeatures*: *Amorphous*: rare Ca-P (blue light autofluorescent) hypocoatings and impregnation of layers in 5067b; *Fabric*: many thin and very broad burrows. See for microprobe data	(rubefied) mineral grains charred cereal? hairs, possible seed, present; 12+ layers; some secondary Ca-P staining. *Phytolith and ash cereal processing spre*AD*s, recording a period of cereal processing dominating this space; records some 12 processing episodes (not simply trample).*
Area A: Phase 3 early mid- 3rd century rooms/workshops (Building G Room 6)			
MFT B2/1a (2b and 2c)	MVS1B	75-95 mm SM: heterogeneous – various compacted phytolith-rich and ashy materials (SMT 1a, 2b and 2c); *Microstructure*: massive, layered, 25% voids, open vughs; *Coarse Mineral*: C:F, as SMTs; *Coarse Organic and Anthropogenic*: rare wood charcoal, mortar, burned flint; traces of bone and oyster shell; example of large (10mm) clast of burned daub (hearth) with attached layer of burned and layered articulated phytoliths, intercalated with fine ash (as MFT B); very abundant layered articulated phytoliths with charred cereal hairs(?); abundant coarse patches of micritic ash (as MFT A2); example of biogenic earthworm calcite; *Fine Fabric*: as SMTs; *Pedofeatures*: *Fabric*: occasional broad burrows; *Excrements*: occasional very thin excrements.	*6089 (G967 – Phase 3.8: early – mid- 3rd century)* Compact, heterogeneous mixture of ash and articulated phytoliths (some layers adhering to burned dab/hearth), ash concentrations and mixed ash and sand; with shell, bone and burned inclusions. Some burrow mixing with 5067 above. *Trampled fragments from cereal processing (employing a hearth) and hearth ash, with background food processing debris.*
MFT A3/SMT 2c	MVS1B	95-135 mm (with compact charcoal layer at 95-100 mm SM: Mainly homogeneous; *Microstructure*: massive with weak to strong compact fine layering, 20% voids, compact, very fine to fine (1mm) channels and open vughs, (with horizontal fissures); *Coarse Mineral*: C:F, 65:35, moderately poorly sorted silt and sand with few coarse anthropogenic mineral inclusions; *Coarse Organic and Anthropogenic*: rare rounded chalk (6mm), ironstone, burned flint, quartzite, example of 2mm rounded igneous rock and fine pot and burned daub/hearth; rare bone; occasional ash aggregates; trace amounts of burned eggshell and oyster shell; occasional to very abundant (95-100mm) wood charcoal (some twigwood, trace of bark); *Fine Fabric*: SMT 2c: dusty and dotted brown (PPL), moderately high interference colours (close porphyric, crystallitic b-fabric, XPL), greyish orange (OIL); many fine rubefied mineral grains, weakly humic stained, abundant very fine charred OM; *Pedofeatures*: *Fabric*: abundant thin burrows; *Excrements*: occasional very thin excrements.	*5068 (G965 – Phase 3.8: early – mid- 3rd century)* Moderately homogenized (by very small mesofauna and trampling), sometimes finely layered, weakly humic ash and silt and sand, with much fine burned mineral, with charcoal – sometimes as compact 5mm thick layer with twigwood and bark present – and ash aggregates and traces of burned eggshell and very fine oyster shell. *Trample of domestic hearth ash, charcoal, some food waste and background floor deposits/soils. Mixed and slightly weathered by trampling and worked by very small mesofauna.*

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
MFT A2/SMT 2b	MVS1B	135-150 mm SM: Mainly homogeneous, dominant SMT 2b with frequent 2c; *Microstructure*: massive; 35% voids, open vughs and chambers; *Coarse Mineral*: C:F, SMT 2b 20:80, well sorted fine and medium sand, with very few coarse anthropogenic inclusions; *Coarse Organic and Anthropogenic*: many charcoal (max 11mm), rare sand size pot; fine fragment of burned eggshell; dominantly wood ash (micritic calcite – SMT 2b); rare fine sand grains showing edge alteration, 'bubbling' and partial loss of birefringence (strongly burned); 2 very coarse – 7mm – calcined bone; rare examples of rubefied grains; possible rare traces of cess(?); *Fine Fabric*: SMT 2b: whitish grey to cloudy grey, with fine patchy reddish brown areas (PPL), high interference colours (very open porphyric, crystallitic b-fabric, XPL), grey (OIL); many fine charred and humifying OM fragments, dominant calcitic ash; *Pedofeatures*: *Amorphous*: occasional weak iron staining; *Fabric*: many broad burrows..	*6678 (G952 – Phase 3.7: early 3rd century)* Dominantly micritic ash, with much coarse charcoal, and embedded quartz sand – some showing edge alteration; coarse examples of calcined (strongly burned) bone; minor iron and phosphate staining, and burrowing. *Ash and charcoal dump from hearth, with calcined bone, and partially altered quartz sand indicating some high temperatures (>1000 ºC) were attained.*
Area A: Phase 3 (early 3rd century) rooms/workshops within Building A's southern room and Building G Room 6			
MFT A4/SMT 2d(2c)	MVS2	70-150 mm SM: heterogeneous, with dominant SMT 2d, with frequent 2c; *Microstructure*: massive with subangular blocky, 40% voids, complex packing voids, open vughs, chambers and poorly accommodated fine (1mm) curved planar voids; *Coarse Mineral*: C:F, 60:40, poorly sorted, sand and silt with coarse anthropogenic inclusions; *Coarse Organic and Anthropogenic*: very abundant leached and coprolitic bone (20+mm), burned bone present, and very fine bone embedded in many BL autofluorescent (whitish grey to whitish green) cess fragments (4mm; some also with embedded articulated sheets of phytoliths – 'bran'); rare trace of dog coprolites (1.5mm); example of fine sand-size silica slag; many charcoal (4mm); rare pot, burned flint and chert, burned daub, and ash clasts; trace amount of biogenic – earthworm – calcite; *Fine Fabric*: SMT 2d: dotted dark brown and dark reddish brown (PPL), moderately high interference colours (porphyric, crystallitic b-fabric, XPL), greyish orange (OIL); weakly humic stained with many reddish brown amorphous (humifying?) OM, occasional to many phytoliths, abundant ash; *Pedofeatures*: *Textural*: 2mm thick reddish clay channel infill; *Fabric*: very abundant broad (1-2mm) burrows, many thin burrows; *Excrements*: abundant very thin to thin excrements. x5069	*6678 (G952 – Phase 3.7: early 3rd century)* Burrow fills of darkish ashy fills, and example of reddish clay channel inwash. *Burrow mixing of 5068 into upper 5069, mixing in more ash-rich deposits (as in MVS1B); also inwash of reddish clay – probably associated with clay floor construction in 5066 above.* *5069 (G947 – Phase 3.6: early 3rd century)* Very open and biologically mixed and burrowed moderately ashy deposit, mixed with humifying organic matter (dung?), with very high amounts of fragmented cess, which embed bone fragments, as well as much bone, leached bone (from cess), burned bone, charcoal and other background anthropogenic material. *Ashy midden deposit, which was also used for dumping waste from a latrine/cess pit (cess here is in secondary position); much biological working, but no real weathering or effects of rainfall, suggesting middening within a roofed area. It can be noted that the in situ construction of the clay floor (5066) above led to mobilized clay washing as deep as this context.* *(cf Fenchurch St, Canterbury)*
Area D: Phase 2-3 (late 1st – late 2nd century) soils within Insula V			
MFT C/SMT 3a	MVS3A	0-30 mm SM: Mainly homogeneous with variants of SMT 3a; *Microstructure*: massive, poorly layered/lenticular; 15% voids, closed fine-medium (1.5mm) vughs, coarse chambers; *Coarse Mineral*: C:F, 60:40, moderately sorted coarse silt, fine and	5411 *(G119 – Phase 3.1: mid-late 2nd century)* Highly compact reddish fine and medium sandy loam with very included gravel, bone and charcoal, with many 'argillic' clayey textural pedofeatures features, which are concentrated in different

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
		medium rounded and sub-rounded sand-size quartz with very few ironstone, flint and siltstone gravel (3mm), and inclusion of 6mm size coprolitic bone and many small red clay aggregates, and rare coarse charcoal (2mm); *Coarse Organic and Anthropogenic*: 6mm size coprolitic bone, rare charcoal; very broad burrow includes coarse earthworm granules; *Fine Fabric*: SMT 3a; *Pedofeatures*: *Textural*: abundant matrix intercalations and associated thin void coatings in closed vughs; *Fabric*: many very broad (4-10mm) burrows. x5411	layers. *Substantial clay floor, ground raising foundation, composed of local reddish clay loam subsoil, which was constructed in layers as a wet 'daub'.*
MFT A4/SMT 2d (10a)	MVS3A	30-75 mm SM: Mainly homogeneous, with very dominant SMT 2d and very few 10a; *Microstructure*: massive with weakly developed/observable subangular blocky; 30% voids, fine (0.5mm) channels, complex packing voids and coarse (10mm) chambers; *Coarse Mineral*: C:F, as SMT 2d; SMT 10a – 65:35; *Coarse Organic and Anthropogenic*: few coarse flint (15mm) and quartzite, occasional burned daub/hearth, occasional cess, sometimes in concentrated areas; occasional charcoal (1mm), sometimes in concentrated areas; rare mortar and ash concentrations; *Fine Fabric*: as SMT 2d, possibly with more humic traces; SMT 10a: blackish (PPL), low interference colours (close porphyric, trace of crystallitic b-fabric, XPL), very dark brown (OIL); humic with very abundant amorphous organic matter and fine charcoal, rare ash and other calcite, with trace of phytoliths. *Pedofeatures*: *Fabric*: abundant thin and very abundant broad to very broad (1-3mm) burrows; *Excrements*: many very thin, and rare very broad mamilated organo-mineral excrements. x5412	5412a *(G114 – Phase 2.1: late 1st – early 2nd century)* Moderately open and biologically mixed and burrowed moderately ashy deposit, mixed with humifying organic matter (dung?), with patchy concentrations of yellow amorphous cess, with charcoal, ash concentrations, burned mineral, hearth fragments and other background anthropogenic materials. *Ashy midden deposit, which was also used for dumping waste from a latrine waste; weakly compacted and mixed; biological working, but no real weathering (or biogenic calcite granule evidence of earthworms) or effects of rainfall, suggesting middening within a roofed area (possible traces of pigs – better evidenced in 5414).*
Area D: Phase 2 (early 2nd century) soils within Insula V			
MFT B2(A4)/SMT 1b Mixed boundary to MFT A5/SMT 2d	MVS3B	75-150 mm SM: Heterogeneous, very dominant SMT 2d becoming mixed with frequent SMT 1b upwards; *Microstructure*: massive with fissures; 35% voids, simple packing voids, coarse (3mm) sub-vertical fissures, open vughs and chambers; *Coarse Mineral*: C:F, as SMT 2d; 1b – 30:70; moderately poorly sorted with very few gravel-size (9mm) quartzite and ironstone; *Coarse Organic and Anthropogenic*: occasional fine to coarse (10mm long) coprolitic bone, many charcoal, including straw/cereal? lengths (7mm); occasional patches of browned plant fragments, blackened amorphous organic matter and associated yellow amorphous infills and staining (pig slurry?); patches of high ash density and articulated phytoliths and charred cereal hairs(?); *Fine Fabric*: as SMT 2d, SMT 1b: as 1a, but most phytoliths finely fragmented, with patchy reddish brown rubefied organic traces (as found in general SMT 2), abundant ashes; *Pedofeatures*: *Textural*: possible example of 1mm thick silty sorted material – as micropan(?); as MVS3A.	5412b *(G114 – Phase 2.1: late 1st – early 2nd century)* As below but with major inputs/dumps of ashed cereal processing waste. 5412c *(G114 – Phase 2.1: late 1st – early 2nd century)* Moderately open and biologically mixed and burrowed moderately ashy deposit, mixed with humifying organic matter (dung?), with patchy concentrations of yellow and black staining amorphous cess (pig slurry?), with charcoal, ash concentrations, and patches of phytoliths-rich concentrations (see 5413) upwards; possible silty micropan (?). *Ashy midden deposit, which was also used for dumping waste from a latrine waste, and influenced by likely in situ pig activity/penning (amorphous yellow slurry with included amorphous and plant and tissue fragments); weakly compacted and mixed; biological working, but no real weathering (or biogenic calcite granule*

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
			evidence of earthworms) or effects of rainfall apart from possible micropan, suggesting middening within a likely poorly(?) roofed area.
Area D: Phase 1-2 (pre-Roman – early 2nd century) subsoils and soils within Insula V			
MFT A6/SMT 2e	MSV4	30-75 mm SM: Homogeneous; *Microstructure*: massive with poor prisms/coarse subangular blocky; 35% voids, very fine to fine (1mm) open and closed vughs and fine channels, with compact (10%) areas; *Coarse Mineral*: C:F, 70:30, moderately well sorted, as below, very few ironstone (3mm) and quartzite (7mm) gravel; *Coarse Organic and Anthropogenic*: occasional charcoal (2.5mm), mainly amorphous yellow Fe-P stained; very abundant (pig coprolites/slurry) amorphous yellow Fe-P staining and infills, often associated with dark reddish brown amorphous (humified) OM (humified parenchymatous and lignified cells embedded), and sometimes plant tissue fragments; rare fine to coarse (3mm) bone, often embedded in FeP; rare ash aggregates and trace of articulated phytoliths; *Fine Fabric*: SMT 2e: finely speckled dusty (sometimes yellowish) brown (PPL), very low interference colours to isotropic (close porphyric, speckled with rarely crystallitic b-fabric, XPL), greyish yellowish brown (OIL); weakly humic stained but many to abundant brown humified amorphous OM, occasional fine charcoal, many phytoliths, rare ash and rubefied mineral; *Pedofeatures*: *Textural*: abundant intercalations and micropans (up to 0.5mm thick in coarse voids) – humic with silt, and fine amorphous OM fragments – isotropic ; *Amorphous*: very abundant FeP infills and staining; *Fabric*: very abundant thin and many broad burrows; *Excrements*: very abundant very thin excrements.	5413 *(G114 – Phase 2.1: late 1st – early 2nd century)* Moderately biologically open, 'poorly humic' silt and sandy loam (as 5414 below), but with much included fragments of humified organic matter, traces of plant fragments, organic excrements, charcoal and bone, most of which is embedded in amorphous yellow isotropic iron-phosphate, of hypothetical pig slurry origin; also present are silty micropans/inwash features containing fine fragments of humified organic matter and which are essentially isotropic. *Re-use of area and surface by pigs being fed on plant refuse and middening material (bones), but little ash or cereal processing material has been incorporated; pigs have mainly mixed soil from silty sandy loam used to construct 5414 below; probably open area with slurry and micropan formation, and mainly small invertebrate mesofauna activity rather than earthworms.* (cf Canterbury, Poultry etc)
MFT C2/SMT 3b	MSV4	Surface of 5414 is slightly horizontally fissured and fragmented. 75-110 mm SM: Homogeneous; *Microstructure*: massive (fissured); 5%, very fine fissures and medium vughs (20%, coarse fissures); *Coarse Mineral*: C:F, 80:20, well sorted fine and coarse silt and fine and medium sand-size quartz, with example of flint (5mm) and very few coarse sand-size ironstone; *Coarse Organic and Anthropogenic*: well prepared and constructed 'floor'; *Fine Fabric*: SMT 3b: dusty brown (PPL), low interference colours (close porphyric, speckled b-fabric, XPL), orange (OIL); rare charred and amorphous OM; *Pedofeatures*: *Textural*: occasional dusty intercalations and void infills; *Amorphous*: many very fine (<0.5mm) iron impregnative mottles – some staining concentrated at top of 5414; trace amount of amorphous yellow staining at top of 5414.	5414*(G122 – Phase 1: pre-Roman)* Massive and highly compact layer composed of well sorted silt and fine and medium sand loam, with occasional dusty clay intercalations, showing slight fissuring and iron and rarely iron-phosphate staining in topmost mm. *Carefully constructed floor/surface from silt, and fine to medium sand-size loam components (not simply subsoil clay as in 5066; alluvial parent material?) with internal slacking features (dusty clay) indicative of being purposely compacted when moderately wet (formed of rammed 'earth'); surface affected by activity forming 5413.*
Area B: Phase 2 (early-mid- 2nd century) pit fills within Insula V			

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
	MVS7	50-80 mm SM: Heterogeneous, with dominant layer (58-80mm) of compact 'red plaster' (max 7mm) and burned daub/hearth fragments, and overlying layer of SMT 11a; *Microstructure*: massive and layered; 30%, fine to medium vughs and channels and coarse chambers; *Coarse Mineral*: C:F, SMT 11a: 80:20, poorly sorted, silt to sand with gravel and stone size anthropogenic inclusions; *Coarse Organic and Anthropogenic*: very abundant 'red plaster' and hearth fragments, as above, with occasional charcoal (3mm), some phosphate-embedded; example of vesicular slag; *Fine Fabric*: SMT 11a: speckled dark brown (PPL), moderately low (compact microaggragate/porphyric, crystallitic, b-fabric, XPL), pale reddish orange (OIL); moderately humic, with many amorphous OM and occasional fine charred OM, rare ash and phytoliths; *Pedofeatures*: *Amorphous*: many amorphous yellow FeP staining and fissure fills; *Fabric*: many broad burrows; *Excrements*: abundant very thin, rare thin excrements.	5440 *(G1181 – Phase 2.4: early-mid- 2nd century)* Humic silt and sandy loam with microaggregate fine structure over 20mm thick layer of compact 'red plaster' fragments, with burned daub/hearth and other fine (silt very fine sand) plaster; much yellow infills and staining (FeP). *Possible pit sealing layer of dumped constructional waste, mainly composed of fine 'red plaster', over which accumulations were bioworked by very small invertebrate mesofauna; layer affected by subsequent phosphate contamination/seepage.*
	MVS7	80-130 mm SM: Heterogeneous, microlaminated (eg 1mm) and burrowed (SMT 11a); *Microstructure*: massive and microlaminated; 10-40%, fine fissures to very coarse chambers; *Coarse Mineral*: C:F, SMT 11b: 80:20, often well sorted silt to medium sand laminae, with very few small gravel (2-3mm); *Coarse Organic and Anthropogenic*: occasional ferruginised plant remains, in layers; very abundant (now iron/Fe-phosphate stained, ash layers, some with examples of coarse charcoal and rubefied chert; *Fine Fabric*: SMT 11b: speckled brown to dark reddish brown (PPL), moderately high interference colours and isotropic (close porphyric, grano- and unistriate b-fabric, XPL), pale orange to pale reddish brown (OIL); once weakly to strongly humic laminae, some layers with rare to very abundant ash, and many phytoliths; *Pedofeatures*: *Textural*: abundant micropans (eg 0.5-1mm); *Amorphous*: Very abundant iron impregnations and semi-pseudomorphs of organic materials; very abundant yellow amorphous FeP; *Fabric*: occasional thin to broad (1-2mm) burrows (eg with SMT 11a).	5445 *(G1181 – Phase 2.4: early-mid- 2nd century)* Microlaminated, once humic/organic, well-sorted silts and sand, interbedded with once-pure ash (with examples of charcoal and burned mineral grains) that has become (reddish) ferruginised and stained with amorphous yellow FeP; loam shows oriented clay/textural micropanning. *Phosphate and iron-rich once-organic silty sand loam 'silting', with occasional inwash of ash and rare coarse burned debris; drainage of humic and phosphate-rich material – not an in situ cess pit.*

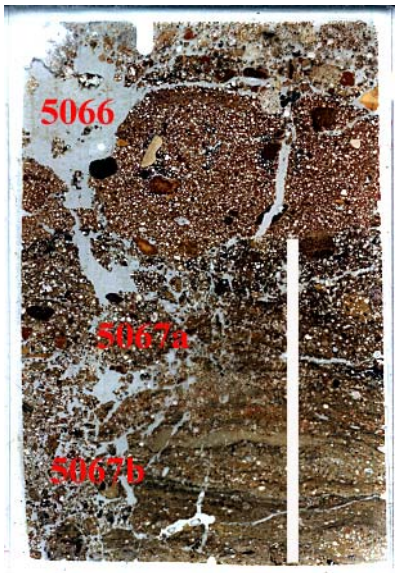

Figure 215: The Soil Micromorphology: scan of MVS1A, Contexts 5067 and 5066 (red clay floor); Context 5067 was also investigated through X-ray microprobe: element mapping (see Figure 229) and quantitative analysis (vertical line) through sub-units 5067a and 5067b. Width is ~50mm.

Figure 216: The Soil Micromorphology: scan of MVS4, junction (arrows) between compact constructed floor/surface 5414 and open structured 5413; the latter is a phosphate enriched probable pig pen deposit. Width is ~50mm.

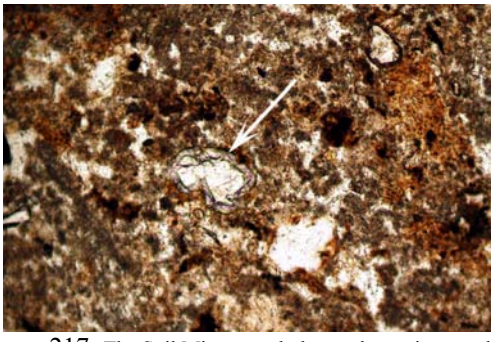

Figure 217: The Soil Micromorphology: photomicrograph of MVS1B (5068c); organic matter and phosphate-stained clumps of biologically-worked ash, in which quartz sands with melted edges (e.g., arrow) occur; this indicates the probable use of a high temperature furnace. Plane polarised light (PPL), frame width is ~0.90mm.

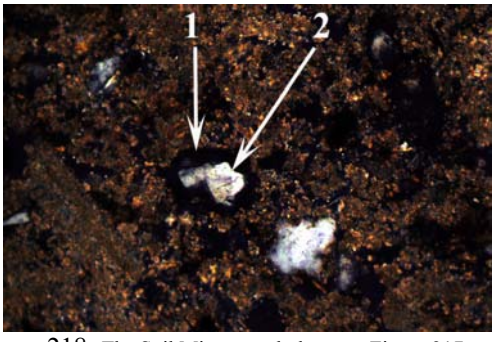

Figure 218: The Soil Micromorphology: as Figure 217, under crossed polarized light; 1: melted sand edge is isotropic, 2: unmelted interior of sand grain retains low order interference colours typical of quartz. Note also scatter of calcitic ash.

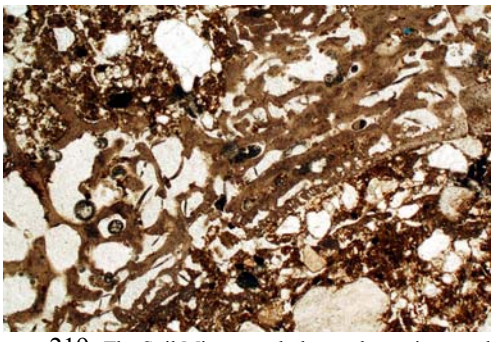

Figure 219: The Soil Micromorphology: photomicrograph of MVS1B (5068c); strongly burned calcined bone. PPL, frame width is ~4.62mm.

Figure 220: The Soil Micromorphology: as Figure 219, under oblique incident light (OIL).

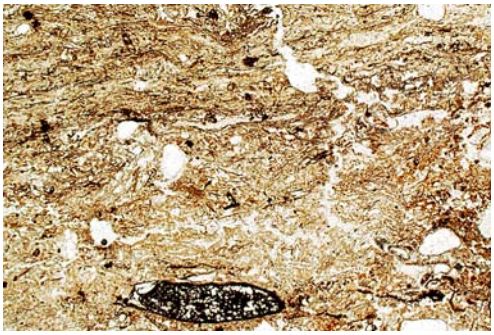

Figure 221: The Soil Micromorphology: photomicrograph of MVS1A (5067b); compact layers of articulated phytoliths. PPL, frame width is ~4.62mm.

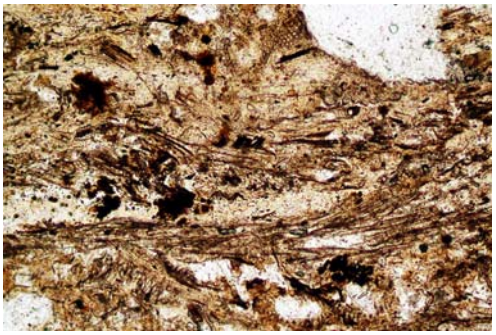

Figure 222: The Soil Micromorphology: detail of Figure 221, showing very abundant phytoliths and fine charred plant remains from probable cereal processing. PPL, frame width is ~0.90mm.

Figure 223: The Soil Micromorphology: as Figure 221; compact phytoliths-rich layer; note cross-section through silica-replaced 'straw' stem (arrow). PPL, frame width is ~1.00mm.

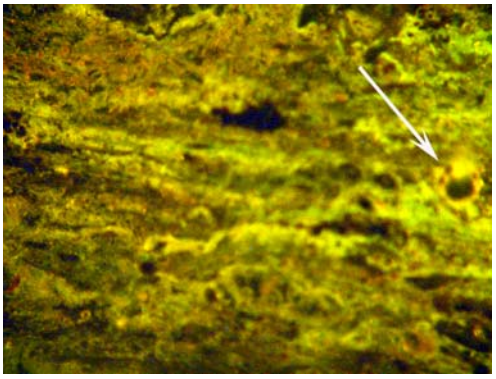

Figure 224: The Soil Micromorphology: as Figure 223, under blue light; note bright yellow autofluorescence colours of probable calcium phosphate cementing these layered phytoliths.

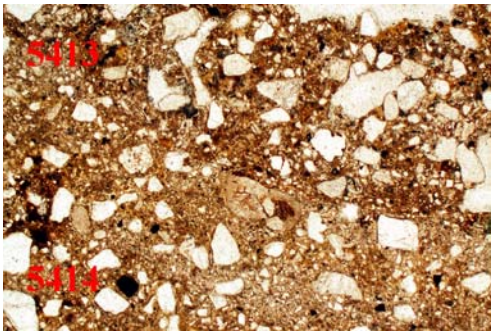

Figure 225: The Soil Micromorphology: photomicrograph of MVS4; junction between compact 'floor' (5414) constructed from 'clean' sediments, and phosphate stained 5413 pig pen soil (see Figure 216). PPL, frame width is ~2.38mm.

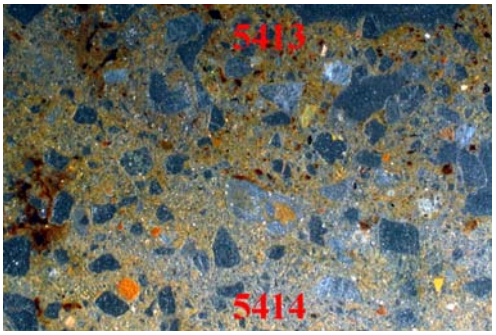

Figure 226: The Soil Micromorphology: as Figure 225, under OIL; colour differences between phosphate-rich 5413 and 'clean' 5414, although there has been inwash of pig slurry into the top of 5414.

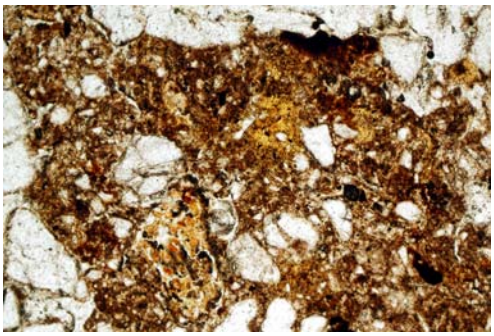

Figure 227: The Soil Micromorphology: as Figure 225, detail of pig slurry – yellow phosphate and brownish amorphous organic matter infilling a burrow. PPL, frame width is ~0.90mm.

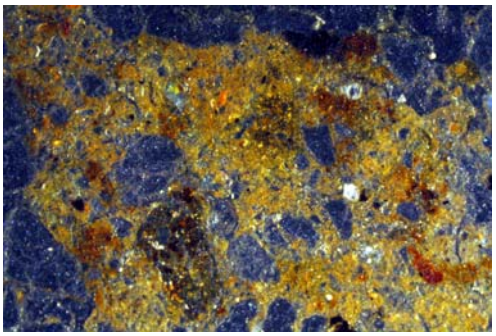

Figure 228: The Soil Micromorphology: as Figure 227, under OIL, note yellowish and brown pig slurry deposits.

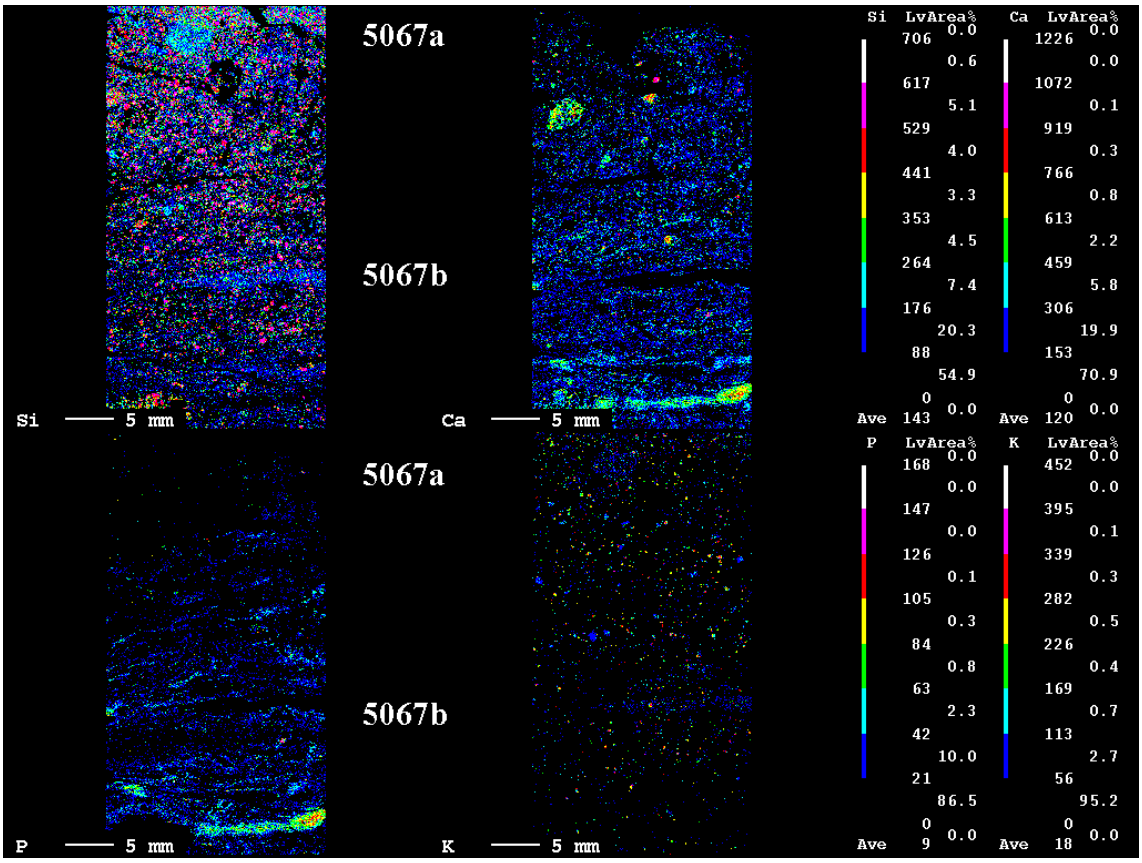

Figure 229: The Soil Micromorphology: series of X-ray microprobe element maps across Contexts 5067a and 5067b (MVS1A), showing distribution of Si (quartz sand and phytoliths), Ca (ash and secondary Ca-P), P (secondary Ca-P – see Figs 28-29) and K (ash). Note 'mixed' 5067a and 'layered' 5067b.

THE ^{14}C DATING *Göran Possnert and Maud Söderman*

(with introduction and discussion by Mathew Morris)

Introduction

In order to attempt to provide terminal dates for two significant events marking the end of occupation of the large urban courtyard house (Building G), three samples of carbonised wood were sent to the Angström and Tandem Laboratories at Uppsala Universitet, Sweden, for ^{14}C dating. The first sample (Ua-38084) was intended to provide a possible date for the carbonised hammerscale deposit (G1006 – Phase 4.6) excavated from the floor of Room 6 within Building G. This is believed to represent the room's final use as a smithy before the building's eventual abandonment. The second two samples (Ua-38085 and Ua-38086) were intended to provide a possible date for the charcoal deposits (G725 and G726 – Phase 4.6) excavated from the floor and flue of Stoke-Room 32 within Building G. These are believed to represent the final firing of the hypocaust beneath Room 31, an event which probably immediately pre-dates the demolition of these rooms.

Methodology

Pre-treatment of charcoal and similar materials:

1. Visible root-fibres are removed.
2. 1% HCl is added, the mixture is heated and kept for 8-10 hours just below boiling point (carbonates are removed).
3. 1% NaOH is added, the mixture is heated and kept for 8-10 hours just below the boiling point. the insoluble fraction, referred to as INS, is mainly consisting of the original organic material, and should therefore give the most reliable age. The soluble part is precipitated by addition of concentrated HCl. The precipitate, which mainly consists of humics, is washed, dried and referred to as fraction SOL. Influence of contaminants could be obtained from the SOL fraction.

Prior to the accelerator measurement, the washed and dried material pH 4, is combusted to CO_2 and converted to graphite using a Fe-catalyst reaction. The age of fraction INS has been measured to the present investigation.

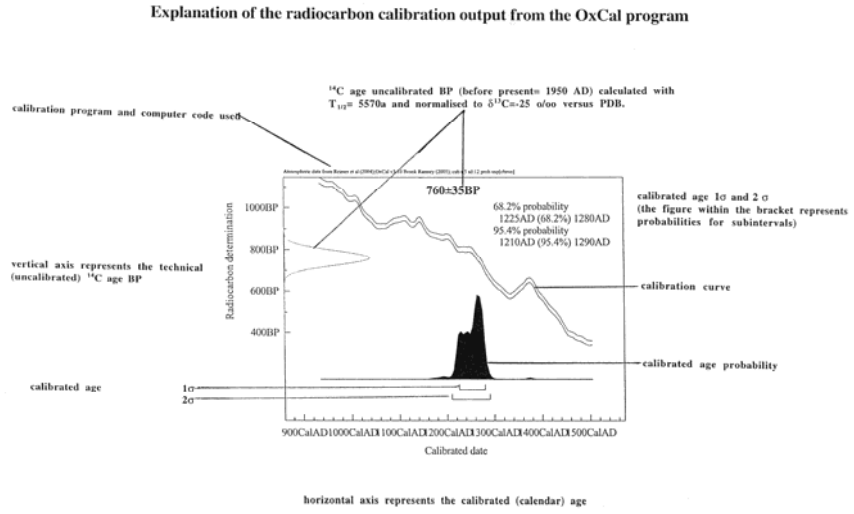

Figure 230: The ^{14}C Dating: explanation of radiocarbon output from the OxCal program

Results

Table 240: The ^{14}C Dating: results

Lab No.	Sample details	δ^{13}C% PDB	^{14}C age BP
Ua-38084	Sample 1832; Context 5749; Group G1006 (A24.2003) Hazel fragment from hammerscale in smithy	-25,2	1682±36
Ua-38085	Sample 1026.6; Context 8135; Group G725 (A24.2003) Hawthorn fragment from charcoal in stoke-room	-27,3	1733±36
Ua-38086	Sample 1028.3; Context 8676; Group G726 (A24.2003) Hazel fragment from charcoal in stoke-room flue	-26,6	1797±34

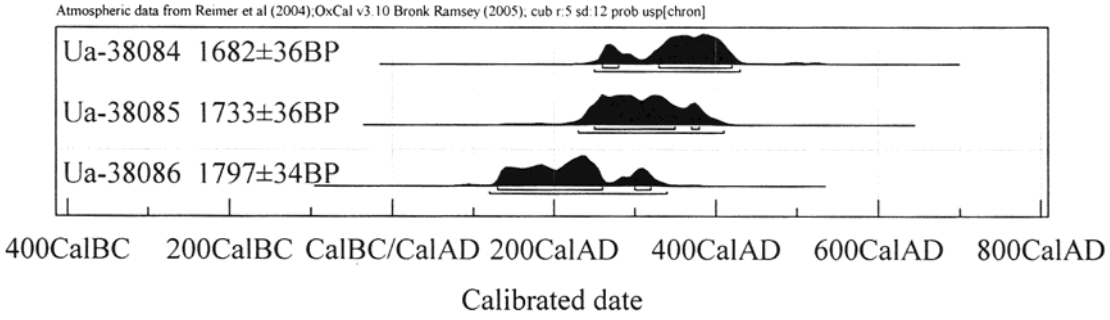

Figure 231: The ^{14}C dating: chart comparing the three calibrated samples

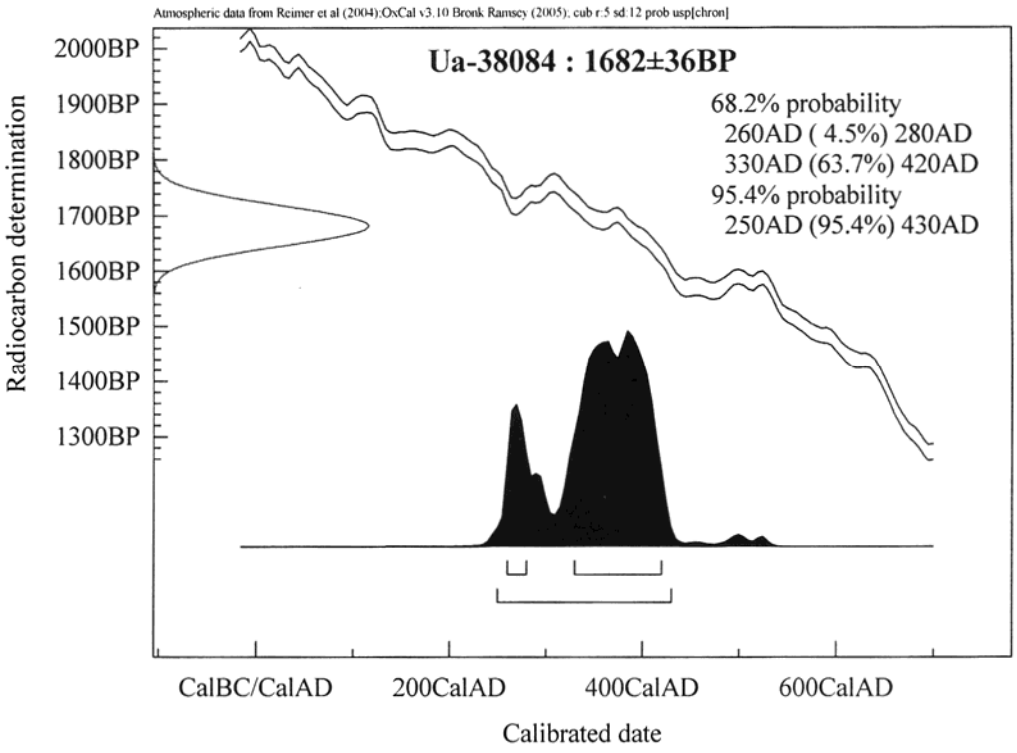

Figure 232: The ^{14}C dating: calibrated results for sample Ua-38084

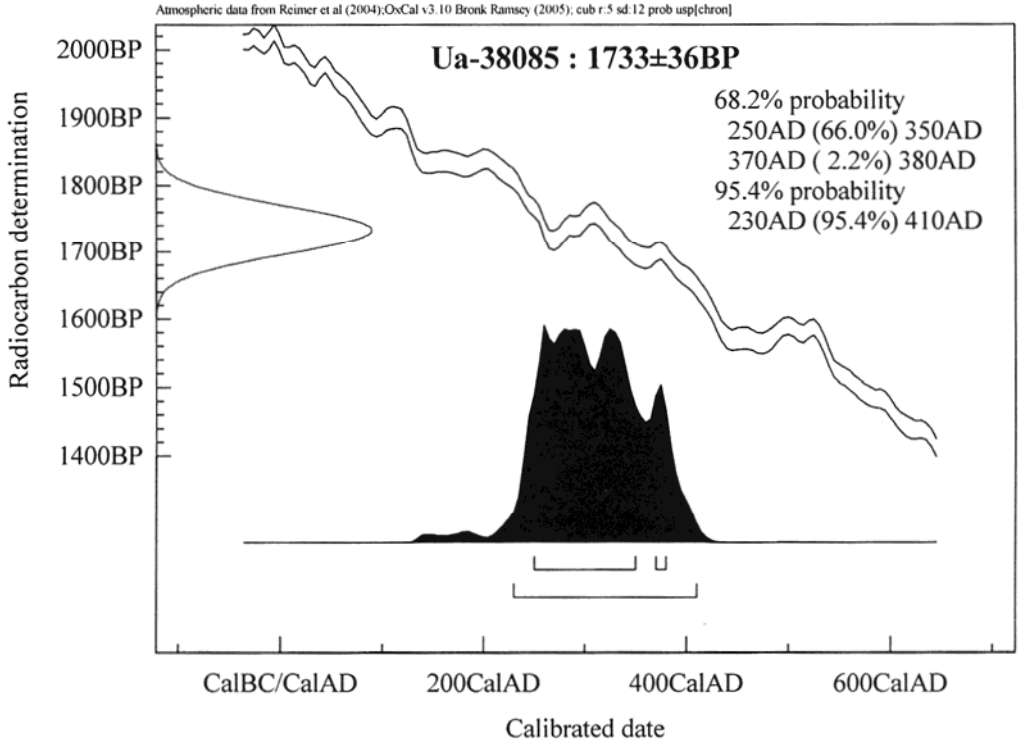

Figure 233: The ^{14}C dating: calibrated results for sample Ua-38085

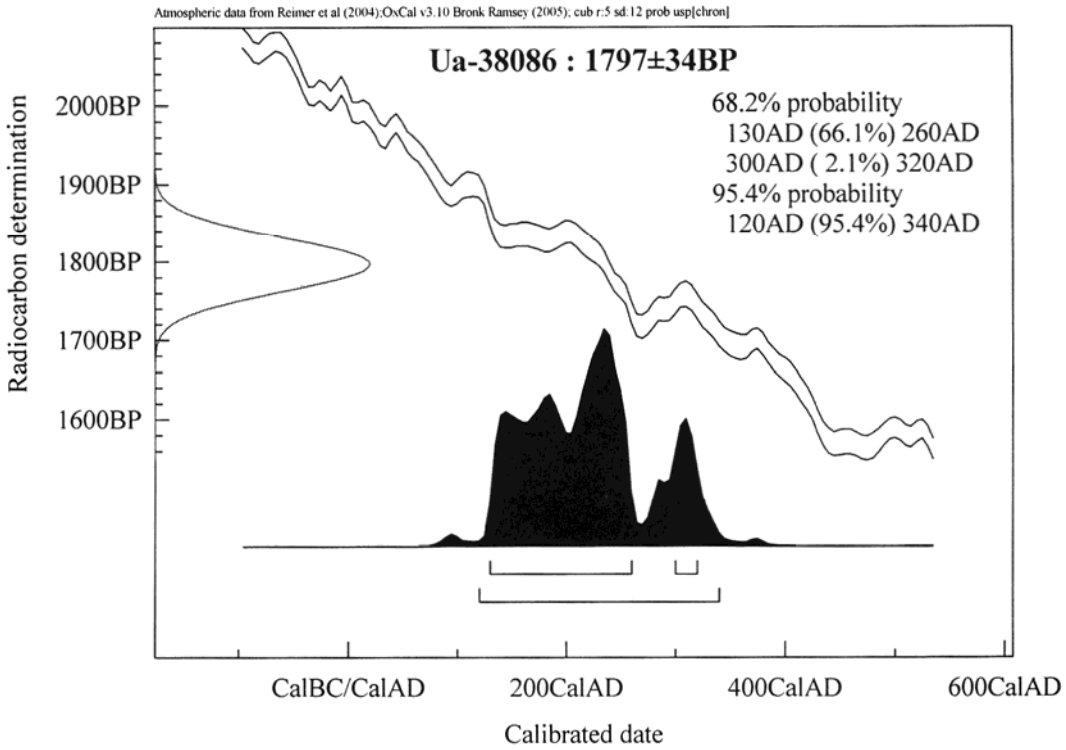

Figure 234: The ^{14}C dating: calibrated results for sample Ua-38086

Discussion

Stratigraphically and ceramically the Roman archaeology on Vine Street appears to suggest urban decline from the mid- 4th century AD onwards with no evidence of continuity into the early post-Roman period (5th century and later). However, it is difficult to produce precise dating from late Roman ceramics and although it is widely accepted that pottery production ceased at the end of Roman Britain, *c.*400 AD, questions are increasingly being raised as to whether this production actually continued into the early 5th century (Faulkner and Reece 2002: 59-76). If so, the ceramically influenced phasing for Vine Street, and other Leicester sites, could be understated. This is, to some extent, also supported by the coinage recovered from deposits across the insula, with denominations present dating as late as the 380s-400 AD. Although these were largely recovered from non-Roman contexts or were unstratified they do indicate the circulation of coins during the late Roman period and could plausibly indicate continued activity into the early 5th century.

With this in mind, the initial intention of the ^{14}C dating was to attempt to ascertain how late Roman occupation of Insula V continued. In this regard, the two targeted areas are each believed to represent a key final moment in the life of the Insula's most striking building, the large urban courtyard house, Building G – no deposits suitable for this process being recovered from the other late Roman buildings in the insula.

The first target was the carbonised hammerscale deposit (G1006 – Phase 4.6; Ua-38084) excavated from the floor of Room 6 within Building G, and believed to represent the room's finally use as a smithy before the building's eventual abandonment. The ^{14}C dating produced a result of 1682±36BP which on calibration suggests a 95.4% probability that the material was burnt sometime between 250-430AD, with a 63.7% probability that it was more precisely between 330-420AD (Figure 232). This supports the ceramically dated stratigraphic sequence within this room, identified as most likely being mid- 4th century. However, the fact that a more precise date can only be refined to a 90 year period remains too broad and the possibility of activity continuing into the 5th century cannot be discounted.

The second target was the carbonised deposit (G725 – Phase 4.6; Ua-38085) excavated from the floor of Stoke-Room 32 within Building G, and believed to represent the final rake-out from the flue heating the hypocaust system beneath Room 31 – an event which appeared to immediately pre-date the room's demolition. The ^{14}C dating produced a result of 1733±36BP which on calibration suggests a 95.4% probability that the material was burnt sometime between 230-410AD, with a 66% probability that it was more precisely between 250-350AD and a 2.2% probability that it was between 370-380AD (Figure 233). This again broadly supports the ceramically dated stratigraphic sequence of events which placed this activity during the mid- 4th century, but does suggest final use of this room may have occurred earlier than the smithying activity in Room 6 to the south. Although the date ranges are broad, they do indicate that it is likely that the final firing of the flue probably occurred no later than the mid- 4th century.

The third and final target was the carbonised deposit (G726 – Phase 4.6; Ua-38086) excavated from within the flue situated between Stoke-Room 32 and the hypocaust beneath Room 31 within Building G. This was believed to represent the in-situ hearth remains of the final firing of the flue. The ^{14}C dating produced a result of 1797±34BP which on calibration suggests a 95.4% probability that the material was burnt sometime between 120-340AD, with a 66.1% probability that it was more precisely between 130-260AD and a 2.1% probability that it was between 300-320AD (Figure 234). This is the only result which fails to support the ceramically dated stratigraphic sequence, suggesting the sample was significantly older than the deposit's supposed mid- 4th-century date. It also fails to correspond with the previous sample, Ua-38085, from essentially the same deposit and, considering the corpus of alternate available datable evidence all suggesting a mid- 4th century date, it likely represents contamination of the deposit. Two possible suggestions arise as to why this date is apparently anomalous. First, the sample could represent residual burnt material from a previous, much earlier firing of the flue. However, this seems unlikely. Both the flue and the stoke-room both appeared to be regularly cleaned and well-maintained prior to their final use therefore the survival of a carbonised fragment within the flue itself seems improbable, particularly when the refined date of 130-260AD suggest it was burnt either prior or immediately after the room's construction during the early to mid- 3rd century. More likely is that the flue deposit became contaminated by residual material disturbed or redeposited during the demolition of the north wing, including the stoke-room. This probability is particularly apparent within the archaeological record which revealed that rubble from the room's demolition directly capped these final burnt deposits.

Overall, these results failed to produce significant new information, and the question as to whether Roman activity within the insula continued into the traditional post-Roman period of the 5th century onwards still remains broadly unanswered. They do, however, corroborate the proposed dating of the stratigraphic sequence across the site, derived largely from ceramic and coin evidence, indicating that the existing chronological sequence is fundamentally correct.

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Abbreviations

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BAR	British Archaeological Report
CBA	Council for British Archaeology
CTS	County Type Series
EH	English Heritage
HMSO	Her Majesty's Stationery Office
LAHS	Leicestershire Archaeological and Historical Society
MOLAS	Museum of London Archaeological Service
MPRG	Medieval Pottery Research Group
PRS	Palaeoecology Research Services
RRCSAL	Report of the Research Committee Society of Antiquaries of London
TLAHS	Transactions of the Leicestershire Archaeological and Historical Society
ULAS	University of Leicester Archaeological Services

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Cover: A Romano-Egyptian ivory box panel depicting the god Anubis found at Vine Street.

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