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Urban Life in Leicester:

An Archaeological Excavation at Freeschool Lane

Vol.2 Specialist Reports

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Freeschool Lane

Vol 2: Specialist reports

Jennifer Browning, John Carrot, Hilary Cool, Nicholas J. Cooper, John Crowther, John Davies, Alice Forward, David Higgins, Elizabeth Johnson, Richard Macphail, Phil Mills, Angela Monckton, Graham Morgan, Anita Radini, and Deborah Sawday

Illustrations by David Hopkins

Edited by Richard Buckley and Nicholas J. Cooper

For: Hammerson UK Properties

Approved by

Signed: .R. J. Buckley **Date**: 10.12.2009

Name: R. J. Buckley

University of Leicester

Archaeological Services

University Rd., Leicester, LE1 7RH

Tel: (0116) 2522848 Fax: (0116) 2522614

www.le.ac.uk/ulas

ULAS Report Number 2009-140 Vol 2

A8.2005

CONTENTS

FIGURES

TABLES

THE ROMAN POTTERY *Elizabeth Johnson*

Introduction: Assemblage Size and Condition

A detailed report on the samian ware below by Robert Hopkins is followed by an overview of the pottery assemblage as a whole followed by consideration of the significant stratified groups. The stratified assemblage of Romano-British pottery comprises a total of 3657 sherds weighing 56.093kg. The material is reasonably well preserved with an average sherd weight of 15.3g.

The Samian Ware *Robert Hopkins*

The Decorated Samian Ware

Abbreviation:

O. = Oswald 1936-1937

A8.2005 (21) (Figure 1.1)

(a) SG Dr 37. An ovolo frieze with a rosette tip, over a horizontal wavy line. Flavian.

(b) CG Dr 37. Fragment of ovolo. Hadrianic - early Antonine.

A8.2005 (1007) (Figure 1.2)

(a) SG Dr 37. Four non-joining sherds, possibly the same bowl as (1310), with horizontal zones divided by wavy lines. At the top, the lower part of an ovolo frieze; the middle zone has a bush motif (Hermet 1979 Pl.68, 8 and 9) and a Griffin (O.880). The lower zone has a chevron wreath. The style is one that can be found in the Pompeii Hoard (Dzwiza 2004 Abb. 57) and the Cala Culip IV shipwreck (Nieto and Puig 2001 No:475). Flavian.

(b) SG Dr 37. Part of a three bordered ovolo, a similar ovolo appears on a Dr 37 from La Graufesenque (Samian Research No:2001873). Flavian-Trajanic.

A8.2005 (1033) (Figure 1.3)

CG Dr 37. An ovolo frieze (Rogers 1974 B143) over a panelled scheme bounded by bead rows; a ring rests below the junction of the vertical and uppermost horizontal border. The ovolo was used by Cinnamus and his associates; the ring below the border junction would suggest a product of the Cinnamus workshop. *c.* AD 140-160+.

A8.2005 (1154) (Figure 1.4)

SG Dechelette 67. The upper part of a scroll decoration below the waist moulding. The tip of a leaf and tendril loop are extant in the depressed lobe; above, the vestige of a horizontal bead row. Flavian.

A8.2005 (1191) (Figure 1.5)

SG Dr 29, with a hole drilled for a repair. Same vessel as (1427). cf. (1427) for a discussion. Neronian-early Flavian.

A8.2005 (1268) (Figure 1.6)

SG Dechelette 67 or Knorr 78. A body sherd with a series of vertical wavy lines (cf. Nieto and Puig 2001 No:688). Flavian.

A8.2005 (1271) (Figure 1.7)

SG Knorr 78. 2 non-joining sherds with a winding scroll decoration; the depressed lobe contains heart-shaped leaves, the raised lobe has the tail of a small left facing bird. Flavian.

A8.2005 (1309) (Figure 1.8)

CG Dr 37. A pair of double bordered festoons, with a roped outer border over a horizontal wavy line. Between the festoons, and to the left are pendant beaded tassels. Within each festoon, an animal head. The style is that of X-13/X-14 (cf. Stanfield and Simpson 1958 Pl.47, 551). AD 120-140.

A8.2005 (1310) (Figure 1.9)

SG Dr 37. Possibly the same bowl as (1007) with an upper zone containing a chevron wreath over a horizontal wavy line. The lower zone has a large stirrup leaf. Flavian.

A8.2005 (1356) (Figure 1.10)

SG Dr 29. An upper zone containing 2 panels divided by a vertical beaded border with a rosette capital. The left hand panel has an infilling of small, elongated arrowheads with 4 rows of diagonal (?)wavy lines in the upper right hand corner. In the right hand panel, the wings of a kneeling cupid (O.501). A Dr 29 stamped by Virthus has a similar panel scheme, with near identical arrowheads in an adjacent panel to the cupid (Nieto and Puig 2001 No:165). Early Flavian.

A8.2005 (1366) (Figure 1.11)

SG Dechelette 67. The bottom of the decorative scheme containing a tendril of a winding scroll. Flavian.

A8.2005 (1399) (Figure 1.12)

SG Dr 37. A vertical wavy line dividing 2 panels, possibly containing a pair of saltires, as wavy line diagonals are visible on both. The panel on the right has a tendril loop in the left hand triangle. Flavian.

A8.2005 (1427) (Figure 1.13)

SG Dr 29. Three joining sherds, from the same bowl as (1191); a hole has been drilled for a repair. A lower zone divided by a horizontal wavy line; the upper register contains a wreath of palm leaves. The bottom zone has a series of chevron wreath festoons containing a family of hares (O.2025 and (?)O.2065). At either end of the festoons, descending tendrils end in feathered leaves; small rosettes are interspersed within the design. This type of festoon design is reminiscent of mouldmakers working in the Germanus workshop (Dannell *et al* 2003, No:0480), although this bowl is not by them. Neronian-early Flavian.

A8.2005 (2051) (Figure 1.14)

MDV Dr 37, from a worn mould. A panel scheme with very fine beaded borders, the bottom horizontal border is made of slightly larger beads. The panels from the left are as follows: left, a saltire with fine beaded diagonals, with a (?)rosette mask on the bottom right corner. The right triangle has a trifid leaf (Rogers 1974 G89) and a small ring; the lower triangle has the ring and the vestige of a leaf tip ((?)*ibid*). The lower right hand panel has a saltire with fine beaded diagonals, the two extant panels have a single biffid leaf (Rogers 1974 (?)G283) in each (cf. Stanfield and Simpson 1958 Pl.42, 486 and Pl.43, 491 for similar saltires). Worth noting is a bowl from Les Martres de Veyre, although not identical, has various elements in common with this sherd (Terrisse 1968 Pl.XXXVI, 1002). The design has connections with Ioenalis and X-13, who both worked at Les Martres de Veyre, and X-14 from Lezoux. *c.* AD 100-120.

A8.2005 (3004) (Figure 1.15)

MDV Dr 37. A frieze of large rosettes (A large version of Rogers 1974 C63) used as an ovolo replacement. The rosettes are only recorded for X-13 (cf. Terrisse 1968 Pl.XXIX, 227). *c.* AD 100-120.

A8.2005 (3015) (Figure 1.16)

MDV Dr 37. A narrow panel with vertical wavy lines on either side. The panel contains a pair of rosettes (Rogers 1974 C291), which was used at Les Martres de Veyre by X-8, X-9 and X-10. The rosettes in a narrow vertical panel as here occur on bowls attributed to X-9 from London and Corbridge (Stanfield and Simpson 1958 Pl.29, 344 and 349). *c.* AD 115-135.

A8.2005 (3024) (Figure 1.17)

SG Dr 37. A fragmentary ovolo frieze, with a trifid tongue, over a horizontal line; the main decoration has a row of upright striated motifs, with elongated (?)leaves placed horizontally above. Flavian-Trajanic.

A8.2005 (3069) (Figure 1.18)

CG Dr 37. A body sherd, with a vertical panel division; in the left hand panel, the forearm and hand of a figure. In the right hand panel, the vestige of a poinçon ((?)O.711). Antonine.

A8.2005 (3167) (Figure 1.19)

CG Dr 37. A panel containing part of a double bordered medallion with an arrowhead (Rogers 1974 U104) to the right. At the far right, a vertical bead row panel division. The arrowhead motif is one which appears on bowls stamped in the mould by Advocisus (Stanfield and Simpson 1958 Pl.112, 13), and on one bowl in Advocisus' style stamped below the decoration by Divixtus (*ibid* Pl.115, 6). *c.* AD 160-190.

A8.2005 (3498) (Figure 2.20)

CG Dr 37. An ovolo frieze (Rogers 1974 B98) over a coarse horizontal wavy line; below, a trophy (a much reduced *ibid* T32). The ovolo appears to be used exclusively by Sissus I. *c.* AD 125-150.

A8.2005 (3541) (Figure 2.21)

CG Dr 37, two non-joining sherds. One sherd has an ovolo frieze which has been smeared by the bowl finisher, although the tip of the tongue has a tassel which would suggest that it's one of Cinnamus' (Rogers 1974 B144). Below, a horizontal bead row over a single bordered medallion; within, a leaf (*ibid* H101) and possibly the head of an unidentified figure. The second sherd has the bottom right part of the medallion, within is the tail of a sphinx (O.857). To the right of the medallion, a rosette (Rogers 1974 C53); below, possibly the back of a boar. All the elements were used by Cinnamus. *c.* AD 135-145/50.

A8.2005 (3548) (Figure 2.22)

CG Dr 37, heavily burnt. On the left, a small vine scroll (Rogers 1974 M33), on the right, Jupiter (O.1). Both were used by members of the Quintilianus group. *c.* AD 125-150.

A8.2005 (3663) (Figure 2.23)

SG Dr 37, three joining sherds. The ovolo frieze has a solid rosette tip, over a horizontal wavy line, below, a quadrefoil leaf wreath over a horizontal wavy line. Underneath, pair of small roped festoons tied at the top by a horizontal bar from which suspends a striated motif. The ovolo is one normally found on Dr 30's, and associated with Sabinus I (Mees 1995 Taf.168, 3); a Dr 37 from Alchester has the ovolo and wreath, and the signature of Pontus (Samian Research No:2000005), the paired festoons have not been recorded for this ovolo. Flavian.

A8.2005 (3790) (Figure 2.24)

(a) SG Dr 29. Two joining sherds. The lower zone with a winding scroll; the depressed lobe contains tendrils ending in a large leaf (Nieto and Puig 2001 Ca.77) and a small tulip leaf. The raised lobe has a composite plant motif of opposed vertical quadrefoil leaves (*ibid* Ec.12)

with a rosette at the centre. On either side, tendrils emanate from the rosette and end in small buds (*ibid* Cc.67). The composite column and the large leaf in a winding scroll can be found on bowls from the Cala Culip IV shipwreck (cf. *ibid* No:357 and No:199 respectively). Early Flavian.

(b) SG Dr 37. An ovolo frieze with a trifid tongue over a horizontal wavy line; below, a dog to the right (?O.1927). The ovolo is found on a stamped bowl of Severus iii (Mees 1995 Taf.191,7); the dog may be the same one as on a bowl with this ovolo from La Graufesenque (Samian Reserch No:2003292). *c.* AD 70/75-90.

(c) CG Dr 37. An ovolo frieze (Rogers 1974 B108) over a panel scheme demarcated by rectangular beads, a rosette (*ibid* C214) sits on the extant vertical just below the junction with the upper horizontal row. The left hand panel contains a small double bordered medallion, with an astragal (*ibid* R18) in the top right corner. The right hand panel has a beaded diagonal, top left to bottom right; the left hand triangle has a rosette (*ibid* C214) and part of an unidentified poinçon. The top triangle has what may be a small bird (O.2298). Rogers did not record Butrio as using the ovolo, however a comparison of Butrio ovolos in the Hartley-Dickinson archive at Leeds University has matched a stamped Dr 30 from Jort (Musée des Beaux- Arts, Caen) with ours. The beads are consistent with Butrio's bowls. *c.* AD 115-145.

A8.2005 (3805) (Figure 2.25)

SG Dr 29. Lower zone with the raised lobe of a winding scroll containing a biffid leaf (Hermet 1979 Pl.14, 81). Early Flavian

A8.2005 (3893) (Figure 2.26)

CG Dr 37. An abraded sherd. An ovolo frieze (Rogers 1974 (?)B153) over a panelled scheme bounded by roped borders, with a small blob at the extant junction of the vertical and horizontal. The ovolo may be one used by Iullinus, Servus IV and Severus, all of whom used roped borders. *c.* AD 160-190.

A8.2005 (5435) (Figure 2.27)

MDV Dr 37. Ovolo frieze (Rogers 1974 B14), with the vestige of a horizontal border below. The ovolo was used by X-13 at Les Martres de Veyre and by Sacer at Lezoux. *c.* AD 110-120.

A8.2005 (5445) (Figure 2.28)

SG Dr 37. Small fragment with two small leaves (Hermet 1979 Pl.13 A31). Flavian-Trajanic.

A8.2005 (5515) (Figure 2.29)

CG, possibly from Les Martres de Veyre, Dechelette 68. Slightly overfired. The very bottom of the decorated scheme whith the legs of a pygmi (O.691).over a horizontal bead row border. Hadrianic-early Antonine.

A8.2005 (5558) (Figure 2.30)

SG Dr 37. From a worn mould. An ovolo frieze with the tongue ending in a ring. Flavian-Trajanic.

A8.2005 (5575) (Figure 2.31)

CG Dr 37. Trimmed into a circular counter. An ovolo frieze (Rogers 1974 B143) over a horizontal bead row. The ovolo was used by Cinnamus and several of his associates. *c.* AD 140-170.

A8.2005 (5812) (Figure 2.32)

(a) SG Dr 29. The raised lobe of a winding scroll decoration, with a Cupid (O.502) with grass tufts behind. Early Flavian.

(b) SG Dr 37. Part of an ovolo. Flavian-Trajanic.

A8.2005 (5838) (Figure 3.33)

(a) SG Dr 29. The lower zone divided into horizontal bands separated by wavy lines. The upper band has a row of vertical 'palisades'; middle, a series of serrated festoons tied by horizontal astragali, with pendant pomegranate heads suspended on stalks. In the left hand festoon, a goose (apparently not in O.), the festoon on the right contains a large rosette (Hermet 1979 Pl.15, 61). The bottom register has a row of rosettes. The style is that of a mouldmaker supplying the workshops of Meddillus, Niger, and Bassus and Coelus. Dr 29's stamped by Meddillus from Camelon and La Graufesenque (Dannell *et al* No:2318 and 2362) have identical upper and middle registers. A Niger Dr 29 from Bonn (*ibid* No:0579) has the palisades and festoons, although the festoons only contain large rosettes. A similar scheme occurs on an unprovenanced bowl by Coelus ii (*ibid* No:0342), where the festoons have alternating hares. A Bassus-Coelus Dr 29 from Moulins (*ibid* No:0163) has alternating geese. No parallel has yet been found for the row of rosettes. *c.* AD 50-70

(b) CG Dr 37. A Leaf (Rogers 1974 J1) used by various potters during the 2nd century; the colour of the slip suggests a Hadrianic-early Antonine date.

A8.2005 (5962) (Figure 3.34)

SG Dr 37. The centre of a saltire, with a rosette and a tendril. Flavian.

A8.2005 (6090) (Figure 3.35)

Lezoux Dr 37. The lower part of a double bordered medallion containing the legs of a warrior (O.177). To the bottom left of the medallion, a horizontal spindle (Rogers 1974 ?Q58). Both poiņcons were used by Albucius. *c.* AD 140-170.

A8.2005 (6142) (Figure 3.36)

(a) SG Dr 29. A lower zone with a chevron wreathed medallion containing a goose (O.2312), and an unidentified poinçon which has been smoothed prior to applying the slip. A goose within a medallion occurs on a Dr 29 stamped by Macer from Köln (Dannell *et al* No:2267); a similar medallion occurs on a Dr 29 stamped by Martialis i from Strasbourg (*ibid* No:2306). Neronian-early Flavian.

(b) SG Dr 37. The basal ridge with the vestige of an eroded poinçon above. Flavian-Trajanic.

A8.2005 (6209) (Figure 3.37)

(a) CG Dr 37. The very bottom of the decoration, with the vestige of an unidentified poinçon. Hadrianic-early Antonine.

(b) CG Dr 37. The legs of a Pan (O.721) with faint leaf tips below (Rogers 1974 (?)J146). The Pan was used by Albucius, and the use of leaf tips as fillers was also used by him. *c.* AD 145-175.

A8.2005 (6236) (Figure 3.38)

CG Dr 37. An ovolo frieze (Rogers 1974 B36) over a horizontal bead row border. Below, a vine scroll (*ibid* M2), and part of a small rosette (*ibid* C278). All the poinçons were used by Drusus II, the ovolo appears to be exclusive to him. *c.* AD 130-150.

A8.2005 (6349) (Figure 3.39)

MDV Dr 37. Joins (6448), and the same vessel as (6454). cf. (6454) for a discussion. Drusus I/X-3. *c.* AD 100-120.

A8.2005 (6433) (Figure 3.40)

SG Dr 37. An ovolo frieze with trident tongues over a horizontal wavy line with a (?)small bird below. Flavian-Trajanic.

A8.2005 (6448) (Figure 3.41)

(a) MDV Dr 37. Three joining sherds, and one non-joining sherd which joins (6349); same vessel as (6454). cf. (6454) for a discussion. Drusus I/X-3. *c.* AD 100-120.

(b) CG Dr 37. An ovolo frieze (Rogers 1974 B102) over a horizontal bead row; below, a double bordered festoon with horizontal astragali at either end. The ovolo was used by Advocisus, Priscus/Clemens and P-19. Advocisus and Priscus/Clemens both used double bordered festoons with horizontal astragali. *c.* AD 160-200.

A8.2005 (6454) (Figure 3.42)

(a) SG Dr 30. Two joining sherds. An ovolo frieze over a horizontal wavy line. The ovolo has so far only been recorded on 5 other vessels: from Ilchester, Carlisle, London, Ribchester and Périgeux, all of them Dr 37's (Samian Research Nos: 2001317, 2001314, 2001315, 2001316 and 2003095). Flavian-Trajanic.

(b) MDV Dr 37. A total of 10 sherds from the same vessel, 5 from (6454), 1 from (6349) and 4 from (6448). A panel scheme demarcated by bead rows, with small horizontal astragali (not in Rogers 1974 or 1999) on the junctions of the verticals and the horizontal bead row above the basal wreath of 'anchor' motifs (Rogers 1974 G395). A further horizontal row of beads lie below the wreath. The scheme appears to be large panels divided by narrow vertical panels containing wreaths of 'anchors' (*ibid*). The identifiable poincons are: satyr or faun (O.591), spiral (Rogers 1974 S63), cup (*ibid* Q91), column (*ibid* P85), rosette (*ibid* C80), altar (*ibid* Q75). The style is that of Drusus I/X-3, and all the poiņcons were used by him. *c.* AD 100-120

(c) CG Dr 37. Four sherds, 3 joining. A panel scheme bounded by vertical bead rows. The panels from the left are as follows: (a) hare to the left (O.2116); (b) nude man (O.638); (c) upper, a single bordered festoon; lower, a row of 3 heart-shaped leaves (Rogers 1974 J56)on composite stalks ending in diamonds (*ibid* U36). (d) a satyr or faun (O.599) on a pedestal (not in Rogers 1974 and 1999 but cf. Stanfield and Simpson 1958 Pl.137, 55); (e) a trophy (Rogers 1974 K3) over a hare (O.2116). The single sherd has a repeat of panels (b) and (c). The style is that of Casurius, and all the identified poiņcons were used by him. *c.* AD 155-190.

A8.2005 (6465) (Figure 4.43)

(a) SG Dr 37. A cupid (O.435) within a triple bordered medallion; to the left, a pair of tendrils, one ending in a heart-shaped leaf. The style is that of Flavian Flavian mouldmakers supplying potters such as Vitalis ii (Dannell *et al* No:3167) and the Cala Culip IV shipwreck (Nieto and Puig 2001 e.g. Nos: 609-612). Flavian.

(b) MDV Dr 37. An ovolo frieze (Rogers 1974 B185) over a horizontal bead row. Below, a winding scroll or medallion containing a vine scroll (*ibid* M2). The ovolo was used exclusively by potter X-12, and he also used the vine scroll. *c.* AD 100-120.

A8.2005 (6489) (Figure 4.44)

SG Dr 29. Seventeen sherds, probably all from the same vessel. Only the vestige of the upper zone survives; the lower zone appears to be divided into panels separated by vertical wavy lines. Three types of panel are distinguishable, (a) a medallion bisected by a horizontal wavy lines with rosette terminals. In the upper segment, a boar (O.1690), the lower segment contains 3 rows of arrowheads; to the bottom left of the medallion, a vertical striated motif. (b) A saltire with the following motifs, a tulip leaf, a quadrefoil leaf (Hermet 1979 Pl.14, 81), and a striated motif. (c) A panel of vertical arrowheads. The remaining sherds have fragmentary poiņcons or rosettes. Halved medallions as here, were principally used by Neronian mouldmakers, examples can be found for Meddillus and Primus iii (Dannell *et al* Nos: 0706 and 2814). Neronian.

A8.2005 (6537) (Figure 4.45)

CG Dr 37. Heavily burnt. An ovolo frieze (Rogers 1974 ?B7) used by a number of potters in the early 2nd century, over a horizontal bead row. Mica in the fabric would point at an origin at Lezoux, which would suggest either Attianus or Sacer as its maker. *c.* AD 120-145.

A8.2005 (6542) (Figure 4.46)

CG Dr 37. A burnt and abraded sherd. An ovolo frieze (probably Rogers 1974 B105) over a horizontal bead row; below, what may be part of a festoon. Antonine.

A8.2005 (7029) (Figure 4.47)

SG Dr 37. The basal ridge below a rosette. Flavian-Trajanic.

A8.2005 (7143) (Figure 4.48)

Lezoux Dr 37. The bottom part of the decoration, with a vine to the right and a bunch of grapes in the centre. To the left, an unidentified figure with his left leg raised and flexed at the knee. It's possible that the bowl is connected to X-13 (cf. Stanfield and Simpson 1958 Pl.46, 545); the fabric and slip would suggest a Hadrianic-early Antonine date.

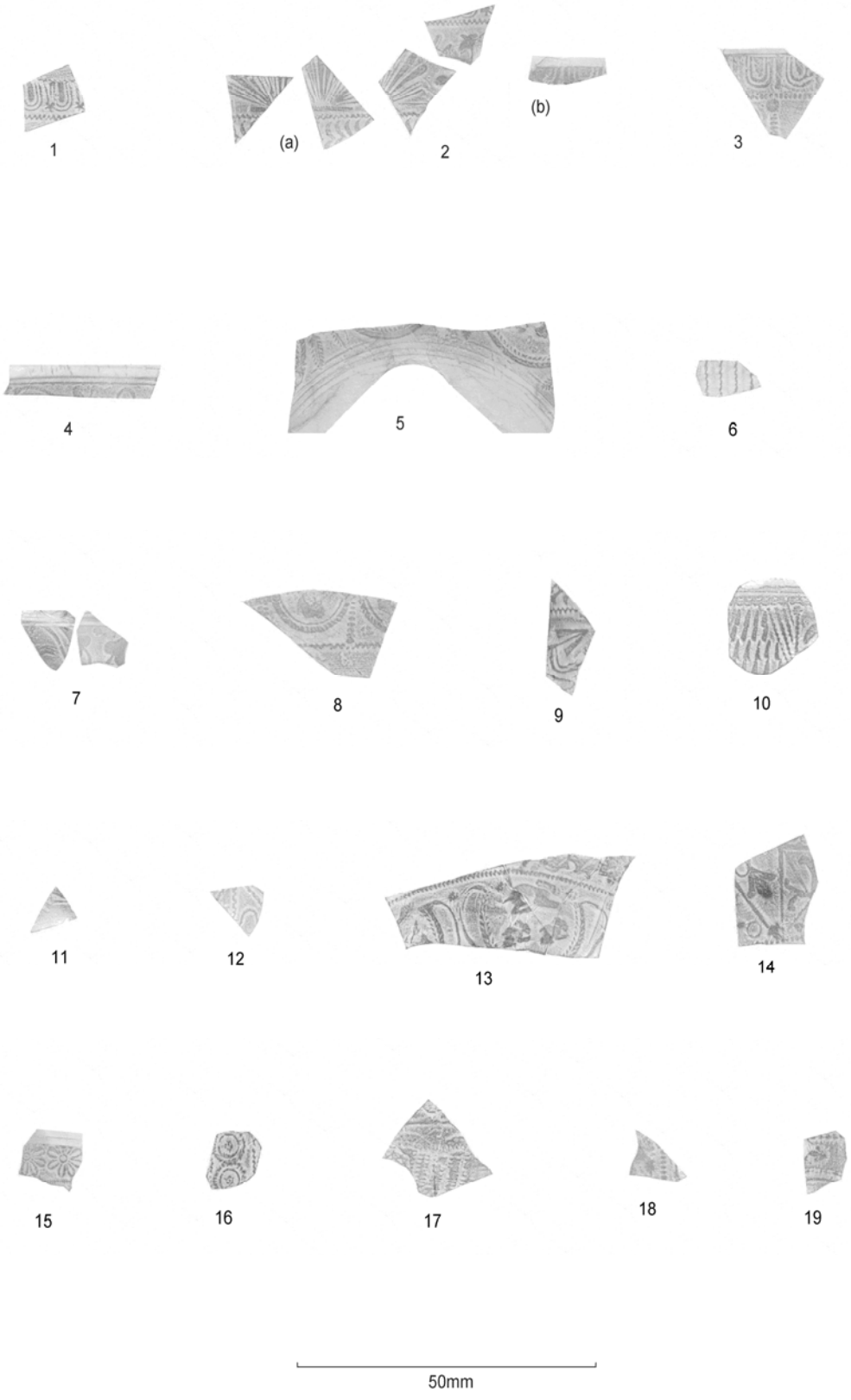


Figure 1 The decorated Samian ware: 1-19

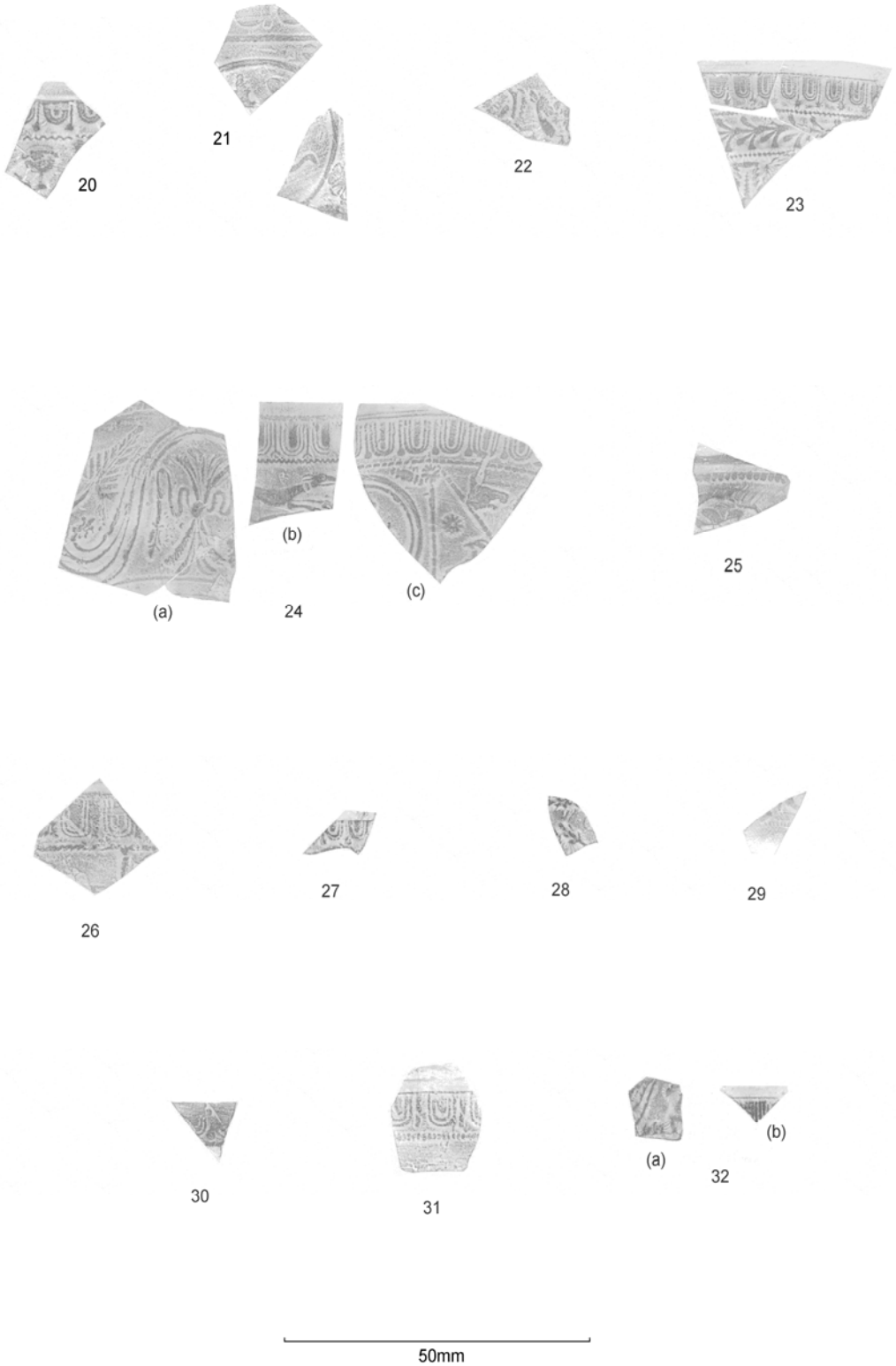


Figure 2 The decorated Samian ware: 20-32

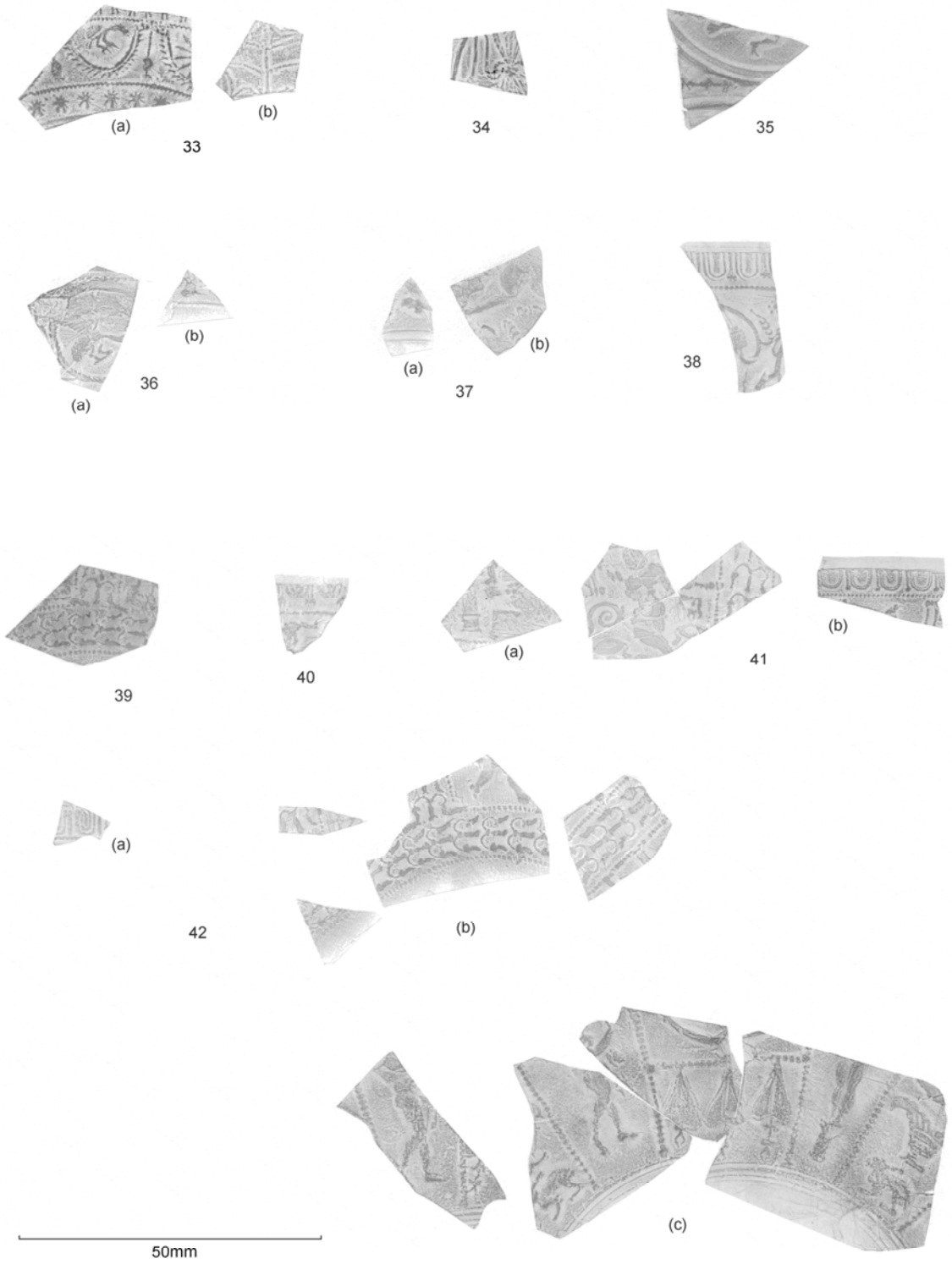


Figure 3 The decorated Samian ware: 32-41

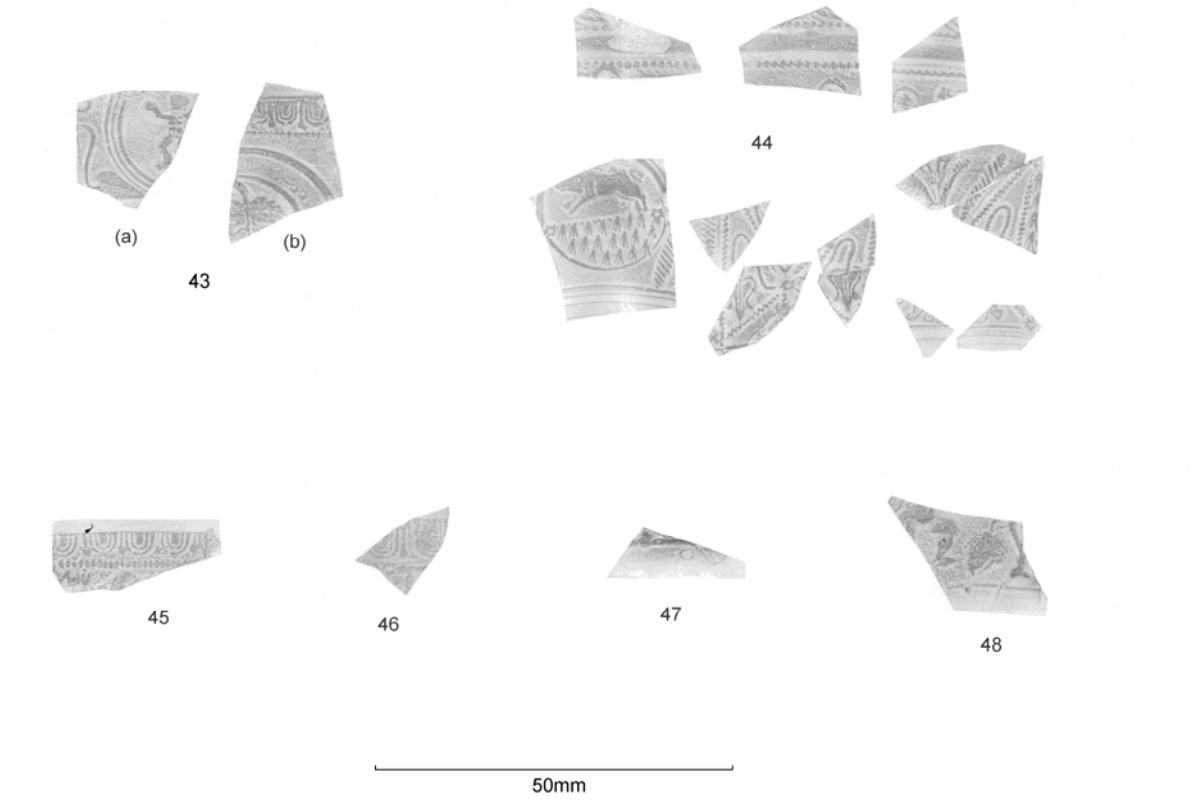


Figure 4 The decorated Samian ware: 43-48

The Samian Potters' Stamps

A8.2005 (401)

CG bowl or dish. Rosette stamp joins (5114). Hadrianic-early Antonine (Not Illustrated)

A8.2005 (1007) (Figure 5.1)

(?)East Gaulish (?)Dr 42, with a matt orange slip, possibly underfired; two joining sherds. Unidentified CI/\[ ]\SF the first two letters could be an 'S' and 'L'. Late 2nd-early 3rd century.

A8.2005 (1356) (Figure 5.2)

CG Dr 18/31R. Unidentified. Stamped [ ]VCV[ ]FEC. Hadrianic-early Antonine.

A8.2005 (5114) (Figure 5.3)

CG bowl or dish. Rosette stamp joins (401). Hadrianic-early Antonine.

A8.2005 (5206) (Figure 5.4)

CG. Dr 33. Unidentified. Stamped VERTEC[Hadrianic-Antonine.

A8.2005 (5755) (Figure 5.5)

CG Dr 31 Stamped R[Late Antonine.

A8.2005 (5962) (Figure 5.6)

SG dish or platter. L.C- Celsus of Le Rozier die 2a' stamped CEL.SI.OF. Only one other L.C-Celsus stamp from Leicester is known, a Dr 18 (624.1962.M; die 13a); Oswald records a Dr 31 from Leicester, however the reading of the potter or the form is incorrect (Hartley and Dickinson 2008 p.137-142). *c.* AD 50-75.

A8.2005 (6076) (Figure 5.7)

Lezoux dish or bowl. Probably Sollemnis (cf. Dickinson and Hartley 2000 Fig.941) SOIII[ ]IM Hadrianic-Antonine.

A8.2005 /1064\ /668 (Figure 5.8)

SG platter, possibly a rouletted form. Crestio die 5a stamped OF▪CRESTIO.c. AD 55-70.

A8.2005 (1191) (Figure 5.9)

SG Dr 24/25. Tip of a stamp, possibly a ‘’B’’, unidentified. Neronian. (Not illustrated)

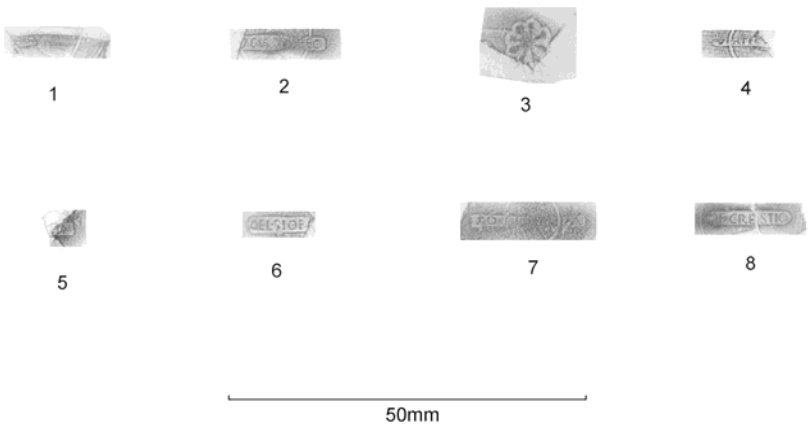


Figure 5 The Samian potter's stamps: 1-8

Discussion

The samian from Freeschool Lane suggests that occupation began in the Neronian period, increased during the last quarter of the 1st century and continued uninterrupted up to the end of the 2nd century, and possibly into the early 3rd century, at which point the importation of Samian to the site declines.

The supply of 1st century samian was predominantly from La Graufesenque in Southern Gaul, with one sherd from the nearby kiln site of Le Rozier, stamped by L.C- Celsus. Several sherds of 1st century Lezoux vessels are also present. The 2nd century samian is mainly from Les Martres-de-Veyre and Lezoux in Central Gaul, and worthy of note is the higher than usual proportion of post- AD 120 Les Martres products. East Gaulish samian is present and suggests that the supply of samian to the site extended into the 3rd century.

The range of plain ware forms in the 1st century is unsurprising; with the exception of a Dr 24/25, there are no forms exclusive to the Neronian period. The decorated forms include several Dech. 67's, a small enclosed jar, and several cups, Knorr 78's. Indeed the number of both 67's and 78's is slightly higher than one would normally expect. Of note is a possible handled Dr 37 of Flavian date (context (1177), and extremely unusual in Britain.

The 2nd century forms are pretty conservative, there are the Dr 18/31-31 series and their rouletted equivalents. A small Central Gaulish sherd from an enclosed vessel from context (6448) Sfno. 23, could be a goblet, bottle or flagon (*cf*. Bet and Delor 2000, 482-3). The late Antonine forms are mainly Dr 31 and Dr 31R's, large bowls including the mortarium Dr 45, and the cup Dr 33; dishes, e.g. Walters 79 and a possible Dr 42, are represented by single examples.

There appears to be a higher than expected ratio of decorated Les Martres-de-Veyre vessels *c.* AD 100-120 to those of the Hadrianic-Antonine period. Similarly the ratio of Trajanic Les Martres to Hadrianic-early Antonine Les Martres is almost 1:1, which suggests that the merchants trading in post-Trajanic Les Martres had a strong link with Leicester.

Given the small number of late 2nd century sherds, the volume of East Gaulish samian from Freeschool Lane is not as high as one would expect from an excavation within a major Roman town, and this echoes the previous observation of the dearth of Eastern Gaulish samian across Leicester which may be due to the distance of the town from the ports of entry (Dickinson 1999, 104).

One sherd, a CG Dr 37 had been trimmed, possibly in an attempt to make a circular counter (5575). Table 1 shows the three vessels which were identified as having cross-context joins.

Three showed signs of burning (Table 2). Several sherds, contexts (1247) and (3469) had burnt stripes on the outer surface as if they had been in contact with carbonising organic matter. Similar burning stripes have been noted on numerous samian vessels from the burnt pottery shop from the Bavay Forum (*pers. obs*. 2008) which are probably caused by burnt straw packing. Two vessels had been drilled to take lead staples or cleats (Table 3). None of the samian had *post-cocturum* graffito, however a sherd from a South Gaulish platter has the faint traces of incision which could be read as the cursive letter 'M', although this could just as easily be an accidental mark made by the potter prior to finishing and dipping in slip (context (1077)).

Identifications have been made through the published stamps in samian literature, including the first two volumes of the corpus of samian stamps (Hartley and Dickinson 2008). A total of 10 stamps came from Freeschool Lane. Two potters have been positively identified, the first, L. C- Celsus who worked at Le Rozier, a satellite kiln site of La Graufesenque has been

previously recorded at Leicester. The 2nd is Crestio, a Neronian potter from La Graufesenque, also recorded at Leicester. The identification of the other eight is provisional only.

Acknowledgements

I would like to thank Mrs J. Bird for reading and commenting on the report.

Table 1 The samian ware: conjoining sherds

Source	Form	Context	Context	Context
CG	Bowl or Dish	401	5114	
SG	29	1191	1427	
LMDV	37	6349	6448	6454

Table 2 The samian ware: burnt sherds

Context	Source	Form
206	CG	18/31
1247	CG	38?
1299	CG?	31R
1386	SG	18
3469	CG	Bowl
3548	CG	37
3870	Lezoux	Dish
5006	CG	30?
5123	SG	Platter
5526	SG	18?
5666	MdV	33
5755	CG	31
5962	SG	Dish
5990	CG	18/31
5990	CG	33
6374	Lezoux	18/31

Table 3 The samian ware: repaired sherds

Context	Source	Form
1191	SG	29
6454	Lezoux	37

The Other Roman Pottery *Elizabeth Johnson*

Methodology

The pottery from contexts associated with Roman phases of activity was separated from that found within later deposits, producing an assemblage of 1708 sherds weighing 26.045kg 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 4 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	Terra Nigra
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 ware
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. Throughout the report the charts used to illustrate proportions of fabrics present are based on sherd count rather than EVEs, as the EVEs values are generally very low. However, tables containing the whole range of quantified data are also included to allow for further comparison using EVEs if so desired. 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; Webster 1996; Clark 1999). The complete dataset was recorded and within an Access database and Excel workbook, which comprise the archive records.

Summary of Major Pottery Fabrics within the Assemblage

The table and chart below detail a summary of the major pottery fabrics found in the recorded assemblage.

Table 5 Roman pottery: major fabric groups present within the assemblage.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	22	1.3%	0.30	1.3%	1249	4.8%	56.8
BB1	105	6.1%	1.68	7.1%	1009	3.9%	9.6
BB2	1	0.1%	0.09	0.4%	26	0.1%	26.0
C	128	7.5%	1.94	8.2%	1616	6.2%	12.6
CG	178	10.4%	2.61	11.0%	3655	14.0%	20.5
GT	15	0.9%	0.15	0.6%	647	2.5%	43.1
GW	642	37.6%	7.93	33.5%	8492	32.6%	13.2
MD	7	0.4%	0.00	0.0%	40	0.2%	5.7
MG	1	0.1%	0.00	0.0%	14	0.1%	14.0
MO	64	3.7%	1.98	8.4%	5265	20.2%	82.3
OW	82	4.8%	0.79	3.3%	743	2.9%	9.1
Samian	251	14.7%	2.52	10.6%	1723	6.6%	6.9
SW	10	0.6%	0.00	0.0%	18	0.1%	1.8
TN	1	0.1%	0.00	0.0%	12	0.0%	12.0
WS	8	0.5%	0.00	0.0%	77	0.3%	9.6
WW	193	11.3%	3.72	15.7%	1459	5.6%	7.6
Total	**1708**	**100.0%**	**23.69**	**100.0%**	**26045**	**100.0%**	**15.2**

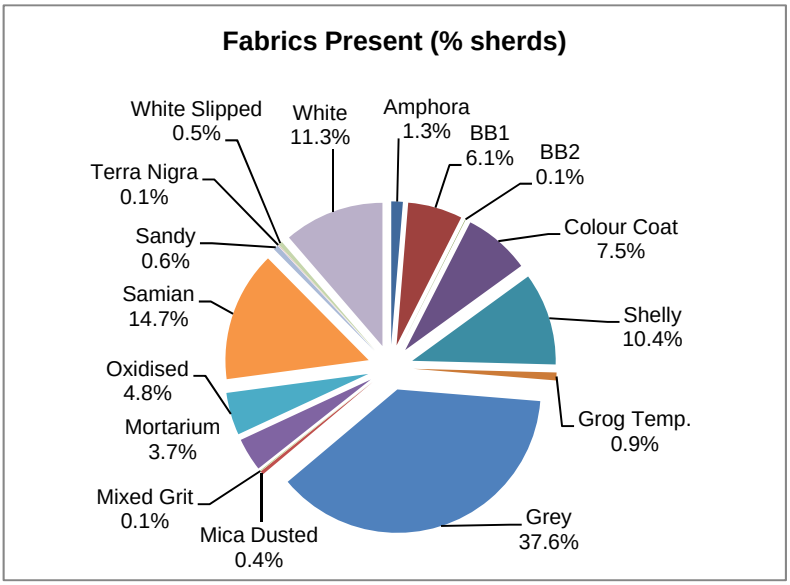


Figure 6 Roman pottery: fabrics present within the assemblage (% sherds).

Grey, shelly, grog-tempered, mixed-gritted and sandy wares account for 49.6% of the assemblage. The majority of these coarse wares are most likely locally made and predominantly provide the utilitarian jars and bowls for general household use. The small amounts of "transitional" grog-tempered, mixed-gritted and sandy wares are jars, some with combed decoration, dating to the late 1st-early 2nd century (Pollard 1994, 74-75). The local shelly wares are also jars including ledge-rim and roll-necked forms, some with combed decoration, dating from the late 1st-2nd century onwards. Jars and bowls from the South Midlands region not usually found in Leicester until the mid-late 3rd century comprise 28% of the shelly wares in the assemblage (Tyers 1996, 192-193; Clark 1999, 124-125). A wide variety of grey wares ranging from Flavian/Trajanic jars and reeded rimmed bowls, through to East Midlands Burnished and Swanpool type vessels from the 3rd and 4th centuries are represented within the assemblage (Todd 1968; Darling 1977; Pollard 1994, 74-75).

The Black Burnished wares comprise a range of jars, bowls and dishes dating from the mid-late 2nd century through to later forms such as the bead and flanged bowl dating from the later 3rd and 4th centuries. A single sherd of Black Burnished Ware 2 of Antonine date is also present (Holbrook and Bidwell 1991; Tyers 1996, 186-187).

Although the oxidised wares only comprise 4.9% of the assemblage, a variety of jars and bowls ranging from the early 2nd century through to the later 3rd is present. Most of the white and white slipped wares are flagons dating from the late-1st century and through the 2nd. Less common forms such as bowls, a jar and unguentarium complete the range of regional white wares. Likely sources for this material are Mancetter-Hartshill and Northamptonshire, with a small amount from the Verulamium region and some later oxidised wares from the Much Hadham industry (Swan 1984, 98-101; Pollard 1994, 113-114; Tyers 1996, 168).

Fine wares account for 22.7% of the assemblage (though only 13% by weight), the majority of which is imported Gaulish samian ware dating from the late 1st and 2nd centuries. The forms present represent tableware (dishes, platters, cups, beakers and bowls), typical of the 1st and 2nd centuries (Webster 1996). A single sherd of Gallo-Belgic Terra Nigra dates to the mid-1st century and is residual (Tyers 1996, 135). There are also mica dusted wares,

probably from a Midlands source, dating from the late-1st to the early/mid-2nd century (Pollard 1994, 54).

Colour-coated fine wares are dominated by Nene Valley colour-coated wares, with smaller quantities from Oxfordshire and some imports from Gaul. Beakers are the predominant form, including the imported wares dating from the mid-2nd to early 3rd century (Tyers 1996, 137-140). The Nene Valley colour-coated beakers range in date from the late 2nd through to the 4th centuries. There are also bowls, jars, dishes and flagons common in Nene Valley colour-coated ware during the 3rd and 4th centuries (Howe *et al* 1980, 16-25). The Oxfordshire red-brown colour-coated wares comprise bowls imitating Samian forms, which date to the 4th century in Leicester (Young 1977, 133).

The specialist wares comprise 5% of the assemblage, most of which are mortaria (3.7%). Vessels from a variety of Romano-British sources are present ranging from Verulamium wares dating from the late 1st-early/mid-2nd century, through to Oxfordshire mortaria dating to the 4th. Most of the mortaria dating to the 2nd and 3rd centuries are from the Mancetter-Hartshill and Nene Valley areas (Swan 1984, 95-104; Pollard 1986, 4; Tyers 1996, 117-133). Although only a relatively small amount of amphorae sherds are present, a variety of vessel types are represented including Dressel 20, Gauloise 4, Dressel 2-4 and Cam 186 types. The Dressel 20 olive oil and Gauloise 4 wine amphorae are common on Romano-British urban sites from the later 1st to the early 3rd century and form the majority of the group at 59.1% and 13.6% of the total amphorae respectively (Peacock and Williams 1986, 136-143).

Analysis by Area and Phase

The site was divided into areas during the excavation phase of work with Roman features found in Areas 1, 4, 10 and 20. The following section considers each Area by feature group and phase.

Area 1

An assemblage of 962 sherds (15.790kg), comprising 56.6% of the material recorded in detail, was recovered from Area 1. The features are discussed below by phase.

Phase 2 (mid-1st to mid-2nd century AD)

Two groups of sub-soils, a gravel layer and a street were found within the earliest phase of Roman activity. The material associated with Phase 2 features comprises 302 sherds weighing 3.357kg. The average sherd weight of 11.1g indicates a reasonable level of preservation, though some fabrics are more fragmentary than others.

Group 5020 Sub-soils and buried soils, rear of Area 1

Contexts: (5850), (6008), (6142)

An assemblage of 175 sherds weighing 2.055kg with an EVEs value of 2.32 was recovered, accounting for almost 58% of the material from Phase 2 in this Area. The table and chart below detail the proportions of fabrics present.

Table 6 Roman pottery: Group 5020 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	2	1.1%	0.15	6.5%	143	7.0%	71.5
CG	9	5.1%	0.10	4.3%	181	8.8%	20.1
GT	3	1.7%	0.00	0.0%	89	4.3%	29.7
GW	59	33.7%	0.70	30.0%	751	36.5%	12.7
MD	6	3.4%	0.00	0.0%	37	1.8%	6.2
MO	1	0.6%	0.08	3.4%	193	9.4%	193.0
OW	7	4.0%	0.08	3.2%	29	1.4%	4.1
Samian	25	14.3%	0.95	40.7%	120	5.8%	4.8
SW	5	2.9%	0.00	0.0%	13	0.6%	2.6
WS	2	1.1%	0.00	0.0%	38	1.8%	19.0
WW	56	32.0%	0.28	11.9%	461	22.4%	8.2
Total	**175**	**100.0%**	**2.32**	**100.0%**	**2055**	**100.0%**	**11.7**

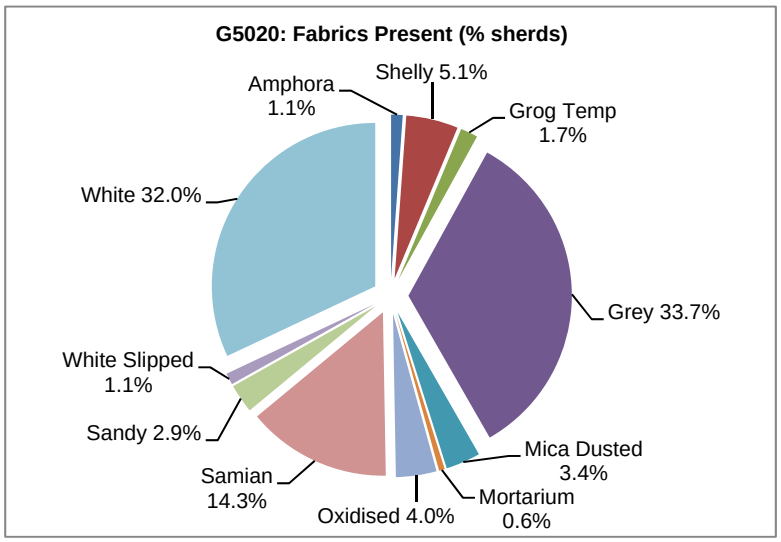


Figure 7 Roman pottery: fabrics present within Group 5020 (% sherds).

The shelly, grog-tempered and sandy wares are all jars dating to the later 1st and early 2nd century. Grey wares form the largest proportion of coarse wares at 33.7%. The forms present include lids and jars with ledge rims. There are not many rims, but decorated body sherds with burnishing, barbotine dot and rustication indicate a date from the later 1st century to the middle of the 2nd. White wares dominate the regional coarse wares, most of which are flagons. There is also a hemispherical flanged bowl from the Verulamium region, an everted rimmed jar and a lid. The oxidised wares are undiagnostic but are probably jars, whilst the white-slipped ware is a flagon. The mica dusted flanged rim bowl is comparable to one found previously in Leicester of Flavian-Trajanic date (Pollard 1994, 81-84).

The samian is South Gaulish with the exception of one sherd from Lezoux in Central Gaul. The forms present include Drag.27 and 35 cups, Drag.29, 30 and 37 bowls, Drag.18 platters and a Drag.18/31 dish typical of the range in use from the late 1st to the mid-2nd century (Webster 1996). Finally, a Baetican Dressel 20 olive oil amphora rim, a body sherd from a Cam 186 amphora and a Verulamium mortarium rim dating to the later 1st-early/mid2nd century completes the assemblage (Gillam 1968, 26; Clark 1999, 120-122; 146-147). There is nothing in the assemblage to suggest a date later than the middle of the 2nd century, and a date from the later 1st to the first quarter of the 2nd century is most likely for this group.

Group 5022 Sub-soils and buried soils, front of Area 1

Context: (6489)

The soils at the front of Area 1 revealed a smaller quantity of pottery, with only 56 sherds (0.24 EVEs, 342g) recovered. The assemblage is broadly very similar to that in Group 5020 above, comprising grey, white and oxidised ware jars, lids and flagons. The samian is again mostly South Gaulish with one vessel possibly from Central Gaul. The group of material dates from the later 1st to the early/mid 2nd century and is comparable with the soils to the rear of Area 1.

Group 5025 Compacted cobble layer overlying natural, rear of Area 1

Contexts: (5986), (6072)

The group comprises 54 sherds (1.04 EVEs, 512g) of pottery including a grey ware lid and jars with everted rims and roulette decoration suggesting a date within the first part of the 2nd century. The white wares include some from the Verulamium region. There is also a shelly ware jar, one very small fragment of samian, part of a Dressel 20 amphora rim and mica dusted ware. In this respect the material from the cobble layer is comparable to that found in both groups of soils in Area 1 dating no later than the middle of the 2nd century and most likely within the first quarter.

Group 5041 Roman Street

Contexts: (6541), (6542)

The pottery found in association with the Roman Street is very poor and provides little information, comprising four sherds (0.0 EVEs, 14g) of grey and shelly ware. The single sherd of grey ware is not closely datable. Three sherds of shelly ware are probably from the same vessel and include combed decoration, albeit abraded. It is likely that the material does date within the first half of the 2nd century, but this is not certain.

Phase 3 (mid-2nd to 3rd century AD)

A roadside wall, gravel layer and Building 4 constitute the features in Phase 3. The amount of pottery recovered from these features is limited, comprising 27 sherds weighing 245g.

Group 5001 Roadside wall

Context: (6490)

A single sherd of imported fine ware weighing 2g was found associated with the mortared granite blocks forming a roadside wall. The colour-coated ware beaker is a so-called "Rhenish" ware from Trier dating to *c.*AD180-250 (Tyers 1996, 138-139). Whilst this may well indicate an earliest date for the wall, it should be treated with some caution, as the wall was truncated by later features and the possibility that this sherd may be instrusive should be borne in mind.

Group 5036 Gravel layer

Contexts: (6506), (6516)

A small group of 14 sherds (0.0 EVEs, 178g) was recovered from the gravel layer overlying the sub-soils at the front of Area 1 (Group 5022). The grey, grog-tempered and oxidised coarse wares include a lid and jars with roulette, rusticated and lattice decoration, suggesting a date from the late 1st century to the middle of the 2nd century. A South Gaulish samian ware dish and a mortarium from the Verulamium region also date from the later 1st century to the early/mid-2nd century. In this respect, the material matches that found in Group 5022, and perhaps represents disturbance of the soil layers when ground was levelled for the construction of Building 4 (Group 5006).

Group 5006 Building 4, post and slot building

Contexts: (6471) [6472], (6478) [6479], [6495], [6481], [6503]

The dating evidence for the post and slot building, Building 4, is not straight-forward and only a little material was recovered from some of the post holes totalling 12 sherds weighing 65g (0.0 EVEs). A late 1st century samian ware platter was found in the sill beam [6495]. This vessel is more than likely present as a result of the sill beam cutting through the gravel layer and into the soils of Group 5022. Post holes (6471) [6472] and [6503] revealed one sherd each of shelly and samian ware respectively, both of which are small and can only be said to date within with 2nd century. Post hole [6481] revealed one sherd of white ware and one sherd of Nene Valley colour-coated ware. The white ware dates to the 2nd century but the colour-coated ware is a castor box dating to at least the 3rd century (Howe *et al* 1980, 24-25). Finally, three sherds were found in post hole (6478) [6479] comprising one sherd each of samian ware, an Oxfordshire white mortarium and an amphora fabric associated with the *Africana II* type amphora from North Africa. The samian ware dates within the 2nd century. The Oxfordshire mortarium could also date within the 2nd century, though historically this would be early for Leicester (Young 1977, 61-68). The *Africana II* amphora type can date any time from the later 2nd century through to the 4th and is therefore not closely datable in this instance (Peacock and Williams 1986, 156).

Phase 4 (later 3rd and 4th centuries AD)

Industrial features, pits and levelling layers provide the evidence for later Roman activity in Area 1. An assemblage of 360 sherds weighing 7.379kg was recovered from features within this phase. The average sherd weight of 20.5g indicates a good level of preservation.

Group 6465 Soil layer overlying Building 4

Context: (6465)

Thirty five sherds weighing 1.956kg with an EVEs value of 0.68 were recovered from the soil layer (6465) overlying Building 4 and surrounding the industrial features in Group 5029. A single mortarium vessel accounts for 13 sherds and 1.077kg of the total weight. The fabric is associated with mortaria produced in North Gaul or Colchester dating from the late 1st to the mid-2nd century. A further four separate mortaria are present including one from the Verulamium region also dating from the late 1st to the middle of the 2nd century. The remaining vessels are most likely early Mancetter-Hartshill types dating to the first half of the 2nd century, including one with a stamp that would be worth further identification (Gillam 1968, 26; Pollard 1994, 113; Clark 1999, 142-144). Nine sherds of samian ware, mostly from South Gaul, comprise Drag.27 cups, Drag.18 platters, a Drag.36 dish and Drag.37 bowls in use during the late 1st and early 2nd centuries (Webster 1996). Small amounts of grey, oxidised, white and white slipped wares comprise bowls, jars and flagons; including a reeded rimmed bowl dating to the early/mid-2nd century. A Black Burnished ware jar with acute lattice dates within the 2nd century and could be as early as *c.*AD120/140. Overall, there is nothing to suggest a date beyond the 2nd century and the group could be as early as the middle of the 2nd century. The pottery is presumably residual in this layer, possibly indicating earlier activity in Building 4 which it overlies. In this respect, layer (6465) may indicate a mid-2nd-century date for the use of Building 4.

Group 5024 Levelling layers and cobble surface above Building 4

Contexts: (6448), (6453), (6454)

An assemblage of 131 sherds weighing 2.731kg with an EVEs value of 2.44 was recovered from a cobble surface and two levelling layers overlying Building 4 (Group 5006) and soil layer (6465), as illustrated by the table and chart below. The material is well preserved overall, though the samian and Black Burnished wares are more fragmentary.

A small group of seven sherds was recovered from the upper layer (6453) comprising an oxidised ware dish, mortarium, shelly ware bowl, colour-coated flagon, grey ware jar and an abraded amphora body sherd. The oxidised ware dish has white painted decoration and is comparable to a Swanpool type copying the samian form Drag.36 dating from the later 3rd to mid-4th century (Webster and Booth 1947, 72-79). The mortarium is probably from a Nene Valley source, though the form is unusual and there is a roulette band round the outer surface. A parallel has yet to be found but it is unlikely to date before the 3rd century, as does the colour-coated flagon also from the Nene Valley. The shelly ware bowl is comparable to those from the Harrold kilns in Bedfordshire dating to the early 4th century (Brown 1994, 62-74). The grey ware is not closely datable and the amphora sherd may be residual.

Table 7 Roman pottery: Group 5024 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	2	1.5%	0.00	0.0%	157	5.7%	78.5
BB1	9	6.9%	0.25	10.0%	78	2.9%	8.7
C	4	3.1%	0.00	0.0%	300	11.0%	75.0
CG	3	2.3%	0.25	10.2%	141	5.2%	47.0
GW	34	26.0%	0.52	21.3%	438	16.0%	12.9
MO	20	15.3%	0.13	5.1%	1016	37.2%	50.8
OW	4	3.1%	0.30	12.3%	163	6.0%	40.8
Samian	50	38.2%	0.00	0.0%	382	14.0%	7.6
TN	1	0.8%	0.00	0.0%	12	0.4%	12.0
WW	4	3.1%	1.00	41.0%	44	1.6%	11.0
Total	**131**	**100.0%**	**2.44**	**100.0%**	**2731**	**100.0%**	**20.8**

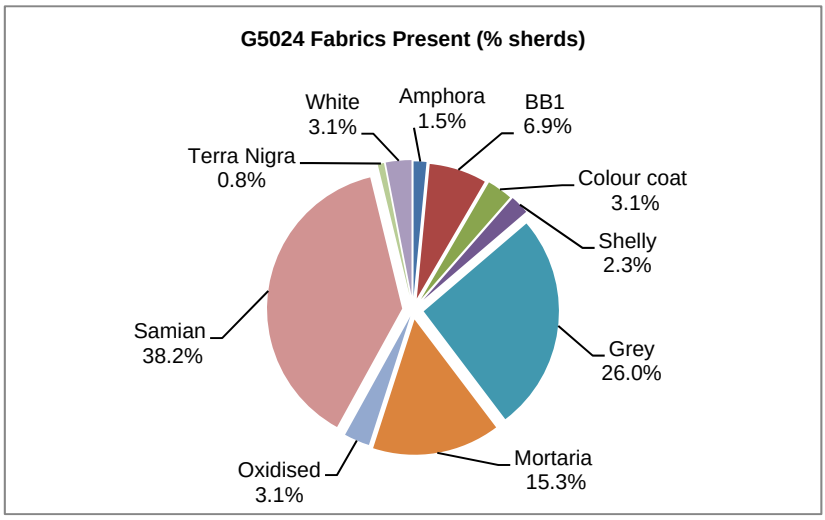


Figure 8 Roman pottery: fabrics present within Group 5024 (% sherds).

A small group of seven sherds was recovered from the upper layer (6453) comprising an oxidised ware dish, mortarium, shelly ware bowl, colour-coated flagon, grey ware jar and an abraded amphora body sherd. The oxidised ware dish has white painted decoration and is comparable to a Swanpool type copying the samian form Drag.36 dating from the later 3rd to mid-4th century (Webster and Booth 1947, 72-79). The mortarium is probably from a Nene Valley source, though the form is unusual and there is a roulette band round the outer surface. A parallel has yet to be found but it is unlikely to date before the 3rd century, as does the

colour-coated flagon also from the Nene Valley. The shelly ware bowl is comparable to those from the Harrold kilns in Bedfordshire dating to the early 4th century (Brown 1994, 62-74). The grey ware is not closely datable and the amphora sherd may be residual.

The cobble surface (6448) underneath layer (6453) revealed 36 sherds (358g), including a sherd from the same early 4th century shelly ware bowl as in (6453). One of the grey ware jars is comparable with the East Midlands burnished wares of the 3rd century, but the rest are not closely datable and may include some 2nd century vessels. The Black Burnished ware jar and bowl date from the mid-2nd to mid-3rd century, whilst the white and oxidised wares are 2nd century. The samian ware is all 2nd century and given its fragmentary condition is most probably residual in this group. The forms include cups, dishes and bowls including those such as Drag.31 and 38 dating to the 2nd half of the 2nd century (Webster 1996, 35; 49). Three mortaria are present, the forms suggesting a date within the 2nd century and one at least to the early/mid-2nd century. One is probably from Mancetter-Hartshill and all are most likely from Midlands' sources (Pollard 1994, 113).

The largest proportion of the group was recovered from the lowest layer (6454), from which 88 sherds (1.902kg) were retrieved. The group is fairly mixed, with two 4th century colour-coated ware flagons, 3rd century grey wares and a Black Burnished ware bowl dating from the late-2nd to the early 3rd century alongside 2nd-century material. Most notable are the mortaria, which include a Verulamium mortarium and a sherd in the same fabric as that of the North Gaul or Colchester vessel from the soil layer (6465) (Group 6465). It is highly likely that the latter sherd is from the same vessel as that in (6465), though a join could not be found. An Oxfordshire white ware mortaria is of great interest, as the form can be dated to the 2nd century which is unusually early for Oxfordshire material to appear in Leicester. As suggested by Young (1977), it is likely this represents a personal possession rather than any significant trade during the 2nd century (Young 1977, 61-69). A body sherd of the same fabric was found associated with Building 4 (G5006). The remaining mortaria are Mancetter-Hartshill types dating to the first half of the 2nd century, including one stamp and one possible stamp or scoring of some kind on the flange. The samian is fragmentary, but some vessels are identifiable, including Drag.30, 37 and 31 bowls and Drag.18 and 18/31 platters and dishes. One bowl has evidence for repair in antiquity. The Drag.31 bowl is the latest form in this context dating to the mid-late 2nd century. Small amounts of oxidised, white and grey wares date to the 2nd century. A sherd of Gallo-Belgic Terra Nigra dating to the mid-1st century is residual.

Within this group there is clearly later material suggesting a 4th-century date, but the dating evidence is very mixed with substantial quantities of much earlier pottery too. This is not unusual for levelling layers as the ground is disturbed during their construction. It is highly feasible that the earlier material relates to the occupation of Building 4 during the 2nd and perhaps early 3rd century.

Group 5029 Industrial feature

Contexts: (6466), (6459)

A small group of 14 sherds (0.0 EVEs, 254g) representing four vessels, was recovered from this feature. The pottery comprises two shelly ware jars, a white ware flagon and white-slipped ware body sherd, all dating to the 2nd century. As this feature is stratigraphically later, the pottery is residual and, as with groups (6465) and (5024) above, may represent activity associated with Building 4 (G5006).

Group 5007 Industrial pits and other discrete features cut into edge of Roman road

Contexts: SG5007: (6453) [6551], (6542) [6554], (6545) [6553], (6549) (6552) [6555] (hearths cut into edge of Roman road)

(6484) (6487) [6488] (pit)

(6486) [6485] (post hole)

P6513: (6512) [6513] (pit)

P6536: (6530) (6535) [6536] (associated with possible late Roman pit cut into road)

Four oval pits were interpreted as hearths as there was evidence of burning around the edges. The pottery assemblage is not large, but does point to a later 3rd or 4th-century date for the backfilling of these features, as detailed below. In total, the group comprises an assemblage of 92 sherds weighing 0.941kg with an EVEs value of 1.15.

Eight sherds (45g) were recovered from (6542). The latest material is a Much Hadham oxidised ware jar or bowl dating to the mid-late 3rd century and two Nene Valley beakers also dating to the 3rd century (Howe *et al* 1980, Tyers 1996, 168-169). The grey ware is not closely datable and a samian cup dates to the 2nd century.

A group of 25 sherds (272g) was recovered from (6543). Another Much Hadham oxidised ware jar or bowl was found along with a Black Burnished ware bead and flanged bowl dating from the mid/late 3rd to the mid-4th century (Holbrook and Bidwell 1991, 109-111). There is also a grey ware bead and flange bowl imitating the Black Burnished ware dating from the mid-3rd to mid-4th century (Pollard 1986, 5). The Nene Valley colour-coated beakers include funnel necked and folded forms dating to the second half of the 3rd century (Howe *et al* 1980, 20-21). There is also some shelly, white and samian ware dating to the 2nd century.

The pottery from (6545) is similar to that of (6543) above, comprising 12 sherds (77g) including Nene Valley colour-coated beakers dating to the mid-late 3rd and 4th centuries. A grey ware jar imitating a Black Burnished ware form dates to the 3rd century, though some other vessels may be 2nd century. A sherd of South Gaulish samian ware is residual.

Twelve sherds (137g) were also recovered from the final potential hearth, (6549) (6552). Again, the latest date is provided by Nene Valley colour-coated ware dating to the 3rd or possibly 4th century. The remaining pottery comprises Black Burnished, grey, shelly and samian wares which are not closely datable and probably date to the 2nd and 3rd centuries.

The pottery from pit [6488] includes a Black Burnished ware jar and Nene Valley beaker dating to the late 2nd-early 3rd century, whilst a single sherd of grey ware was found in post hole [6485]. One sherd of Black Burnished ware dating to the second half of the 2nd century was recovered from pit [6513]. The material from these features is likely to be residual as stratigraphically they appear contemporary with the hearths.

Twenty-nine sherds (341g) of pottery were found in pit [6536]. Most of the material is colour-coated ware including a bowl and beakers from Oxfordshire and the Nene Valley respectively dating to the 4th century. Additional beakers from the Nene Valley and Trier date to the 3rd century, as does an East Midlands Burnished type grey ware jar. The samian is Central and East Gaulish, including some of the later forms dating to the late 2nd and 3rd centuries, such as Drag.31 bowls and a Drag.43 or 45 mortarium (Webster 1996, 55-56).

Group 5023 Pits overlying gravel layer 6506

Contexts: (6520) [6521], (6526) [6527]

Two sherds (grey and white ware) were found in (6520). These sherds are not closely datable but probably date within the 2nd century, suggesting they are residual. Seven sherds were found in (6526) including a Harrold-type shelly ware jar dating to the late 3rd century and a Nene Valley colour-coated ware beaker also dating to the 3rd century (Brown 1994, 62-64). The remaining pottery is 2nd century.

Group 5021 Late Roman soils and building debris spreads

Context: (6537)

A group of 82 sherds (1.26 EVEs, 1.459kg) of pottery was recovered from layers of soil and rubble accumulated over the edge of the Roman Street as illustrated by the table and chart below.

Table 8 Roman pottery: Group 5021 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	1	1.2%	0.00	0.0%	14	1.0%	14.0
BB1	12	14.6%	0.00	0.0%	120	8.2%	10.0
C	18	22.0%	0.38	30.6%	171	11.7%	9.5
CG	16	19.5%	0.29	23.7%	303	20.8%	18.9
GW	32	39.0%	0.56	45.7%	811	55.6%	25.3
MO	1	1.2%	0.00	0.0%	13	0.9%	13.0
Samian	2	2.4%	0.00	0.0%	27	1.9%	13.5
Total	**82**	**100.0%**	**1.23**	**100.0%**	**1459**	**100.0%**	**17.8**

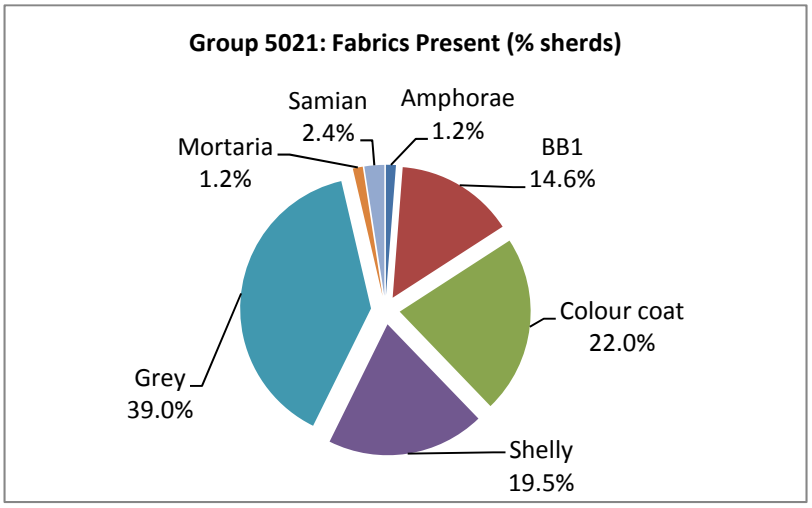


Figure 9 Roman pottery: fabrics present within Group 5021 (% sherds).

Grey wares account for most of the material at 39.0% and 55.6% by sherd count and weight respectively. Identifiable forms include a bead and flange bowl, plain rimmed dish, and jars including East Midlands Burnished ware types, indicating a date towards the end of the 3rd century and into the 4th. The shelly wares also date to the later 3rd and 4th centuries, including jars and a dish or lid from the Harrold industry in Bedfordshire. This latter vessel is of particular interest as it is comparable to forms dating to the later 4th century (Brown 1994, 62-64; 76-78). Black Burnished wares form the remainder of the coarse wares, including jar and bowl forms dating to the later 3rd and 4th centuries (Holbrook and Bidwell 1991, 109-111). The colour-coated wares are also typical of later Roman assemblages, with beakers, jars and bowls dating to the late 3rd and 4th centuries from Oxfordshire and the Nene Valley. The only mortarium is an Oxfordshire white ware and there is a very small amount of residual samian and amphora. This group illustrates some of the differences between earlier and later Roman pottery assemblages nicely, as there are no oxidised, white or white slipped wares at all, and a much larger proportion of regional wares such as Harrold shelly wares, East Midlands Burnished ware and Romano-British colour-coated vessels.

Phase 5 (*c*.AD400-650)

Group 5028 Dark earth soils

Contexts: (6450), (6511), (6433)

A substantial group of pottery was recovered from layers of soil at the interface between late Roman and early Saxon activity in the area. The assemblage comprises 255 sherds weighing 4.518kg with an EVEs value of 4.53, accounting for 26.5% and 28.6% of the Roman pottery found in Area 1 by sherd count and weight respectively. The majority of the pottery (221 sherds) was recovered from layer (6450), which lies over the Roman road and late Roman industrial features in Group 5007, but underneath the collapsed wall of the Roman *macellum*. The table and chart below illustrate the variety of fabrics present.

Table 9 Roman pottery: Group 5028 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	3	1.2%	0.00	0.0%	217	4.8%	72.3
BB1	28	11.0%	0.00	0.0%	195	4.3%	7.0
C	57	22.4%	1.08	23.8%	611	13.5%	10.7
CG	57	22.4%	1.02	22.4%	839	18.6%	14.7
GW	67	26.3%	1.28	28.3%	1627	36.0%	24.3
MO	14	5.5%	0.79	17.3%	711	15.7%	50.8
OW	5	2.0%	0.00	0.0%	60	1.3%	12.0
Samian	20	7.8%	0.13	2.8%	204	4.5%	10.2
WS	1	0.4%	0.00	0.0%	5	0.1%	5.0
WW	3	1.2%	0.25	5.4%	49	1.1%	16.3
Total	**255**	**100.0%**	**4.53**	**100.0%**	**4518**	**100.0%**	**17.7**

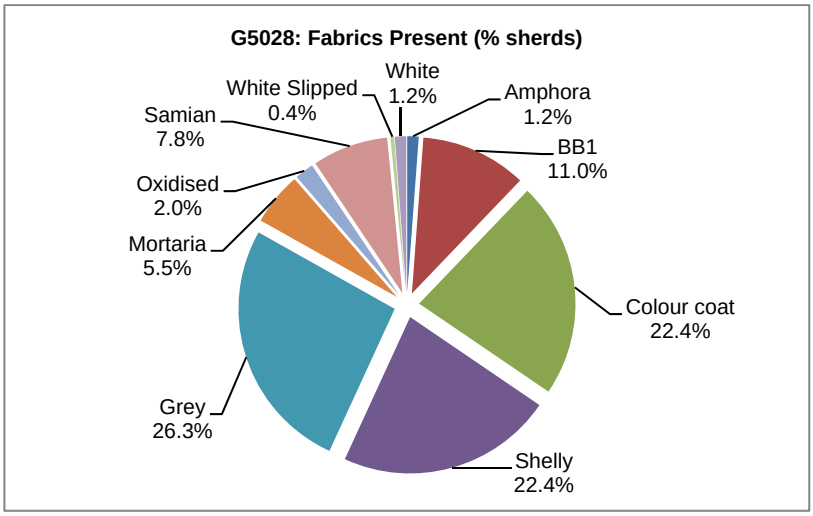


Figure 10 Roman pottery: fabrics present in Group 5028 (% sherds).

Grey and shelly coarse wares are present in almost equal amounts and form 48.7% of the group (54.6% by weight). The shelly wares are all jars, most of which (58%) are comparable with Harrold shelly wares. South Midlands shelly wares such as those from the Harrold industry are not usually found in Leicester much before the 3rd century and are most

common from the later 3rd century onwards. The rim forms present here include examples dating to the mid-late 4th century, which are some of the latest found in Leicester to date (Brown 1994, 72-78). Apart from one bowl, the grey wares are also jars. Identifiable forms include East Midlands Burnished type wares with heavy roulette decoration, burnished lines, frilled collars and cupped rim forms associated with grey wares dating from the later 3rd century onwards (Todd 1968, 192-201). The bowl is also a highly burnished East Midlands Burnished ware, comparable to Swanpool incurved bead and flange types dating from the late 3rd to mid-4th century (Darling 1977, 10-11). There is a jar rim dating to the early/mid-2nd century and some of the undiagnostic body sherds may also be earlier. Having said this, there is no evidence of earlier forms of decoration such as rustication or barbotine dots, suggesting overall a low proportion of potentially residual material in a group clearly dating to the 4th century.

A small amount of Black Burnished ware comprises jars, dishes and bowls. Jars with obtuse lattice indicate a date into at least the 3rd century, whilst the dishes are long-lived forms dating from the later 2nd century to the end of Black Burnished ware production (Holbrook and Bidwell 1991, 103; 112). The very small quantity of oxidised, white and white slipped wares are residual, dating to the 2nd century.

The samian ware is varied in both fabric and form, with pottery from South, Central and Eastern Gaul ranging in date from the late 1st century to the middle of the 3rd and the end of samian imports to Britain. Most of the samian is Central Gaulish including a Drag.38 bowl and two Drag.45 mortaria dating to the later 2nd century (Webster 1996, 51; 55-56), though earlier cups, dishes and a bowl are also present. Historically, comparatively little East Gaulish samian ware has been recovered from Leicester (R. Pollard *pers. comm*.), and here there is one or possibly two sherds identified. The samian is presumably residual in this group, though it is interesting to see the presence of later fabrics and forms such as the mortaria and East Gaulish pottery.

Nene Valley colour-coated wares account for almost 90% of the colour-coated pottery sherds in the assemblage, with Oxfordshire red-brown colour-coated ware providing the remainder. Beakers are the most common form, and whilst some date from the late 2nd and 3rd centuries, there are more examples dating to the 4th century such as folded and shouldered forms with white painted decoration and lustrous slips. Jars, flagons, dishes and bowls typical of later Nene Valley wares dating to the 4th century are also present (Howe *et al* 1980, 16-25). The Oxfordshire wares all date to the 4th century including a bowl imitating the samian Drag.38 form (Young 1977, 133-134; 160-161).

The specialist wares consist of amphorae and mortaria. Only three sherds of amphorae were found, including a Baetican Dressel 20 olive oil amphora which is probably residual. A further sherd of amphora is most likely African in origin, but has yet to be positively identified. Eight mortaria are present ranging in date from the 2nd century through to the 4th. The earliest forms are from Mancetter-Hartshill, including a heavy spout dating to the 2nd century and a rim dating from the middle of the 2nd to the early 3rd century. The Nene Valley vessels are reeded/hammerhead forms dating from the mid/late 3rd century to the middle of the 4th (Gillam 1968, 29; Rollo 1994, 19-22). An Oxfordshire white-slipped mortarium dates to the 4th century, as does a red-brown colour-coated vessel imitating the samian Drag.45 form (Young 1977, 121-122; 173-175).

Although this group of Roman pottery is residual stratigraphically, it represents a sizeable assemblage with good examples of the latest types of pottery reaching Leicester during the second half of the 4th century. In this deposit we have later regional wares grouped together, with the latest forms of Harrold shelly wares alongside East Midlands Burnished type grey

wares and later forms of mortaria from the Nene Valley and Oxfordshire. Later forms of colour-coated wares are also well represented, as is the dominance of the Nene Valley as a supplier to Leicester during the later 3rd and 4th century.

Catalogue of illustrations for G5028, context (6450)

CG1B necked jar (LAU form 3M2; cf Brown no.305), mid-late 4th century (Brown 1994, 72).

CG1B necked jar (LAU form 3M2; cf Brown no.251), early 4th century (*Ibid*, 69).

CG1B necked jar (LAU form 3M2; cf Brown no.300), mid-late 4th century (*Ibid*, 72).

CG1B necked jar (LAU form 3M2; cf Brown no.300), mid-late 4th century (*Ibid*, 72).

C13 miniature necked bowl, (Young form C113), mid-late 4th century (*c.*AD340+) (Young 1977, 172-176).

C13 flanged bowl copying samian Drag.38, (Young form C51), 4th century (*Ibid*, 133-134; 160-161).

C3NV necked jar, (LAU form 3M2, cf Howe *et al* no.75), 4th century (Howe *et al* 1980, 24-25).

C3NV flanged bowl, (LAU form 6F, cf Howe *et al* no.79), 4th century (*Ibid*).

C3NV small flanged bowl, (LAU form 5L2, cf Howe *et al* no.83, late 3rd-4th century (*Ibid*).

C2NV flagon with white painted decoration and roulette bands, 4th century (*Ibid*, 22-23).

MO3 Oxfordshire mortarium with roulette bands at the top and bottom of the wall, copying samian Drag.45, (Young form C97), 4th century (Young 1977, 133-134; 173-175).

GW5 necked jar with frilled decoration and burnishing round the rim, (LAU form 3N).

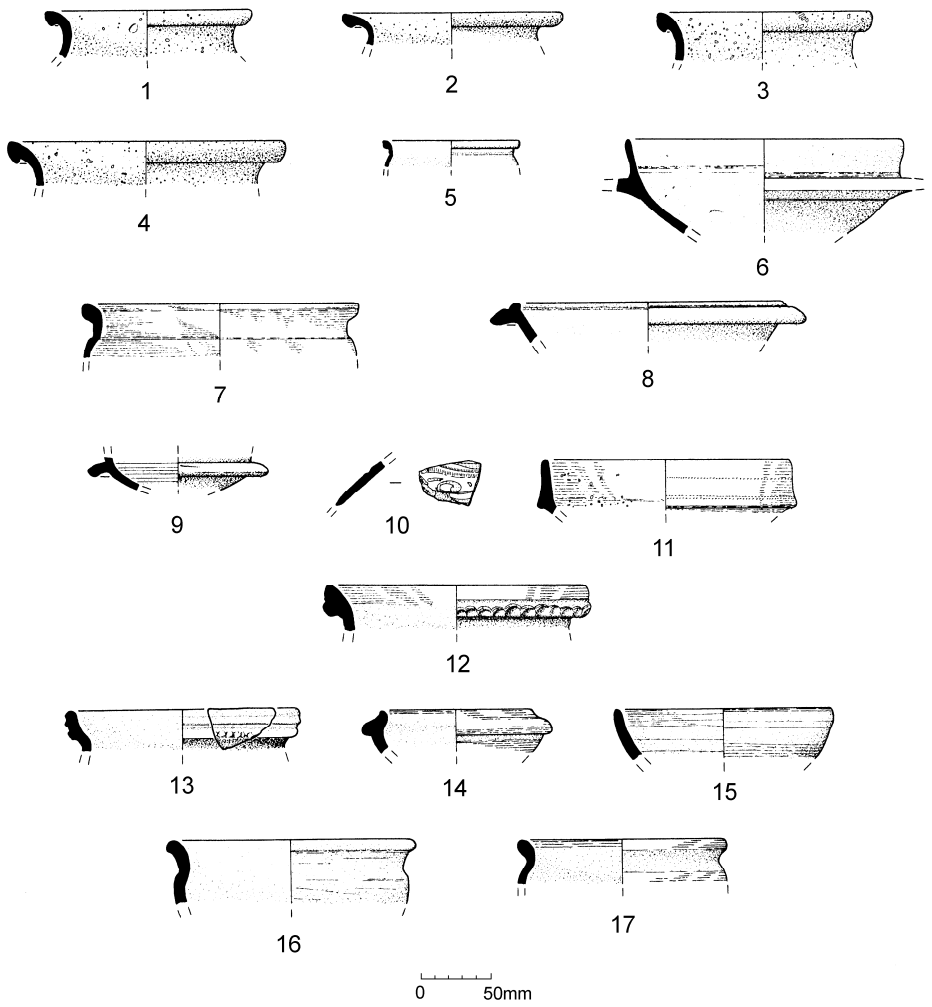
GW5 necked jar with slightly cupped rim, ribbed and frilled decoration, (LAU form 3N2).

GW5 small bowl, incurved rim with high flange, highly burnished, (LAU form 5K1).

GW5 plain rim dish, burnished, (LAU form 6A1).

GW6/9 wide bowl, (LAU form 5C2).

GW5 wide bowl, burnished, (LAU form 5C2).



Free School Lane, Leicester:
Late Roman Pottery (1:4)

Figure 11: Roman pottery: Illustrated pottery from Area 1, G5028.

Area 4

An assemblage of 594 sherds (7.67 EVEs, 7.197kg) comprising 34.8% and 27.6% of the material recorded in detail by sherd count and weight respectively, was recovered from Area 4. The groups for further work were selected on the basis of preliminary phasing to Roman phases of activity, however subsequent work has resulted in all but one small feature group being placed in post-Roman phases. In view of this, the only groups discussed here will be that in Phase 2 and two groups with comparatively substantial assemblages of pottery in Phase 8.

Phase 2 (mid-1st to mid-2nd century AD)

Group 1017 Sub-soils and buried soils

Contexts: L1424 (1409)

A small group of 15 sherds (0.06 EVEs, 167g) of pottery was recovered from (1409). Most of the material comprises local shelly, grog-tempered and grey ware jars. An oxidised ware carinated jar, flagon from the Verulamium region and fine grey ware similar to the "London type" ware fabric (Leicester series GW2) completes the group. Overall the pottery dates to the later 1st or early 2nd century, with nothing likely to be later than *c.*AD120.

Phase 8 (c.AD1100-1250)

Group 1009 Floor surfaces and consolidation

Contexts: (1046), (1360), (1366), (1370), (1376), (1402), (1427); FL1012 (1356)

This group consists of a number of patches of mortar floors and make-up levels associated with a building. An assemblage comprising 243 sherds (0.59 EVEs, 2.820kg) of Roman pottery was recovered as detailed in the table and chart below.

Locally made grey, sandy, shelly and mixed-gritted coarse wares account for 71.3% of the assemblage, with grey ware dominant at 63.4%. The small amounts of sandy and mixed-gritted wares are "transitional" fabrics dating to the mid-late 1st century (Pollard 1994, 72-73). The majority of identifiable vessel forms are jars including decorative styles such as combing, barbotine dots, rustication and burnishing. One everted jar rim and a lid, both grey wares, are also present.

Oxidised, white and white-slipped wares comprise most of the regional wares. No rims were recovered but a flagon handle and some jar bases were found alongside the body sherds. Likely sources include Northamptonshire, Mancetter-Hartshill and the Verulamium region. The fabrics and forms suggest a date range from the later 1st to the early/mid 2nd century. The single colour-coated ware sherd is small and most likely from a beaker. The latest datable material comprises a Black Burnished ware jar and dish, both found in (1046). The jar has lattice decoration indicating a date within the 2nd century. The dish is a bead-rimmed shallow dish with no decoration dating from the mid-2nd to the early 3rd century, possibly from Rossington Bridge rather than Dorset (Holbrook and Bidwell 1991, 99; 133-134).

Table 10 Roman pottery: Group 1009 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	6	2.5%	0.00	0.0%	252	8.9%	42.0
BB1	3	1.2%	0.11	18.8%	47	1.7%	15.7
C	1	0.4%	0.00	0.0%	1	0.0%	1.0
CG	11	4.5%	0.00	0.0%	293	10.4%	26.6
GW	154	63.4%	0.30	50.4%	1762	62.5%	11.4
MG	1	0.4%	0.00	0.0%	14	0.5%	14.0
OW	14	5.8%	0.00	0.0%	129	4.6%	9.2
Samian	21	8.6%	0.18	30.8%	159	5.6%	7.6
SW	5	2.1%	0.00	0.0%	5	0.2%	1.0
WS	1	0.4%	0.00	0.0%	2	0.1%	2.0
WW	26	10.7%	0.00	0.0%	156	5.5%	6.0
Total	**243**	**100.0%**	**0.59**	**100.0%**	**2820**	**100.0%**	**11.6**

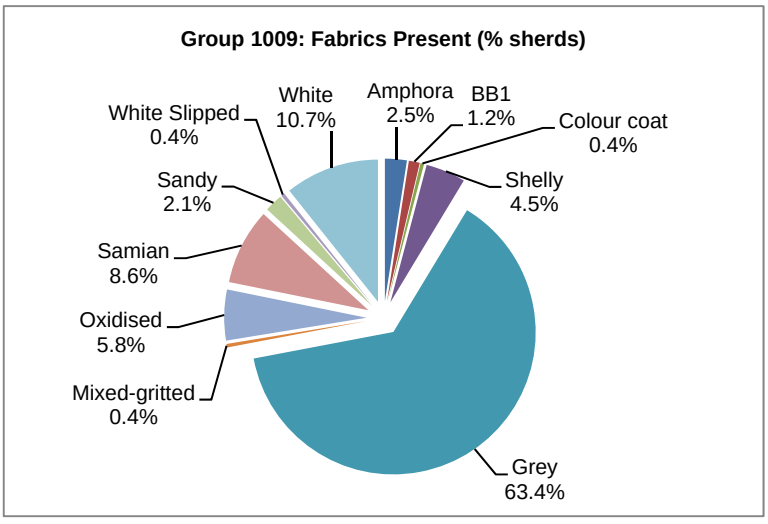


Figure 12 Roman pottery: fabrics present in Group 1009 (% sherds).

Continental imports are represented by amphorae and samian fine wares. Two types of amphora are present; a Gaulish Gauloise 4 wine amphora and a Baetican Dressel 20 olive oil amphora. These are the two most common types of amphora found in Leicester and were widely imported from the mid-late 1st century until the middle of the 3rd. The Dressel 20

from (1427) is very fragmentary and appears burnt. Samian ware from South and Central Gaul is present, including Drag.18 platters and Drag.18/31 dishes ranging in date from the mid-1st century to the middle of the 2nd (Webster 1996, 35.)

As an assemblage, this group of pottery represents well a typical 2nd century assemblage, with substantial quantities of grey wares and imported samian fine wares. Although the Black Burnished ware dish in (1046) could date into the early 3rd century, the lack of Romano-British colour-coated wares and paucity of Black Burnished ware overall is indicative of a date within the 2nd century, possibly as early as *c.*AD160/70.

The dating of this building is uncertain as although most of the pottery recovered from this feature is Roman, it is heavily truncated and small amounts of post-Roman pottery were also found.

Group 1020 Demolition and yard layers

Contexts: L1307 (1283); (1007)

An assemblage of 171 sherds (1.308kg) was recovered from a demolition spread and yard surface, as detailed in the table and chart below. Most of the material (135 sherds, 1.030kg) was recovered from layer (1007) overlying the yard surface (1283).

Table 11 Roman pottery: Group 1020 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	3	1.8%	0.00	0.0%	37	2.8%	12.3
BB1	17	9.9%	0.36	9.5%	183	14.0%	10.8
CG	1	0.6%	0.10	2.7%	43	3.3%	43.0
GT	1	0.6%	0.07	1.9%	17	1.3%	17.0
GW	69	40.4%	1.09	29.2%	563	43.0%	8.2
MO	3	1.8%	0.00	0.0%	22	1.7%	7.3
OW	14	8.2%	0.13	3.3%	80	6.1%	5.7
Samian	21	12.3%	0.05	1.3%	108	8.3%	5.1
WW	42	24.6%	1.95	52.1%	255	19.5%	6.1
Total	**171**	**100.0%**	**3.74**	**100.0%**	**1308**	**100.0%**	**7.6**

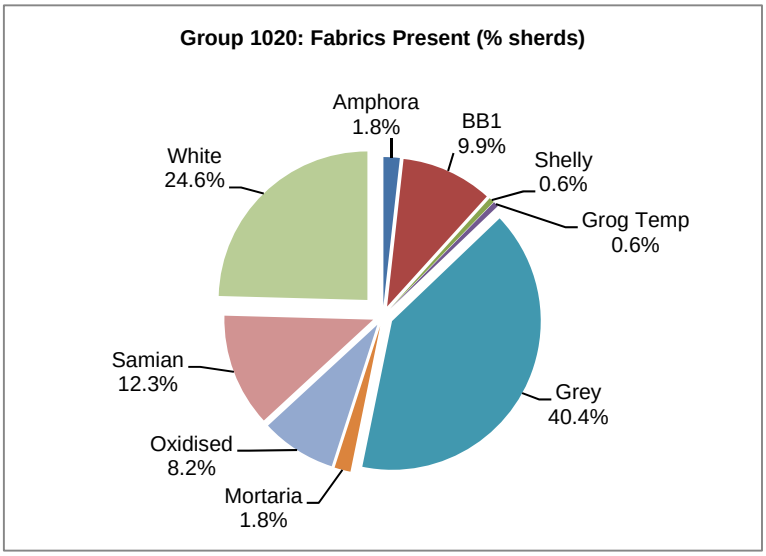


Figure 13 Roman pottery: fabrics present in Group 1020 (% sherds).

Locally made grey, shelly and grog-tempered coarse wares account for 41.6% of the assemblage, with grey ware dominant at 40.4%. The grog-tempered ware is a "transitional" fabric dating to the mid-late 1st or possibly early 2nd century (Pollard 1994, 72-73). The shelly ware jar most likely dates to the first half of the 2nd century. The grey wares comprise jars, bowls, lids, a flask and possibly an everted rimmed beaker, though this could be a small jar. Most of the identifiable forms are jars including everted rims and burnished, rusticated and lattice decoration suggesting a date range within the first half of the 2nd century.

Regional coarse wares consist of white, oxidised and Black Burnished wares. The white wares are nearly all flagons, including ring-necked forms dating to the first half of the 2nd century. There is also an unguentarium base. The oxidised wares include a reeded rimmed bowl dating to the early 2nd century. Likely sources include Northamptonshire, Mancetter-Hartshill and the Verulamium region. The Black Burnished wares comprise jars with square and obtuse lattice, and flat rimmed bowls with lattice and intersecting arc decoration. These forms are slightly later, dating from the mid-2nd to mid-3rd century (Holbrook and Bidwell 1991, 108-109).

Three different types of amphora are represented, albeit with only one sherd each. In addition to a Dressel 20 olive oil amphora and Gauloise 4 wine amphora as seen elsewhere on the site, there is also a fabric comparable to the Dressel 2-4 wine amphora, which dates from the late 1st to the mid-2nd century (Peacock and Williams 1986, 105-106). Three mortaria sherds complete the small range of specialist wares. These are not particularly diagnostic and are probably from a Midlands source.

All the fine wares are imported South and Central Gaulish Samian wares. The forms present include dishes, cups and bowls popular between the late 1st and mid-2nd century. A Drag.33 cup from Central Gaul is potentially the latest datable vessel, as this form is common throughout the 2nd century however, the presence of multiple Drag.18/31 and 18/31R dishes, which tend to be replaced by the more bowl-like Drag.31 after the middle of the 2nd century, suggests a date of *c.*AD120-160 for the group (Webster 1996, 32-35).

As with G1009 above, the latest datable pottery is the Black Burnished ware that may date into the 3rd century. The remaining material could easily date within the 2nd century.

Area 10

Phase 2 (mid-1st to mid-2nd century AD)

Group 3002 Layers and compacted gravels

Contexts: L3689 (3663), (3694); L3808 (3805); L3826 (3826)

This group of layers and compacted gravels was the only evidence for Roman activity found in Area 10. A small assemblage of 37 sherds (0.26 EVEs, 397g) was recovered, with most of this from layer L3689 (33 sherds weighing 377g). The table and chart below detail the fabrics present.

Table 12 Roman pottery: Area 10 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
BB1	1	2.7%	0.00	0.0%	5	1.3%	5.0
CG	5	13.5%	0.00	0.0%	146	36.8%	29.2
GT	1	2.7%	0.00	0.0%	14	3.5%	14.0
GW	19	51.4%	0.13	50.0%	173	43.6%	9.1
OW	1	2.7%	0.00	0.0%	7	1.8%	7.0
Samian	7	18.9%	0.13	50.0%	43	10.8%	6.1
WS	1	2.7%	0.00	0.0%	3	0.8%	3.0
WW	2	5.4%	0.00	0.0%	6	1.5%	3.0
Total	**37**	**100.0%**	**0.26**	**100.0%**	**397**	**100.0%**	**10.7**

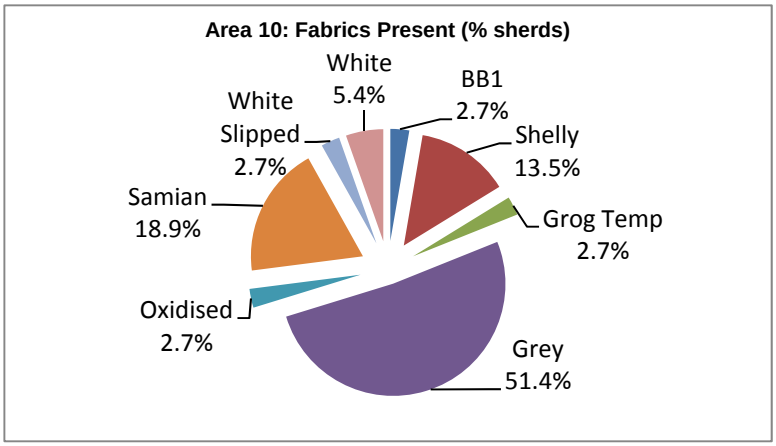


Figure 14 Roman pottery: fabrics present in Area 10 (% sherds).

Locally made grey, shelly and grog-tempered coarse wares account for most of the assemblage. All the samian ware is South Gaulish comprising two decorated bowls and a platter dating to the later 1st century. Non-local Romano-British pottery comprises five body sherds, including oxidised, white, white slipped and Black Burnished ware. Unfortunately much of the material is undiagnostic, however there is a grey ware flagon handle, one jar rim and body sherds with lattice, combed, rusticated and roulette decoration, suggesting a date range from the late 1st to the middle of the 2nd century. The Black Burnished ware is not identifiable to a specific form, but is unlikely to date before the second quarter of the 2nd century (Clark 1999, 120). Overall, the group of material probably dates to around the middle of the 2nd century however, the assemblage is small and much of the material is not closely datable.

Area 20

As with Area 4, the phasing and stratigraphic relationship between feature groups has been problematic and only the groups remaining in Roman phases are detailed below. The slightly reduced assemblage comprises 101 sherds weighing 2.559kg with an EVEs value of 1.59.

Phase 2 (mid-1st to mid-2nd century AD)

Group 7011 Roman Street

Context: (7099)

A single sherd of grey ware weighing 17g was recovered from a sondage through the road gravels. The body sherd is probably from a jar but is not closely datable and a date any time from the 2nd century onwards is all that can be given.

Group 7022 Miscellaneous Roman features close to road

Context: PH7149 (7148)

Two sherds (62g) from a shelly ware jar were recovered from the fill of post hole PH7149. The jar base most likely dates to the later 1st or 2nd century (Pollard 1994, 77) however, the material is abraded, and a later date for deposition within this feature is possible.

Phase 3 (mid-2nd to 3rd century AD)

Group 7007 Building 8 and occupation features

Contexts: WC7159 (7162); L7143 (7143); P7228 (7227)

Thirty-one sherds weighing 1.159kg with an EVEs value of 0.45 were recovered from features associated with Building 8, most of which came from layer (7143) with only six sherds recovered from the wall foundations (7162) and a post-hole (7227). The table and chart below detail the fabrics present.

Twenty-five sherds weighing 849g were recovered from layer (7143), comprising grog-tempered, grey and shelly ware jars, white ware, a sherd of Dressel 20 amphora and two samian dishes all dating within the 2nd century, possibly dating no later than *c.*AD160/70. However, there is also one sherd from an Oxfordshire red-brown colour-coated ware bowl which dates to the 4th century (Young 1977, 157-159).

Table 13 Roman pottery: Group 7007 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	1	3.2%	0.00	0.0%	198	17.1%	198.0
C	2	6.5%	0.00	0.0%	64	5.5%	32.0
CG	1	3.2%	0.00	0.0%	6	0.5%	6.0
GT	3	9.7%	0.00	0.0%	387	33.4%	129.0
GW	15	48.4%	0.15	33.3%	167	14.4%	11.1
MO	1	3.2%	0.20	44.4%	283	24.4%	283.0
Samian	4	12.9%	0.10	22.2%	30	2.6%	7.5
WW	4	12.9%	0.00	0.0%	24	2.1%	6.0
Total	**31**	**100.0%**	**0.45**	**100.0%**	**1159**	**100.0%**	**37.4**

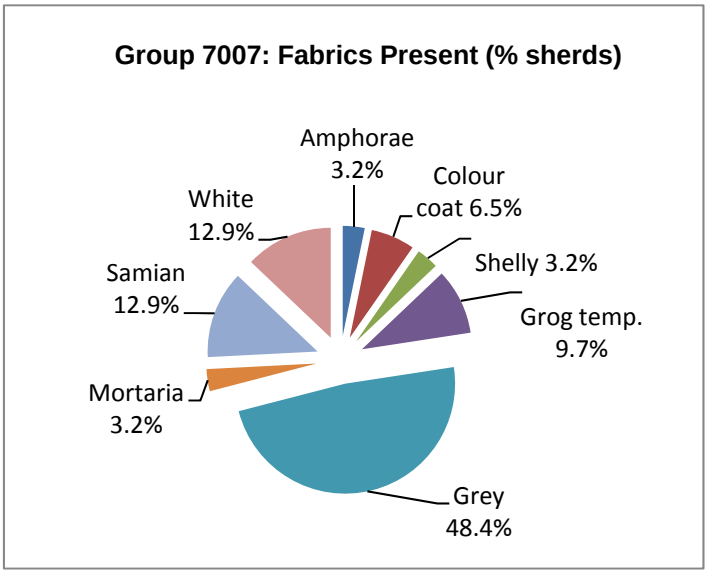


Figure 15 Roman pottery: fabrics present in Group 7007 (% sherds).

Five sherds (299g) were recovered from the wall foundations (7162). A colour-coated ware beaker from the Nene Valley suggests a late 2nd to early 3rd-century date range. A mortarium (283g), also from the Nene Valley, is comparable to forms dating to the 2nd century and most likely dates to the second half of the 2nd century (Gillam 1968, 26; Clark 1999, 146-148). The grey and white wares are undiagnostic but probably date within the 2nd century. One sherd from a 2nd century samian ware dish was recovered from post-hole (7227).

Whilst there is no escaping the 4th-century date of the Oxfordshire colour-coated ware, the remaining material in this group is much earlier. Although the total pottery recovered amounts to 31 sherds which is not a large assemblage, it does form a small but coherent group of material, probably dating to the latter part of the 2nd century or early 3rd century at the latest, if the Oxfordshire sherd is considered intrusive.

Group 7012 Cobble surface and sub-soil (pile box 2)

Contexts: L7086 (7084), (7086); L7085 (7085)

An assemblage comprising 58 sherds weighing 1.092kg with an EVEs value of 0.84 was recovered from a cobbled surface and sub-soil layer. The table and chart below details the fabrics present.

Table 14 Roman pottery: Group 7012 fabric summary.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
BB1	8	13.8%	0.05	6.0%	105	9.6%	13.1
CG	9	15.5%	0.10	11.9%	74	6.8%	8.2
GW	18	31.0%	0.36	42.3%	274	25.1%	15.2
MO	1	1.7%	0.00	0.0%	385	35.3%	385.0
OW	7	12.1%	0.16	19.0%	77	7.1%	11.0
Samian	15	25.9%	0.18	20.8%	177	16.2%	11.8
Total	**58**	**100.0%**	**0.84**	**100.0%**	**1092**	**100.0%**	**18.8**

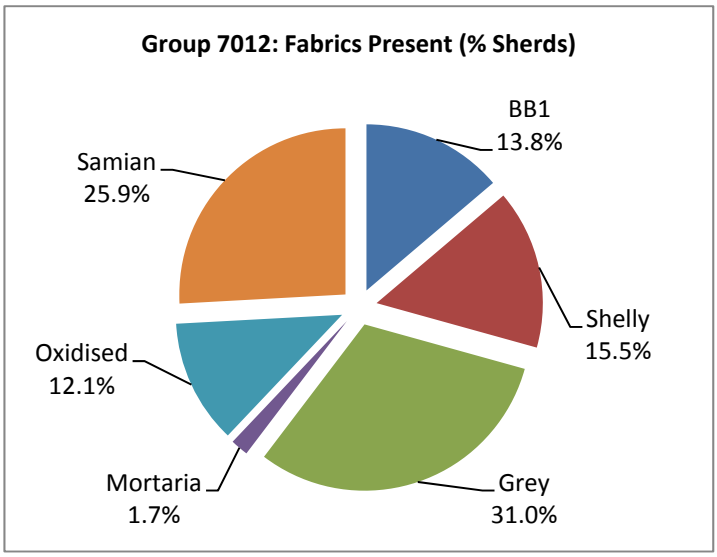


Figure 16 Roman pottery: fabrics present in Group 7012 (% sherds).

Twenty-eight sherds (0.40 EVEs, 306g) were recovered from a sub-soil layer (7085) underneath gravel layer L7086. Most of the pottery is grey ware including jars with rusticated decoration and Flavian-Trajanic lid-seated rims comparable to those found at the Vaughan Way site A2.2003. There is also a shelly ware jar with combed decoration. The samian ware includes 1st century Drag.18 platters and a Drag.18/31 dish dating to the first half of the 2nd century (Webster 1996, 32-35).

The cobble layer L7086 which sealed sub-soil (7085) revealed 30 sherds (0.44 EVEs, 786g) of pottery. Although some of the body sherds are not particularly diagnostic, the grey, shelly and oxidised wares include a lid, lid-seated jar and carinated jar suggesting a date range from the later 1st to the middle of the 2nd century. The samian ware dishes and bowls all date within the 2nd century, with some South Gaulish material perhaps dating to the later 1st. A

mortarium from the Verulamium region also dates to the late 1st-early 2nd century. The presence of Black Burnished ware sets this layer apart from the sub-soil underneath, as this is not likely to date before *c.*AD120. The forms present include a jar and flat rimmed bowls with acute lattice, indicating a date certainly within the 2nd century and perhaps as early as *c.*AD120-160 (Holbrook and Bidwell 1991, 108-109).

Phase 4 (later 3rd and 4th centuries AD)

Group L7065 Demolition spread

Context: (7065)

The cobbled surface in Group 7012 was sealed by a demolition spread, from which nine sherds (229g) of Roman pottery were recovered. The pottery comprises three grey ware jar bases, three samian vessels and a shelly ware bowl. The samian comprises a late 1st-early 2nd century Drag.18 platter and Drag.35 cup, and a Curle 21 bowl dating to the mid-late 2nd century (Webster 1996, 35; 46; 66). The grey ware jars are not particularly datable, but could easily date within the 2nd century. The latest datable pottery is a shelly ware bowl, comparable to a much later Harrold shell-tempered ware form dating to the mid-late 4th century (Brown 1994, 75-78).

Discussion

Area 1 provides the most information relating to Roman activity at Freeschool Lane, with over half the total pottery assemblage recovered from this area. The period of use of the earliest building, Building 4 (G5006) is not entirely clear, given the limited dating evidence. On the basis of the pottery recovered from G5006 itself, one possibility may be that the building's lifespan began during the 2nd century and continued into the 3rd. However, it is also possible that the colour-coated ware and slightly later amphora sherd which suggest a date into the 3rd century could be present as a result of slump from the later levelling later (G5024). Added to this, is the dating evidence from layer G6465 which overlies Building 4. Although stratigraphically it appears contemporary with the later industrial features in Phase 4, (G5029), none of the pottery dates beyond the 2nd century, the latest material most likely dating to the middle of the 2nd century *c.*AD140-150. The pottery from G5029 also dates to the 2nd century. Taken together, this suggests the possibility that Building 4 was in use during the 2nd century and probably not beyond the early 3rd century. The levelling layer G5024, which does have later 3rd-4th-century material mixed in with earlier pottery comparable to that associated with Building 4, indicates that the building had been demolished by the end of the 3rd century.

The hearths and industrial features of G5007 characterise the beginning of later Roman activity from the later 3rd century and into the 4th, with more evidence of regional wares such as colour-coated wares from the Nene Valley and Oxfordshire, later forms of Black Burnished ware and the appearance of later shelly wares such as those from the Harrold industry in Bedfordshire. The latest feature in Phase 4 is the accumulation of building debris and soil (G5021) which overlies the hearths. This group is markedly different from the other groups within the Roman phases, with a far larger proportion of later colour-coated wares,

Black Burnished wares and shelly wares and is likely to date to around the middle of the 4th century. The level of residual pottery is also low.

The sizeable assemblage recovered from the dark earth soils at G5028 is the most significant group recovered from the site, albeit technically residual material in an Early Saxon phase stratigraphically. Although a small quantity of 2nd century pottery is present, most dates from the mid/late 3rd and 4th centuries, including forms dating to the mid-late 4th century. The particularly interesting aspect of this assemblage is the presence of a variety of later Roman wares from the Nene Valley, Oxfordshire and Bedfordshire grouped together, demonstrating the latest forms reaching Leicester during the second half of the 4th century.

Area 4 revealed much less evidence for Roman activity, with one group of sub-soils (G1017) dating to the later 1st or early 2nd century, contemporary with the earliest sub-soils in Area 1. G1009 provides a suggestion of a 2nd century Roman building, but as the area was greatly damaged by truncation and post-Roman activity, it is not possible to say definitively whether or not a Roman building was present. The quantity of material certainly indicates the presence of something during the 2nd century and, if it was a building, it may well have been contemporary with Building 4 in Area 1. Area 10 only produced evidence for early Roman activity, with one group of layers and gravels dating up to the middle of the 2nd century.

The assemblage from Area 20 is also relatively small, most of which relates to a building and cobbled surface. Building 8 is dated to the second half of the 2nd century or possibly into the early 3rd, based on a few sherds found within the wall foundations. Most of the pottery associated with Building 8 was recovered from a layer (7143) most likely dating no later than *c.*AD160/170. The cobble surface and sub-soil (G7012) dates within the 2nd century, again perhaps no later than *c.*AD160, suggesting it is contemporary with Building 8. Interestingly, this also suggests Building 8 is contemporary with Building 4 in Area 1 and the possible building in Area 4. The only feature associated with later Roman activity in Area 20 is a demolition spread (L7065), from which a very small amount of pottery was recovered including a 4th century Harrold shelly-ware bowl.

Overall there is evidence of Roman occupation and activity from the later 1st century through to the end of the 4th. The buildings, (and potential buildings), all appear to date to the 2nd or early 3rd centuries, with later Roman activity based around the industrial features and hearths, along with demolition spreads, perhaps suggesting a change in the nature of occupation sometime during the 3rd century. The large accumulation of later 3rd and 4th-century pottery found in the dark earth layers G5028 provides the latest Roman material, with some dating to the second half of the 4th century. The layers of accumulated soil and debris may suggest the area was open ground when the latest Roman pottery was deposited. If this was the case, the presence of 14 Early Saxon pottery sherds in (6450) would indicate the area remained open ground for a long time prior to the collapse of the *macellum* wall.

THE EARLY TO MIDDLE ANGLO-SAXON POTTERY *Nicholas J. Cooper and Alice Forward*

Introduction

A total of 52 sherds of Early to Middle Anglo-Saxon pottery was retrieved, both from contemporary deposits of Phase 5 and, residually, within later deposits dating to Phases 7, 8, 9 and 11. The assemblage is one of four, totalling 106 sherds, examined as part of the current study of sites in the NE 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 studied (Cooper and Forward forthcoming), 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 2006, 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 (A. Pickstone and A. Connor 2008, 290 *TLAHS* **82**) 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 wares 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 sorted 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 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 2007), 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 forthcoming) 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).

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 below 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.

Table 15 Early to middle Anglo-Saxon pottery: concordance of fabric types

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?)		

Results

The quantification of the assemblage by fabric is summarised in Table 16 below.

Table 16 Early to middle Anglo-Saxon pottery: the quantification of pottery from Freeschool Lane by fabric.

Fabrics	Sherds	%sherds	Weight	%weight	EVEs	%EVEs
SX1	39	75	892	89	0.39	91
SX3	12	23	75	8	0.04	9
SX4	1	2	33	3	0	0
Total	**52**	**100**	**1000**	**100**	**0.43**	**100**

Table 17 Early to middle Anglo-Saxon pottery: the distribution of the assemblage by phase and fabric

Phase / Sherds	SX1 Quartz	SX3 Granite	SX4 Qu/Sh	Total
5.01	11	3		14
5.02	8			8
5.03	4	7	1	12
7.03	3			3
8	7	1		8
9	1	1		2
11	2			2
0 Unphased	3			3
Total	**39**	**12**	**1**	**52**

Discussion

Stratigraphic Distribution

The assemblage is significant in having a large proportion of it (34 of 52 sherds) occurring in contexts contemporary with its use, assigned to Phase 5 (*c*.450-650). The dating is supported by the occurrence of a small long brooch of the 5th or 6th century in a Phase 5.02 deposit (6439) (Sfno. 1155 see Cool this vol. No.22), and due to the lack of diagnostic objects of Middle Anglo-Saxon date no deposits have been assigned to that phase (Phase 6 *c*.650-850), although in light of the foregoing discussion it may be necessary to suggest the possibility that the pottery could indicate a date up to the end of the 7th century.

Three stratigraphically significant groups can be identified; 14 sherds from (6450) Phase 5.01 in Area 1, a dark earth below the collapsed macellum wall; eight sherds from soil and rubble associated with the macellum wall after its collapse (sg5027; contexts (6418), (6439), (6505) Phase 5.02, and 12 sherds from the fills (2051) and (2037) of the sunken-featured building (sg2046) in Area 7 belonging to Phase 5.03. The remaining 18 sherds were redeposited in later phases.

Fabric, form, decoration and surface treatment

The pottery from Phase 5.01 (6450) dark earth was associated with over 200 residual sherds of late Roman pottery, including some of the latest regional imports to Leicester dating to the

period *c.*360-410 from the Oxfordshire and South Midlands shell-tempered ware industries (see Johnson fig.10). Twelve separate Early Anglo-Saxon vessels are represented including two globular jars with upright rims (Figure 17.1) and a flat base. In terms of form, the pottery from the succeeding Phase 5.02 (6439) shows no variation with two globular vessels represented, one with an upright, slightly beaded, rim (Figure 17.2), and the fact that no examples of the granitic fabric SX3 are represented is probably not significant, given the small sample size. There is consequently no chronological distinction to be made between the pottery below the collapsed wall and above it, and therefore the event could conceivably have taken place at any point between the mid-5th and the end of the 7th century.

The 12 sherds from the fills of the sunken-featured building (sg2046) in Area 7 (Phase 5.03) belong to seven vessels including at least two jars, one with a flat base (Figure 17.5). The only two decorated sherds in the assemblage were retrieved from these fills. The first (2037), from a thick-bodied, possibly open vessel (Figure 17.3), has a pinched pattern of impressed fingernails executed with opposed thumb and index finger tips. Whilst the external surface and margin is oxidised, the core and internal margin and surface are reduced, and the presence of burnt deposits suggests it was used either for cooking or as a lamp. This type of decoration is unusual but does occur on open bowl forms such as the example from Eye Kettleby (Context 80) which is much smaller in size.

The second decorated sherd (2051) (Figure 17.4), belongs to a bossed urn with linear zone or panel decoration. The fabric is reduced throughout and the vessel is well burnished externally but with no surface treatment internally, which may indicate that such vessels were never intended for cooking even when they turn up in domestic assemblages. It is the only example of Fabric SX4 (quartz and fine shell), and may indicate that it comes from a different production centre to the other vessels. Similarly-decorated urns are known from the cremation cemetery at Thurmaston (Williams 1983, Fig.12.93; Myers 1977 fig.126.3325) and more generally across the East of England (Myers 1977, figs.218-225). A similar vessel also occurs as an accessory in Burial 1 at the Empingham I cemetery (Liddle, Glasswell and Cooper 2000, 30; comment by P. Blinkhorn and fig.13E). Paul Blinkhorn suggested a date of the later 5th to early 6th century for the vessel which agreed with the proposed dating of the great square-headed brooch from the same burial (Fig.12A). The occurrence of decorated sherds from the fill of SFB (sg2046) would tend to support a later 5th or 6th-century date for the group as a whole, rather than later. The rims of three other globular jars with upright, slightly flattened rims occurred residually from (6408), (5490) and (2035) (Figure 17.6-8 respectively).

Across the assemblage as a whole, the quartz-based fabric SX1 (75%) is more common than granite-based fabric SX3 (23%), and this is also true of the other small assemblages from Vine Street and Vaughan Way, as well as broadly across the City. This contrasts with the evidence from Eye Kettleby where granitic fabrics are most common. This may be because of different sources of supply, could have chronological implications, or may be simply a product of small assemblage size.

Apart from the pinch-decorated sherd, which may have been from a bowl, all of the identifiable vessels are globular jars with upright rims. A cooking or storage function is likely for most and, in a number of cases, the occurrence of burnt residues internally supports the first function. Both functions would be supported by the observation that whilst smoothing or burnishing of surfaces was common, it was more consistently applied to internal surfaces than externally, and in some cases wear of an internal burnished surface indicated long use and repeated cleaning.

Within the vessel group from fill (2037) of sunken featured building, was a small sub-rounded or lozenge-shaped slab of fired clay in fabric SX1. The slab has a plano-convex section, a maximum width of 14cms, with broken edges and underside, which is 2.5cms thick. The upper surface is oxidised and smoothed flat. It seems unlikely, given the thickness, that this is the base of an open vessel which has been cut down, but it has clearly been produced by a potter.

Table 18 Early to middle Anglo-Saxon pottery: catalogue

Illust	Context	Phase	Group	Description
1.	(6450)	5.01	SG5028	Upright rounded rim, burnished on both the interior andexterior.
2.	(6418)	5.02	SG5027	Upright beaded rim, burnished on the exterior and smoothed on the interior
3.	(2037)	5.03	SFB2046	Body sherd with pinched decoration.
4.	(2051)	5.03	SFB2046	Body sherd with line and boss decoration.
5.	(2051)	5.03	SFB2046	Basal sherd with an untreated exterior and smoothed interior.
6.	(6408)	7.03	X57_703	Upright flat rim, burnished on the exterior and untreated on the interior.
7.	(5490)	8	SG5491	Upright flat rim, burnished on the exterior and untreated on the interior
8.	(2035)	9	P2036	Upright flat rim, burnished on the exterior and untreated on the interior

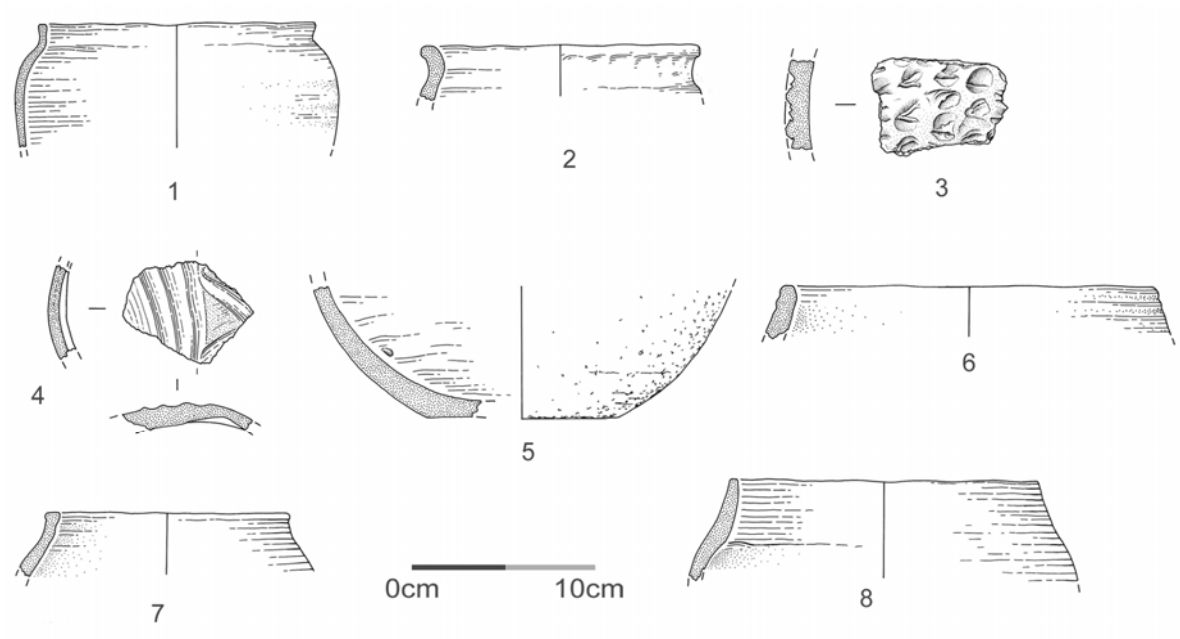


Figure 17 Anglo-Saxon pottery

THE MEDIEVAL AND LATER POTTERY AND TILE *Deborah Sawday*

Introduction

A total of 16,065 sherds of medieval and later pottery weighing 338519 grams were recovered from the site of which approximately 68 % by sherd count, 10,984 sherds, weighing 206,568 grams was targeted for detailed study. All the phased pottery from area 1 and that from selected contexts in area 10 was analysed. The pottery from areas 4 was examined with reference only to contexts directly associated with the medieval building in phase 8. Similarly, only those contexts relating to the street and medieval building or buildings on St. Peters Lane, in area 20, phases 7 and 8 were subjected to a 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 Saxon to the post medieval periods, with the 4952 sherds in Potters Marston, dating generally from the 12th to the early 14th centuries, typically being the most common ware, accounting for 45.08 % of the total number of pottery sherds. However, more unusually, approximately 22% of the assemblage by sherd count was in late Saxon or Saxo Norman Leicester, Lincoln, Northampton, Stamford, Saint Neots, Torksey and Thetford wares/type 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 19 and Table 20. Previously undefined fabrics without a known kiln source, which consequently have not been defined elsewhere, and those new to the series are described here.

LE – Ill sorted **s**ub angular and sub rounded and occasionally rounded quartz, ranging in size from 0.1 up to 1.5mm, is the major component of this hard fired ware, which is generally coarse to the touch, with a hackly fracture. The fabric is reduced, 10YR 5/1 to 6/1, but oxidised examples 10YR 6/2 also occur. Much of the pottery is wheel thrown with knife trimmed and, rarely, wire cut bases, although hand made examples are also found. Jars and a possible single crucible fragment are the only vessel types identified here in this ware. The pottery is thought to be a product of the Southgate Street kiln in Leicester, (Hebditch 1967-8) in the Thetford tradition, but is yet to be characterised by petrological analysis, and first occurs here in association with late Saxon Lincoln and Stamford wares in phase 7.01. (Figure 20)

RS1 - The moderate frequent sub rounded and angular quartz incursions generally range from 0.1 to 1.0mm in size, with occasionally larger examples. Rare iron ore is also present together with other rare mineral or calcite inclusions. The fracture is hackly and the surfaces hard with a rough texture. The surfaces and core range in colour from dark grey, N3 to N4, sometimes with dark reddish grey or light grey margins, 5YR 4/2 and 7/1. The sherds, which can be up to 10mm thick in section, are mostly hand or coil built, but some are more finely gritted and wheel thrown or finished in the late Saxon Thetford and Torksey tradition. One example of the latter was a wheel thrown jar from the site of medieval tenements in Leicester (Accession number A302 1973 6903). Others are medieval in form, such as the cauldrons found in a later medieval phase, phase 10, at Causeway Lane, Leicester, (Davies and Sawday 1999, fig.96.168, 169), which imitate metal vessels dating to the 13th and 14th centuries. (Figure 24)

RS2 – This fabric is very similar to RS1 but the ill sorted and sparse iron is relatively more frequent and the inclusions are larger, ranging in size from 1.0 to 4mm. (not illustrated)

RS3 – This fabric, which first appears in phase 7.1, only includes one identifiable vessel, a jar fragment with an everted rim**.** The frequent, ill sorted rounded and sub-rounded quartz inclusions range in size from 0.5 to 1.5mm, traces of calcareous inclusions, and sparse sub rounded quartz and unidentified mineral inclusions up to 2mm in size are also present. The surfaces are black, with a grey core, 10R 5/1 and dark red margins, 10R 2.5/2. The fracture is hackly and the surfaces are hard and rough on the exterior, the interior is smooth and appears to have been wiped horizontally, possibly with a cloth, and the inner rim smoothed with a finger. The dating is uncertain – but a similar vessel, a hand built jar with an everted, thickened rim and a shouldered profile, was found in the earliest post Roman contexts at Saint Nicholas Place, the dark earth in area 3, phase 2, in conjunction with Stamford ware and Potters Marston dating from the late 11th or 12th centuries. The degree of hardness and lack of variation in surface colour suggest that the pottery was made by a potter with a fair degree of expertise, and probably fired in a clamp or bonfire kiln. (Figure 24)

OS1 – This fabric occurs in Leicester and the country as a relatively minor ware. The sparse to moderate, rounded and sub rounded and ill-sorted quartz inclusions range in size from 0.5 to 2.0 or occasionally 3.0mm. Sparse and ill-sorted angular and platey shell up to 2.0mm in size and sparse to rare fragments of ironstone and flint are also present. The surfaces are hard and smooth to rough to the touch, the fracture is hackley. Surface colouration is generally pink to reddish yellow, 5YR 7/3 to 7/8, with a dark grey core, 7.5YR N4. Vessels are hand or coil built, and occasionally knife trimmed at the exterior basal angle. The most obvious characteristic of the pottery in this group is the speckled red and white surface appearance. The range of mineral inclusions may suggest more than one source; origins to the south east of the county seem most likely, including Brackley in Northamptonshire (M. Mellor pers. comm.) Jars, jugs and lamps are found in this fabric, which cannot stratigraphically be dated earlier than the 12th century. (Figure 25)

OS2 **–** This fabric has sparse to moderate well sorted, sub rounded quartz inclusions 0.1 or more usually 0.2 to 0.5mm in size. Angular and/or platey shell, ranging in size from 0.2 to 1.0mm or occasionally 2.0mm, and generally well sorted is also present, together with sparse rounded and ill-sorted iron ore, 0.1 to 0.2mm. Surface colour ranges from reddish yellow 5YR 6/6 to light brown, 7.5YR 6/4. The core and, occasionally the inner surface, is pale grey, N6. Wheel thrown jars, bowls and jugs are found in this fabric; though hand built examples also occur. The vessels are occasionally decorated with greenish yellow lead glaze and combed or inscribed wavy lines. Sources in the Northamptonshire region are suggested

for the pottery, which occurs in Leicester and the country only as a minor ware, and probably dates to the 12th or 13th centuries. (Figure 25)

MS3 – This coarse sandy ware probably encompasses several fabrics, but all share the common characteristics described below. The moderately frequent, ill-sorted sub rounded quartz inclusions range in size from 0.25 or less to 1.0 or occasionally up to 2.5mm. Iron ore is also present and occasional fragments of clay or keuper marl. The surfaces are hard, or very hard, and rough, the fracture is hackley. Surface colour ranges from very pale brown, 10YR 8/3 to 8/4, white, N8 to N8/1 and pink, 5YR 8/4, or reddish yellow, 5YR 6/6 to 7/6, often with a pink 5YR 7/4 or grey core, 5YR 5/1 to 6/1, and a glaze colour ranging from green to yellow. The more highly fired and very hard sherds are often grey or reddish grey, 5YR 5/1 to 5/2, with a grey core and glazes ranging in colour from olive yellow to yellowish red and some times a very dark grey. All the vessels are wheel thrown, often with knife trimming at the exterior basal angle, the cisterns and jugs with pegged handles. Most of the jars are unglazed, bowls and frying pans - which also found in this fabric - are glazed internally, and the jugs, the most common vessel form in this group, and cisterns are externally glazed. The earlier, softer fired vessels tend to have an even glaze cover, the later, harder fired examples have only patches of glaze, generally on the upper half of the pot, in the case of the jugs forming a bib below the pouring lip. Decoration is limited to slashing and stabbing on the rod or strap handles, incised wavy lines on the inner rims of the jars and thumbing round the neck of the cisterns. Ridge tiles are also found in this fabric which first occurs in phase 8 in area 10, where it is thought to be intrusive, and becomes more common in phase 9, whilst harder fired examples are typical of the late medieval assemblages in phase 10. Possible sources include kilns at Burley Hill/Allestree or Ticknall in Derbyshire and Staffordshire; with a suggested date range from *circa* 1200/1250 to *circa* 1400/1450 or possibly later, for the harder fired vessels in this group. (not illustrated)

MS7 – The ill sorted, sub rounded sparse to moderate quart inclusions range in size from 0.05 to 1.0mm. Iron ore and rare fragments of clay or keuper marl are also present. The surfaces are hard and rough, often with pitted appearance where the fragments of clay have flaked off or spalled during firing, and the fracture is hackley. Surface colour ranges from reddish yellow, 5YR 6/6 to 7/6, to reddish brown, 5YR 4/3, often with a reddish yellow core and very pale brown margins 10YR 7.3. The glaze is frequently yellowish red or dark reddish brown. A range of forms, jars, bowls, frying pans and cisterns, are known in the fabric, which becomes most common in the late medieval phase 10, though not all these types are found here. The bowls and frying pans are generally glazed internally, and the jugs and cisterns, externally as with MS3, the vessels are generally wheel thrown and often knife trimmed at the exterior basal angle. Ridge tiles are also found in this fabric, which is thought to date from circa 1200/1250 to circa 1400/1450 or later, and is typically found here in the medieval phase 9, becoming more common in phase 10. Possible sources include Burley Hill/Allestree and Ticknall, Derbyshire. (Not illustrated).

MS8 – The moderately frequent rounded and sub rounded and well sorted quartz inclusions range in size from 0.5mm and less to 1.0mm. The surfaces are hard and the fracture hackly. Surface colour ranges from pinkish or reddish grey 5YR 5/2 and 6/2 to pink or light brown, 7.5YR 7/4 and 6/4**.** This fabric group, which includes jars, bowls, jugs, first occurs here in phase 9, and becomes more common in the later medieval phase 10. Vessels are wheel thrown often with a dark brown or occasionally speckled yellow/brown and green/orange glaze. The fabric may include under fired examples of the Midland Purple fabric, MP2, and share similar origins in Derbyshire. (Not illustrated)

Table 19 The medieval pottery and ridge tile fabrics

Fabric	Common Name/Kiln and Fabric Equivalent where known	Approx. Date Range
LE	Leicester ware (1)	*c*.850-c.1100
ST3	Stamford ware – coarse, fabrics E/F, H A/D (2)	*c*.850/900-1050+
ST2	Stamford - fine, fabrics G B/(A) (2)	*c*.1050-12th *c.*
ST1	Stamford – 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/TO	Thetford ware/type (5)/ Torksey ware/type (6)	*c.*850-c.1200
NH	Northampton ware Northants CTS 130 (12)	*c*.850-1100
RS1-3	Reduced Sandy wares-? Local (7)	*c*.850-c.1400
PM	Potters Marston ware - Potters Marston, Leicestershire (8)	*c*.1100-c.1300/50+
SP1/2	Splashed ware - Nottingham Sandy/Fine fabrics NSP (9)	*c*.1100-1250
SP3/4	Splashed ware - Leicester (10)	*c*.1100-1250
OS1/2	Oxidised Sandy ware -? Local, Brackley fabric T68, (11) , Northants CTS fabrics 302-305, (12)/Oxidised Sandy ware 2? 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 CTS 330 (12)	*c*.1100-1400
CO2	Coventry fabric A (14), Warwick CTS SQ202/203 (15)	12th-14th *c.*
CO1	Coventry fabric D (14), Warwick CTS SQ21/SQ211 (15)	*c*.1150-1250
CO3	Coventry, Cannon Park ware Warwick CTS SQ23/SQ231/2 (15	
LY1	Lyveden/Stanion type - Northampton fabric T2 (13), Lyveden/Stanion 'B' ware, Northants CTS fabric 320 (12)	*c*.1200/1225-1400
CC1	Chilvers Coton fabric A/Ai (16), Warwick CTS WW01, WW012? (15)	*c*.1250-1400
CC2	- Chilvers Coton fabric C (16), Warwick CTS SQ30 (15)	*c*.1250/1300-1500
CC5	Chilvers Coton fabric C (16), Warwick CTS SQ30	14-16th 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 *c.*1350
NO5	Nottingham Developed Stamford type NDST (9) (18)	*c*.1175-C.1250
SC	Scarborough ware – formerly Nottingham off-white sandy ware (17)	13th-14th *c.*
BR2	Brill/Boarstall 'standard fabric', Oxford fabric OXAM (19)	*c*.1200-1400
BO2-4	Bourne A/B wares (20)	*c*.1250-1450
LI7	Lincoln Glazed ware (3)	*c*.1200-1500
MS1	Medieval Sandy ware – misc. fine quartz tempered fabrics	*c*.1200-1400
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 (21)	Early/mid 13th C.-1400
MS3	Medieval Sandy ware 3 – misc. coarse hared fired quartz tempered fabrics -? Burley Hill/Allestree/Ticknall, Derbyshire (21)	Early/mid 13th *c.*-c.1400-1400/1450
MS7	Medieval Sandy ware - misc. predominantly later medieval coarse red sandy fabrics, possibly from sources similar to the above.	Early/mid 13th *c.*-*c*.1400-1400/1450
MS8	Medieval Sandy ware – misc. sandy fabrics ? including under fired Midland Purple ware, fabric MP2 (21)	c.1300-1550
RS4	Late Medieval Reduced Sandy ware	
SA	Saintonge Earthenware (22)	

(1) Hebditch 1967

(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./ Prelim fabric series by V Nailor and J 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 and Scott 1984

(17 McCarthy and Brooks, 1988

(18) Coppack 1978, Coppack 1980

(19) Jope and Irvens 1981

(20) Healey 1973, Young *et al* 2005

(21) Coppack 1980, Cumberpatch 2002-2003

(22) Hurst 1986

Table 20 The later medieval and post medieval and modern pottery fabrics

Fabric Code	Common Name/Kiln and Fabric Equivalent where known	Approx. Date Range
MP1	Midland Purple ware 1 - Chilvers Coton fabric D (1)	*c*.1375-1550
MP2	Midland Purple ware 2 -? Ticknall, Derbyshire (2)	*c*.1375-1550
MP3	Midland Purple ware 3 –vitrified MS3, -? Ticknall, Derbyshire (2)	*c*.1375-1550
MP4	Midland Purple ware 4 –transitional into EA1.	c.1375-1550
TG1/2	Tudor Green ware/type/Surrey White ware (3)	*c*.1375/1400-1600
BO1	Bourne D ware (4)	
CW1	Cistercian ware 1 -? Chilvers Coton fabric E (1)	*c*.1450/1475-1550
CW2	Cistercian ware 2 -? Ticknall, Derbyshire (5)	*c*.1450/1475-1550
AN	Andenne ware	*c*.1450
DE2	Anglo-Netherlandish Tin Glazed Earthenware	*c*.1550+
MB	Midland Blackware - ?Ticknall, Derbyshire (6)	*c*.1550-1750
MY	Midland Yellow ware - ?Ticknall, Derbyshire (5) (6) (7)	*c*.1500-1725
RH	Rhenish Stoneware –Siegburg, Langerwehe, Raeren, Frechen/Cologne , Westerwald.(8)	*c*.1350-1700
EA1	Earthenware 1 – Coarse Post Medieval Earthenware - Chilvers Coton/Ticknall, Derbyshire(6) (9)	*c*.1500-1750
EA2	Earthenware 2 – 'Pancheon ware', Chilvers Coton/Ticknall, Derbyshire (6) (9)	17th C-18th C. +
EA3	Mottled ware	1680-1780
EA6	Earthenware 6 - Black Glazed Earthenware	16th C.-18th C.
EA7	Earthenware 7 - Slipware - Staffs etc	17th C.-19th C.
SW6	Stoneware 6 – Red Stoneware	1760+

(1) Mayes and Scott 1984

(2) Coppack 1980, Cumberpatch 2002-2003

(3) Pearce, Vince *et al* 1988

(4) Healey 1973

(5) Spavold and Brown 2005

(6) Gooder 1984,

(7) Woodfield 1984

(8) Hurst *et al* 1986

(9) Sawday 1989

The Pottery from Selected Groups by Area and Phase

Table 21 The medieval and later pottery: area 1 fabric totals by sherd numbers, weight (grams) and EVES

Fabric	Sherds	%	Grams	%	EVE	%
LE – Leicester ware	103	1.25	1367	0.86	2.165	1.81
ST3 – Stanford ware 3	666	8.00	9422	5.93	19.55	16.34
ST2 – Stanford ware 2	1064	12.78	9333	5.87	11.555	9.65
ST1 – Stanford ware 1	135	1.62	1036	0.65	1.045	0.87
LI1 – Lincoln Kiln Type Shelly ware	117	1.41	2097	1.32	4.25	3.55
LI2 – Lincoln Late Saxon Shelly ware	79	0.95	978	0.62	1.805	1.51
LI – Unclass. Lincoln Shelly ware	9	0.11	257	0.16		0.00
SN - St Neots/St Neots type ware	101	1.21	1540	0.97	3.495	2.92
TH - Thetford ware/type ware	8	0.09	268	0.17	0.395	0.33
TO - Torksey ware/type ware	142	1.71	2917	1.84	2.685	2.24
NH – Northampton ware	5	0.06	47	0.03		0.00
RS1-3 - Reduced Sandy wares	42	0.51	450	0.28	0.635	0.81
PM - Potters Marston ware	3693	44.35	76622	48.22	49.65	41.49
SP1/2 - Splashed ware 1/2	13	0.15	218	0.14	0.15	0.13
SP3/4 - Splashed ware 3/4	238	2.86	4481	2.82	2.516	2.10
OS1/2 - Oxidised Sandy ware 1/2	166	1.99	2743	1.72	1.79	1.49
OL - Oolitic ware	3	0.04	68	0.04	0.065	0.05
CS - Coarse Shelly ware	52	0.62	969	0.61	0.74	0.62
CO1/2 - Coventry ware 1/2	25	0.30	342	0.22	0.40	0.33
CO3 – Coventry/Cannon Park ware	3	0.04	18	0.01		0.00
LY1 - Lyveden/Stanion type ware 1	10	0.12	106	0.07	0.29	0.24
CC1 - Chilvers Coton ware 1	383	4.60	7261	4.57	1.835	1.53
CC2 - Chilvers Coton ware 2	58	0.70	1258	0.79	0.38	0.32
CC5- Chilvers Coton ware 5	2	0.02	93	0.06	0.11	0.09

NO1 -3 Nottingham ware 1 -3	207	2.48	3705	2.33	0.78	0.65
SC - Scarborough ware	1	0.01	18	0.01		0.00
BR2 - Brill/Boarstall ware/type 2	17	0.20	237	0.15	0.21	0.18
BO2/3/4 - Bourne ware 2/3/4	6	0.07	127	0.08	0.07	0.00
LI7 – Lincoln Glazed ware	1	0.01	108	0.07		0.00
MS1/2 - Medieval Sandy ware1/ 2	90	1.08	1604	1.01	0.71	0.60
MS3 - Medieval Sandy ware 3	155	1.86	3266	2.06	1.808	1.51
MS7 - Medieval Sandy ware 7	31	0.37	835	0.53	0.615	0.51
MS8 - Medieval Sandy ware 8	29	0.35	632	0.40	0.47	0.39
RS4 – Late Med. Reduced ware	1	0.01	18	0.01	0.055	0.05
MP1 - Midland Purple ware	72	0.86	3595	2.27	0.66	0.55
MP2 - Midland Purple ware 2	136	1.63	6335	3.99	1.075	0.90
MP3 - Midland Purple ware 3	49	0.59	1844	1.16	0.425	0.36
MP4 - Midland Purple ware 4	5	0.06	218	0.14		0.00
TG 1/2- Tudor Green/Surrey ware	31	0.37	133	0.08	0.41	0.14
BO1 - Bourne ware 1	4	0.05	84	0.05	0.075	0.06
CW1 - Cistercian ware 1	7	0.08	130	0.08		0.00
CW2/MB - Cistercian ware 2/M. Black	129	1.55	2971	1.86	1.645	1.38
AN – Andenne ware	1	0.01	5	0.00		0.00
DE2 – Anglo Netherlandish	1	0.01	12	0.01		0.00
MY - Midland Yellow ware	26	0.31	908	0.58	0.415	0.34
RH - Rhenish Stoneware -	15	0.18	407	0.25	0.875	0.72
MA1-3 - Martincamp Stoneware 1-3	2	0.02	50	0.03		0.00
EA1-11 - Earthenware s 1 - 11	190	2.28	7686	4.84	3.595	3.00
SW5 – Brown Stoneware	3	0.04	55	0.03	0.21	0.18
XY Unclassified ?continental import	1	0.01	14	0.01	0.07	0.06
Totals	8327	99.98	158888	100	119.339	100

Area 1

Phase 5.02 (intrusive material) (Not illustrated)

This material was found on or within the rubble spread G5027 south of the collapsed wall and so is not securely stratified in this sub-phase, deriving from Phase 7 deposits directly above.

Table 22 The medieval and later pottery: area 1, phases 5.02 and 5.03, plots 56 and 57, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST3 – Stamford	1	21	
LI1 – Lincoln	2	13	0.09
LI2 – Lincoln	1	17	
SN – Saint Neots	2	34	
PM – Potters Marston *	3	16	
Totals	9	101	0.09

Group G5027 (SG5027) contexts (6418) and (6505) Rubble spread south of Collapsed Wall Plot 56

Assemblage: 8 sherds, 95 grams, 0.09 EVEs, 11.9 grams ASW.

Five sherds of late Saxon pottery: Lincoln Kiln type Shelly ware, fabric LI1 and Late Saxon Shelly ware, fabric LI2, Saint Neots, and the coarse Stamford fabric ST3 dating from the late 9th or 10th centuries were recovered from contexts (6418) and (6505). The only identifiable vessel was a small jar paralleled at Lincoln (Young *et al* 2005, fig.45.93). The sherd was sooted externally and at the top of the interior rim. All the other sherds in this small group were sooted externally, one part of a convex base in ST3 was both sooted and burnt, and was also externally knife trimmed. Three sherds of Potters Marston*, weighing sixteen grams, were also recovered from context (6418), but were not included in the original quantification of the group on the database. Two of these joining sherds were oxidised with a grey core and are relatively hard fired, suggesting a date in the 12th century or possibly the early 13th century. Recognition of the ease of contamination of this rubble context has allowed these to be identified as intrusive.

Phase 5.03

Group G5003 (SG5003) Sunken Featured Building

Assemblage: 1 sherd, 6 grams, 0.0 EVEs, 6 grams ASW.

A sherd of Lincoln Kiln type Shelly ware, dating from the late 9th or 10th centuries is uncertainly attributed to the lower fill (6314) of the SFB cut (5495). If this deposit does relate to the use, or immediate post-use of the SFB then it is likely to be intrusive, but as the stratigraphic account makes clear (Vol.1 p.47), the midden deposits (6304) of 9th or 10th-century date which directly overlie this context, and slumping to fill the SFB, contained 42 sherds of late Saxon pottery discussed in Phase 7.01 below.

Phase 7

Table 23 The medieval and later pottery: identifiable vessel forms, area 1, phases 7.01, 7.02 and 7.03 by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/ Storage Jar	Cup/jar	Bowl	Spouted Bowl	Spouted Pitcher	Dish	Jug	Bottle	Lamp	Crucible
LE	14/274/ 1.375									1/2
ST1/2/3	95/1948/ 10.115	5/40/ 0.485	24/754/ 1.05	4/410/ 0.1	14/259/ 1.025		2/39/ 0.44	1/4/ 0.07	4/125/ 0.385	
LI1/2	46/1116/ 3.88		7/153/ 0.42	2/136 0.1	1/34/ 0.23	1/31/ 0.04				
SN	16/282/ 1.47		6/268/ 0.51		1/84					
TO	7/281/ 0.41		9/212/ 0.235	2/100/ 0.205					1/352/ 0.31	
RS1	6/78/0.345		1/24/0.075							
PM	10/348 0.86									
OL			1/19/0.065							
OS	2/27/ 0.86		1/23/ 0.05							
Totals	196/4354/ 18.565	5/40 0.485	49/1453/ 2.46	8/646/ 0.404	16/377/ 1.255	1/31/ 0.04	2/39/ 0.44	1/4/ 0.07	5/477/ 0.695	1/2

Phase 7.01 (Figure 20 - Figure 24)

Plot 56 Rear frontage

Group G5002 late Saxon Building Sub Groups G6462 Hearth and G6443 Beam Slots/Post Hole

Assemblage: 4 sherds, 45 grams, 0.075 EVEs, 11.25 grams ASW.

A reduced sherd of the Lincoln Late Saxon Shelly ware, fabric LI2, and three externally sooted sherds in Lincoln Kiln Type Shelly ware, fabric LI1, make up this small group, which includes a fragment with rectangular rouletting and an abraded jar rim in the latter. The closest parallel at Lincoln was not in the Kiln Type ware but in a local late Saxon Shelly

ware, LSLOC, fabric D, (Young *et al* 2005, fig.61.360). These sherds, which have been identified by Jane Young as Lincoln products, probably date from the 10th century.

Sub Group SG6441 Demolition Layer over Building G5002

Assemblage: 16 sherds, 218 grams, 0.073 EVEs, 13.62 grams ASW.

Eight of the sixteen sherds in this context have been identified by Jane Young as the Lincoln fabrics LI1 and LI2, probably dating from the 10th century. The five jar rims in these fabrics are all everted and externally sooted, and included at least two examples which could be paralleled at the kiln site (Young *et al* 2005, fig.45.114 and fig.46.121). The remainder of the group was made up of Stamford and Torksey wares, the identifiable wares comprising a lid seated jar rim in the coarse Stamford ware ST3, and an inturned bowl rim in the latter fabric.

Sub Group X56_701 Miscellaneous contexts Plot 56

Assemblage: 64 sherds, 1387 grams, 1.895 EVEs, 21.67 grams ASW.

Bowls with rouletting on the rims, including a spouted vessel, a small rouletted jar or cup and everted and lid seated jars, many also decorated with rouletting, in the Stamford fabric, ST3, dominated this assemblage. Jars, some with rouletting on the shoulder and a shallow bowl or dish were present in the Lincoln fabric LI1 (Young *et al* 2005, fig.45.99 and 114. fig.46.116, fig.49.164) and another jar in LI2. Fragments of a jar and a bowl in Saint Neots type ware and unidentifiable sherds in Leicester ware were also present.

Table 24 The medieval and later pottery: area 1, phase 7.01, plot 56, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	11		126			
ST3 - Stamford	35	41.6	848	51.3	1.08	40.0
ST2 - Stamford	2		13			
LI1 - Lincoln	17		280		0.91	
LI2 - Lincoln	6		89		0.21	
SN – Saint Neots	3		159		0.415	
TO - Torksey	10		135		0.085	
Totals	84		1650		2.7	

Plot 57 – frontage

Sub Group G5009 Hearth in the Dark Earth,

Assemblage: 8 sherds, 58 grams, 0.0 EVEs, 7.25 grams ASW.

The Leicester ware fabric LE, together with Lincoln fabric LI1 and LI3 and a sherd of the Stamford ware ST3 made up this small group. There were no identifiable vessel types.

Sub Group G5030 Contexts (6304) and (6309) Backfills of the Sunken Featured Building

Assemblage: 42 sherds, 444 grams, 0.685 EVEs, 10.5 grams ASW.

The coarse Stamford ware, ST3, dominated this small assemblage by sherd count, weight and EVEs, the identifiable vessels: a jar with a lid seated rim, and another small jar with an everted rim, and a small cup or beaker, Kilmurry form 9. Also present was a tiny fragment from an everted jar rim in Saint Neots type ware and a bowl with an inturned rim and rouletting on the exterior flange in the Lincoln Kiln type Shelly ware, (Young *et al*, fig.50.178), and another rouletted sherd in the same fabric. Young notes that vessels with roller stamping on the rims in this fabric are unlikely to date later than the mid 10th century (Young *et al* 2005, 47).

This sunken featured building had been constructed on top and within the Macellum wall, G5027 in Plot 57. The site excavator notes that the uppermost fill of the buildings, context (6304), in which most of this pottery was found, is similar to the dark earths sealing all the Roman deposits in this area, probably dating from the 6th to 8th centuries AD. However, the backfill of the sunken featured building and the associated layers in this phase are evidently part of a sequence post dating these early or middle Saxon deposits.

Group G5034, Sub Groups G6362, G6377 Post Holes/Pits at the Eastern end of the collapsed Macellum Wall G5012

Assemblage: 14 sherds, 75 grams, 0.0 EVEs, 5.35 grams ASW.

Only one sherd, a tiny fragment of Leicester ware, weighing two grams was found in the post hole G6377 cutting the top of the macellum wall, G5012, under the dark earth context (5280). Similarly fragmentary sherds in the two Lincoln Shelly wares, the coarse Stamford ware ST3 and Saint Neots and Torksey type wares type ware were also found in the two of the other post holes or pits running down the centre of the plot. A fragment of a mould or crucible was recorded in context (6388), G6377**.**

Group G6242 Plot 56/57, Sub Group G6155 Frontage Stone Spreads and Make Up/SW edge of Macellum Wall

Assemblage: 9 sherds, 148 grams, 0.07 EVEs, 16.4 grams ASW.

The only identifiable vessel was a handled jar in Torksey type ware with a thumbed rim and a ridged strap handle. Sherds of coarse Stamford ware, a sherd of Saint Neots type ware and a glazed piece of fine Stamford ware dating from *c.*1050 were also present. Of note was a fragment of the Reduced Sandy ware, RS3, a similar fabric occurred in the earliest post-Roman deposits at 9 St Nicholas Place, Leicester **(**Sawday forthcoming**).**

Table 25 The medieval and later pottery: area 1, phase 7.01, plot 57, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	26		343		0.69	13.5
ST3 - Stamford	91	31.1	913	23.4	1.39	27.2
ST2 - Stamford	8		71		0.16	
LI1 - Lincoln	46	15.7	886	22.7	1.17	22.8
LI2 - Lincoln	30		298		0.63	12.3
LI - Lincoln	1		20			
SN – Saint Neots	37		304		0.39	
TO - Torksey	46	15.7	987	25.3	0.47	
RS1 – Reduced Sandy	1		8			
RS 3 – Reduced Sandy	5		50		0.12	
RS – Reduced Sandy	1		21		0.09	
Totals	292		3901		5.11	

Plot 56/57 – boundary

Sub Group G5008 - Dark Earth

Assemblage: 214 sherds, 3053 grams, 4.23 EVEs, 14.2 grams ASW.

These dark organic deposits lay above the collapsed Roman wall in Plot 57, and several joining sherd were noted in these layers. Over all, the coarse Stamford ware, fabric ST3, was the most common fabric by sherd count, accounting for 31% of the totals. The Lincoln Kiln Type and Late Saxon Shelly wares, LI1 and LI2, followed with 27% and the Torksey type wares with just over 22% respectively. The Saint Neots type wares, the Reduced Sandy wares and the Leicester wares each made up less than 10% of the sherds in the assemblage. However, the Lincoln wares are the most common in terms of weight, the Torksey type ware making up the second largest group. In terms of EVEs, Lincoln was once again predominant, followed by Stamford and the Torksey wares.

Not surprisingly, jars were the most common vessel type. These were generally represented by everted rim fragments with shouldered profiles in the Lincoln Shelly wares,(Young *et al* 2005, figs.45, 46 and 53), one of the vessels was decorated with square rouletting on the shoulder (*ibid* 2005, fig.45.115). The Saint Neots type ware jars were generally too fragmentary to identify by rim type, but one example was everted and externally thickened similar to vessels found in Northampton (McCarthy 1979, fig.93.416). A Torksey type jar

had an everted squared rim similar to that found at kiln 4 at the production centre (Barley 1981, fig.10.1). An inturned bowl rim with very rough diamond rouletting on the exterior has also been identified as an oxidised Torksey type, similar to a vessel found at Kiln 3, (*ibid* 1981, fig.9.15), where a small number of pots were accidentally oxidised by firing (*ibid* 1981, 278).

Three inturned bowl rims in LI1 could also be paralleled in the kiln type material at Lincoln, (Young *et al* 2005, fig.49.169, fig.50.179 and 177), the latter with rectangular rouletting on the exterior flange. Young notes that vessels in Lincoln-Kiln type Shelly ware with rouletting on the rims are unlikely to date later than the mid 10th century (*ibid* 2005, 47). Two other more unusual vessels in this fabric are a spouted bowl, and what has been tentatively identified as the rim of a spouted pitcher (*ibid* 2005, fig.48.154). Part of a glazed small bowl, Kilmurry form 12, was found in the fine Stamford ward ST2, whilst jars in the coarse Stamford ware, ST3, included examples with simple everted or lid seated rims, Kilmurry forms 2, 3 and 11.

Virtually all the layers had been truncated by later activity**,** but one exception was context (6139), which lay under the junction of two masonry walls along the boundaries of plot 56 and plot 57. The seven sherds in this layer included two jar rims in an unclassified Reduced Sandy ware and Leicester ware, fabrics RS and LE. A rim from a small jar in the Lincoln ware, LI1, could be paralleled by a medium sized vessel at Lincoln in the same fabric (*ibid* 2005, fig.45.101). Part of the rim of a small globular cup or beaker, possibly Kilmurry's form 9-13, was also recorded in the Stamford ware ST3. Whilst an example of this particular rim type has been recorded in a quarry at Stamford Castle in Group 44, in contexts dated to the early 12th century, these vessels were made throughout the production period of the Stamford industry, often apparently associated with sets of jugs or pitchers, (Kilmurry 1980, 118, 1410). A similar cup has been recorded in early Stamford ware at Lincoln in association with occupation dated to the late 9th to early 11th century, (Young *et al* 2005, 71, fig.63.389) and a date in the late 9th or 10th century is also suggested for this small group of pottery as a whole.

Phase 7.02 (Figure 20)

Plot 57 – Frontage

Sub Group G5095 Beam slot, Sub Groups G5084, G5115 Post Holes, Sub Group X57_702 Contexts (5202), (5108) Layers

Assemblage: 18 sherds, 226 grams, 0.41 EVEs, 12.5 grams ASW.

Late Saxon pottery which is possibly residual in this small assemblage included a fragment of an inturned bowl rim in Saint Neots type ware, an everted jar rim in LE5, both in the layer, context (5202), and a lid seated jar in ST3 in the post hole G5115. A glazed spouted pitcher, Kilmurry form 5-81, in the same fabric as the latter and dated at the Stamford Castle site from the late 11th century (Kilmurry 1980, fig.52, 112) was also found in context (5202). Other unidentifiable late Saxon sherds occurred in Leicester ware, LE, the Torksey type TO, the Thetford ware TH, and the Lincoln Late Saxon Shelly ware, LI2.

Table 26 The medieval and later pottery: area 1, phase 7.02, plot 57, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	4		54		0.01	3.12
ST3 - Stamford	7	38.8	78	34.5	0.26	81.2
ST2 - Stamford	2		13			
LI2 - Lincoln	1		4			
SN – Saint Neots	1		18		0.05	15.6
TH - Thetford	1		42			
TO - Torksey	1		10			
RS – Reduced Sandy	1		7			
Totals	18		226		0.32	

Phase 7.03 (Figure 20 - Figure 24)

Plot 56

(i) Frontage

Sub Group SG6266 Floor Layer

No deposits were recorded here in this phase.

(ii) Rear frontage

Group G5011 Deposits, perhaps relating to Structures subsequent to the Beam Slot Building 3, G5002 in Phase 7.01

Assemblage: 126 sherds, 2788 grams, 5.26 EVEs, 22.1 grams ASW.

One of the lowest levels in G5011, the layer (6381), respected the beam slot Building 3, G5002 in phase 7.01. Four pottery sherds were found in this context, including a jar rim in the Lincoln fabric LI1 (Young *et al* 2005, fig.46.119) and a sherd in LI2, both dating from the 10th century. However, a sherd of fine Stamford ware, ST2, is dated from the mid 11th century, and a jar in fabric ST3, with a simple everted rim similar to Kilmurry's form 2-30/31, was dated to *c.*1060-1090 by the excavators at Flaxengate (Kilmurry 1980, fig.21.109, 110). The 47 sherds in context (6380), above, with an average sherd weight of 15.7 grams, contained almost exclusively late Saxon pottery in Leicester, Lincoln and Stamford wares and Saint Neots and Torksey type wares. Identifiable vessels included jars in Lincoln Kiln Type Shelly ware (Young *et al* 2005, figs.45.103 and fig.46.116) and a bowl with an inturned rim in Late Saxon Shelly ware, (*ibid* 2005, fig.53.238). A jar with an everted and externally thickened rim in Saint Neots type ware, and a lamp and a jar in the coarse Stamford ware ST3, Kilmurry forms 19 and 2-36 (Kilmurry 1980) were also present, the latter possibly dating from the early or mid 11th century.

Table 27 The medieval and later pottery: area 1, phase 7.03, plot 56, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	20		301		0.53	6.3
ST3 - Stamford	153	61.4	3066	60.7	5.385	64.7
ST2 - Stamford	16		215		0.43	
LI1 - Lincoln	11		223		0.56	
LI2 - Lincoln	5		78		0.235	
SN – Saint Neots	10		256		0.575	6.9
TH - Thetford	1		23			
TO - Torksey	17		637		0.435	5.2
RS1 – Reduced Sandy	1		10			
RS – Reduced Sandy	1		4			
OL - Oolitic	2		37		0.065	
PM – Potters Marston	7		126		0.105	
OS1 - Oxidised Sandy	5		73			
Totals	249		5049		8.32	

Context (6137), which lay above (6380), contained sherds almost exclusively in the coarse Stamford ware ST3, predominantly rounded jars, with simple everted or lid seated rims, Kilmurry forms 2 and 3, form 3-04 being especially common, (*ibid* 1980), two jars having with diamond and rectangular rouletting on the shoulder, dating from the 10th and 11th centuries. Another group of jars in ST3, in Kilmurry forms 2 and 3, some also decorated with rouletting, occurred in a layer above, in context (6056). However these vessel forms are predominantly 11th century in date. Other late Saxon pottery types in associated layers included a saucer lamp in Torksey type ware, similar to Shelly ware forms at Lincoln, (Young *et al* 2005, figs.52.215-217, fig.79.528) in context (6136) and a large bowl, Kilmurry form 7-20, (Kilmurry 1980), with rectangular rouletting on the shoulder, and part of a spouted pitcher in Saint Neots type ware, both in (6056). Two sherds of Potters Marston weighing twenty grams in (6056), and an upright bowl with a hammer headed rim, suggest a terminal date in the late 11th or 12th centuries for this group.

Plot 56

Sub Group X56_703 Layers (295), (5917), (5952), (5969), (6301), (6302) and (6346)

Assemblage: 100 sherds, 1851 grams, 2.075 EVEs, 18.5 grams ASW.

Potters Marston and the Oxidised Sandy ware fabric, both thought to date from the 12th century, or possibly the late 11th century, occurred in every context save (5917), but accounted for less than 7% of the assemblage by sherd count. Two inturned bowl rims in St Neots type ware, jars in the Leicester fabric LE and the Lincoln fabrics LI1 and LI2 were also present. However, the bulk of the pottery, 73 sherds weighing, 1393 grams, representing over 70% of the totals by sherd count, was in the Stamford ware, fabrics ST3 and ST2, and included jars, Kilmurry forms 2 and 3, and a pedestal lamp, Kilmurry form 10. Twelfth century forms in this fabric comprised a form 1 bowl, and a form 11 jar, (Kilmurry 1980).

Sub Groups G5702, G5974 – Truncated Pits

Assemblage: 20 sherds, 383 grams, 9.85 EVEs, 19.15 grams ASW.

Two spouted pitchers, Kilmurry forms K5-43/45 and possibly K-41 (Kilmurry 1980) in the fine Stamford ware ST2, dating from the early or mid 12th century occurred in context (6025), one of the lower levels in the pit G5702.

The Stamford fabrics ST3 and ST2 were also found in the back fill of the pit G5974, the 12th century forms including jars, Kilmurry forms 4 and 11. The pit also contained a fragment of another form 5 spouted pitcher in ST2 (Kilmurry 1980) and two sherds of Potters Marston, one part of a cylindrical jar (Davies and Sawday 1999, fig.88.41), and all possibly of a similar 12th-century date.

Plot 56/57

Sub Group X56_57_703 Miscellaneous Contexts

Assemblage: 86 sherds, 1164 grams, 2.19 EVEs, 13.5 grams ASW.

The late Saxon and Saxo Norman wares dominated and jars dating from the 11th century in the coarse Stamford ware ST3, with lid seated and everted rims, were the most common identifiable vessel type in the group. The assemblage also included a jar with a simple everted rim in Saint Neots type ware, two more, possibly slipped jars in the Lincoln Shelly wares, LI1 and LI2, and a spouted vessel in Torksey type ware. Two Potters Marston jars, one with thumbing on the exterior rim, were also present, (Davies and Sawday 1999, fig.87, fig.88.28), together with a glazed fragments of Coventry ware.

Table 28 The medieval and later pottery: area 1, phase 7.03, plot 56/57, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	3		15			
ST3 - Stamford	32	37.2	451	38.7	1.16	52.9
ST2 - Stamford	18	20.9	84		0.06	
ST1 - Stamford	3		30			
LI1 - Lincoln	8		177	15.2	0.45	20.5
LI - Lincoln	2		25		0.08	
SN – Saint Neots	5		46		0.1	
TO - Torksey	2		103		0.08	
RS1 – Reduced Sandy	1		23			
PM – Potters Marston	9		163	14.0	0.26	11.8
OL - Oolitic	1		31			
OS1	2		16			
Totals	86		1164		2.19	

Plot 57

(i) Rear frontage

Sub Group G5014 Pit

Assemblage: 35 sherds, 544 grams, 1.275 EVEs, 15.5 grams ASW.

Residual late Saxon sherds in Leicester, Stamford and Saint Neots type wares are present. Vessels in ST3 dating from the 10th or 11th centuries include a spouted jar and pitcher, forms 8-06 and form 5-45, and bowls forms 1/14 and 12/13 in ST3 (Kilmurry 1980). A collared jar, a spouted pitcher form 5-35, and a jug fragment in the same fabric (*ibid* 1980) and a tiny sherd of Potters Marston in one of the lower pit fills, context (5634), are dated from the 12th century.

(ii) Frontage

Group G5038 Post holes and Post pad sealed by occupation layer G0401

Assemblage: 38 sherds, 323 grams, 0.335 EVEs, 8.5.6 grams ASW.

A small amount of residual Saxo Norman pottery was present in this group, but Potters Marston and the Oxidised Sandy ware, dating from the late 11th or 12th centuries were found in contexts (5002), (5003) and (50280.

Sub Group G0401 Occupation Layers, Sub Group G5033 Post Hole

Assemblage: 42 sherds, 546 grams, 1.445 EVEs, 13.29 grams ASW.

Five sherds of Potters Marston and the very fine Stamford ware ST1, occurred here. The initial production of the latter, fabric B at Stamford, is dated from the third quarter the 12th century at (Kilmurry 1980, 130), (Leach 1987), and the fabric is thought to have appeared in Leicester in the later 12th or early 13th century. Three jars in the fine Stamford ware, ST2, included a possible 12th-century form 4-51, and two bowls, similar to forms 1-19 and 1-14 also dated from the early or mid 12th century at Stamford (Kilmurry 1980). Residual Lincoln Shelly wares, Saint Neots type ware and Stamford ware jars in ST3 dating from the 10th or 11th centuries, and a possible spiked lamp in the same fabric were also present.

Table 29 The medieval and later pottery: area 1, phase 7.03, plot 57, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	8		78		0.315	5.8
ST3 - Stamford	73	28.6	949	28.4	2.39	
ST2 - Stamford	81	31.7	950	28.4	0.915	16.9
ST1 - Stamford	5		35		0.125	
LI1 - Lincoln	6		100		0.205	3.8
LI2 - Lincoln	10		110		0.12	
SN – Saint Neots	18		310		0.45	
TH - Thetford	3		58		0.09	
NH - Northampton	3		18			
RS1 – Reduced Sandy	1		24		0.075	
RS – Reduced Sandy	1		14		0.135	
PM – Potters Marston	36	14.1	582	17.4	0.41	
OS1 – Oxidised Sandy	9		100		0.16	
CO1 - Coventry	1		8			
Totals	255		3336		5.39	

A single sherd of the fine Stamford ware, ST2 was recovered from sub group G5033, context (5032.) This was the backfill of a small post hole sandwiched between the phase 7.02 metalled surface G5060, and the layer G0401, above.

Group G5035, Sub Group G0254, Pits or Post Holes cutting Sub Group G0401 Occupation Layer

Assemblage: 10 sherds, 156 grams, 0.205 EVEs, 15.6 grams ASW.

No finds were recovered from the backfill of the gulley or beam slot Sub Group G0240. However, these pits or post holes which possibly related to a structure associated with the beam slot and which cut the occupation layer Group G0401, did contain dating evidence.

The backfill of one of these features, within Group G5035, Sub Group G0285 contained two large fragments of Potters Marston with an average sherd weight of 42 grams, including a jar rim (Davies and Sawday 1999, fig.88.28) generally associated with cylindrical vessel forms and dating from the late 11th or 12th century. Another pit or post hole G0254, which cut the possible floor layer Sub Group G0249 which lay above Group G0401, also contained residual pottery and an upright hammer headed Potter Marston jar (Davies and Sawday 1999, fig.88. 49).

Residual late Saxon Lincoln and Stamford wares in this assemblage included a jar with an everted rim in ST3, and a sherd, possibly with an internal slip, in LI2.

Plot 57/58 - Rear Frontage

Pit/Posthole Sub Group G333

Assemblage: 6 sherds, 112 grams, 0.29 EVEs, 18.6 grams ASW.

This Sub Group G333, lies within G5035 also noted above, in plot 57. The identifiable finds included a jar rim in Leicester ware, and an unusual vessel, a bottle, possibly form 18-05 (Kilmurry 1980), in the coarse Stamford ware ST3.

Table 30 The medieval and later pottery: area 1, phase 7.03, plot 57/58, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
LE – Leicester ware	1	7	0.06
ST3 - Stamford	1	4	0.07
LI1 - Lincoln	1	9	
PM – Potters Marston	3	92	0.16
Totals	6	112	0.29

Plot 58

Sub Group P6036 - Pit

Assemblage: 3 sherds, 42grams, 0.4 EVEs, 14.0 grams ASW.

The identifiable vessels comprised a small jar rim (Young 2005, fig.45.95) in Lincoln Kiln Type Shelly ware, and a jug, Kilmurry form 6, in the Stamford fabric ST2. Part of a strap handle with thick yellow glaze, in ST3, is thought to be from a spouted pitcher.

Table 31 The medieval and later pottery: area 1, phase 7.03, plot 58, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST3 - Stamford	1	4	
ST2 - Stamford	1	23	0.3
LI1 - Lincoln	1	9	0.1
Totals	3	42	0.4

Phase 8.00

Plot 56

(i) Frontage

Sub Groups SG0348 Hearth, SG0363 – Floor associated with Hearth SG0364

Assemblage: 55 sherds, 518 grams, 0.585 EVEs, 9.4 grams ASW.

A single fragment of coarse Stamford ware ST3 is associated with the hearth, SG0348. This fabric is dated generally to the late Saxon period, but fabric A continued in use at least until *c.*1200 (Kilmurry 1980, 133, fig.38).

Potters Marston from the floor associated with the Hearth SG0364, dominated the assemblage, with jars similar to those in phase 8.01, the most common vessel form. Also present was a bottle, possibly dating to the late 12th century, and a bowl, both in the fine Stamford ware ST2 (Kilmurry 1980). Apart from the bottle, no unusual vessels were present and none of the pottery could be directly related to any specialist processes that might have been associated with the two hearths.

Sub Groups SG5564 Truncated Pit

Assemblage: 31 sherds, 303 grams, 0.44 EVEs, 9.7 grams ASW

This small group included a collared jar in the Stamford ware ST2 probably dating to the early 12th century (Kilmurry 1980, 130, 136-137). Two Potters Marston jar rims in types generally associated with shouldered profiles (Davies and Sawday 1999, fig. 88.33 and fig.90.68) were also present.

Table 32 The medieval and later pottery: area1, plot 56 phase 8.0, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	4		82			
ST3 – Stamford ware	15		185		0.545	
ST2 – Stamford ware	167		1393		1.825	15.3
ST1 – Stamford ware	23		178		0.105	
LI1 - Lincoln	3		31			
LI2 - Lincoln	3		28			
SN – Saint Neots	4		71		0.305	
TH - Thetford	1		30		0.19	
TO - Torksey	3		60			
RS – Reduced Sandy	3		24		0.025	
PM – Potters Marston	432		12433		8.4175	70.8
OS1 – Oxidised Sandy	44		625		0.305	
CS – Coarse Shelly	5		89			
CO1 - Coventry	3		35			
SP3 - Leicester Splashed	23		637		0.16	
NO1 - Nottingham	1		1			
Totals	734		15902		11.8775	

(ii) Rear frontage

Sub Groups SG5862 Wall Footing, SG5737, SG5753, SG5795 Beam Slots,SG0418, SG5736, SG5835 Single Post Holes, G5016 EW Line of Post Holes

Assemblage: 68 sherds, 921 grams, 1.11 EVEs, 13.5 grams ASW.

Little obviously residual late Saxon or Saxo Norman pottery was present in contexts which all contained at least one sherd of Potters Marston dating from the late 11th, or more probably the 12th or early 13th centuries, save for the single fragment of the fine Stamford ware ST2 in the post hole SG5835. The Splashed ware, SP3 and the Coarse Shelly ware, fabric CS, both dating from *c.*1100, are also present. Collared jars are common in ST2, and identifiable vessels in Potter Marston include a straight sided bowl and a dripping dish (Davies and Sawday 1999, fig.93.103). The latter vessel form is thought to date from the early 13th century, a similar vessel in the same ware first occurs at the Vaughan Way excavations in phase 8.02. (Sawday 2009a)

Sub Group X56_8, Contexts (407), (416), (5201), (5976) Surfaces/Floors

Assemblage: 46 sherds, 641 grams, 0.365 EVEs, 13.9 grams ASW.

These fragmentary layers may be associated with the structural features noted above, and all contained sherds of 12th or possibly early 13th century Potters Marston.

Sub Groups SG5491, SG5514, SG5578, SG5667, SG5689, SG5775, SG5938 Pits

Assemblage: 321 sherds, 8311 grams, 7.0125 EVEs, 25.8 grams ASW.

Residuality was relatively limited and very few sherds of late Saxon or Saxo Norman pottery were present. Over 82% of the assemblage by sherd count was in Potters Marston, which also accounted for 6.2825 EVEs, whilst the Stamford fabrics ST2 and ST1 and the Leicester Splashed ware SP3 accounted for less than 14% of the totals by sherd count.

Jars make up a minimum of approximately 42 vessels, or 5.6475 EVEs, all but three of the vessels in Potters Marston. Collared rims generally associated with earlier medieval cylindrical profiles were present (Davies and Sawday 1999, fig.88), together with typologically later more shouldered types (*ibid* 1999, fig.89. 53 and fig.90.67-69, 71), together with two storage jars in the same ware. Two flared and one carinated bowl (*ibid* 1999, fig.92.95) and fragments of three jugs, thought to date from the mid or later 13th century were also present in Potters Marston. Some of these vessels were decorated with combed wavy or horizontal lines, and bands of rouletting were a common feature on many of the jars and sherds from unidentified vessels**.** The group has a relatively large average sherd weight, but some abrasion was evident.

Plot 56/57 Rear frontage

Sub Groups SG0311 Fragment of North-South Rear Wall, SG0247, SG0251, SG0264, SG5584, SG6361 Pits on Boundary

Assemblage: 65 sherds, 1081 grams, 1.67 EVEs, 16.6 grams ASW.

Only three sherds were recovered from the fragment of north south wall at the rear of the frontage, SG0311, these included a probably residual jar with a simple everted rim and diamond rouletting on the shoulder, form 2-49, dating from the late 9th or early 10th centuries in the coarse Stamford ware, ST3, (Kilmurry 1980, 96).

The pits contained predominantly 12th-century pottery, with cylindrical jars in Potters Marston much in evidence, (Davies and Sawday 1999, fig.87.20, fig.88.19, 29, 34 and 41). Of note was part of a spout in Potters Marston either from a spouted pitcher or bowl in SG0251, the rim and handle of a similar vessel has also been identified in phase 8.1, plot 4 at Vine Street. A jar in the Coventry fabric CO2, also dating from the 12th century, is paralleled in Coventry A ware at Coventry, (Redknap and Perry 1996, fig.16.114). A typologically early fragment of the Chilvers Coton fabric CC1, with yellowish green and darker green mottled glaze, dating from *c.*1240/50 is possibly intrusive in SG0264, which was heavily truncated by later features.

Table 33 The medieval and later pottery: area1, plot 56/57 phase 8.0, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	3		30			
ST3 – Stamford ware	4		74		0.21	
ST2 – Stamford ware	7		67		0.09	
TO - Torksey	3		58			
RS2 – Reducd Sandy	1		35			
PM – Potters Marston	33	55.9	597	61.0	0.745	67.4
OS1 – Oxidised Sandy	1		4			
CO2 - Coventry	4		61		0.06	
SP4 - Leicester Splashed	2		42			
CC1 – Chilvers Coton	1		10			
Totals	59		978		1.105	

Plot 57 – Frontage

Sub Groups SG6219 (6115) Wall Footings E/W Wall, SG6031 (6114) N/S Wall, SG5200 (5200), SG6104 (6104) N/S frontage street Wall Footings, SG6262 (6259) walls, SG6406 Well, SG5728 (5231) pit.

Assemblage: 184 sherds, 2232 grams, 3.095 EVEs, 12.1 grams ASW

Three sherds of the fine Stamford ware, ST2, probably dating from the 12th century and including a glazed strap handle, were found in the earliest wall in the sequence, SG6219 which fronted on to the street. Six sherds in the same fabric, including a small jar, form 11-06 (Kilmurry 1980), thought to date from the later 12th century occurred in the wall footings SG6031 above. A similar date may be given to the bulk of the pottery assemblage, 138 sherds with an EVEs of 7.2, which was recovered from the massive wall foundations running north- south to the rear of the building, SG5200. Two sherds of presumably residual pottery, in the late Saxon Leicester ware, fabric LE, were found in the northern edge of the north-south wall, SG6262, which cut the late Saxon, phase 7.01 Sub Group G5008, layer **(**5280). Residual late Saxon pottery and four sherds of Stamford, ST2, and single sherds in the Oxidised Sandy wares, OS and OS1, the latter dating from the 12th century were found in a possible well to the rear of the site, SG6406. Two more sherds of Potters Marston in the wall SG6104 are dated from the 12th century.

Table 34 The identifiable vessel forms, area1, phase 8.0, plot 57, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/Storage Jar	Bowl	Spouted Pitcher	Beaker	Dish	Jug/ Pitcher	Bottle	Lamp	Dripping Dish	Fire Cover
LE	4/71/ 0.35									
ST2/3/ 1	39/485/ 3.34	8/185/ 0.75	3/79/ 0.365	1/3/ 0.1	1/11/ 0.0	1/24		1/15/ 0.15		
LI1/2	6/61/ 0.33	3/57/ 0.185						1/14/ 0.18		
SN	1/7/0.08							2/74/0.51		
TH		1/36/ 0.08								
TO	4/85/ 0.355	1/44/ 0.9					2/14/ 0.275		2.24	
RS1	1/11/0.1									
PM	167/5105/ 5.6325	10/388/ 0.51				8/237/ 0.165				3/96
SP3	10/286/ 0.761					6/142/ 0.12				
OS1/2	19/448/ 0.04					2/72				
CS	1/21/0.06									
NO3						1/9				
Totals	252/6580/ 11.4085	23/710/ 1.615	3/79/ 0.365	1/3/ 0.1	1/11/ 0.0	18/464/ 0.285	2/24/ 0.275	4/103/ 0.84	2.24	3/96

Potters Marston accounted for 39% of the totals by sherd count. However, there was a high degree of residuality, the late Saxon Leicester, Stamford, Lincoln, Northampton, Saint Neots and Torksey types making up another 43% of the assemblage. The rest of the group was in Saxo Norman and early medieval Stamford wares, ST1 and ST2, Oxidised Sandy wares. OS1 and OS2, and predominantly Leicester Splashed ware, SP2.

Few profiles survive, but collared jars in Potters Marston are the most common type, generally associated with cylindrical forms. Only one shouldered vessel was identifiable here, (Davies and Sawday 1999, fig.88, fig.89.60), and only one Potters Marston jug,

suggesting the assemblage may date to the mid 12th century at the latest. Other identifiable vessels included jars in Torksey type ware, Lincoln Late Saxon Shelly ware, LI2, and the collared form 4 in the Stamford ware, ST2, (Kilmurry 1980) and Splashed ware (Davies and Sawday 1999, fig.94.134). More unusual was part of a pedestal lamp in Saint Neots type ware, and a form 9 beaker in the Stamford fabric ST2 (Kilmurry 1980.)

Table 35 The medieval and later pottery: area1, plot 57, phase 8, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	10		166		0.35	
ST3 – Stamford ware	98		971		1.86	
ST2 – Stamford ware	209	20.3	1752	10.8	2.845	19.10
ST1 – Stamford ware	29		186			
LI 1 - Lincoln	13		174		0.3	
LI2 - Lincoln	8		105		0.395	
LI - Lincoln	6		35			
SN – Saint Neots	6		106		0.59	
TH - Thetford	2		52		0.08	
TO - Torksey	27		440		0.72	
NH - Northampton	1		9			
RS1 – Reduced Sandy	4		28		0.1	
RS2 – Reduced Sandy	3		20			
RS3 – Reduced Sandy	2		20			
PM – Potters Marston	502	48.9	10252	63.5	6.3075	42.3
OS1 – Oxidised Sandy	31		577		0.325	
OS2 – Oxidised Sandy	11		131		0.075	
CS – Coarse Shelly	5		48		0.06	
SP2 - Nottingham Splashed	1		15			
SP3 - Leicester Splashed	56		1038		0.881	
NO3 - Nottingham	1		9			
Totals	1025		16134		14.8885	

Sub Groups X57_8 Contexts (192), (299), (5727), (5827), (5965), (6119), (6147), (6354) Surfaces/Floors, SG0319 Occupation Layers in North East Corner of Structure, SG0211 Surface/Floor in South West Corner of Structure

Assemblage: 36 sherds, 530 grams, 0.515 EVEs, 14.7 grams ASW

There was little obvious evidence of residuality in this small group, which included a fragment of cupper glazed Stamford ware, dating from *c.*1150 (Kilmurry 1980, 134) and jug fragments in the fine Stamford ware ST2, Potters Marston and the Leicester Splashed ware SP3, many of the vessels decorated with glaze, incised or combed lines or thumbing. At least one shouldered Potters Marston jar was identifiable, together with jar rim commonly associated with a shouldered profile (Davies and Sawday 1999, fig.88.34, fig.89.60).

Sub Groups X57_8 Contexts (6169), (6344), SG5016, SG6438, SG6515 Pits

Assemblage: 169 sherds, 2966 grams, 1.9 EVEs, 17.5 grams ASW

Potters Marston dominated the assemblage, representing 61.5% of the totals by sherd count, and was present in all the pits suggesting that little residual material had survived in the surrounding soils used for the backfills. Shouldered jars (Davies and Sawday fig.90.68, 70, 73, 78) and storage jars (*ibid* 1999, fig.91.85 and 88) in this ware and in Splashed ware (*ibid* 1999, fig.94.134-135), together with copper glazed Stamford ware in SG6515 suggest a date from the mid or later 12th century for this group, which, unusually, contained no jugs which are often found in contexts of this date.

Plot 57/58

Sub Groups SG0243 Boundary Wall Footings

Assemblage: 37 sherds, 547 grams, 1.065 EVEs, 14.7 grams ASW

Sherds of possibly residual Stamford ware, ST3, include a bowl and a jar with an everted rim, similar to Kilmurry forms 1-18 and 4-58 (Kilmurry 1980). An unclassified sherd, fabric XY, part of a bowl rim with an inscribed wavy line on the rim top also occurs in this group, which also contains collared jar rims in Potters Marston (Davies and Sawday 1999, fig.88.28, 32 and 34), and part of a storage jar in the same ware as well as sherds of the very fine Stamford ware, ST1. A terminal date from the 12th century seems likely for this assemblage.

Table 36 The medieval and later pottery: area1, plot 57/58, phase 8.0 , by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware						
ST3 – Stamford ware	7		88		0.61	47.8
ST2 – Stamford ware	17		131		0.21	
ST1 – Stamford ware	3		32			
PM – Potters Marston	18	33.9	381	48.7	0.31	24.3
OS1 – Oxidised Sandy	5		85		0.075	
CO1 - Coventry	1		29			
SP3 - Leicester Splashed	1		21			
XY - ?continental import	1		14		0.07	
Totals	53		781		1.275	

Plot 58

Table 37 The identifiable vessel forms, area1, phase 8.0, plot 58, by fabric, sherd numbers, weight (grams) and Eves

Fabric	Jar	Bowl	Jug
LI1/2		1/48/0.85	
SN		1/39/0.11	
PM	1/14/0.1		76/2063/0.05
Totals	1/14/0.1	2/87/0.195	76/2063/0.05

Frontage

Sub Groups SG0390, SG6077Robber Trenches, P5859 Pit, SG6185 Pile Box

Assemblage: 132 sherds, 2819 grams, 0.345 EVEs, 12.1 grams ASW

Some of the earliest material occurred in the backfill of the east-west robber trench SG0390 on the frontage, from which twenty sherds were recovered including nine sherds of the fine Stamford ware ST2, dating from the mid 11th or 12th centuries and four sherds of early thin walled Potters Marston as well as residual late Saxon Lincoln, St Neots type ware and the Stamford fabric ST3. A sherd of similarly early material, an inturned bowl rim in the Lincoln Kiln Type Shelly ware, LI1 (Young *et al* 2005, figs.49 and 50) was recovered from the

medieval pit, P5859, cutting into levels at the back of the plot. However Potters Marston occurred in all the contexts, with jugs the dominant vessel form (Davies and Sawday 1999, fig.93.105/107, fig.94.119/200). Another vessel was paralleled in medieval levels above the Roman forum in Leicester (Leicester Museums Accession No. A302.1987.7168, dr.112). A Potters Marston jar, with an upright rim, dating from the 12th or 13th century (Davies and Sawday 1999, fig.90.68) was also present. A single sherd of the Nottingham ware, NO2: a fabric transitional from the Nottingham Splashed into the medieval glazed wares and dated at Nottingham from *c.*1230 was found in the pit P5859.

Table 38 The medieval and later pottery: area1, plot 58 phase 8, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 – Stamford ware	4		30			
ST2 – Stamford ware	12		145			
LI - Lincoln	2		94		0.085	24.6
SN – Saint Neots	1		39		0.11	
PM – Potters Marston	104	78.7	2422	85.9	0.15	43.5
OS1 – Oxidised Sandy	2		35			
CS – Coarse Shelly	3		44			
SP3 - Leicester Splashed	2		6			
NO2 - Nottingham	2		4			
Totals	132		2819		0.345	

Phases 8.01, 8.02 and 8.00 (Figure 20, Figure 23-Figure 25)

Plot 56,

Table 39 The medieval and later pottery: identifiable vessel forms, area 1, phases 8.01, 8.02 and 8.0, plot 56, by fabric, sherd numbers, weight (grams) and Eves .

Fabric	Jar/Storage Jar	Bowl	Spouted Pitcher	Dish/ Ped. Dish	Jug/ Tubular Pitcher	Bottle	Lamp	Dripping Dish	Pipkin
ST2/3	37/658/ 3.74	10/166/ 0.725	4/82/ 0.3	3/72/ 0.13	4/84/ 0.075	2/9/ 0.1	2/22/ 0.225		
LI1/2	2/51/ 0.05	1/24/ 0.05							
SN	4/71/ 0.305								
TO	1/38								
TH	1/30/ 0.19								
RS	1/6/ 0.025								
PM	126/6629/ 9.4975	14/793/ 1.165			5/348/ 0.31			2/82/ 0.12	2/285
SP3	2/107/ 0.215				2/62/ 0.16				
OS1	11/207/ 0.305								
Totals	185/7799/ 14.3875	25/983/ 1.94	6/151/ 0.3	3/72/ 0.13	11/494/ 0.545	2/9/ 0.1	2/22/ 0.225	2/82/ 0.12	2/285

Phase 8.01 (not illustrated)

Plot 56 – Frontage

SG6266 Floor Layer

Assemblage: 3 sherds, 22 grams, 0.0 EVEs, 7.3 grams ASW.

Three sherds of pottery in the Stamford fabrics ST2 and ST3 were recovered from the floor, context (6266). The former probably dates from the mid 11th century and is residual in this phase

Table 40 The medieval and later pottery: area 1, phase 8.01, plot 56, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	4		62			
ST3 - Stamford	43	21.1	558	22.5	0.945	39.1
ST2 - Stamford	97	47.3	939	37.8	0.64	26.5
ST1 - Stamford	4		23		0.11	
LI2 - Lincoln	4		28			
SN – Saint Neots	1		7			
RS1 – Reduced Sandy	1		11			
PM – Potters Marston	39	19.2	616	24.8	0.61	25.2
OS1 – Oxidised Sandy	8		195			
CO2 - Coventry	1		13			
CC5 – Chilvers Coton	1		26		0.11	
Totals	203		2478		2.415	

Sub Group G6300 Floor, Contexts (6230), (6229) Layers Below and above Beam Slot, SG6235 Beam Slot, SG5508 Occupation Deposit, SG6266 Hearth

Assemblage: 96 sherds, 1116 grams, 1.52 EVEs, 11.6 grams ASW.

Six of the of the thirteen sherds in the lowest layers in this phase SG6300, contexts (6286), (6299)and (6300) are in ST3, including a thumbed strip from a storage jar with thick yellow glaze internally and externally, possibly dating from the mid or late 10th century (Kilmurry 1988, fig.17.50). However sherds of the fine and very fine Stamford fabric ST2 and ST1, the latter in fabric B, dated at Stamford from the later 12th century and a fragment of what has been tentatively identified as the Coventry ware CO2, Coventry A ware, dated from *c.*1100 at Coventry, (Ratkai and Soden 1997) were also found in context (6286).

The layer below the beam slot, context (6230), produced parts of pedestal or spike lamps, and/or a possible crucible in ST2, and single sherds of Potters Marston and the Oxidised Sandy ware OS1. This is the first appearance, stratigraphically, of this latter fabric, which – like Potters Marston - is thought to date from *c.*1100. Another sherd of Potters Marston and residual Leicester, Lincoln and Stamford wares dating from the 10th and 11th centuries occurred in context (474) associated with the beam, slot, SG6235. Three more sherds of OS1 and five sherds of Potters Marston together with a tubular spouted pitcher in fabric ST2, probably dating from the mid 12th century were also found in the occupation layer SG5508 above, whilst one of the two hearths in this phase, SG6300, produced three possibly residual sherds in the Stamford fabric ST3 and ST2.

G0471 Rubble and Mortar Make up Layers

Assemblage: 51 sherds, 753 grams, 0.605 EVEs, 14.7 grams ASW.

Twenty of the 51 sherds in this small assemblage were in Potters Marston, which occurred in every context containing pottery in this group. The identifiable Potters Marston vessels included four jar rims, two paralleled at Causeway Lane, Leicester (Davies and Sawday fig.88.29 and 34), another had an upright collared rim, the other was everted. A thumbed strap handle from a jug, probably of mid or late 12th-century date, and a straight sided bowl with an everted rim were also present in this ware. A jar rim with thumbing on the exterior in the Chilvers Coton fabric CC5 was paralleled at one of the earliest kilns in the sequence, Site 12, Kiln 30, (Mayes and Scott 1984, Table 1, fig.81.545). This ware, fabric B at the kiln site, first appears in the earliest phases of pottery production from *c.*1240/1250, (*ibid* 1984, 40-41), and is presumed to be intrusive in context (435), one of the later levels in the group.

Table 41 The medieval and later pottery: area1, plot 56 phase 8.02, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	2		19			
ST3 – Stamford ware	14		168		0.32	
ST2 – Stamford ware	44	15.9	307	9.5	0.385	13.0
ST1 – Stamford ware	11		93			
LI - Lincoln	1		24		0.05	
SN – Saint Neots	1		9			
TH - Thetford	1		31			
TO - Torksey	12		66			
RS – Reduced Sandy	2		6			
PM – Potters Marston	166	60.1	2220	68.8	1.975	67.0
OS1 – Oxidised Sandy	4		27			
SP3 - Leicester Splashed	18		256		0.215	
Totals	276		3226		2.945	

Phase 8.02 (Figure 25)

Plot 56

Sub Group SG0469 Layers representing possible slump into pit/hearth context (365)

Assemblage: 268 sherds, 3178 grams, 2.945 EVEs, 11.8 grams ASW.

Approximately 26.8% of the pottery by sherd count is in late Saxon Leicester, Lincoln, Stamford and Saint Neots type wares as well as Torksey type ware and the fine Stamford ware ST2, which may well also be residual in this phase. However, Potters Marston dominates the assemblage, accounting for 59.7% of the totals by sherd count, and the ware occurs from the earliest level with pottery, context (469). The finest Stamford ware, ST1 fabric C, dating generally from the mid 12th century (J. Young pers. comm.), (Kilmurry 1980, 133) is also found in this and subsequent contexts within the pit.

Jars are the most common Potters Marston vessel, accounting for 1.545 of the EVE totals. Almost all of these were only identified by their rims, but are generally associated with cylindrical profiles, (Davies and Sawday 1999, fig.88.28, 29, 34, 37 and 41, fig.89.55). Vessel form fig.88.34 (*ibid* 1999) was particularly common. Decoration was limited to the thumbing on the exterior rim of two of the pots. A storage jar, two bowls, one upright with a horizontal rim flange, and a jug with a cordon below the rim, and a pipkin handle – all in Potters Marston – were also present. Similar vessels have been identified at Causeway Lane, Leicester (*ibid* 1999, fig.91.84, fig.92.93 and fig.93.116).

The Leicester Splashed ware, SP3, makes its first appearance in this phase, but with eighteen sherds and only representing 6.7% of the assemblage this is, typically a relatively minor ware here as elsewhere in the city,(*ibid* 1999, 175). The only identifiable pots in this fabric are two jars, one with a simple upright rim and an internal bevel, the other paralleled at Causeway Lane (*ibid* 1999, fig.94.135). Generally only the Splashed ware jugs are glazed, but at least four sherds of unknown vessel type showed evidence of glaze spots, or glaze runs. However, as noted at Causeway Lane, much of this glazing may be accidental, (*ibid* 175) evidence that these sherds, if not intentionally glazed, were made or fired in the presence of other vessels which were glazed.

Jars and bowl in Stamford ware were also recorded, together with a glazed pedestal dish decorated with inscribed wavy lines in ST3, and spouted and tubular spouted pitchers in ST2 and ST1 respectively. The latter was decorated with two twisted clay strands of clay, M51 (Kilmurry 1980, 312) on the central groove of the handle. Also of note was a fragment of Thetford ware or type ware, possibly part of a large handmade storage jar, decorated with a clay strip stamped with a cruciform design, paralleled at Thetford, (Rogerson and Dallas 1984, fig.168.270).

Phase 9.00 (Figure 25, Figure 26)

Plot 56

Table 42 The medieval and later pottery: identifiable vessel forms, area1, phase 9.00, plot 56, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/Storage Jar	Bowl	Spouted Pitcher	Jug/Tub. Spouted Pitcher	Dripping Dish	Fire Cover	Cup
ST2/3/1	30/386/ 2.0	1/23/ 0.15	4/74/ 0.425	5/102			
LI2	1/13/ 0.85						
SN	1/22/ 0.155						
TO	7/114/ 0.185						
PM	130/2890/ 7.87	18/490/ 0.99		47/1497/ 1.36	1/87/ 0.12	1/93/ 0.125	
SP3				8/318/ 0.275			
OS/1	4/75/ 0.25			1/88/ 0.0			
CS	1/13/ 0.075			1/20/ 0.0			
CO1				1/16/ 0.075			
LY1				4/30/ 0.0			
CC1/2		1/31/ 0.075		53/872/ 0.225			
NO1-3				28/1118/ 0.075			
MS2/3				12/48/ 0.405			
TG2							1/7/0.0
Totals	174/3513/ 10.62	20/544/ 1.215	4/74/ 0.425	160/4543/ 2.415	1/87/ 0.12	1/93/ 0.125	1/7/ 0.0

Sub Groups SG0437, Wall stub, SG5099 *E W Wall adjacent to Privy***,** SG5745 *massive North-South Wall, SG5784 Robber Trench of the former, SG5871 possibly Disturbed Rubble Wall*

Assemblage: 81 sherds, 1310 grams, 0.95 EVEs, 16.1 grams ASW

There were no identifiable vessels, save for obviously residual jars, storage jars and pitchers or jugs in Stamford ware and Potters Marston. Unidentifiable body sherds in the Medieval Sandy ware fabrics MS2 and MS3, the Chilvers Coton fabrics CC1 and CC2 and the Nottingham ware NO3, dating from *c.*1240 or 1250 occurred in every context save SG5871 and SG784. These latter contexts contained three sherds in the Stamford fabric ST2, together with Potters Marston with a terminal date in the 12th or, possibly, the 13th century.

The five sherds in the wall footings G0437 included body sherds in Potters Marston and a late Saxon or early medieval sherd of Northampton ware. Also present in the same context was part of a thumbed jug base, possibly wheel thrown, in a white fabric with quartz and large ill sorted shale, rock and other inclusions, similar to Chilvers Coton fabrics A and B (Williams 1984, 196-197). This sherd has been identified as an early variant of the Chilvers Coton fabric CC1, similar early 'gritted' fabrics being noted at Much Park Street Coventry (Wright 1988, 45) dating from *c.*1240 or 1250 (Ratkai and Soden 1997).

Sub Groups SG5270 Rectangular Hearth, SG0372 Stake Hole possibly associated with Rectangular Hearth, SG5607 Oven/Kiln, SG5608 Hearth Disuse, SG5570 Pit/Levelling near Hearth, SG5190 *Masonry Rubble associated with Hearth*, SG5608

Assemblage: 48 sherds, 606 grams, 0.43 EVEs, 12.6 grams ASW

No pottery finds were recovered from the earlier sequence of hearths on the frontage, but ten sherds were found in SG5270 and the associated stake hole SG0372. Further to the rear of the plot, 38 sherds of pottery were found in another oven or kiln SG5607, the associated features SG5570 and SG5190 and in a context relating to the disuse of the feature, SG5608. The pottery was typically domestic in nature and none could be linked to any industrial processing associated with the use of the hearths.

Much of the pottery, including 12th or early 13th century jars in Potters Marston was evidently residual, as a brown glazed sherd of the Chilvers Coton fabric CC1, possibly dating from *c.*1300, and a fragment of the Brill Boarstall type ware, BR2, dating from *c.*1250 were found in the backfills of both ovens, in SG5270 and SG5607. The layer, context (5598), in SG5608, associated with the disuse of the oven SG5607, contained an orange glazed fragment of the Chilvers Coton fabric CC2, fabric C at the production site, which may date from *c.*1240/1250, but was more common after *c.*1300 (Mayes and Scott 1984, 40-41).

Group PR5125 (SG5101, SG5123, SG5125, SG5318, SG5367) Stone Privy Group, Sub Groups SG5245Privy Fills, SG5397 Post Hole associated with truncated cellar.

Assemblage: 41 sherds, 744 grams, 0.515 EVEs, 18.1 grams ASW

The bulk of the pottery came from within the stone built privy structure. Only one sherd, a highly fired fragment of CC1; possibly dating from the 14th century, was found in the privy back fill SG5245, and three more possibly 12th century sherds were found in the post hole SG5397. The lack of pottery from the fill of the privy suggests that it may have been subjected to regular emptying.

Table 43 The medieval and later pottery: area1, plot 56, phase 9, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	2		27			
ST3 – Stamford ware	35		396		0.905	
ST2 – Stamford ware	134	10.5	1103	5.5	1.33	
ST1 – Stamford ware	31		177		0.34	
LI1 - Lincoln	1		14			
LI2 - Lincoln	2		42		0.085	
SN – Saint Neots	3		48		0.155	
TO - Torksey	10		189		0.185	
NH – Northampton ware	1		20			
RS1-3 – Reduced Sandy	4		49			
PM – Potters Marston	765	60.0	12618	63.8	10.47	70.0
OS1/2 – Oxidised Sandy	14		350		0.25	
CS – Coarse Shelly	8		111		O.075	
CO1 - Coventry	7		58		0.075	
CO3 - Coventry	1		5			
SP2 - Nottingham Splashed	1		32			
SP3/4 - Leicester Splashed	27		509		0.275	1.8
LY1 – Stanion Lyveden	4		30			
CC1 – Chilvers Coton	90	7.0	1327	6.8	0.15	
CC2 – Chilvers Coton	23		242		0.15	
NO1 - Nottingham	5		52		0.075	
NO2 - Nottingham	1		4			
NO3 - Nottingham	45		1283			
BR2 – Brill/Boarstall	2		4			
MS1– Medieval Sandy	1		26			
MS2 – Medieval Sandy	29		668		0.355	2.3
MS3 – Medieval Sandy	13		155		0.05	
MS7– Medieval Sandy	2		21			
MS8– Medieval Sandy	4		60			

TG2 – Tudor Green/Surrey	5		27			
MP2 – Midland Purple	2		90			
CW2 – Cistercian ware	3		12			
Totals	1275		19749		14.92	

Most of the pottery was found in the stone floor of the building, SG5101, and included single sherds of the Chilvers Coton fabric, CC1, and the Medieval Sandy ware MS2. The latter sherd, part of a jug with a splayed base, joined a sherd from the north wall, SG5125. These fragments, which may date from *c.*1240/50, suggest that the privy is all one build. Jugs were the most common vessels, and included a collared Potters Marston rim (Davies and Sawday 1999, fig.93.114). A highly decorated body sherd in CC1, probably also part of a jug, with applied and inscribed iron rich clay strips, is paralleled at Chilvers Coton in a context dating from the later 13th century, Site 13, Kiln 32a-b, (Mayes and Scott 1984, fig.105.200 and 216).

Sub Groups *P5171, SG5135, SG5295, SG5392, SG5395, SG5400, SG5404, SG5456, SG5779, SG6390 Pits*

Assemblage: 228 sherds, 5379 grams, 1.47 EVEs, 23.5 grams ASW

Over half of the assemblage by sherd count, 114 sherds in all, came from the backfill of the massive pit SG5400 to the rear of the frontage. The pottery from two more pits also at the rear, SG5779 and SG6390, made up the bulk of the rest of the assemblage. All these features, with three notable exceptions (some of the pits only produced one or two sherds), contained wheel thrown sandy wares, in the Medieval Sandy wares MS2 and MS3, the Nottingham ware NO3, and the Chilvers Coton fabric CC1 dating from *c.*1250, but generally of unidentifiable vessel form.

One, such exception noted above, the pit SG6390, was truncated by a Victorian cellar and the northern edge ran under part of the plot 56/57 boundary walls, the pottery assemblage giving a terminus post quem for the wall, possibly in the late 12th or early to mid 13th century. However a single fragment of Chilvers Coton ridge tile, in fabric CC1, dating from *c.*1250, also occurred in this context, which was dominated by Potters Marston pottery with cylindrical (Davies and Sawday 1999, fig.88.32, fig.89.54, 57) and shouldered jars much in evidence (*ibid* 1999, fig.89.59, 59/61), together with two jugs in the Splashed ware, fabric SP3.

An under fired sherd in Midland Purple ware, MP2, together with an unclassified fragment of TG, Surrey White ware or a Tudor Green type ware, both dating from the later 14th and from *c.*1400 respectively were among the eight sherds recovered from the pit SG5395. The two sherds found in the pit SG5295, which respected the plot boundary wall, included of the Cistercian ware CW2, dating from *c.*1450, (Spavold and Brown 2005), which appears to be intrusive in this phase.

Sub Groups SG5232 Levelling Layer at Rear, adjacent to the East West Boundary Wall

Assemblage: 29 sherds, 297 grams, 0.405 EVEs, 10.2 grams ASW.

This small group included obviously residual pottery in Potters Marston and Stamford ware, together with highly fired CC1, brown glazed MS3, and the later Medieval Sandy ware MS8,

together with an apparently intrusive sherd of Cistercian ware, fabric CW2, dating from *c.*1450.

Plot 56/57

Sub Groups SG0402 Walls, SG5097 East-West Boundary Wall adjacent to Privy, SG5645 Rear East-West Boundary Wall, SG5659 Rear Robber Trench

Assemblage: 41 sherds, 588 grams, 0.21 EVEs, 14.3 grams ASW.

The only pottery recovered from the walls SG0402, SG5097 and SG5645 was Potters Marston dating from the 12th or 13th century, including collared jars (Davies and Sawday 1999, fig.88.35 and 48), and a jug fragment, together with residual Stamford ware.

Table 44 The medieval and later pottery: area1, plot 56/57 phase 9, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	33		348		0.32	
ST1 – Stamford ware	2		8			
LI 1- Lincoln	1		8			
PM – Potters Marston	252	75.0	4726	77.6	4.005	86.6
OS1/2 – Oxidised Sandy	3		34			
CS – Coarse Shelly	9		150			
SP3 - Leicester Splashed	15		407		0.175	3.7
CC1 – Chilvers Coton	15		256		0.12	
CC5– Chilvers Coton	1		67			
NO3 - Nottingham	2		21			
BO2 - Bourne	1		20			
MS2 – Medieval Sandy	2		40			
Totals	336		6085		4.62	

Highly decorated sherds with applied iron rich strips of clay in the Chilvers Coton fabric CC1 and dating from the earliest phases of production at the kiln, *c.*1240/1250, were retrieved from the robber trench SG5659. Green glazed Nottingham ware, NO3, from the same context, is also dated from *c.*1250. Other wares present included abraded Potters Marston, Splashed ware and a copper glazed sherd in the very fine Stamford ware ST1. The latter is dated from *c.*1150 to the early or mid- 13th century.

Sub Group X56_57_9

Assemblage: 295 sherds, 5497 grams, 4.41 EVEs, 18.6 grams ASW

Potters Marston, chiefly jars, dominated this group of material from miscellaneous contexts. Wheel thrown sandy wares dating from *c.*1250, including a Bourne ware/type ware bottle fragment were also present.

Plot 57

Table 45 The medieval and later pottery: identifiable vessel forms, area1, phases 9.01, 9.02, 9.03, and 9.0 plot 57, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/ Storage Jar	Bowl	Spouted Pitcher	Beaker	Jug	Lamp	Frying Pan	Lobed Cup	Pedestal Cup
LE	1/16/0.05								
ST1/2/3	8/101/1.37	3/80/0.02	4/66/0.395	2/10/0.07	1/6/0.075				
LI1/2									
SN	5/90/0.325								
TO	2/59/0.16	1/20/0.075							
PM	61/1720/ 4.26	1/25			80/239/ 1.79				
SP2/3	3/136/0.27				18/339/ 0.042				
OS1/2	1/21/0.075				2/23/0.09	1/16/0.09			
CS	1/8/0.05				1/16/0.08				
CO1	2/39/0.125				1/5/0.0				
CC1/2	1/10/0.06	1/41/ 0.04			20/325/ 0.595		1/36/ 0.0		
NO3					32/1062/ 0.455				
BO2		1/20/ 0.07							
LI7					1/108/				

					0.0				
MS2/3/7					9/171/ 0.84				
TG1								1/4/ 0.03	
CW2									4/48/ 0.08
BO1	1/29/ 0.75								
Totals	86/2229/ 6.82	7/186/ 0.435	4/66/0.395	2/19/0.07	165/4454/ 4.345	1/16/0.09	1/36/ 0.0	1/4/03	4/48/ 0.08

Sub Groups P6351, SG5959, SG5995, SG6194 Pits

Assemblage: 26 sherds, 523 grams, 0.33 EVEs, 20.0 grams ASW

A fragment of CC1, a frilled jug base of a type found in the earliest phase of the Chilvers Coton pottery production, and dated from *c.*1250 (Mayes and Scott 1984, fig.104.198) was found in SG5995. A shouldered jar in Potters Marston and a highly fired brown glazed sherd of CC1 were found in P6351. Much of the remainder of this small assemblage was residual in this phase.

Sub Groups PR6384 Stone lined Privy, SG6276 Robber Trench, SG6366 Truncated East West linear Feature? Wall

Assemblage: 38 sherds, 572 grams, 0.23 EVEs, 15.0 grams ASW

The nine sherds from the stone lined privy, PR6384, included brown glazed sherds in CC1. One, a thumbed jug handle, is paralleled at Chilvers Coton in 14th century contexts, (Mayes and Scott 1984, fig.73.172). Other highly fired, semi vitrified sherds in the same fabric from the lowest fill of the privy, context (6024), possibly date to the later 14th century.

Almost exclusively residual pottery was found in the backfill of the robber trench, SG6276, save perhaps for a shouldered jar in Potters Marston. Similarly, a single fragment of CC1 was found in the linear feature SG6366 together with residual late Saxon and early medieval pottery.

Sub Group X57_9 Context (5526) Sondage Garden Soils and Intercutting Deposits

Assemblage: 92 sherds, 1974 grams, 2.54 EVEs, 21.4 grams ASW

Eight sherds of intrusive post medieval and modern pottery have been discounted from this context which provides a snapshot of the ceramic evidence for the south side of the plot, east of the privy and south of the masonry wall. Early medieval pottery was in evidence, but nothing obviously late Saxon in date. Shouldered jars and jug fragments occurred in Potters

Marston, and more jug fragments in CC1. Two sherds of the Nottingham ware NO3, dating from the mid or later 13th century, were also present.

Table 46 The medieval and later pottery: area1, plot 57, phase 9, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	2		37		0.05	
ST3 – Stamford ware	15		186		1.26	
ST2 – Stamford ware	53	14.0	362	3.9	0.47	
ST1 – Stamford ware	5		56			
SN – Saint Neots	5		90		0.325	
TO - Torksey	2		59		0.16	
PM – Potters Marston	197	52.1	6445	70.0	2.725	44.5
OS1/2 – Oxidised Sandy	6		122		0.125	
CS – Coarse Shelly	2		15		0.05	
CO1 - Coventry	3		54		0.125	
CO3 - Coventry	2		13			
SP2 - Nottingham Splashed	3		28			
SP3- Leicester Splashed	22		549		0.25	
CC1 – Chilvers Coton	31		431		0.275	4.5
CC2 – Chilvers Coton	7		213			
NO3 - Nottingham	3		39		0.025	
MS2 – Medieval Sandy	4		60			
MS3 – Medieval Sandy	6		134		0.27	
MS7– Medieval Sandy	1		31			
MS8– Medieval Sandy	4		56			
MP2 – Midland Purple	1		15			
CW2 – Cistercian ware	4		148			
Totals	378		9143		6.11	

Plot 57/58

Sub Group X57_58_9 (5932), (6053) and (6211) Walls, contexts (5966) and (6144) Layers.

Assemblage: 79 sherds, 1512 grams, 0.575 EVEs, 18.9 grams ASW.

Only thirteen sherds in this assemblage came from the walls, contexts (5932), (6053) and (6211), but all these contexts contained sherds of CC1 or the Medieval Sandy ware MS1, dating from the mid or later 13th century. A similar terminal date is also suggested for the bulk of the pottery from the associated layers.

Table 47 The medieval and later pottery: area1, plot 57/58, phase 9, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 – Stamford ware	1		6			
ST2 – Stamford ware	7		42			
PM – Potters Marston	36	45.5	497	32.8	0.52	90.4
CO2 - Coventry	1		22			
SP3 - Leicester Splashed	8		87			
LY1 – Stanion Lyveden	2		40			
CC1 – Chilvers Coton	16	20.2	748	49.4		
NO3 - Nottingham	2		19			
BR2 – Brill/Boarstall	1		10			
MS1– Medieval Sandy	1		2			
MS2 – Medieval Sandy	1		5			
MS3 – Medieval Sandy	1		10			
MS8– Medieval Sandy	1		6			
RS4 – Late Med Reduced	1		18		0.055	
Totals	79		1512		0.575	

Jugs were the predominant form, chiefly in Potters Marston (Davies and Sawday 1999, fig.93.106, 113). A flared bowl (*ibid* 1999, fig.92.98) and a spike lamp were also present in this ware. Apart from residual material, there were no other identifiable vessel types, save for a fragment of bowl rim with an exterior flange, in RS4, Late Medieval Reduced Sandy ware. This and a brown glazed sherd in the later medieval ware, MS8, both in context (6144), may

date from the 14th century. A sherd of post medieval Midland Yellow ware was discounted as intrusive.

Phase 9.01 (Figure 25)

Plot 57

Table 48 The medieval and later pottery: area1, plot 57, phase 9.01, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 – Stamford ware	4		45		0.15	
ST2 – Stamford ware	19		179		0.21	
ST1 – Stamford ware	2		17			
LI2 - Lincoln	2		41			
SN – Saint Neots	1		12			
PM – Potters Marston	148	59.6	3143	61.8	1.375	58.8
OS1/2 – Oxidised Sandy	3		79		0.075	
CS – Coarse Shelly	5		204		0.08	
CO1 - Coventry	1		5			
SP3 - Leicester Splashed	12		285		0.22	9.42
CC1 – Chilvers Coton	18		179			
NO/3 - Nottingham	19		699		0.12	
BO4 - Bourne	1		17			
MS2 – Medieval Sandy	3		25			
MS3 – Medieval Sandy	1		9			
TG1- Tudor Green/Surrey	1		4		0.03	
MP2 – Midland Purple	3		42			
MP3 – Midland Purple	4		68			
BO1 - Bourne	1		29		0.075	
Totals	248		5082		2.335	

Sub Groups SG5810 Layers Predating Industrial Features

Assemblage: 103 sherds, 2188 grams, 1.825 EVEs, 21.2 grams ASW

Potters Marston represented 64% of the totals by sherd count, and at least some of this pottery together with the Splashed, Oxidised, and Stamford wares pre-dated the appearance of the Chilvers Coton, Nottingham and Medieval Sandy wares in the mid 13th century. However, jugs were the most common vessel form, in all the wares including Potters Marston. This suggests a date from the mid or later 12th century into the 13th century for much of the Potters Marston, and whilst the later wares accounted for less than 12% of the totals by sherd count, they do provide a convincing terminus post quem for the industrial features which lay above.

Group G5905 (SG5615, SG5128, SG570) Feature under East West Wall Dividing the Plot

Assemblage: 6 sherds, 45 grams, 0.0 EVEs, 7.5 grams ASW

The pottery in this small group which includes Potters Marston Coarse Shelly ware and the fine Stamford fabric ST1 could all date to the 12th century. However, the fact that some layers in SG5810, dating from the mid 13th century, also underlie the wall, suggest that this pottery may well be residual.

Phase 9.02 (Figure 25)

Plot 57

Table 49 The medieval and later pottery: area1, plot 57, phase 9.02, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware						
ST3 – Stamford ware	1		2			
ST2 – Stamford ware	16		95			
ST1 – Stamford ware	1		2			
TO - Torksey	1		20		0.075	
PM – Potters Marston	128	57.3	2466	65.6	1.455	54.5
OS2 – Oxidised Sandy	2		23		0.09	
SP2 - Nottingham Splashed	1		9		0.15	
SP3 - Leicester Splashed	8		91		0.07	
CC1 – Chilvers Coton	19		334		0.32	
CC2 – Chilvers Coton	3		54		0.1	
NO2 - Nottingham	1		3			
NO3 - Nottingham	26		398		0.335	12.5
BO2 - Bourne	1		20		0.07	
BR2 – Brill/Boarstall	1		2			
LI7 – Lincoln Med Sandy	1		108			
MS– Medieval Sandy	2		21			
MS2 – Medieval Sandy	2		14			
MS3 – Medieval Sandy	5		70			
MS7 – Medieval Sandy	1		7			
MP1 – Midland Purple	1		2			
MP3 – Midland Purple	2		18			
Totals	223		3759		2.665	

Plot 57 Rear

Sub Groups SG5793 (IF5503, IF5663) Cut and levelling layers for floors of Malt/Mash Ovens, IF5621 associated Slate lined Stone Floor, SG5793 Clay Floor with Cobbles above.

Assemblage: 16 sherds, 196 grams, 0.24 EVEs, 12.2 grams ASW

These ovens lie on the west side of the plot. A single sherd of 12th century Potters Marston was recovered from the floor IF5621. Fragments of Chilvers Coton dating from *c.*1250 occurred in the oven IF5503 and the clay floor SG5793. The latest pottery, sherds of hard fired Medieval Sandy wares, MS3 and Midland Purple ware, MP3, dating from the late 14th century were found in the granite cobbling associated with oven IF5663. The latter pottery presumably relates to the construction of the feature and pre dates the use of the kiln.

Sub Groups IF5359, IF5406 and IF5712 Oven Floors

Assemblage: 27 sherds, 244 grams, 0.175 EVEs, 9.0 grams ASW

Another group of industrial features lay to the north of the site. Once again the pottery was found in deposits associated with the floors of the structures. The earliest material, twelve sherds of Potters Marston, included a jug fragment, dating from the mid or later 12th or 13th century, came from IF5712, which abutted the boundary wall to the east. Another jug fragment in CC1, together with a sherd of the Nottingham ware NO3, with a lightly reduced interior, dating from *c.*1270, was found in the semi circular cobbled floor, IF5359. The well made granite floor abutting the east edge of the boundary wall, IF5406, produced heavily knife trimmed sherds, characteristic of later medieval wares, in MS3, and a fragment of MP3 dating from the later 14th century.

Group G5777 (SG572, SG577) ?wall repair, granite floor Building 10

Assemblage: 5 sherds, 41 grams, 0.0 EVEs, 8.2 grams ASW

Sherds of the Chilvers Coton fabric CC1 and the Nottingham ware NO3, dating from the mid or later 13th century were found within part of a stone lining or repair to the wall of the building, SG572. Another sherd, part of a jar rim in CC2, (Mayes and Scott 1984, fig.69.144), possibly dating to the early 14th century, came from the granite floor, SG577.

Group G5042 (SG5838, SG6064, SG6208) Malting Kiln to the east of the plot

Assemblage: 134 sherds, 2615 grams, 1.83 EVEs, 19.5 grams ASW

This tear drop feature lay to the east end of the excavated area, cutting the earlier phase 7 and phase 8 pits. Sherds from a jug or jugs in the Nottingham fabric NO3, dating from the later 13th century (Coppack 1980, fig.78.164) occurred in the granite stone lining of the kiln wall, SG5838, context (5838), and in the masonry back fill of the kiln itself, SG6064, context (6064l), the latter probably representing slump from the original structure. Whilst no joining sherds were found, the two vessels were broadly contemporary, suggesting that the wall and kiln structure were all of one build. The eight sherds from the rebuild or repair to the south wall of the kiln SG6208, included more sherds in Nottingham and Medieval Sandy ware, dating from *c.*1250. The Potters Marston assemblage included a shouldered jar, a storage jar and five jugs (Davies and Sawday fig.90.71, fig.3.106 and 115). Three probably residual jug fragments were also present in SG5838, in the Splashed wares SP3 and SP2, and unidentifiable sherds in the Brill Boarstall and Bourne type wares BR2 and BO2, both dating from the mid or later 13th century.

Sub Group SG5683 Pit

Assemblage: 5 sherds, 99 grams, 0.19 EVEs, 19.8 grams ASW

The pottery included a 14th century flared bowl in the Chilvers Coton fabric CC2, (Woodland 1981, fig.34.128), (Mayes and Scott 1984, fig.82.627), and a brown glazed sherd in the Medieval Sandy ware MS3. This small group is of note because it lies under the east-west wall Group G5294, SG5291 in phase 9.03, which only contained a few sherds of residual pottery.

Phase 9.03 (not illustrated)

Plot 57

Table 50 The medieval and later pottery: area1, plot 57, phase 9.03, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	3		48			
ST1 – Stamford ware	3		15		0.07	
PM – Potters Marston	33	41.7	647	48.1	0.495	43.6
OS – Oxidised Sandy	1		8			
SP2 - Nottingham Splashed	1		17			
SP3 - Leicester Splashed	7		87			
CC/1 – Chilvers Coton	16	20.2	251	18.6		
CC2 – Chilvers Coton	1		6			
NO3 - Nottingham	7		152			
MS2 – Medieval Sandy	1		2			
MS3 – Medieval Sandy	4		81		0.4	35.2
MS7 – Medieval Sandy	2		29		0.17	
Totals	79		1343		1.135	

Sub Groups SG5341Pit in area of the 'mash ovens', SG5441 pit cutting mash oven, G5294 East – West wall and Floor to the rear of the mash ovens.

Assemblage: sherds, 149 grams, 0.46 EVEs, 9.3 grams ASW

These contexts post dated the phase 9.02 ovens, IF5503 and IF5663, on the west side of the plot. The six sherds of CC1, NO3 and MS2 in SG5441 which cut into the top of the ovens,

dated from the mid or later 13th century and were evidently residual here. The four sherds of potters Marston from the east-west wall of the Building, G5294, SG5291, and the last structure in the sequence to the north of Building 9 are probably also residual.

However, the floor SG5294 of the structure, G5294, produced seven sherds in the Chilvers Coton fabrics CC1 and CC2, and the Medieval Sandy wares MS3 and MS7. Fabric MS7 is thought to be later medieval whilst many of the Chilvers Coton sherds were hard fired or even semi vitrified, also suggesting a 14th century or later date. A pit to the rear of the ovens, SG5341, contained a hard fired jug with an upright thickened rim with an internal bevel in the later Medieval Sandy ware MS7, dated from the 14th or 15th century.

Sub Group SG5884 (above G5042) Levelling of Malt Kiln Structure East of the Plot

Assemblage: 34 sherds, 593 grams, 0.05 EVEs, 17.4 grams ASW

This small assemblage lay above the malt kiln to the east of the plot, G5042. Two Potters Marston jugs with thumbed bases (Davies and Sawday 1999, fig.94.120-121), and fragments of jugs in CC1, decorated with rich clay strips or diagonal slashing on the handle (Mayes and Scott 1984, fig.104.182) may date from the mid or later 13th century and be residual in this context. Only two heavily knife trimmed sherds in CC1 from two unidentified vessels suggest a terminal date in the 14th century for this small assemblage.

Sub Groups SG5480 Levelling at rear

Assemblage: 3 sherds, 31 grams, 0.08 EVEs, 10.3 grams ASW

A fragment of MS3 in context (5454), together with medieval ridge tile, probably dates from the 14th century. These finds came from levelling layers, perhaps in preparation for a floor or oven to the rear of the plot.

Plot 58

Table 51 The medieval and later pottery: identifiable vessel forms, area1, phase 9.0, plot 58, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/ Storage Jar	Bowl	Jug/	Lamp
ST2/3/1	4/44/0.385		1/9/0.1	
TO	2/36/0.15			
PM	23/775/1.92	6/178/0.355	59/2769/1.235	1/154/0.0
OS1	1/29/0.125			
CS	1/53/0.18			
CO2	1/10/0.06			
CC1/2	1/41/0.0	1/18/0.055	5/60/0.0	

NO1-3			7/130/0.1	
BR			1/10/0.1	
MS3	1/37/0.123		1/43/0.0	
MP3			1/16/0.0	
Totals	34/1045/3.073	7/196/0.41	75/3037/1.535	1/54/0.0

Sub Group G5108 Pit

Assemblage: 16 sherds, 439 grams, 0.275 EVEs, 27.4 grams ASW.

This small group lay immediately above the industrial feature, possibly an oven, IF5987, at the rear of the plot, which had produced no pottery dating evidence. Two Potters Marston jugs in the earlier of the two contexts with pottery, (5988), included an upright and externally thickened rim from a finely made vessel, probably finished on a turntable and a more refined version of a pot found at Causeway Lane (Davies and Sawday 1999, fig.93.110). Another jug had a thumbed base, similar to those at Causeway Lane, but with more widely spaced thumbing (*ibid* 1999, fig.94.120-121). The later layer, context (6068), included a massive strap handle from a jug, approximately 55mm wide, with thumbing down the sides. These vessels and a hard fired sherd, all in Potters Marston, suggest a 13th-century date for the pottery.

A single sherd of the cream bodied and yellow glazed Nottingham ware, NO1, an Early Glazed ware at Nottingham, occurred in the same context. This fabric is now thought to date from the early to mid 13th century (Nailor 2005, 174).

Group G5107 (SG5829, SG5831, SG5873) Backfill of possible Malt Kiln

Assemblage: 72 sherds, 2336 grams, 0.365 EVEs, 32.4 grams ASW.

This sequence of backfilling lay above Sub Group G5108, which in turn lay above the industrial feature or malt kiln, IF5987, and both, on reflection, probably belong to phase 8. The identifiable vessels in Potters Marston included jar rims generally associated with shouldered profiles (Davies and Sawday figs.87.22 and 90.76) and bowls (*ibid* 1999, fig.92.92 and 97). A Potters Marston shouldered jug had coils visible on the interior neck and another, a thumbed base (*ibid* 1999, fig.94.119 and 120).

Table 52 The medieval and later pottery: area1, plot 58, phases 9.0 by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	2		11			
ST3 – Stamford ware	10		116		0.255	
ST2 – Stamford ware	22		186		0.13	
ST1 – Stamford ware	3		22		0.1	

LI1 - Lincoln	2		198			
SN – Saint Neots	1		5			
TO - Torksey	2		36		0.15	
RS/3 – Reduced Sandy	3		19			
PM – Potters Marston	292	71.5	6767	77.5	3.51	69.9
OS1/2 – Oxidised Sandy	6		93		0.125	
CS – Coarse Shelly	5		166		0.18	3.5
CO2 - Coventry	1		10		0.06	
SP2 - Nottingham Splashed	1		16			
SP3 - Leicester Splashed	5		96			
CC1 – Chilvers Coton	24		334		0.055	
CC2 – Chilvers Coton	3		54		0.13	
NO1 - Nottingham	1		3			
NO2 - Nottingham	1		35			
NO3 - Nottingham	6		127		0.1	
BO2 - Bourne	1		5			
BR2 – Brill/Boarstall	1		10		0.1	
MS1– Medieval Sandy	1		11			
MS2 – Medieval Sandy	2		8			
MS3 – Medieval Sandy	7		189		0.123	
MP2 – Midland Purple	5		197			
MP3 – Midland Purple	1		16			
Totals	408		8730		5.018	

A sandy example of the Nottingham fabric, NO2 with orange glaze spots, and a fragment of the Medieval Sandy ware MS2, with mottled green and yellow glaze suggest a date from the early or mid 13th century. Sherds in the Chilvers Coton fabric, CC1, included a jug decorated with clay pads and mottled yellow and green glaze (Mayes and Scoot 1984, fig.104.190) dated from the *c.*1240 or *c.*1250. Two Nottingham ware jugs in NO3 with light grey interior surfaces suggesting a similar date to the CC1, were represented by a flat base with stacking evidence underneath, and an upright rim with a slight internal bevel. The latter had a line of glaze below the inner rim, showing where the pot had been dipped into the

glaze. This deposit, which lay above G5107, confirms a terminus ante quem for the industrial feature or malt kiln IF59871 of some time in the late 12th or early 13th century.

Sub Groups SG0313 Plot Frontage Layers, possibly Floors

Assemblage: 3 sherds, 21 grams, 0.10 EVEs, 7.0 grams ASW.

A fine fragment of CC1 dating from *c.*1240/1250 and a Potters Marston jar rim (Davies and Sawday 1999, fig.89.52) occurred in context (291). A fragment of late Saxon Leicester ware was found in a possibly lower context, the layer (308).

Sub Groups SG5816 Post Hole

Assemblage: 4 sherds, 28 grams, 0.0 EVEs, 7.0 grams ASW.

Sherds in the fine and coarse Stamford ware ST2 and ST3 and Potters Marston, including body sherds with combed horizontal lines and jar rim in the latter, (Davies and Sawday 1999, fig.89.54) were recovered from the layer (5833). This material probably dates to the 12th century, and is presumed to be residual in this phase.

Phase 10 (Figure 25, Figure 26)

Plot 56

Table 53 The medieval and later pottery: identifiable vessel forms, area1, phase 10.0, plot 56, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl	Sp. Pitcher	crucible	jug	Ped. dish	cistern	Lobed Cup/ cup	Chafing dish
LE	1/8/ 0.07								
ST1/2/3	1/12/ 0.11		1/16/ 0.13			1/3/ 0.0			
LI1/2	1/22/ 0.23								
TO		1/17/ 0.06							
RS				1/10/0.0					
PM	12/409/ 0.94	1/16/ 0.05			11/407/ 0.21				
SP3	1/15/ 0.05								
OS2		1/11/0 0.075							
CS	1/32/ 0.125								
CC1/2		2/27/ 0.04			25/1002/ 0.29		1/90/ 0.0		
NO1/3					3/81/0.0				
MS7/8	6/308/ 0.47	1/19/ 0.07			4/147/ 0.125				
MP2/3	12/856/ 0.175				2/49/ 0.0		12/717 /0.42		

TG1/2		1/5/ 0.07						3/28 0.11	
CW1/2 /MB					9/129/ 0.09			8/142/ 0.36	1/44/ 0.0
RH					4/102/ 0.285				
Totals	35/166 3/2.17	7/95/ 0.365	1/16/ 0.13	1/10/0.0	58/1917/ 1.0	1/3/ 0.0	13/807 /0.42	11/ 170/ 0.47	1/44/ 0.0

Table 54 The medieval and later pottery: area 1, plot 56, phase 10, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	1		9		0.07	
ST3 – Stamford ware	4		23		0.11	
ST2 – Stamford ware	15		145		0.13	
ST1 – Stamford ware	3		30			
LI1 - Lincoln	1		22		0.23	
TO - Torksey	1		17		0.06	
RS – Reduced Sandy	1		10			
PM – Potters Marston	75	22.5	1588	18.1	1.2	26.3
OS1/2 – Oxidised Sandy	4		56		0.075	
CS – Coarse Shelly	2		33		0.125	
SP3 - Leicester Splashed	4		55		0.05	
LY1 – Stanion Lyveden	1		5			
CC1 – Chilvers Coton	46	13.8	1264	14.4	0.33	
CC2 – Chilvers Coton	9		184			
NO1 - Nottingham	5		90			
NO3 - Nottingham	8		75			
MS2 – Medieval Sandy	3		30			

MS3 – Medieval Sandy	30		1001		0.125	
MS7 – Medieval Sandy	10		415		0.07	
MS8 – Medieval Sandy	9		316		0.47	
TG/1-2 – Tudor Green/Surrey	10		41		0.18	
MP – Midland Purple	1		10			
MP2 – Midland Purple	46	13.8	2470	28.2	0.42	
MP3 – Midland Purple	12		349		0.175	3.8
MP4 – Midland Purple	1		18			
BO1 - Bourne	1		3			
CW1 - Cistercian	2		58			
CW2 - Cistercian	17		275		0.45	
CW/MB – Cistercian/M. Black	4		34			
DE2 – Tin Glazed	1		12			
RH – Rhenish	5		105		0.285	6.2
Totals	332		8743		4.555	

Plot 56 –Frontage

Sub Group X56_10 Make Up Layers/Soils on the Plot Frontage Sealing Phase 9 Robber Trenches,

Assemblage: 90 sherds, 2291 grams, 0.96 EVEs, 25.5 grams ASW.

Brown glazed jug strap handles with slashed handles, typical of the decoration found at Chilvers Coton, occurred in CC2, this fabric dating most commonly from the 14th century, together with hard fired examples of the same vessel form in CC1. The nineteen sherds of Potters Marston are residual in a context that also included the later Medieval Sandy wares MS7 and MS8, and the Midland Purple wares, MP2 and MP3. The only other identifiable vessels were two necked cups in Cistercian ware, fabric CW2, one with a cordon at the base of the neck, a type also found at the Austin Friars (Woodland 1981, fig.43.260). A single sherd of the Bourne ware, BO1, with traces of white slip under the green glaze, and dating from *c.*1450 was also recovered from the soils. Also present were two vessels in Siegburg Stoneware, one a thumbed base from a beaker or jug (Hurst 1986, fig.88.258-263), the other a rim and neck from a possibly similar vessel (*ibid* 1986, fig.88.262). This vessel type was also recorded at the Austin Friars, Leicester (Woodland 1981, fig.35.147) in contexts dating from the later 14th and 15th centuries.

Sub Groups SG0424, SG0426. SG5064 Robber Trenches

Assemblage: 56 sherds, 1279 grams, 1.14 EVEs, 22.8 grams ASW.

Seven sherds in the late medieval Midland Purple fabrics MP2 and MP3, dating from the later 14th or 15th centuries, were found in the east west robber trench, SG5064. Four sherds of Surrey White ware, Tudor Green or Tudor Green type, fabrics TG, TG1 and TG2, including a fragment of at least one lobed cup, and the rim of a small dish or saucer, (Pearce and Vince 1988, fig.98.35) with a similar start date to the Midland Purples, occurred in the same context.

Much of the remainder of the assemblage was residual and included a jar in Lincoln Kiln Type ware Shelly ware (Young *et al* 2005, fig,45.106), and another in the coarse Stamford ware ST3, and a spouted pitcher in the fine Stamford ware ST2. Jars, in Potters Marston (Davies and Sawday 1999, fig.88.41, 46 and 49), and the Leicester Splashed ware SP3 were also present, together with jugs in Potters Marston (*ibid* 1999, fig.93.105 and fig.94.120-123), and the Nottingham ware NO1, and CC1 dating from the 13th century.

Sub Groups SG0389, SG5080. SG5130, SG5157, SG5307, SG5574 Pits

Assemblage: 166 sherds, 5013 grams, 2.38 EVEs, 30.1 grams ASW.

Wares probably dating from the mid or later 14th or 15th centuries accounted for just over half this assemblage by sherd count. Not all these sherds are closely dated, but this later pottery included the Medieval Sandy ware fabrics MS7 and MS8, the Midland Purples, MP2, MP3 and MP4, the Surrey White wares or Tudor Green/type wares, TG and TG2 and the Cistercian wares CW1 and CW2. Continental imports, comprising Rhenish Stonewares, including possible examples of Langerwehe dating from *c.*1350 and the Anglo Netherlandish Tin Glazed Earthenware, DE2, make up the rest of this group. Whilst the only find from SG5157 was a sherd of MP2 and a fragment of TG2 was one of only three sherds from SG5130, in all other instances significant amounts of these wares are found in the pits, suggesting a later medieval date for final backfilling of these features.

The identifiable vessels included a cistern bung hole in CC1 with, unusually, nine finger smears around the bung, a similar but not identical feature was found on a cistern from Site 2 kiln 10a at Chilvers Coton, dated to the 14th century, (Mayes and Scott 1984, fig.93.13). Jars in the Medieval Sandy ware, MS8 (Woodland 1981, fig.37.158) and the Midland Purple, MP2 and MP3, a bung hole cistern in MP2 (*ibid* 1981, fig.40.196), and part of a lobed cup in Tudor Green type ware were also present. A relatively unusual vessel, a tall flared cup with a handle near the base in the coarse Cistercian ware fabric, CW1, is possibly a product of the Chilvers Coton kilns, though not paralleled there. A similar pot was found on Grape Street in Leicester (Leicester Museums Accession Number 116 1962 250). The cups in CW2 generally had the necked profile commonly found at the Austin Friars, Leicester. One such vessel had a belled rim, (*ibid* 1981, fig.37.169) with, unusually for this form, a decoration made up of conical white clay pellets on the shoulder. Another small two handled cup was decorated more typically with the white clay pads and wheel stamps often associated with this particular vessel, characterised by a short rim (*ibid* 1981, fig.41.209). Fragments of other vessels in CW2 included a chafing dish, two jug handles, and a corrugated body sherd, the latter possibly part of a cylindrical jug or mug.

Two vessels in Rhenish Stoneware, tentatively identified as Langerwehe, included a rim and the stub of a handle perhaps from a rare vessel type, a small tripod jug (Hurst 1986, fig.92.283, 188). The sherd, in buff stoneware, has an iron wash on both the interior and exterior, together with traces of a very thin greenish glaze. A very thin walled curved body sherd, in a similar fabric, a light buff stoneware, with patches of matt iron wash on the interior and patches of very thin glaze on the exterior, is from a equally small vessel, possibly

a beaker or another tripod jug, (*ibid* 1986, fig.92.280, 283). A frilled jug base, in another Rhenish Stoneware, possibly Raeren (*ibid* 1986, fig.94.301) is also present. A pink body sherd in the Anglo Netherlandish Tin Glazed Earthenware, DE2, is decorated with roughly painted blue horizontal lines on a white ground. Interestingly all of these continental imports were found in the large pit SG5574 at the rear of the plot.

Group G5132, Sub Groups SG5172 Post Holes

Assemblage: 11 sherds, 101grams, 0.075 EVEs, 9.1 grams ASW.

These post holes lay in between the south baulk, a Victorian cellar, and the miscellaneous contexts X56_10 in the same phase. Two sherds of possibly residual 12th-century pottery occurred in the post holes G5132 and SG5169, and nine more sherds of a similar date were found in the post hole SG5172. A semi vitrified crucible fragment with slag adhering to the outer wall in a coarse quartz tempered fabric, an unclassified Reduced Sandy ware, fabric RS, was also found in the latter.

Possible Slate Boundary Markers in Garden Soils Sub Groups SG5051

Assemblage: 5 sherds, 59 grams, 0.0 EVEs, 11.8 grams ASW.

This small group of pottery included at least one sherd in the later medieval Midland Purple ware, fabric MP3, dating from the late 14th or 15th centuries.

Plot 56/57

Sub Groups X56_57_10 Context (5210) Boundary Wall, SG5434 Pit, Contexts (5136), (5137), (5616) Layers

Assemblage: 84 sherds, 1724 grams, 0.69 EVEs, 20.5 grams ASW.

The bulk of the pottery in this assemblage, 60 sherds, was found in the wall, context (5210), and included highly fired jug handle fragments in the Medieval Sandy ware, MS3 (Woodland 1981, fig.44.275) and the Midland Purple, MP2, dating from the later 14th or 15th centuries. Only six sherds were recovered from the pit, SG5434. The identifiable finds included a brown glazed jug in the Chilvers Coton fabric CC1, probably dating from the 14th century.

Potters Marston jugs occurred in all the contexts, together with sherds of coarse Nottingham ware, NO3, probably dating from the later 13th or 14th centuries and residual here. Five sherds of the early post medieval Earthenware, EA1, with brown glaze on the interior, were found in the layer (5137). These sherds are not closely dated but first occurred, as fabric P(xx), at the Austin Friars in pre-dissolution deposits, (*ibid* 1981, fig.41.203, 83, 126-7), and the fabric is thought generally to appear some time in the 16th century (Sawday 1989).

Table 55 The medieval and later pottery: area1, plot 56/57, phase 10, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	1		4			
ST1 – Stamford ware	1		17			
TH - Thetford	1		20		0.125	
PM – Potters Marston	52	61.9	1036	60.0	0.565	81.8
OS1 – Oxidised Sandy	1		20			
SP2 - Nottingham Splashed	1		4			
CC1 – Chilvers Coton	12	14.2	320	18.5		
NO1 - Nottingham	2		39			
NO3 - Nottingham	5		93			
MS2 – Medieval Sandy	1		15			
MS3 – Medieval Sandy	1		69			
MP3 – Midland Purple	1		15			
EA1 - Earthenware	5		72			
Totals	84		1724		0.69	

Plot 57

Table 56 The medieval and later pottery: identifiable vessel forms, area 1, phase 10.0, plot 57, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/ Storage Jar	Bowl	Sp. Pitcher/jug /lid	Cistern	Flask/ bottle	Lobed Cup/ Cup	Posset pot	mug
ST2/3/1	2/19/ 0.115		4/121/ 0.62					
LI1/2	1/13/0. 11							
PM	17/504/ 1.3925		11/730/ 0.48					

SP3	1/25/ 0.12	1/12/ 0.1	1/13. 0.0					
OS2			1/13/ 0.0					
CO1	1/15/ 0.08							
LY1			1/6/0.07					
CC1/2		2/46/ 0.12	11/327/ 0.29	2/108/ 0.0				
NO1/3			3/79/0.0					
BR2					1/4/ 0.0			
MS1/3/7	1/87/ 0.2	3/63/ 0.055	10/334/ 0.15	23/414/ 0.325				
MP2/3	1/21/ 0.075	1/45/ 0.06	48/ 2744/0.43	6/311/ 0.37				
TG1/2						7/42/ 0.2		
CW1/2/ MB						12/260/ 0.335	1/80/ 0.0	
RH			4/125/0.0					
MA1					1/44/ 0.0			
EA2/3		2/79/ 0.09						1/10/ 0.0
Totals	24/684/ 2.0925	9/245 / 0.425	94/4492/ 2.03	31/833/ 0.695	2/48/ 0.0	19/303/ 0.535	1/80/ 0.0	1/10/ 0.0

Sub Group PR5953 Rear frontage Privy

Assemblage: 89 sherds, 4333 grams, 0.715 EVEs, 48.6 grams ASW.

The bulk of this pottery from the later fills of the phase 9 privy, PR6384, is in the Midland Purple fabrics MP1, MP3 and MP4, one sherd in the latter being semi vitrified. Whilst no

complete pots were recovered, the large sherd weight suggests that at least some of this material may be secondary refuse. However, numerous joining sherds were noted between the fills, mainly body fragments from a highly fired jug, with dark brown and purple glaze, in fabric MP1. Twenty four sherds in the same fabric from a single context made up another brown glazed jug with a rounded profile. This Midland Purple ware is thought to be a product of the Chilvers Coton kilns where similar vessels from Site 8, Feature 38, are dated to the 15th century (Mayes and Scott 1984, fig.42.278-9, Table 1). A highly fired sherd of the Medieval Sandy ware MS1 was also present, together with residual Potters Marston.

Sub Group SG5558 Soil Layer

Assemblage: 55 sherds, 1328 grams, 0.665 EVEs, 24.1 grams ASW

This pottery comes from a soil layer at the rear of the plot which pre-dates many of the other contexts in this phase. Residual Stamford, Potters Marston, Chilvers Coton and Nottingham wares are present, together with the later Medieval Sandy ware MS7. The eight sherds in the Midland Purples MP1, MP2 and MP3 produced only one identifiable vessel, a roughly finished bung hole jar or cistern rim with a thumbed clay strip at the base of the neck and a strap handle, in MP3. Another sherd in MP1 was transitional into the post medieval Earthenware EA1, suggesting a late medieval terminal date for the group as a whole.

Table 57 The medieval and later pottery: area1, plot 57, phase 10, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 – Stamford ware	1		12		0.05	
ST2 – Stamford ware	32		299		0.61	10.5
ST1 – Stamford ware	2		16		0.065	
LI1/2 - Lincoln	2		45		0.11	
TO - Torksey	1		10			
RS1– Reduced Sandy	1		38			
PM – Potters Marston	175	27.4	3537	23.9	1.8725	32.4
OS2 – Oxidised Sandy	1		13			
CS – Coarse Shelly	2		12			
CO1 - Coventry	2		47		0.08	
SP2 - Nottingham Splashed	1		8			
SP3 - Leicester Splashed	9		113		0.22	
LY1 – Stanion Lyveden	2		9		0.07	
CC1 – Chilvers Coton	60	9.4	983	6.6	0.41	

CC2 – Chilvers Coton	10		474			
NO1/2 - Nottingham	5		46			
NO3 - Nottingham	34		272			
BO3 - Bourne	2		65			
BR2 – Brill/Boarstall	1		4			
SC - Scarborough	1		18			
MS/1– Medieval Sandy	5		128		0.255	
MS2 – Medieval Sandy	14		106			
MS3 – Medieval Sandy	65	10.2	1121	7.5	0.325	
MS7 – Medieval Sandy	6		127		0.15	
MS8 – Medieval Sandy	4		41			
MP1 – Midland Purple	56	8.7	3119	21.1	0.43	
MP2 – Midland Purple	48	7.5	1576	10.6	0.255	
MP3 – Midland Purple	19		780		0.25	
MP4 – Midland Purple	2		107			
BO1 - Bourne	2		52			
TG 1/2– Tudor Green/Surrey	11		52		0.2	
CW1 - Cistercian	4		61			
CW2 - Cistercian	37		687		0.335	5.7
CW/MB – Cistercian/M. Black	1		111			
RH – Rhenish	4		125			
MA1 - Martincamp	1		44			
EA1/2/3/6/7/10 - Earthenware	14		517		0.09	
Totals	637		14775		5.7775	

Sub Groups SG5323 Backfill, SG5289 Layer, SG5034 Cess Pit Deposits North of the subdivision Wall

Assemblage: 83 sherds, 1621 grams, 0.46 EVEs, 19.5 grams ASW

Sub Group SG5323 is from the backfill of the Phase 9.02 mash or malt oven, IF5503, and post dates the last use of the feature. Most of the pottery is residual in a context which also contains a fragment of a lobed cup in an unclassified Surrey White ware or Tudor Green type, probably dating from the 15th century, and a rilled white bodied sherd in an unclassified

Rhenish Stoneware, possibly a tall 15th century Siegburg jug or Jacobakanne (Hurst *et al* 1986, fig.88.263. Similarly residual material occurred in the layer SG5289, above the backfill; only two of the six sherds from this context were later medieval in date.

The cess pit, SG5034 truncated the robber trench 5052 of the well SG5053 and the rear wall 5240 of the phase 9.02 industrial feature, IF5503. Little residual pottery dating from the 12th to the early or mid 14th century was present, the bulk of the assemblage being dominated by the Midlands Purple and Cistercian ware. Four of the latter were in the coarse fabric CW1, thought to originate from Chilvers Coton, and generally uncommon in Leicester. Whilst no Midland Purple vessels were identifiable the Cistercian wares were also rather fragmentary. However, a minimum of four cups, including one paralleled at the Austin Friars, Leicester (Woodland 1981, fig.41.209) and a posset pot (*ibid* 1981, fig.41.204) were identifiable in fabric CW2. Other late medieval wares included the Bourne fabric BO1, and part of a Martincamp flask (Hurst *et al* 1966, fig.47.142), dating from *c.*1450 and *c.*1475 respectively. Six brown and purple sherds were transitional from Midland Purple into the post medieval Earthenware, fabric EA1. Two of these sherds, which must date from the later 15th or early 16th centuries, occurred in one of the lowest levels in the fill of the pit, context (5071).

Group G5105 Earliest Phase of Triple Stone Privy Group - SG5335 east wall, SG5465 fill, Group 5111 Stone Surfaces between Privy and Well, G5110 Patching of Surfaces

Assemblage: 39 sherds, 1160 grams, 0.505 EVEs29.7grams ASW

The east wall of the privy, SG5335, contained a jug rim and two highly fired sherds in CC1, together with a fragment of MP2, suggesting a later medieval date for the earliest phase of this structure. Two sherds of the Bourne fabric BO3, decorated with a white slip under a green glaze, and the Midland Purple fabrics MP2 and MP3, all dating to the later medieval period, occurred in the fill of the privy, SG5465. A sherd of post medieval Earthenware, EA2, was probably intrusive in an upper fill, context (5465). Of note from the same context, was a cistern with external lid seating and a cut out on the rim in MP2. A similar but not identical rim has been found on a Midland Purple cistern at Derby, where it is dated to the 15th century (Coppack 1980, fig.103.224, 283), and both are probably Ticknall products, thought the latter rim, unlike the Leicester example, lacks cut outs. Two other sherds in the same fabric had fused together, suggesting that they had been subjected to intense heat and were perhaps linked to the industrial activity in the plot. A Cistercian ware cup in CW2 with a flared rim (Woodland 1981, fig.41.215) was found in the same context.

Late medieval pottery was also found in the stone surfaces and patching G5111 and G5110, including a bung hole cistern in MP2 (Woodland 1981, fig.40.129). A similar vessel has been dated to the early 16th century at Derby (Coppack 1980, fig.106.260).

Sub Groups SG5250 Robber trench, SG594 Wall

Assemblage: 5 sherds, 90 grams, 0.0 EVEs, 18.0 grams ASW

Sherds of late medieval Cistercian and Midland Purple ware were found in the robber trench SG5250 cutting wall (5240) at the rear of the phase 9.02 industrial feature, IF5503. A handle from a posset pot or a chafing dish in the Cistercian ware fabric CW2 was found in the wall SG5964.

Sub Group X57_10, Miscellaneous Contexts

An interesting but not uncommon find here was the frilled base of a 15th century Langerwehe glazed jug with a buff coloured iron wash on the exterior surfaces (Hurst 1986, fig.91.276-277).

Plot 57/58

Table 58 The medieval and later pottery: area1, plot 57/58, phase 10, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
PM – Potters Marston	8	130	0.175
CC1 – Chilvers Coton	9	362	
NO3 - Nottingham	1	11	0.125
MS1– Medieval Sandy	3	165	
MS2 – Medieval Sandy	2	15	
MS3 – Medieval Sandy	2	17	0.2
CW2 - Cistercian	2	44	
Totals	27	744	0.5

Sub Groups SG0234 Robber Trench, contexts (5104), (5105), (6026) Walls, (5865) Layer

Assemblage: 27 sherds, 744 grams, 0.5 EVEs, 27.5 grams ASW

Small amounts of pottery, mostly residual in thus phase, included two jugs, one a hard fired vessel in Potters Marston (Davies and Sawday 1999, fig.93.106) and an abraded rim in the Nottingham fabric NO3, (Coppack 1980, fig.73.153) dated to the later 13th or early 14th century. These were found in the walls (5104), (5105) and (6026) and the layer (5865). Single sherds of Cistercian ware, CW2, were retrieved from the backfills of the robbed east west wall at the front of the plot, SG0234, and the rear east west boundary wall, context (6026).

Plot 58

Table 59 The medieval and later pottery: identifiable vessel forms, area1, phase 10.0, plot 58, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/	Bowl	Jug	Pipkin	Flask
RS	1/11/0.09				

PM	2/31/0.155	1/64/0.12	13/344/ 0.09	1/98/0.15	
SP1			1/14/0.0		
CS			1/24/0.14		
CC1		3/190/ 0.125			
NO3			6/54/0.0		
BR2			11/207/0.11		
MS2/3	2/40/013	2/93/0.75	1/14/0.11		
MP1/2/3			2/181/0.16	2/16/0.06	
MA2/3					1/6/0.0
Totals	5/82/0.375	6/347/0.32	35/838/0.61	3/114/0.21	1/6/0.0

Table 60 The medieval and later pottery: area1, plot 58, phase 10, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST3 – Stamford ware	1		2			
ST2 – Stamford ware	15		72			
LI - Lincoln	1		11			
RS – Reduced Sandy	1		11		0.09	
PM – Potters Marston	98	48.0	1570	47.8	0.515	33.3
CS – Coarse Shelly	4		60		0.14	
SP1 - Nottingham Splashed	1		14			
SP3 - Leicester Splashed	11		112			
CC1 – Chilvers Coton	11	5.3	268	8.1	0.125	
CC2 – Chilvers Coton	1		20			
NO3 - Nottingham	12		103			
BR2 – Brill/Boarstall	11		207		0.11	
MS/1– Medieval Sandy	1		6			
MS2 – Medieval Sandy	3		143			

MS3 – Medieval Sandy	11		165		0.315	20.7
MS7 – Medieval Sandy	1		8			
MS8 – Medieval Sandy	1		13			
MP1 – Midland Purple	3		27		0.06	
MP2 – Midland Purple	7		65		0.16	
MP3 – Midland Purple	8	3.9	384	11.6		
MP4 – Midland Purple	1		17			
MA2/3 - Martincamp	1		6			
Totals	204		3284		1.515	

Sub Groups SG908 Well, SG5916 Stone Lined Pit, SG5892 Pit, X58_10 Misc. contexts

Assemblage: 204 sherds, 3284 grams, 1.515 EVEs, 16.0 grams ASW

Possibly residual material from the stone lined pit included a relatively unusual find in Potters Marston, the rod handle from a pipkin. A range of late medieval wares was recovered from the same feature, including a ridged jug handle in the Midland Purple fabric MP3, decorated with random stabbing and triple thumbing at the handle base. Two bowl rims in the Chilvers Coton fabric CC1 (Woodland 1981, fig.39.191) and in the Medieval Sandy ware MS3 were also present. The former occurred in a later medieval phase at the Austin Friars, whilst a similar vessel to the latter, in a coarse sandy ware, was dated to the later 16th century at Derby, (Coppack 1980, fig.107.276).

Several sherds of late medieval Midland Purple wares, fabrics MP1 and MP2 also occurred in the backfill of the well and the pit. Residual pottery including Potters Marston and Nottingham wares were found in the associated contexts in this phase. A number of glossy green glazed sherds, thought to be Brill/Boarstall type wares were also recovered from the same context, together with a sherd of Martincamp Stoneware, from northern France, a Type 2 flask, which is commonly found in contexts dated to the 16th century in Britain, (Hurst 1986, fig.47.142, 102-104).

Phase 11 (Figure 26)

, Plot 56

Table 61 The medieval and later pottery: identifiable vessel forms, area 1, plot 56, phase 11, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Bowl	Jug
NO3		1/12/0.0
MS1		3/40/0.0
RH	2/86/0.025	
Totals	2/86.0.025	4/52/0.0

Table 62 The medieval and later pottery: area1, plot 56, phase 11, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
CC1 – Chilvers Coton	1	16	
NO3 - Nottingham	1	12	
MS1– Medieval Sandy	4	43	
MS2 – Medieval Sandy	1	5	
TG2 – Tudor Green/Surrey	1	2	
RH – Rhenish	2	86	0.025
Totals	10	164	0.025

Sub Group SG5021 Truncated North-South Wall

Assemblage: 1 sherd, 2 grams, 0.0 EVEs, 2 grams ASW

A single externally glazed sherd of Tudor Green/Surrey White ware, fabric TG2, dating from *c.*1400 to *c.*1600, was found in this section of the wall, which is probably a continuation of the wall SG0400

Sub Group X56_11 Context (5242)Truncated North-South Wall

Assemblage: 9 sherds, 162 grams, 0.025 EVEs, 18 grams ASW

This layer represents the upper backfill of the stone lined privy SG5245 which was built in phase 9, in the mid to late 13th century. Residual Chilvers Coton, Nottingham and Medieval Sandy wares are present, including the fragments of two jugs, one, in MS1, decorated with diagonal and vertical iron rich clay strips and incised lines. The profile of a carinated bowl

with grooves above the carination glaze and a patch of ash glaze on the exterior, perhaps in a Rhenish rather than a French Stoneware, possibly Siegburg rather than Beauvais, although the two are virtually indistinguishable, occurred in the same layer. This type of drinking bowl or lid is common on the continent in the second half of the 15th and the first half of the 16th centuries, but not common here, (Hurst *et al* 1986, fig. 88.257, 105). A similar vessel with the same date range and, as here, shown with a lightly frilled base in the reconstruction drawing, is recorded from London (Gaimster 1987, fig.1.5).

Plot 56/57

Sub Group SG5183 East West Robber Trench rear Boundary Wall

Assemblage: 3 sherds, 30 grams, 0.0 EVEs, 10 grams ASW

Two fragments of late Medieval Sandy ware, fabric MS8, are late medieval in date. A sherd of internally glazed post medieval Earthenware, EA1, transitional into the later generally oxidised ware, EA2, is dated from the 16th century.

Table 63 The medieval and later pottery: area1, plot 56/57, phase 11, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST2 – Stamford ware	3	20	
TO - Torksey	1	32	0.175
PM – Potters Marston	3	40	0.05
OS1 – Oxidised Sandy	1	62	0.11
CC1 – Chilvers Coton	2	23	
NO3 - Nottingham	3	24	
MS3 – Medieval Sandy	2	23	
MS8 – Medieval Sandy	2	19	
EA1 - Earthenware	2	21	
Totals	19	264	0.335

Group G5032 East West Wall Footing on Frontage

Assemblage: 16sherds, 234 grams, 0.335 EVEs, 14.6 grams ASW

This small assemblage came from G0230 and G0400, thought to represent the east side and north gable footings of the Free Grammar School, built in 1573, and probably completed in the same year, as the building was open in 1574, (Bateson 1905, 139-140). Unfortunately, whilst this documentary evidence provides a potentially useful terminus post quem for the pottery, most is clearly residual. The assemblage included Stamford and Torksey type wares, and Chilvers Coton and Nottingham jug fragments dating from the mid or later 13th century.

Only one sherd in the Medieval Sandy ware, fabric MS8, thought to be an under fired Midland Purple and possibly a Burley Hill or Ticknall product, has a terminal date in the later medieval period.

Plot 57

Table 64 The medieval and later pottery, identifiable vessel forms, area 1, plot 57, phase 11.0, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl	Jug	Cistern	Cup	Posset pot
MS1/2		1/10/0.1	1/33/0.0			
MP1/2				6/230/0.22		
CW2			1/21/0.0		8/226/0.485	2/675/0.0
RH			2/54/0.34			
EA1	2/101/0.225			4/90/0.21		
Totals	2/101/0.225	1/10/0.1	4/108/0.34	10/320/0.43	8/226/0.485	2/675/0.0

Sub Group SG5041 Cess Pit Fill

Assemblage: 23 sherds, 903 grams, 0.56 EVEs, 39.2 grams ASW.

This group is from the upper fills of the phase 10 cess pit SG5034 to the rear of the plot and, not surprisingly, much of the pottery from these layers in similar to that from the lower fills. Later medieval fabrics such as the Medieval Sandy wares MS7 and MS8, and Tudor Green, fabric TG2, were present, and late medieval vessel forms including a purple glazed cistern in the Midland Purple fabric MP1 with cut outs on the rim and external lid seating. Vessels similar to the latter were also found at Little Lane Leicester. A posset pot and a two handled cup with a cordon below the rim in Cistercian ware CW2 were also recorded, (Woodland 1981, 43.260).

A fragment of a bowl in an unclassified Medieval Sandy, in a fine sandy red bodied fabric, with orange glaze both internally and externally, may be a regional import, a late medieval transitional ware, similar to vessels from Norwich dating from the mid 15th to the later 16th century, (Jennings 1981, fig.24.415, 61). A body sherd from a Rhenish stoneware jug, possibly Frechen, with a mottled light brown glaze on the exterior, and a lead glaze on the interior is dated from the mid 16th century. Also present are four, possibly contemporary, sherds of pottery transitional from Midland Purple into the post medieval Earthenware EA1. A rim in the latter is glazed brown both internally and externally, a cut out and a handle stub defining this pot as a cistern. A similar vessel occurred in a transitional Medieval Sandy ware in dissolution deposits at the Austin Friars, Leicester (Woodland 1981, fig.44.278).

Table 65 The medieval and later pottery, area1, plot 57, phase 11, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	1		4			
PM – Potters Marston	4		67			
CC1 – Chilvers Coton	1		12			
MS – Medieval Sandy	1		10		0.1	
MS2 – Medieval Sandy	1		33			
MS3 – Medieval Sandy	1		70			
MS7 – Medieval Sandy	1		21			
MS8 – Medieval Sandy	3		82			
TG2 – Tudor Green/Surrey	1		1			
MP1 – Midland Purple	6		251		0.17	
MP2 – Midland Purple	8	12.3	670	25.6.	0.05	
MP3 – Midland Purple	1		204			
CW1 - Cistercian	1		11			
CW2 - Cistercian	21	32.3	765	29.2	0.485	30.6
MB – Midland Black	1		23			
RH – Rhenish Stoneware	3		58		0.34	
EA1 - Earthenware	10		335		0.435	27.5
Totals	65		2617		1.58	

Group G5104 Privy fill

Assemblage: 19 sherds, 1191 grams, 0.54 EVEs, 40.2 grams ASW.

This group is from the later fills of the phase 10 triple privy, G5105, at the rear of the plot. A highly fired sherd in the Chilvers Coton fabric CC1 was present, but this assemblage was dominated by Cistercian and Midland Purple wares. Whilst no Midland Purple vessels were identifiable, the Cistercian wares included a two handled cup with a short rim, another with a cordon at the rim and a jug with a flared rim in fabric CW2. These were paralleled at the Austin Friars, Leicester (Woodland 1981, fig.41.207, fig.42.226, fig.43.260). Most of these vessels were all glazed a dark brownish black, suggesting that they are late in the Cistercian ware sequence at Ticknall (Spavold and Brown 2005, 144). The two red bodied sherds in EA1, including a jar (Sawday 1998, fig.10.35) suggest a terminal date some time in the 16th century for this group.

Sub Groups SG5160, SG5327 Pits

Assemblage: 16 sherds, 449 grams, 0.48 EVEs, 28.0 grams ASW.

Late medieval Medieval Sandy ware MS8, and Cistercian and Midland Purple wares were found in this small group which also contained a brown glazed fragment of EA1 in SG5160, and two sherds of Rhenish Stoneware, one of the latter with a mottled pale brown glaze on the exterior and unglazed interior surfaces, is possibly Frechen. The other, from a jug or Schnelle, has a rim diameter of 60mm, with two broad cordons and the remains of two decorative panels with foliage and an animal tail, possibly a monkey. The exterior has a glossy finely mottled light brown glaze; the interior is unglazed. A similar vessel, but not with the identical decoration or the same glaze, is dated *c.*1525-1575 at Cologne (Hurst *et al* 1986, PL40).

Plot 57/58

Sub GroupX57_58_11 context 6343 Boundary Wall

Assemblage: 3 sherds, 84 grams, 0.03 EVEs, 28.0 grams ASW.

Sherds of Potters Marston and Coarse Shelly ware are residual in this context.

Table 66 The medieval and later pottery, area1, plot 57/58, phase 11, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
PM – Potters Marston	2	68	
CS – Coarse Shelly	1	16	0.03
Totals	3	84	0.03

Plot 58

Group PR5895 (SG5896) Rectangular Masonry Structure - possible Privy rear frontage

Assemblage: 39 sherds, 1115 grams, 0.435 EVEs, 28.5 grams ASW.

All but one of the sherds in this group came from the fill of the west chamber of the structure, SG5896. The only find in the east chamber, SG5895, was a hard fired and red bodied fragment in the post medieval Earthenware EA1, probably dating from the 16th century or later.

Approximately one third of this group of pottery was residual, dating from the 12th and 13th century, with little late medieval Cistercian or Midland Purples present. The Midland Purple was glazed purple, but not especially hard fired, and may not be late in the sequence.

Table 67 The medieval and later pottery: identifiable vessel forms, area 1, plot 58, phase 11.0, by fabric, sherd numbers, weight (grams) and Eves

Fabric	Jar	Bowl	Jug	Chafing Dish	Pipkin
ST2	1/12/0.045				
PM	1/31/0.07				
PM		1/86/0.75			
CC1			1/14/0.0		
MY		1/38/0.11		2/18/0.0	1/87/0.0
EA1/2		5/243/0.135			
Totals	2/43/0.115	7/367/0.32	1/14/0.0	2/18/0.0	1/87/0.0

Several pots in Midland Yellow ware included joining sherds from a chafing dish, Woodland form C, in contexts (6039) and (5985), a bowl, Woodfield form Nev, and a tripod pipkin, Woodfield form D (Woodfield 1984**).** In terms of the dating of this pottery I am indebted to Terry Pearce who drew my attention to the following: a date from *c.*1500 is suggested for Midland Yellow ware by the presence of a chamber pot, apparently in this ware, depicted on a stained glass panel entitled 'Visiting the Sick' from Wigston's House, Leicester. These glass panels have been dated, chiefly from a study of the womens' costumes in the roundels, from *c.*1490 or 1500 (Hamilton 1979-80, 22-23). At Ticknall, the most likely source of this ware in Leicester, Midland Yellow was found on the earliest known production centre on site 6, which Spavold and Brown date from *c.*1475 (Spavold and Brown 2005, 93), although whether this pottery was made during the initial phases of pottery manufacture is unclear. However, a study of necklines, collars, ruffs and headdresses associated with Midland Yellow ware pottery heads used a supports for chafing dishes or as thumbstops for handles on jugs and mugs, suggests a date from the 1530s to the early 1600s for at least some of this material(*ibid* 2005, 101-105).

Fragments of two internally glazed flanged bowls were the only identifiable vessels in the post medieval Earthenwares EA1 and EA2. The bowl in EA1 had a scar on the rim, evidence from the stacking of the vessel in the kiln, whilst the EA2 bowl, typically, was slipped under the glaze. These two wares occurred in all contexts above the earliest layer in the fills, suggesting that if this was a privy it was regularly emptied. The earliest fill of the west chamber, context (6058), contained exclusively medieval pottery with a terminal date in the late 13th century.

Table 68 The medieval and later pottery, area1, plot 58, phase 11, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	3		22		0.045	
PM – Potters Marston	7		162		0.145	33.3
CS – Coarse Shelly	1		21			
SP3 - Leicester Splashed	1		13			
CC1 – Chilvers Coton	2		21			
MS2 – Medieval Sandy	1		11			
MS8 – Medieval Sandy	6		183		0.11	
TG – Tudor Green/Surrey	1		5			
MP1 – Midland Purple	2		133			
MP2 – Midland Purple	1		15			
CW2 - Cistercian	1		4			
MB - Midland. Black	1		21			
EA1/2 - Earthenware	12	30.7	504	45.2	0.135	31.0
Totals	39		1115		0.435	

Phase 12 (Figure 26)

Plot 57

Group G5102 Rear Triple Stone Privy

Assemblage: 169 sherds, 7172 grams, 3.505 EVEs, 42.4 grams ASW.

This group is from the final phase of the use of the privy, which is thought to have been built in the late medieval period, in phase 10, where it occurs as G5105**,** later fills being recorded as G5104 in phase 11. The residual late medieval pottery in this phase included a jug in the Medieval Sandy ware MS7, and a cup and a jug with a cordon at the base of the neck, in CW2, the jugs both similar to vessels found at the Austin Friars, Leicester (Woodland 1981, fig.38.184 and fig.37.166). A cistern in the Midland Purple ware MP2 is similar to a vessel from Derby, dated to the end of the 15th century (Coppack 1980, fig.105.252). A flared mug in Blackware, possibly imitating a pewter vessel, is possibly a north Staffordshire product dating from *c.*1670-1720 at Burslem, (Barker 1986, fig.3.32, 64).

No vessels forms were identifiable in the early post medieval Earthenware EA1, but many of the sherds were partially oxidised with brown glaze on the interior surfaces. Another group of pottery was transitional from EA1 into EA2, the body dense orange clay with some marl, and a brown glaze over a red slip on the interior surfaces. Two bowl or pancheon rims one with a complex moulded rim occurred in this ware (Woodland 1987, fig.39.51), and a jar rim similar to one recorded in a coarse ware at Temple Balsall, Warwickshire in a context dated to the later 17th or early 18th century (Gooder 1984, fig.33.247a). Another wide mouthed bowl was found in the Earthenware EA2, together with two upright and externally thickened or squared jar rims (Woodland 1987, fig.13.16). This ware is characterised by a creamy buff body – a mix of red and white clays - and a red slip, often with the dip line visible under a brown or blackish glaze.

A rim fragment from an 18th century plate in Tin Glazed Earthenware, fabric EA11, with linear blue painted decoration under the glaze is dated to the 18th century. An inturned dish (Woodland 1987, fig.40.70) occurred in an associated cleaning layer, context (5380) in the same fabric. The vessel was decorated with white tin glaze on both the interior and exterior surfaces and dating to the late 17th or early 18th century, Joining fragments of a lid or cover glazed on the upper surfaces in Mottled ware, fabric EA3**,** occurred in the same layer and within the privy in context (5358). Another fragment was discounted as intrusive in contexts associated with the surfaces between the privy and the well plot 56/57 in phase 10. An almost identical lid is recorded at Stoke on Trent in a context dated *c.*1730 to *c.*1775 (Celoria and Kelly 1973, fig.74.193, 17). Part of a mug and a knob rim support from a chafing dish was found in the same ware. A press moulded dish with trailed slip decoration in the Slipware EA7, is paralleled at Leicester (Woodland 1987, fig.39.63), and is possibly an 18th century product of the Stoke potteries (Celoria and Kelly 1973, figs 86 and 87). A fragment of Brown Salt Glazed Stoneware, SW5, with a metallic glaze and a machine rouletted decoration was probably made in Nottingham in the 18th century.

Table 69 The medieval and later pottery: identifiable vessel forms, area 1, plot 57, phase 12, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl	Jug	Cistern	Chafing Dish	Cup/ Mug	Plate/ Dish	Lid
PM			1/37/ 0.0					
SP3			1/8 0.0					
MS7			1/30/ 0.225					
MP2				2/257/ 0.14				
CW2			1/42/ 0.0			5/147/ 0.0		
MB	1/21/ 0.15					1/37/ 0.05		
MY		7/277/ 0.255						
RH			1/33/ 0.25					
EA1/2	5/259/ 0.29	10/913/ 0.73						
EA3					1/7/ 0.055	2/26/ 0.0		3/251/ 0.19
EA6		4/64/ 0.14	11/279/ 0.125			4/72/ 0.3		
EA7							2/122/ 0.08	
EA11							3/56/ 0.34	
SW5						1/13/ 0.21		
Totals	6/280/ 0.44	21/1254/ 1.125	16/429/ 0.575	2/257/ 0.14	1/7/ 0.055	13/295/ 0.56	5/178/ 0.42	3/251/ 0.19

Table 70 The medieval and later pottery, area1, plot 57, phase 12, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
PM – Potters Marston	1		37			
SP3 - Leicester Splashed	1		8			
CC1 – Chilvers Coton	1		13			
MS3 – Medieval Sandy	2		81			
MS7 – Medieval Sandy	2		51		0.225	
MS8 – Medieval Sandy	1		39			
MP1 – Midland Purple	1		14			
MP2 – Midland Purple	10	5.9	1048	14.6	0.14	
MP4 – Midland Purple	1		76			
CW2 - Cistercian	17		365			
CW/MB – Cistercian/M. Black	2		168			
MB - Midland. Black	5		185		0.2	
EA1 - Earthenware	18		806		0.21	
EA2 - Earthenware	22		939		0.28	
EA1/2 - Earthenware	13	7.6	1115	15.5	0.53	
EA3 – Mottled ware	13		359		0.245	6.9
EA6 - Blackware	25	14.7	649	9.0	0.565	16.1
EA7 - Slipware	4		134		0.08	
EA11 – Tin Glazed	14		373		0.34	9.7
MY – Midland Yellow	12		624		0.255	
SW5 - Stoneware	3		55		0.21	
WE – Westerwald Stoneware	1		33		0.225	
Totals	169		7172		3.505	

Plot 58

Table 71 The medieval and later pottery: identifiable vessel forms, area 1, plot 58, phase 12, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl	Cistern	Posset pot	Candlestick
PM	1/10/0.05				
MP2			1/23/0.05		
CW2				1/10/0.175	
MY					1/7/0.0
EA1/2		2/967/0.095			
Totals	1/10/0.05	2/967/0.095	1/23/0.05	1/10/0.175	1/7/0.0

Sub Group SG5903 Layer

Assemblage: 47 sherds, 1950 grams, 0.37 EVEs, 41.4 grams ASW.

This layer is confined within a rectangular shaped area, and is thought to be the capping or top layer of the well in this plot. Certainly the large average sherd weight for the pottery suggests that this material may be associated with a well, and whilst most sherds were of unknown vessel form, several interesting pots were recovered including a posset pot in CW2 (Woodland 1981, fig.41.204) and a fragment of what may be a candlestick, Woodfield form Ad, in Midland Yellow (Woodfield 1984). An unusual vessel, and possibly a one off, was a flared bowl with a convex base, classified as transitional Earthenware, fabric EA1/2, in a buff body tempered with grog and iron inclusions and a black glaze over a red slip. This may well be a Ticknall or Chilvers Coton product, a bowl with a similar profile is recorded at Temple Balsall, (Gooder 1984, fig.35.coxlvii), but the fabric is clearly different.

Of note in context (5879), and a rare find in Leicester if correctly identified, was a fine white wheel thrown body sherd with sparse rounded quartz inclusions and a golden yellow glaze flecked with orange, possibly a continental import from Andenne or possibly Beauvais in northern France, (P. Courtney pers. comm.), dating from early medieval period to the later 15th or 16th centuries.

Table 72 The medieval and later pottery, area1, plot 58, phase 12, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	1		4			
LI2 - Lincoln	1		20			
PM – Potters Marston	8		90		0.05	
SP3 - Leicester Splashed	1		17			
CC1 – Chilvers Coton	4		81			
NO3 - Nottingham	3		22			
MS2 – Medieval Sandy	1		12			
MS3 – Medieval Sandy	1		26			
MS7 – Medieval Sandy	1		14			
MP1 – Midland Purple	1		11			
MP2 – Midland Purple	5		147		0.05	
MP3 – Midland Purple	1		10			
CW2 - Cistercian	5		45		0.175	47.2
MB - Midland. Black	3		10			
AN - Andenne	1		5			
EA1 - Earthenware	8	16.6	457	23.3	0.025	
EA1/2 - Earthenware	1	2.0	937	47.8	0.07	
MY – Midland Yellow	2		52			
Totals	48		1960		0.37	

Phase 13 (not illustrated)

Plot 56

Table 73 The medieval and later pottery: identifiable vessel forms, area1, plot 56, phase 13, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl
ST3	2/90/0.39	
SN		1/21/0.03
Totals	2/90/0.39	1/21/0.03

Sub Group SG0205 Fill of Brick Culvert

Assemblage: 20 sherds, 303 grams, 0.42 EVEs, 15.1 grams ASW.

All the pottery in this small group is residual, the latest pottery is a piece of possibly wheel thrown feathered Slipware, fabric EA7, dating from the later 17th century.

Table 74 The medieval and later pottery, area1, plot 56, phase 13, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST3 – Stamford ware	5	126	0.39
ST2 – Stamford ware	4	48	
SN – Saint Neots	1	21	0.03
PM – Potters Marston	3	60	
SP3 - Leicester Splashed	5	46	
TG2 - Tudor Green/Surrey	1	1	
EA7 - Slipware	1	1	
Totals	20	303	0.42

Plot 57

Table 75 The medieval and later pottery: identifiable vessel forms, area1, plot 57, phase 13, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl	Jug	Cup	Dish	Mug
PM	2/13/0.06		2/74/0.02			
SP2			1/62/0.0			
LY1			1/22/0.22			
CC1			3/24/0.05			
NO3			1/9/0.0			
CW2				1/25/0.0		
MB						4/49/0.0
MY		1/10/0.0				
EA1	2/83/0.14					
EA3						1/5/0.075
EA11					1/5/0.07	
Totals	4/96/0.2	1/10/0.0	8/191/0.29	1/25/0.0	1/5/0.07	5/54/0.075

Sub Groups P5167, SG5031 Pits, SG0201, SG5473 Sewers, SG5408 Layer

Assemblage: 54 sherds, 966 grams, 0.655 EVEs, 17.8 grams ASW.

A range of residual medieval and post medieval pottery was found in these modern features. Only two sherds in a Tin Glazed Earthenware, EA11, and the modern Earthenware, EA10, post date the mid 18th century. These come from the back fill of SG5031, a pit to the rear of the plot.

Sub Group Pit SG5354

An interesting range of modern pottery, including the Earthenwares, EA9 and EA10, was found in this pit, but was not catalogued owing to lack of time.

Table 76 The medieval and later pottery, area1, plot 57, phase 13, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST2 – Stamford ware	1		9			
PM – Potters Marston	15	27.0	298	30.8	0.08	
SP2 – Nottingham Splashed	1		62			
SP3 - Leicester Splashed	1		19			
OS2 – Oxidised ware	1		2			
LY1 – Stanion Lyveden	1		22		0.22	34.6
CC1 – Chilvers Coton	4		28		0.05	
NO3 - Nottingham	1		9			
MS3 – Medieval Sandy	3		45			
MS7 – Medieval Sandy	4	7.4	111	11.4		
MP1 – Midland Purple	1		28			
CW2 - Cistercian	1		25			
MB - Midland. Black	4		49			
EA1 - Earthenware	3		93		0.14	22.0
EA2 - Earthenware	2		70			
EA3 – Mottled ware	5		48		0.075	
EA7 - Slipware	1		19			
EA11 – Tin Glazed	1		5		0.07	
MY – Midland Yellow	3		17			
EA10 – Fine Earthenware	1		7			
Totals	54		966		0.635	

Plot 58

Table 77 The identifiable vessel forms, area1, plot 58, phase 13, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Plate
PM	1/19/0.045	
EA7		1/30/0.0
EA10		1/5/0.0
Totals	1/19/0.045	2/35/0.0

Table 78 The medieval and later pottery, plot 58 phase 13, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
PM – Potters Marston	9	108	0.045
CC2 – Chilvers Coton	1	11	
EA7 - Slipware	1	30	
EA10 – Fine Earthenware	1	5	
Totals	12	154	0.045

Sub Group X58_13 context 6216 Robber Trench

Assemblage: 12 sherds, 154 grams, 0.045 EVEs, 12.8 grams ASW

Residual medieval pottery and a plate fragment in modern Earthenware were found in the backfill of the robber trench.

The Pottery Fabrics- Area 1 (Table 79 - Table 84;Figure 18)

The earliest Stamford fabric, ST3, is of particular significance here, with 394 sherds, weighing 6326 grams and an EVE of 11.735, the fabric dominated the late Saxon and Saxo Norman wares in phase 7. It also represents the single largest phased assemblage of this fabric found in the city to date. Lincoln Kiln type and Late Saxon Shelly wares were the second most common, followed by the fine Stamford ware by sherd count and Torksey type ware by weight.

Table 79 The medieval and later pottery: the late Saxon/Saxo-Norman wares, area 1, phases 7.01, 7.02, and 7.03, by fabric, sherd numbers and weight (grams), EVEs and average sherd weight.

Fabric	Sherds	%	Weight	%	Eves	%	ASW
LE – Leicester	75	7.5	944	6.6	1.695	7.2	12.5
ST3 – Coarse Stamford	394	43.0	6326	44.4	11.735	49.8	16.0
ST2 –Fine Stamford	128	13.9	1369	9.6	1.865		10.6
LI1/LI2 - Lincoln	146	15.9	2326	16.3	4.67	19.8	15.9
SN – Saint Neots	75	7.5	1101	7.7			14.6
TO – Torksey	79	8.6	1930	13.5	1.16		24.4
TH - Thetford	2		65				32.5
NH - Northampton	3		18				6.0
RS1/3 – Reduced Sandy	14		164		0.42		11.7
Totals	916		14243		23.525		

The 75 sherds of Leicester ware accounted for approximately 7.5 % of the totals by sherd count, less than 7% by weight and only 7.2% by EVEs. However this assemblage together with another 28 sherds which are residual in later phases in area 1, still constitutes a significant find. Previously less than a dozen sherds have been tentatively identified in this ware from excavations in the city, all in residual contexts. The ware has also been identified in Lincoln (Young *et al* 2005, 72-73), and in Northampton (McCarthy 1979, 163-4), though Blinkhorn notes in the Northampton County fabric series, that the similarity to Thetford ware in terms of both fabric and vessel form may make a definite identification difficult (Northampton CTS).

Small quantities of the late Saxon Lincoln wares have also been previously identified by Jane Young in residual contexts within medieval tenements on the site of the Roman forum in Leicester, (Young *et al* 2005, 62). Here, however, the Lincoln wares and the late Saxon and Saxo Norman Saint Neots and Torksey type wares are also the largest stratified assemblages of these wares found in Leicester up to the present time.

Table 80 The medieval and later pottery: the major wares in the early medieval period, area 1, phases 8, 8. 01, 8.02 and 8.03, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves	%
ST1/2/3 – Stamford	831	35.2	7633	18.8	11.22	35.1
PM – Potters Marston	1303	55.3	29057	71.6	18.605	58.28
SP3/4 – Leicester Splashed	101		1987	4.9	1.256	3.9
OS1/2 – Oxidised Sandy	107	4.5	1692	4.1	0.78	
CS – Coarse Shelly	13		181		0.06	
Totals	2355		40550		31.921	

The relative proportions of the major wares demonstrate the continuing importance of the Stamford pottery industry to Leicester in the early medieval period in phase 8, but typically the local coarse ware, Potters Marston, dominates, accounting for over 55% of the assemblage by sherd count and for approximately 71% of the totals by weight. The Leicester Splashed wares and the Oxidised Sandy wares only constitute a relatively small part of the assemblage and the regional imports, the Nottingham Splashed wares and the Coarse Shelly wares occur only in very small quantities, but in every plot and frequently enough to suggest that these also were traded wares. This is a pattern that has been noted on all previous excavations in Leicester, notably at the Austin Friars, (Woodland 1981), and at Causeway Lane (Davies and Sawday 1999).

Table 81 The medieval and later pottery: the major wares in the medieval period, area 1, phases 9, 9.01, 9.02 and 9.03, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
ST1/2/3 - Stamford	400	14.5	3411	6.7	5.54
PM – Potters Marston	1852	67.1	37318	7.4	24.55
CC1/2/5 – Chilvers Coton	267	9.6	4496	8.9	1.3
NO1/2/3 - Nottingham	119		2835		0.655
MS2/3/7/8 – Medieval Sandy	101		1740		1.368
MP1/2/3 – Midland Purple	19		448		
Totals	2758		50248		33.413

Potters Marston remains an important part of the pottery assemblages in the 'high' medieval period in phase 9. Whilst the ware is thought to have continued in production in the 14th

century, much of it is no doubt residual in a phase which also contains a significant proportion of Stamford ware, the manufacture of which had ceased in Stamford by the mid 13th century (Kilmurry 1980). This phase is defined by the introduction of the wheel thrown glazed sandy wares, predominantly from Chilvers Coton in Warwickshire, which constitutes the single largest major source of pottery traded to Leicester during the mid and later 13th century, followed by the Nottingham wares. The Medieval Sandy wares, which are also though to originate from sources to the west of the county, including Derbyshire, make up the other major group.

Table 82 The medieval and later pottery: the major wares in the late medieval period, area 1, phase 10, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
PM – Potters Marston	408		7861		4.3275
NO1/2/3 - Nottingham	77		776		0.18
CC2 – Chilvers Coton	20		678		
MS3/7/8 – Medieval Sandy	140	15.2	3293	14.4	1.655
CW2/MB – Cistercian/Blackware.	67		1270		0.785
MP1/2/3/4 – Midland Purple	205	22.3	8937	39.1	1.75
Totals	917		22815		8.6975

Potters Marston remains as a major component and as evidence of the residuality in much of phase 10 assemblage, which also contained a not insignificant quantity of Stamford ware. The Chilvers Coton fabric, CC2, and the Medieval Sandy wares, MS3, MS7 and MS8, are also typical of the later medieval assemblages in the city. These Medieval Sandy wares also occurred in some quantity in the later medieval phases at St Nicholas Place **(Sawday….),** whilst the Midland Purple wares and the Cistercian wares commonly occur in the city from the later 14th and mid 15th centuries respectively.

Table 83 The medieval and later pottery: the major wares in the early post medieval period, area 1, phase 11, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
CW2/MB – Cistercian/Blackware.	25	34.2	784	25.2	0.485
MP1/2/3– Midland Purple	18	24.6	1273	41.0	0.22
EA1/2- Earthenware	24		860		0.57
MY – Midland Yellow	6		183		0.11
Totals	73		3100		1.385

The early post medieval and later phases produced a range of wares, notably MB and MY, Midland Blackware and Midland Yellow wares, typical of the region, as well as a range of coarse post medieval Earthenwares commonly found in the city.

Table 84 The medieval and later pottery: the major early and later post medieval wares, area 1, phase 12/13 by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
CW/MB – Cistercian/Blackware	14		412		0.2
EA1 - Earthenware	42	27.8	2471	37.9	0.905
EA2 - Earthenware	25		1946		0.35
EA3 – Mottled ware	18		407		0.32
EA6 - Blackware	25		649		0.565
EA7 - Slipware	7		184		0.08
EA11 – Tin Glazed	15		378		0.41
EA10 – Modern Earthenware0	2		12		
SW5 – Brown Stoneware	3		55		0.21
Totals	151		6514		3.04

The Pottery Forms - Area 1 (Figure 20-Figure 26)

As at Vaughan Way (Sawday 2009a), jars, bowl and jugs dominated the assemblages, jars being predominant by Eves in all phases save for plot 58, phase 10, where the jug was the most common, and plot 57 phase 11, where cups were followed by cisterns as the most prevalent vessel type. A wide range of other table wares apart from jugs are also found in the earlier phases, chiefly in the fine Stamford wares ST1 and ST3, including cups, spouted pitchers, dishes and bottles.

The jars occurred in a wide range of both fine and coarse ware fabrics, especially in the early period when Stamford cooking pots were the most common followed by those in Lincoln Shelly ware. However, both wares were superseded in phase 8 by Potters Marston, and jars and a wide range of other vessels in this ware dominated the assemblages in every plot throughout phases 8 and 9. These Potters Marston vessels included storage jars, jugs, dripping dishes, fire covers, lamps, spouted pitchers, and pipkins. However, generally only a few examples of each occurred, the EVE totals for all these vessels not counting the storage jars and jugs, amounting to only 0.685.

Bowls and spouted or socketed bowls in Lincoln, Stamford and Torksey type ware were the second most common vessel type in area 1 phases 7 and 8, succeeded in phase 9 by jugs and pitchers. Many of the jugs were in the fine bodied wheel thrown sandy Chilvers Coton, Nottingham and Medieval Sandy wares dating from *c.*1250, and this form became dominant in phase 10 as noted above.

Utilitarian vessels such as lamps and crucibles occur across all the phases, though neither vessel type is common, the EVE for lamps being 2.165 whilst only body sherds of the two vessels posited as crucibles survive. Phase 8 also sees the introduction of a new range of culinary vessel types, such as dripping dishes and pipkins and also fire covers as noted above, whilst frying pans first occur in phase 9. The introduction of the Tudor Green type/Surrey White wares in *c.*1400 is accompanied by the return of fine table wares forms such lobed cups, followed by, from *c.*1450, a more diverse range of forms in Cistercian ware. The most common Cistercian ware pots in phase 10 are two handled and pedestal cups and jugs, though some of the pedestal vessels are apparently intrusive in phase 9 in plot 57. A typically late medieval form, the cistern, appears in phase 10, chiefly in Midland Purple and two examples of Martincamp flasks are also found in the same phase, together with posset pots and chafing dishes in Cistercian ware. Phases 11 and 12 see the introduction of chafing dishes in Midland Yellow ware and Mottled ware respectively, whilst a candlestick was also recorded in Midland Yellow in phase 12.

The Plots Area 1

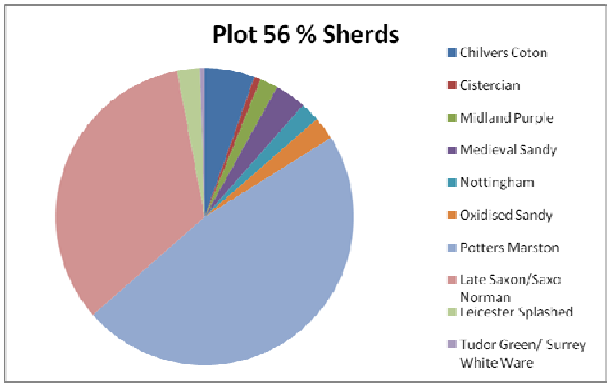
Given the unique survival here of medieval street frontages and of their associated plots, the opportunity was taken to examine the pottery from the three plots to see if there was any significant differences between the assemblages which might help to characterise the nature of the occupation. The pottery from the plot boundaries was not included for obvious reasons. Unfortunately the comparison was limited by the very different size of the areas available for excavation and the extent to which each had been subjected to later truncation and other disturbance. This explains why, for example, the assemblage from plot 58 was particularly small. There was also evidence of an overlapping of deposits in plots 56 and 57 in phase 10, and the possibility that by phase 11 the plots were under a single ownership. Whilst some effort was made to look out for pottery cross fits across the plots, there was no obvious evidence of joining sherds, but further work would be needed to be absolutely certain that this had not occurred.

The occurrence of the major wares in phase 7 are shown here in the three plots, although it appears that this material pre-dates the boundary walls which are thought to have been established by phase 8 that is, by *c.*1100. Unlike the other plots, little of the plot 58 street frontage survived; whilst the significant quantities of late Saxon and Saxon Norman pottery in plots 56 and 57 confirm that much of this early activity was indeed concentrated along the frontage. The relative proportions of the pottery also highlight the importance of the site in the medieval period and its subsequent decline thereafter

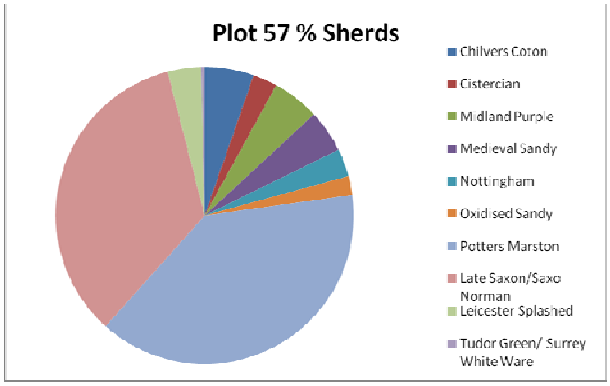
Overall, the relative proportions of the major early medieval and later wares, especially in plot 56 and plot 57, are very similar. Potters Marston is predominant in all three plots, with Splashed and Oxidised wares as minor wares, followed by Chilvers Coton, and in the later period, the Medieval Sandy, Cistercian and Midland Purple wares, the range of major wares being typical of that found in the city (Woodland 1981), (Sawday 1989), (Davies and Sawday 1999), 9 St Nicholas Place, Leicester (Sawday forthcoming b).

Table 85 The medieval and later pottery: the major wares in area 1 phases 7 to 10, by period and plot, by fabric and sherd numbers as a percentage of the total assemblage for each plot.

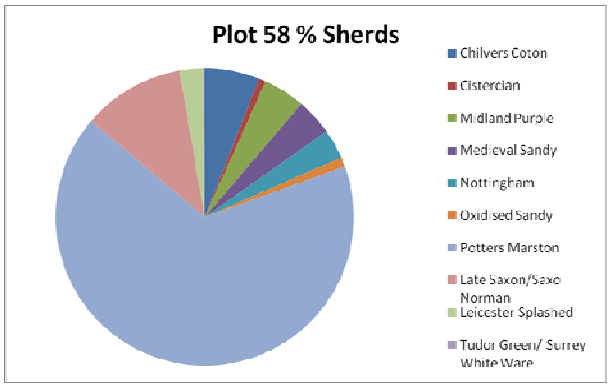
	Plot 56		Plot 57		Plot 58	
Ware	sherds	% of plot total	sherds	% of plot total	sherds	% of plot total
Late Saxon/Saxo Norman						
LE – Leicester ware	44		50		2	
ST – Stamford ware	869	27.1	772	22.2	73	8.5
LI1 - Lincoln	57		126		7	
SN – St Neots	25		68		2	
TO -Torksey	53		81		2	
Sub Totals	**1048**	**32.6**	**1097**	**31.6**	**86**	**10.0**
Early Medieval/Medieval						
PM – Potters Marston	1497	46.6	1239	35.7	518	60.6
SP3/4 – Leicester Splashed	77		115		20	
OS1/2 – Oxidised Sandy	79		66		8	
NO - Nottingham	66		97		25	
CC1/5 – Chilvers Coton	138	4.3	150	4.3	41	4.8
MS1/2 – Medieval Sandy	38		33		9	
Sub Totals	**1895**	**59.1**	**1700**	**49.0**	**621**	**72.7**
Later Medieval						
CC2 – Chilvers Coton	32		21		5	
MS3-8 – Medieval Sandy	68	2.1	116	3.3	22	2.5
TG1/2 - Tudor Green/Surrey	17		13		1	
CW1/2 – Cistercian ware	22		85		6	
MP1-4 – Midland Purple	62	1.9	164	4.7	35	4.0
Sub Totals	**201**	**6.2**	**399**	**11.5**	**69**	**8.0**
Plot Totals	**3206**		**3465**		**854**	



3141 sherds



3211 sherds



776 sherds

Figure 18 The medieval and later pottery: the major wares by sherd count in area 1 phase 7 to 10, plots 56, 57 and 58.

Whilst plots 56 and 57 are very similar in terms of EVEs for the major wares across all the medieval phases, the relatively higher proportion of late Saxon and Saxo Norman wares in plots 56 and 57 compared to plot 58 reflects the truncation of the early street frontage in plot 58 as noted above. Similarly, the predominance of Potters Marston when compared to the

'high' medieval Chilvers Coton and Medieval Sandy wares and the later medieval Midland Purple and Cistercian wares, in plot 58 is thought to be a result of the lack of later deposits available for excavation in that plot.

Table 86 The medieval and later pottery: the major identifiable vessel types in area 1, by major ware, period, phases 7 to 10, by plot and EVEs, and as a percentage of the EVEs for each plot.

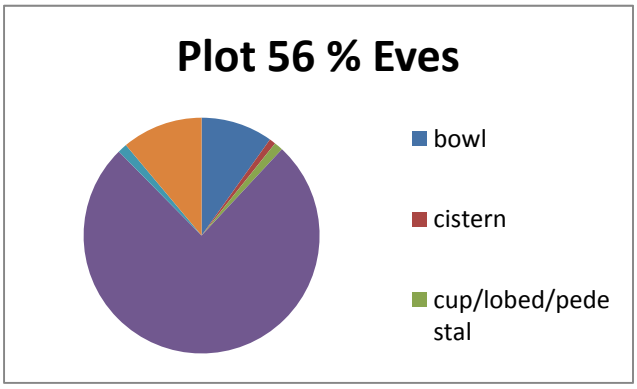
	Plot 56		Plot 57		Plot 58	
Ware	EVEs	% of plot total	EVEs	% of plot total	EVEs	% of plot total
Late Saxon/Saxo Norman						
Jar/storage jar	15.4		13.7		0.68	
Bowl	1.9		2.71		0.195	
Pitcher/jug.	1.3		2.1		0.4	
Lamp	0.615		1.1			
EVE Sub Totals	**19.215**	**40.0**	**19.61**	**39.5282**	**1.275**	**15.686**
Early Medieval/Medieval						
Jar/storage jar	18.787		13.031		2.34	
Bowl	2.32		0.885		0.73	
Jug/Pitcher	3.11		4.235		1.475	
Lamp	0.24					
EVE Sub Totals	**24.457**	**50.0**	**18.151**	**36.330**	**4.545**	**55.97**
Later Medieval						
Jar/storage jar	0.645		0.135		0.385	
Bowl	0.14		0.1		0.075	
Jug	0.415		1.45		0.27	
Cup/lobed/pedestal	0.47		1.05			
Cistern	0.42		1.055		0.05	
Sub Totals	**2.09**	**4.35**	**3.79**	**7.585**	**0.78**	**9.5**
Total identifiable vessels by plot	**47.9575**		**49.961**		**8.128**	

In terms of vessel types, the largest assemblage of late Saxon and Saxo Norman periods in Leicester, Lincoln, Stamford , St Neots, Torksey, Thetford and Northampton ware, occurred in plot 57 with an EVE of 19.61 for the major types, closely followed by plot 56 with an EVE of 19.215. Jars and storage jars, followed by bowls and pitchers or jugs, occurred in all three plots, but a wider range a vessels, especially table wares, and including cups, pedestal dishes, spouted pitchers and lamps were found plots 56 and 57, not all of which are shown here.

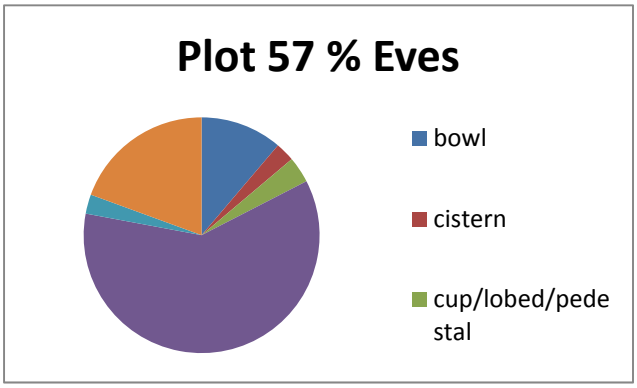
In terms of continental imports, only one find of note occurred in plot 58, a fragment, tentatively identified as Andenne or possibly Beauvais earthenware from northern France, and dated from the early medieval period to the 15th or 16th centuries. This sherd, apparently residual, in phase 12, is a rare find in the county, and may be the first of its type in Leicester. The only other import in this plot, in phase 10, was a fragment of a Martincamp flask also from northern France, generally dated to the 16th and 17th centuries in Britain where it occurs in some quantity. Another sherd from a Martincamp flask and the fragments of four jugs in Rhenish stoneware, possibly Frechen, which was commonly imported into England from *c.*1550 or, and rather less common, Cologne, were also recovered from plot 57 in phases 10 and 11. A late medieval Rhenish stoneware jug, either in Langerwehe or possibly Siegburg (Hurst 1986, fig.88.263, 176) was also found in plot 57, together with a jug in Westerwald stoneware in phase 12, another common early post medieval German import.

The only significant group of continental imports occurred in phase 10 plot 56, in the large pit, at the rear of the plot, and in a group of miscellaneous, with a probably residual fragment in phase 11. A rare tripod pitcher and another uncommon form, a small cup or jug in both in Langerwehe stoneware, dating from *c.*1350 to *c.*1450 occurred in the pit, whilst two Siegburg jugs and a Siegburg or possibly Beauvais, bowl with a thumbed base were recovered from miscellaneous contexts.

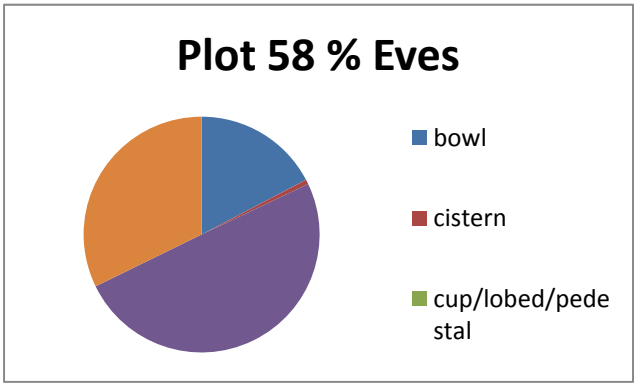
Whilst, as Hurst notes ‘there is hardly a 15th century site in Britain which does not have at least one sherd of Langerwehe stoneware suggesting that it was extensively traded,’ (Hurst *et al* 1986, 186), relatively unusual Langerwehe vessel types do occur here, as noted above. A similar set of Langerwehe drinking vessels was found on the Little Lane excavations in Leicester, at the rear of buildings fronting on to the other main medieval thoroughfare in the city, the Swinesmarket and both groups of pottery are evidence of relatively high status. However, apart from this small group of continental pottery in plot 56, there appear to be few if any significant differences between the assemblages from the three plots. A similar study of pit groups in Causeway Lane thought to relate to possible burgage plots, also failed to produce any evidence of significant differences between the groups (Davies and Sawday 1999, 188).



EVE = 47.3025



EVE = l 48.221



EVE = 7.743

Figure 19 The medieval and later pottery: EVE totals by major vessel type in area 1 phase 7 to 10, plots 56, 57 and 58, where 1.00 EVE = one vessel

Discussion Area 1

The pottery provides some evidence for chronology of the site but the complexity of the stratigraphy and the high levels of residuality and modern intrusions made this not an easy task. The major subdivisions in phase 7, which actually pre-date the construction of the boundary walls between the plots, represent an attempt to correlate the pottery dating of a series of surfaces and layers in what was later to become plot 57, into the two other 'plots'.

Phases 7.01 and 7.02 are characterised by exclusively late Saxon material, whilst the Potters Marston in phase 7.03 dates these assemblages to the late 11th or 12th centuries. The pottery in the numerous features, post holes, beam slots, occupation layers and pits in the dark earths above and cutting the macellum wall, and thus provides convincing evidence of occupation from the late 9th or 10th centuries into the early medieval period. The hearths and a fragment of mould or crucible in Sub Group G6377 also suggest that occupation was perhaps also associated with some sort of industrial activity. Joining sherds between the three groups of material from the three areas later defined by the plot boundary walls would have provided clear evidence that the walls did not exist at this time. No such evidence was found but the material was very fragmentary, and a more exhaustive search would be needed to confirm that there were in fact no joining sherds.

Phase 8 is generally characterised by the fine Stamford ware ST1, and by the hand made coarse wares, chiefly Potters Marston and the Oxidised Sandy and Splashed wares, and there was no difference between the assemblages within phase 8.0 and the sub-phases 8.01 and 8.02 in terms of dating. The absence of significant quantities of wheel thrown sandy wares, chiefly from Chilvers Coton and elsewhere, dating from the 13th century is also indicative of an early medieval date. High levels of residuality occur here, the late Saxon and Saxo Norman fabrics, notably the Stamford fabrics ST3 and ST2 and the Leicester and Lincoln wares, make up approximately 35% of the phase assemblage by sherd count. Many of the assemblages associated with the complex sequence of activity that follows occurred in heavily truncated contexts that often yielded small only groups of pottery with low average sherd weights. Where small pockets of stratified levels did survive, such as floor or make up layers, these were often isolated and disturbed by later features.

In spite of these stratigraphic complexities some useful observations from the pottery analysis could be made, of necessity only a few examples are quoted here. Early medieval pottery provided dating evidence for the timber structures in phase 8, and with the first phase in the constructions of masonry walls on the site, including the boundary walls, this episode of activity apparently being followed fairly quickly by robbing. Little residual late Saxon and Saxo Norman pottery occurred in the rear frontage of plot 56, notably the pits, which may suggest that there had been little previous activity there, or that any rubbish had been disposed of elsewhere. Conversely, some residual pottery was associated with the robber trenches in the frontage of plot 58. The relative lack of pottery from the fill of the stone privy, group PR5125, in plot 56, suggests that it may have been emptied on a regular basis, a fairly typical occurrence on site, whilst the pottery from within the walls indicates, that it was all of one build.

The pottery assemblages in phases 9.0, 9.01 and 9.02 all date from *c.*1250, and are typified by the presence of the Chilvers Coton fabric CC1 and the other wheel thrown sandy wares, notably the Nottingham wares and the Medieval Sandy wares MS1, MS2 and MS3. Even so, these fine wares account for only 16.5 % of the assemblages in this phase by sherd count. Whilst some of the coarse wars, notably Potters Marston, continue in production into the 14th century, the low proportion of wheel thrown wares in this phase is also evidence of the

continuing residuality of much of the pottery throughout the later stratigraphic sequences. The pottery was useful dating evidence, for the backfill of the malting kiln to the rear of plot 58, for example. Some terminus post quem dates for various sequences of structural activity was also provided by the pottery, for the construction of east west wall dividing plot 57 in phase 9.01 and for the mash ovens in the same plot in phases 9.02 and 9.03 for instance.

The small amount of contemporary domestic pottery in this phase may be a reflection of both the nature of the rubbish disposal at this time, and of the type of activity here, which was predominantly industrial. Whilst, no specifically industrial pottery vessel types could be associated with this type of feature in this phase or indeed any of the other similar features on the site, this is not unusual. Only two vessels at Causeway Lane excavations, for example, were tentatively identified as being associated with distilling processes and only one more appeared to have been adapted for secondary use for industrial purposes (Davies and Sawday 1999, 189-191).

The pottery in phase 10 is dated from *c.*1400, and is characterised by the presence of the late Medieval Sandy wares, MS7 and MS8 which become more common in the mid to late 14th century, the Midland Purple wares dating from *c.*1375 and the Cistercian wares, dating from the mid 15th century. The Tudor Green or Surrey white wares which are thought to occur here from *c.*1375 or *c.*1400 are another useful indicator of a late medieval date, as are the continental imports, the Anglo Netherlandish Tin Glazed Earthenwares and the Martincamp Stonewares, dating from *c.*1400 and *c.*1475 respectively. These wares account for almost 35% of the phase totals by sherd count, indicative of a high level of residuality and also of a certain degree of intrusion, the post medieval earthenwares making up approximately 1.5 % of the totals.

The unusually large average sherd weight of over 48 grams for the pottery from the backfill of the privy on the rear frontage in plot 57 suggests that at least some of this pottery was secondary refuse, perhaps resulting from the final use of the feature. Similarly, the pottery from the lowest deposits in another cess pit to the north of the plot, whilst more fragmentary, suggested abandonment at much the same time. However, the site director has argued that the cessation of brewing and the abandonment of the privies at the rear of plot 57 do not necessarily denote a decline in the economic fortunes of the inhabitants (J. Coward, pers. comm.)

The pottery under the wall footing of what is thought to be the Free Grammar School, dating from 1573, in phase 11, plot 56/57, also had a potentially useful terminus post quem, but unfortunately all the material appeared to be residual, dating from the mid or later 13th century. Interesting but fragmentary assemblages of late medieval and early post medieval pottery were also recovered from the fills of the cess pits and privies in this phase and from what is probably the capping of a well in Plot 58, phase 12.

The relative lack of pottery contemporaneous with phase 10 and later phases, only 40 post medieval and modern contexts were recorded with pottery finds in phases 11 to 13, may be taken as evidence that the rubbish was disposed of elsewhere, possibly outside the town walls. This was a typical occurrence in many towns in the later medieval period (Connor and Buckley 1999, 90). Much archaeological evidence must also have been destroyed by truncation and the disturbance caused by the installation of modern services along the street frontage.

Area 4

Phase 8

Only those contexts with medieval pottery relating to the medieval structure fronting on to St. Peters Lane are discussed here.

Table 87 The medieval and later pottery: area 4, phase 8, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST3 - Stamford	1	2	
ST2 - Stamford	1	3	
PM – Potters Marston	13	193	0.16
CO1 - Coventry	1	28	0.06
NO5 - Nottingham	1	17	
MS – Medieval Sandy	1	22	
Totals	18	265	0.22

Table 88 The medieval and later pottery: identifiable vessel forms, area 4, phase 8, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar
PM	3/31/0.16
CO1	1/28/0.06
Totals	4/59/0.22

Group G1011 (FL1300) Floor Surfaces,

Assemblage: 5 sherds, 110 grams, 0.0 EVEs, 22.0 grams ASW.

Five sherds in Potters Marston ware, including a convex base, were found in the earliest clay floor surface, context (1310). No vessel forms were identifiable, but many of the fragments were externally sooted and had evidently been used for cooking. The sherds were relatively thick walled and probably date from the late 12th or the 13th century.

Group G1016 (L1399, PH1415) Occupation Layers

Assemblage: 2 sherds, 23 grams, 0.0 EVEs, 11.5 grams ASW.

A sherd in the coarse Stamford ware, ST3, Stamford fabrics A/F, with random knife trimming on the exterior surfaces, was found in the post hole PH1415. Fabric F is dated from the late 9th century, with fabric A appearing soon after, the latter and continuing as the predominant fabric type from the mid 10th to the late 11th century at Stamford. Although fabric A did continue in production into the 12th century (Kilmurry 1980, fig.38, 131-133), this sherd weighs only two grams and is probably residual here. The Stamford ware is associated in the occupation layer L1399, with another thick walled and externally sooted fragment weighing 21 grams, in Potters Marston ware. The latter probably dates from the late 12th or 13th century.

Group G1009 (FL1012, SG1100) Floor Surfaces and Consolidation

Assemblage: 4 sherds, 39 grams, 0.8 EVEs, 9.7 grams ASW.

Two sherds of early medieval pottery, weighing nineteen grams, were found in one of the lower floor levels, FL1012, context (1356). One, weighing sixteen grams, was a jar rim in Potter Marston, in a form dated typologically from the 12th century and commonly found in Leicester, for example – within the north east quarter of the medieval town - at the Jewry Wall Site (Dunning 1948, fig. 59.1) and Causeway Lane (Davies and Sawday 1999, fig.88.34). The other sherd from the same context in the fine Stamford ware ST2 with a thin lead glaze on the exterior weighed only three grams, was dated from the mid 11th or 12th centuries, and may have been residual here. Two more post Roman sherds were found in the floor make up, SG1100, context (1378): a fragment of Potters Marston weighing three grams; and another sherd with oxidised surfaces and a reduced core, weighing seventeen grams, tentatively classified as fabric NO5, a product of the St Anne's kilns at Nottingham, dated from the late 12th and early to mid 13th centuries, (Nailor in Young 2005, 127-128).

Group G1018 (FL1432) Floor Layers

Assemblage: 1 sherd, 11 grams, 0.0 EVEs, 11.0 grams ASW.

A sherd of Potters Marston was found in context (1434). The thin walls and patches of reduction on the exterior and the reduced blackish interior, typologically 'early' characteristics of this ware, suggest that it had been fired in a bonfire or clamp kiln. The sherd may date to the late 11th or the 12th century.

Group G1005 (PH1340) Post Hole

Assemblage: 2 sherds, 20 grams, 0.3 EVEs, 10.0 grams ASW.

Two sherds of Potters Marston were found in a layer of burning, context (1343), within one of the post holes cutting the floor in G1018 above. One of the sherds, a jar, could be paralleled at Causeway Lane, (Davies and Sawday 1999, fig.89.59). The other from a convex base, was heavily sooted externally. Both could be of 12th or possibly late 11th-century date.

Group G1020, (SG3150) Demolition and Yard Layers

Assemblage: 4 sherds, 62 grams, 0.11 EVEs, 13.0 grams ASW.

Two typological early sherds of Potters Marston, including a jar rim similar to that from G1005 in phase 8 above (*ibid* 1999, fig.89.59) were found in context (1007). Single sherds in an unclassified Medieval Sandy ware, possibly a fine example of the Chilvers Coton fabric

CC1, and an everted and thickened rim fragment in the Coventry ware, fabric CO1, were found in the same layer. The Coventry ware dates generally from *c.*1150 to 1250 (Ratkai and Soden 1997) whilst the unclassified sherd probably dates from *c.*1250**.**

The Pottery Fabrics and Forms - Area 4

The range of pottery fabrics and vessel forms is comparable to that from the other excavation areas on the site in phase 8. Potters Marston is the most common ware in terms of fabric and weight. However, one interesting find is a jug fragment which can be paralleled at Nottingham, where a handle with similar thumbing was recorded among the wasters found on St Anne's Street, close to the kiln site in Nottingham, (Coppack 1978), (Coppack 1980, fig.70.140), and is dated from the late 12th and early to mid 13th centuries, (Nailor in Young 2005, 127-128). This fabric has not been identified previously in Leicester but occurs here and in area 1.

Discussion Area 4

The building fronts on to St. Peters Lane, and does not align with other obviously Roman Buildings, but with other building fragments considered to be medieval. The lack of medieval pottery from contexts associated with the construction of this building in area 4 is consistent with the often equally limited evidence retrieved from other parts of the site. Very small numbers of sherds were associated with the foundation trenches and wall cuts for most of the buildings in area 10, (all of which were dated from phase 9). There were only sixteen medieval sherds in the phase 9 foundations, G3011, of Building 1, and four more in G3017, the privy or outhouse associated with the Building. Thirty six sherds were found in the wall cuts G3014, for Building 2, and only five sherds in the floor layers, G1009 and G1018, for Building 5. However, the foundations for Building 5 in the same phase produced 250 sherds. At 9 St Nicholas Place Leicester, the backfill of the construction cut, for the undercroft in Group 21, Area 3, produced only six sherds of medieval pottery, and only twelve sherds of pottery were associated with the Group 3 assemblage from the walls and floor layers relating to Building 1 fronting on to the Swinesmarket in phase 4.1.

A similar picture emerges at the excavations at Vaughan Way. No pottery could be associated with the initial construction of the Undercroft, Building 6, and only one sherd was found in the ramp Pc541 and the gully Pc5306 associated with the building. Similarly, only three sherds were associated with Structure 3, Pc2781, and three more with the foundations Pc2687, of the Hall, Building 7

Area 10

Only pottery from selected contexts associated with the structural sequences and directly associated features was examined here.

Table 89 The medieval and later pottery: area 10 fabric totals by sherd numbers, weight (grams) and EVES

Fabric	Sherds	%	Grams	%	EVE	%
LE 1-3 – Leicester ware	11	0.42	156	0.33	0.05	0.21
ST3 – Stanford ware 3	14	0.53	100	0.21	0.175	0.73
ST2 – Stanford ware 2	64	2.44	397	0.84	1.495	6.25
ST1 – Stanford ware 1	12	0.46	94	0.20	0.175	0.73
LI1 – Lincoln Kiln Type Shelly ware	1	0.04	18	0.04	0.09	0.38
LI2 – Lincoln Late Saxon Shelly ware	10	0.38	119	0.25	0.245	1.02
SN - St Neots/St Neots type ware	3	0.11	32	0.07	0.02	0.08
TO - Torksey ware/type ware	7	0.27	152	0.32	0.185	0.77
RS1-3 - Reduced Sandy wares	15	0.58	358	0.75		0.0
PM - Potters Marston ware	1245	47.37	18650	39.42	10.9575	45.84
SP1/2 - Splashed ware 1/2	4	0.16	27	0.05	0.125	0.52
SP3 - Splashed ware 3	23	0.88	426	0.09	0.075	0.31
OS1/2 - Oxidised Sandy ware 1/2	28	1.07	340	0.72	0.185	0.77
CS - Coarse Shelly ware	29	1.10	280	0.59	0.17	0.71
LY4 - Lyveden/Stanion type ware 4	5	0.19	54	0.11		0.00
CO1/2 - Coventry ware 1/2	17	0.65	635	1.34	0.29	1.21
CO3 – Coventry/Cannon Park ware	4	0.15	44	0.09		0.00
LY1 - Lyveden/Stanion type ware 1	3	0.11	40	0.08		0.00
CC1 - Chilvers Coton ware 1	524	19.94	10536	22.27	3.94	16.48
CC2 - Chilvers Coton ware 2	121	4.60	2644	5.59	0.85	3.56
CC5- Chilvers Coton ware 5	14	0.53	403	0.85	0.07	0.29
NO1 -3/5 Nottingham ware 1 -3/5	106	4.04	1626	3.43	0.94	3.93

SC - Scarborough ware	4	0.15	258	0.55	0.075	0.31
BR2 - Brill/Boarstall ware/type 2	2	0.08	12	0.03		0.00
BO2/3 - Bourne ware 2/3	4	0.15	85	0.18		0.00
MS1/2 - Medieval Sandy ware1/ 2	61	2.31	1119	2.37	0.75	3.14
MS3 - Medieval Sandy ware 3	74	2.82	1230	2.60	0.945	3.95
MS7 - Medieval Sandy ware 7	24	0.91	669	1.41	0.325	1.36
MS8 - Medieval Sandy ware 8	33	1.26	1982	4.19	0.685	2.87
SA - Saintonge	1	0.04	1	0.00		0.00
MP1 - Midland Purple ware	3	0.11	112	0.24		0.00
MP2 - Midland Purple ware 2	83	3.16	3439	7.27	0.485	2.03
MP3 - Midland Purple ware 3	22	0.84	702	1.48	0.2	0.84
MP4 - Midland Purple ware 4	3	0.11	101	0.21		0.00
TG 2 - Tudor Green/Surrey ware	10	0.38	63	0.13	0.325	1.36
CW2/MB - Cistercian ware 2/M. Black	25	0.94	243	0.51		0.00
DE2 - Anglo Netherlandish Earthenware	1	0.04	3	0.01	0.075	0.31
RH - Rhenish Stoneware -	4	0.15	37	0.08		0.00
EA1-3/7/11 - Earthenware s 1-3/7/11 - 11	14	0.53	129	0.26		0.00
Totals	2628	100	47316	100	23.9025	100

Phase 8.00 (not illustrated)

Group G3009 (P3820) Pits G3010 (SG3149) Lower Garden Soils

Assemblage: 335 sherds, 5532 grams, 2.675 EVEs, 16.5 grams ASW.

Table 90 The medieval and later pottery: area 10, phase 8.0, by fabric, sherd numbers and weight

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester ware	3		35		0.05	
ST3 – Stamford ware	6		38		0.175	
ST2 – Stamford ware	24	6.25	218	3.57	1.09	27.25
ST1 – Stamford ware	3		38			
LI2 - Lincoln	2		8			
TO - Torksey	2		6			
RS – Reduced Sandy	9		183			
PM – Potters Marston	243	63.28	3954	64.83	2.35	58.75
SP3 - Leicester Splashed	4		48			
OS1/2 – Oxidised Sandy	14		267		0.13	
CS – Coarse Shelly	1		15			
LY1 – Stanion Lyveden	2		29			
CC1 – Chilvers Coton	46	11.97	832	13.64	0.105	2.62
CC2 – Chilvers Coton	1		24			
NO1 - Nottingham	3		32			
NO3 - Nottingham	3		11			
MS2 – Medieval Sandy	1		44			
MS3 – Medieval Sandy	11		155		0.1	
MS7– Medieval Sandy	3		40			
MP2 – Midland Purple	2		54			
MP3 – Midland Purple	1		68			
Totals	384		6099		4.00	

Table 91 The medieval and later pottery: identifiable vessel forms area 10, phase 8.0, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/Storage Jar	Bowl	Jug	Dripping Dish	Lamp
LE	1/12/0.05				
ST1-3	6/41/1.2	1/11/0.065			
PM	44/967/1.985	1/32/0.05	16/436/0.275	2/40/0.04	1/9/0.04
OS1	4/161/0.13				
LY1			1/17/0.0		
CC1	2/40/0.105		6/175/0.0		
NO1			1/21/0.0		
MS2			1/44/0.0		
MS3	2/52/0.1				
Totals	59/1173/3.57	2/43/0.115	25/693/0.275	2/40/0.04	1/9/0.04

A fragment of a small jar in Potters Marston, similar to that recorded at Causeway Lane, Leicester, (Davies and Sawday 1999, fig.89.55) was the only find recovered from the G3009 group of pits cutting into lower garden soils. The sherd was from the backfill of a truncated pit, P3820, context (3819).

Two sherds in the late Saxon Leicester ware and an 11th century bowl in the early coarse Stamford ware ST3 were residual in contexts with medieval or later medieval pottery. However, over 71 % of the pottery assemblage by sherd count was in Potters Marston, with shouldered jars of 13th or possibly 14th-century date the most common form (Davies and Sawday 1999, fig.90). Forty six sherds of the Chilvers Coton fabric CC1, dating from *c.*1240/50 and six sherds of the Nottingham fabrics NO1 and NO3 dating from the early, mid or later 13th century were also present. Three sherds in the later Medieval Sandy Ware, MS7 and three hard fired sherds of Midland Purple in SG3149, context (3541), give a terminal date in the 15th or mid 16th century for this group, much of which is technically intrusive in this phase. Whilst the Sub Group SG3149, context (3543), contained only a few sherds of Potters Marston of possible 12th-century date, including two jars (*ibid* 1999, fig.89.3 and 55).

Most of the contexts, however, contained pottery with a wide date range indicating that the soils had been re-worked over several generations. The relatively large sherd weight suggests that much of this material was secondary refuse, perhaps associated with pitting.

Group G3045 (W3593), G3045 Pit/Well –Rear of Building 2

Assemblage: 54 sherds, 592 grams, 1.465 EVEs, 10.9 grams ASW.

The earliest material was made up of sherds in late Saxon Leicester, Lincoln, Stamford and Torksey type wares, fabrics, LE, LI2, ST3 and TO. Two jars with simple everted rims ST3, Kilmurry vessel form 2-06, possibly date to the mid or late 11th century (Kilmurry 1980, 106, fig.19.91, 89). Three more late 11th or 12th century jar rims in the fine Stamford fabric ST2, Kilmurry forms 4 or 11 (*ibid* 1980) and two 12th century jar rims, one thin walled and heavily sooted, in Potters Marston, (Davies and Sawday 1999, fig.88.32 and fig. 89.50) make up the rest of the identifiable vessel forms in this assemblage. Sherds in the Oxidised Sandy ware OS1 and OS2, and a single sherd in the fine Stamford ware ST1 dating from the 12th century were also present.

This pottery all came from a single apparently undisturbed feature, the backfill of a well. The relatively low average sherd weight of 10.9 grams suggests that this material had been deposited here after several phases of activity, possibly associated with horticultural activity such as manuring.

Phase 9 (not illustrated)

Group G3044 (L3813) Make up below Building 1

Assemblage: 82 sherds, 961 grams, 1.48 EVEs, 11.7 grams ASW.

This rather mixed group of pottery contained five sherds of residual late Saxon Leicester, Stamford and Torksey type ware, including a spouted bowl (Barley 1981, fig.11.17) in the latter and, and two jar rims in Lincoln Kiln type and Late Saxon Shelly ware, fabrics LI1 and LI2, (Young *et al* 2005, fig.46.121 and fig.53.240). Early medieval wares included cylindrical or shouldered jars in Potters Marston (Davies and Sawday 1999, fig.88.37, 44-46, fig.89.53 and 59), and unidentifiable body sherds in the same fabric decorated with combed lines and applied clay strips. The Potters Marston and Splashed ware jugs were often highly decorated, with cordons or diagonal slashing for example (*ibid* 1999, fig.93.115, fig.95.139). One jug fragment in SP3, a rod handle, was unusual in that it appeared to be pegged to the body at the base of the handle rather than into the neck or rim at the top of the vessel.

Typologically early glazed sandy wares, dating from the later 12th or early to mid 13th century included a tiny fragment of Nottingham ware, fabric NO5, identified as a product of the St Anne's Kilns, a yellow glazed sherd in the Nottingham fabric NO2 speckled with copper, and yellow glazed sherds of the Chilvers Coton CC1. However, a terminal date in the 13th or possible 14th century is suggested for this assemblage by a single hard fired and brown glazed sherd in an unclassified Medieval Sandy ware.

Group G3011 (WC3478) Wall cuts and Foundations, Building 1.

Assemblage: 16 sherds, 512 grams, 0.415 EVEs, 32.0 grams ASW.

Residual 12th and 13th century pot occurred in one of the lowest wall deposits, context (3476), together with a fragment of ridge tile dating from the early or mid 13th century. However sherds of purple glazed late 14th- or 15th-century pottery in an unclassified Medieval Sandy ware in this context, linked with material from an upper layer, (3545). These joining sherds, confirm that the foundations were all of one build. A late 14th-century jar, with an everted rim, in the Chilvers Coton fabric, CC2, (Mayes and Scott 1984, fig.80.508), decorated with thumbed strips at the base of the neck and down the body of the

pot occurred in context (3542). Pot from the latter context possibly joined with sherds in the same fabric in contexts (3542) and (3521) in G3032, in the layers between Buildings 2 and 5, in phase 10.02.

Table 92 The medieval and later pottery: area 10, phase 9.0, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
LE – Leicester	8		121			
ST1-3 – Stamford	45		218		0.41	
LI1/2 - Lincoln	9		129		0.335	
SN – Saint Neots	3		32		0.02	
TO - Torksey	4		100		0.185	
RS1/3 – Reduced Sandy	3		126			
PM – Potters Marston	716	63.2	10262	63.5	6.96	63.8
SP1/2 - Nottingham Splashed	4		27		0.125	
SP3 - Leicester Splashed	15		314		0.075	
OS1/2 – Oxidised Sandy	13		72		0.055	
CS – Coarse Shelly	25		230		0.09	
LY4 – Stanion Lyveden	4		34			
CO1/2 - Coventry	10		88		1.12	
CO3 - Coventry	1		9			
LY1 – Stanion Lyveden	1		11			
CC1 – Chilvers Coton	140	12.3	1978	12.2	0.95	8.7
CC2– Chilvers Coton	17		422		0.365	
CC5– Chilvers Coton	2		26			
NO1-3/5 - Nottingham	46	4.0	572	3.5	0.35	
BO2 - Bourne	2		12			
SC - Scarborough	3		251			
MS1 – Medieval Sandy	16		283			
MS2 – Medieval Sandy	25		517		0.66	

MS3 – Medieval Sandy	10		110			
MS7 – Medieval Sandy	5		128		0.15	
MS8– Medieval Sandy	1		17		0.055	
MP4 – Midland Purple	1		24			
MP4 – Midland Purple	1		16			
TG /2– Tudor Green/Surrey	2		7			
Totals	1132		16136		10.905	

Group G3012 (L3802) Floor Layers and Associated Features Building 1

Assemblage: 240 sherds, 4291 grams, 2.405 EVEs, 17.8 grams ASW.

The obviously residual material included eleven late Saxon or Saxon Norman sherds in the Stamford ware fabric ST3, the Lincoln fabrics LI1 and LI2, the St Neots ware/type ware, SN, and the Torksey ware/type ware, TO. Four sherds of the Stamford ware, fabrics ST1 and ST2, dating from the mid 11th or 12th centuries, were also present.

Over 73% of the assemblage by sherd numbers was in Potters Marston, and much of this material was evidently residual also, probably dating from the 12th or 13th centuries. However, although few vessel forms were identifiable apart from the rims, a shouldered jar and part of a hard fired jug suggested a terminal date in the late 13th or the 14th century for this ware, which is not closely dated. The Chilvers Coton, fabric CC1, and the Nottingham ware fabric NO3, date from the mid or later 13th century. One jug is paralleled at Nottingham (Coppack 1980, fig.68.92), but only two of the vessels in NO3 have the grey reduced interiors characteristic of the late 13th or early 14th centuries.

Other possible 14th-century sherds included fragments in the Coventry fabric CO2, and the Coarse Shelly ware CS, which are dated generally from *c.*1100-1400. Three ridge tile fragments, including a possible ventilator were recovered in the early medieval Splashed ware, SP3, in context (3776), and another in the late medieval Midland Purple fabric MP2, in context (3167) is dated from circa 1375. However, pottery from the same context: a hard fired Medieval Sandy ware and part of a jug neck in an unclassified fine bodied white ware with a dark green glaze, possibly a Tudor Green type or a Surrey White ware, may also date to *c.*1400.

Group G3013 BS3162, BS3529, L3802, L3926, L3945, P3564, P3899, P3929, PH3481 Industrial Features and Associated Layers, Building 1.

Assemblage: 139 sherds, 1439 grams, 0.635 EVEs, 10.3 grams ASW.

Typically for an intensively occupied urban site, the majority of the 77 sherds from the back fill of the earliest contexts in this group, the sill beam slots BS3162 and BS3529, are probably residual, dating from the 12th or early 13th century. Only two sherds, weighing three grams in total, in CC1 and the Medieval Sandy Ware MS2, date from the early or mid 13th century, as does the single sherd in CC1 in the post hole cutting the feature, PH3481.

The five sherds making up the primary fill of the industrial 'pit' within the beam slots, P3929, included a sherd of yellow glazed CC1, probably early in the Chilvers Coton sequence, and a

shouldered jar in PM, (Davies and Sawday 1999, fig.90.68), both of convincing mid 13th-century date. The 39 sherds in the subsequent layers, L3945 and L3822, are dominated by the glazed sandy wares in CC1, NO3 and the Medieval Sandy wares MS2 and MS3 dating from the mid and later 13th century, one tiny fragment in MS3, weighing one gram, possibly dating to the 14th century. The fifteen sherds in the re-cuts of the feature original industrial feature, P3564 and P3899, were dated predominantly to the mid or later 13th century, a sherd of CC5, Chilvers Coton fabric fabrics B and Bi at Chilvers Coton (Mayes and Scott 1984, 40-41) possibly dating to the 14th century. One of the later layers, preceding the second re-cut of the feature, L3926 produced residual Stamford and Potters Marston together with Chilvers Coton, Nottingham and Medieval Sandy wares, at least one sherd possibly joining with L3822**,** suggesting perhaps that the backfill soils were all coming from the same sources, probably in the vicinity**.**

Potters Marston made up 64% of the totals by sherd numbers, with 13th century vessel forms, including shouldered jars with upright rims (Davies and Sawday 1999, fig.90.68 and 73) and decorated body sherds, thought to be from jugs. Highly decorated body sherds with vertical incised lines and applied clay pads and scales were also recorded in the Chilvers Coton fabric, CC1, and the Nottingham fabric NO3. Unusually, bowls were the most common identifiable vessels in both MS2 and NO3, these glazed wares generally occurring as jugs. No specialist pottery vessel forms which could relate to directly to the industrial activity were identified and none of the pottery showed signs of any secondary use relating to these processes. Interestingly, one sherd, from the layer, context (3920), within the primary industrial pit, P3929, had been distorted by heat, evidence perhaps, that the feature had been backfilled in this phase soon after its most recent use, whilst the remaining contents or the surfaces lining it were still hot. This feature continued in use into the late medieval period, in G3004 in phase 10.1.

Group G3014 (WC3446) Wall cuts and Foundations, Building 2.

Assemblage: 36 sherds, 666 grams, 0.34 EVEs, 18.5 grams ASW.

The only finds from the foundations of Building 2 were from WC3446 at the back of the building. A shouldered jar in Potters Marston (Davies and Sawday 1999, fig.90.76), a frilled jug base in NO3, and another jug with a simple upright rim and a rod handle in the Medieval Sandy ware MS2, probably date to the later 13th century. Other identifiable vessels included a bowl rim in Potters Marston and a cauldron in the Reduced Sandy ware RS1, the latter fabric dated generally from the 12th to the 14th centuries at Leicester (*ibid* 1999, fig.96.168, 177).

Groups G3015 FL3043, FL3084, FL3598, FL3625, FL3875, IF3087, L3240, P3023, SG3104 Floor Layers, Building 2.

Assemblage: 218 sherds, 2901 grams, 1.185 EVEs, 13.3 grams ASW

Some obvious residuality is evident in the single sherds of late Saxon Leicester ware, fabric LE, and the coarse Stamford ware ST3 in the lowest floor level, FL3875. Much of the Potters Marston from later levels includes jars and storage jars with rim styles commonly associated with predominantly 12th century vessel forms, (Davies and Sawday 1999, fig.88, fig.89).

Table 93 The medieval and later pottery: identifiable vessel forms area 10, phase 9.0, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/ Storage Jar	Bowl/ Sp. Bowl	Sp. Pitcher	Jug	Cauldron	Dripping Dish	Cup
ST1-3	3/30/0.31		1/12/.1				
LI1/2	4/53/0.265	1/17/0.07					
SN		1/12/0.02					
TO		3/88/0.185					
RS1					1/108/0.0		
PM	67/1668/ 6.115	3/75/0.175		23/488/ 0.67			
SP1				1/16/0.125			
SP3				6/174/ 0.075			
OS1	1/6/0.055						
CS	1/25/0.09						
CO2	2/33/0.12						
CC1	5/169/0.265	14/305/0.175		22/451/.51			
CC2	8/365/0.365			1/2/0.0			
NO3		6/145/0.0		10/179/ 0.35			
SC				3/252/0.0			
MS1				1/13/0.0			
MS2		3/42/0.1		3/224/0.47			
MS3				1/30/0.0		1/65/0.09	
MS7	1/55/0.15						
MS8	1/17/0.055						
TG2				1/6/0.0			1/1/0.0
Totals	93/2421/ 7.79	31/684/0.725	1/12/.1	72/1834/ 2.2	1/108/0.0	1/65/0.09	1/1/0.0

However even taking into account a degree of residuality a change in the proportion of the wares over time was discernible. Sixty nine per cent of the 85 sherds from the earliest floor level, FL3875, were in Potters Marston, and Potters Marston accounted for between 51% and 74% of those assemblages from the floors immediately above, but for only 52% of the uppermost level, FL3043.

A similar pattern occurred with sherds in the fine wheel thrown glazed sandy wares, which gradually became more common in the later floor levels, as the proportion of the coarse ware fabrics declined. The Chilvers Coton fabric CC2, fabric C at Chilvers Coton, first occurs at the kiln site from *c.*1250, becoming much more common in the 14th century, (Mayes and Scott 1884, 40-41). This and the Chilvers Coton fabric CC1, the Nottingham fabrics NO1 and NO3 and the Medieval Sandy ware MS2, dating from the early or mid 13th centre were also found in the earliest floor levels FL3875 and FL3084, but together represented less than 9% of the pottery totals for these two floors.

Twenty nine of the 93 sherds or 31% of the totals, from for the uppermost floors, FL3598, SG3104, L3240 and FL3043, are in the wheel thrown sandy wares noted above, the Coventry ware, CO3 and the Medieval Sandy wares MS1 and MS3, which also date from the mid 13th century or later. The latter fabric, first occurs in two floor levels FL3598 and SG3104 immediately below the uppermost floor FL3043, together with a heavily knife trimmed sherd in CC1.

In the upper floor level, FL3043 a hard fired sherd of MS3 with 'metallic' purple glaze, two sherds of CC2 with brown glaze, and a sherd of NO3 with heavily reduced internal surfaces - are all characteristic of late examples of these fabrics dated generally from the 14th century. A fragment of under fired ridge tile in the Midland Purple ware fabric MP2, dating from the later 14th century was also found in context (3043) in the uppermost floor layer.

In terms of vessel forms, only 26 were identifiable, including nine jars in Potters Marston noted above. Two jars in the Coarse Shelly ware fabric CS, and the Coventry ware, CO2 could also be paralleled at Northampton and Coventry (McCarthy 1976, fig.82.91), (Redknap and Perry 1996, fig.16.116). Other Potters Marston vessels included a large storage jar and two bowls, including one with a flared body (Davies and Sawday 1999, fig.92.97) and four jugs, mostly identified by handle of base sherds, but including one identifiable rim, (*ibid* 1999, fig.93.108). The remaining vessels were part of a dripping dish in the Medieval Sandy ware MS2, and seven glazed Chilvers Coton and Nottingham ware jugs, generally identified by highly decorated body sherds, handles or bases. Generally jugs became more common in the upper levels but the figures are too small to quantify.

Group G3016 (IF3941, P3057) 'Industrial' Features, Building 2.

Assemblage: 32 sherds, 364 grams, 0.0 EVEs, 11.3 grams ASW.

Two sherds in Potters Marston and the Chilvers Coton fabric CC1 were recovered from the lowest level of the feature, P3057. However, the bulk of the pottery from this small assemblage, 28 sherds, came from the back fill of the pit, IF3491. Yellow and greenish yellow glazed jug body sherds in CC1, decorated with combed wavy and horizontal lines and applied clay strips, were the most common identifiable vessel form, the decoration typical of that found in the earliest phases at Chilvers Coton (Mayes and Scott 1984, table 1, fig.103), dating from *c.*1250. Two abraded and joining sherds in PM, from IF3941, were covered in a white residue, possibly relating to the industrial processes associated with this feature.

Group G3023 (L34253, L3456) Pits and Mixed Soils – Rear of Building 2.

Assemblage: 104 sherds, 1372 grams, 2.405 EVEs, 13.1 grams ASW.

The 60 sherds from L3456, with an average sherd weight of 13.4 grams, comprised pottery dating predominantly from the early and mid 13th century, including a spouted pitcher in the very fine Stamford fabric ST1, a jug with a simple everted rim and olive green glaze in the Leicester Splashed ware SP3 and sherd of orange glazed Coventry ware, fabric CO1. Also present was a fragment of the Nottingham 'transitional' fabric NO2, and a possible early example of a jug in the Nottingham fabric NO3, (Coppack 1980, fig.68.104). Cylindrical jars in Potters Marston (Davies and Sawday 1999, fig.88.28, 29, 41, 43, and 85) were also present. The latest pottery was a single hard fired sherd, with a metallic greenish glaze, in the Medieval Sandy ware MS3, in the layer (3456).

A jar in the late Saxon Lincoln fabric LI2 (Young *et al* 2005, fig.88.805) is residual in L3423, which lay above L3456. The 44 sherds in these soil layers, with an average sherd weight of 12.8 grams, included shouldered jars with upright rims in Potters Marston (Davies and Sawday 1999, fig.90.67 and 68), the Nottingham fabric NO3, dating to the late 13th or early 14th centuries, a thumbed glazed jug base in MS3, and the Medieval Sandy ware MS7, dating from the 14th century.

Group G3025 (WC3272, WC3462) Wall Cuts and Foundations, Building 5

Assemblage: 250 sherds, 3163 grams, 1.60 EVEs, 12.6 grams ASW.

Pottery was only recovered from two of the five structural groups associated with this Building. The assemblage was large but very fragmentary, with a relatively low Eve. The 52 sherds from WC3272 included two Potters Marston everted jar rims paralleled at Elbow Lane, Leicester (Sawday 1989, fig.9.9 and 9.11), and dated to the 12th century. Two sherds in CC1, an upright externally thickened jug rim and another fragment decorated with cross hatched incised diagonal lines (Mayes and Scott 1984, fig.103.170) are of possible late 13th-century date. Links were noted between the layer in this wall, context (3321), and WC3462, contexts (3462) and (3538).

One hundred and ninety eight sherds were recorded inWC3462, which may represent the base of an external stone staircase for the upper storey fronting on to Freeschool Lane. Residual material included four sherds of late Saxon Lincoln and Leicester ware and Potters Marston dating from the late 11th or 12th centuries. However, the Medieval Sandy ware, MS7, dating from the 14th century was found in both the lowest recorded context in the wall (3462) and one of the uppermost, (3498) suggesting that the wall was all of one build. One jar rim in the fabric is of a type paralleled in a later 14th century context at Chilvers Coton (Mayes and Scott 1984, fig.74.271) although MS7 is thought to originate from Derbyshire rather than Warwickshire. Other later 13th or 14th century vessels forms included a jar rim in CC1 (Mayes and Scott 1984, fig.65.202), and three bowls, one with a flat top rim, the other two flared (*ibid*, fig.712.192, fig.81.566, fig.83.624).

A fragment of thick walled and semi vitrified Midland Purple, fabric MP4, dating from the late 14th or 15th centuries may be intrusive in WC3272, context (3321).

Group G3005 (FL3568) Group G3026 (FL3249) Floor Layers, Building 5.

Assemblage: 38 sherds, 741 grams, 0.275 EVEs, 19.5 grams ASW.

Five body sherds in Potters Marston and the Chilvers Coton fabric CC1 were found in the earliest floor FL3568 context (3569), G3005. The two joining sherds in the latter fabrics were glazed, the incised diagonal line decoration an early feature at Chilvers Coton, (Mayes and Scott 1984, table 1, fig.103) dating from *c.*1240/1250 (Ratkai and Soden 1997).

The lowest level, context (3249) in FL3249, G3026, contained three sherds of Potters Marston, Chilvers Coton and Nottingham ware, fabrics PM, CC1 and NO3, the former probably residual, the two latter dating to the later 13th or early 14th century. Twenty six sherds in context (3459) and the occupation layer (3252) above, included 14th or 15th century sherds in the Chilvers Coton fabric CC2, and a highly fired sherd in the Medieval Sandy ware, MS3, transitional into the coarse Midland Purple fabric MP3. A cup in the fine fabric, TG2, Tudor Green or Surrey White ware, dating from *c.*1400, was also found in context (3459).

Group G3027 (WC3194) Outhouse, Building 5.

Assemblage: 7 sherds, 125 grams, 0.055 EVEs, 17.8 ASW.

The identifiable vessels in the later medieval sherds in fabrics NO3, CC2, MS3, and MS8 included a jug rim in NO3, with a cordon at the base of the neck and the black interior typical of late examples of this ware which is paralleled at Nottingham in early to mid 14th century contexts (Coppack 1980, fig.81.192, 194). A similar jar rim to that found here in MS8 was recorded at the Austin Friars, Leicester in contexts dating from the mid or later 14th century (Woodland 1981, fig.33.109).

Phase 10.1 (not illustrated)

Group G3004 (L3628, L3894, P3127, P3836) 'Industrial' Features, final phases Building 1.

Assemblage: 37 sherds, 570 grams, 0.225 EVEs, 15.4 grams ASW.

Sherds of an unclassified Surrey White ware or Tudor Green type ware and Midland Purple together with Cistercian ware cup fragment, in CW2; dating from *c.*1450, give a terminal date in the 15th century or later for this small group of pottery. Whilst there were evidently several episodes of the cutting and re-cutting of the central pit, all this activity seems to have taken place in the later period, as even the earliest context in the group, L3894 contained a piece of Midland Purple ridge tile. Midland Purple pottery and the Cistercian ware lay in the first pit re-cut, P3836 immediately above, and more Midland Purple and the Tudor Green ware or type ware was recovered from the contexts, L3628 above that. Residual Potters Marston occurred in the uppermost pit re-cut, P3127. A fragment of a jar rim, decorated with thumbed strips at the neck and down the body was recorded in the coarse Chilvers Coton fabric CC5.

Group G3017 (WC3637, WC3302, P3323) Privy/Outhouse to the Rear of Building 1.

Assemblage: 3 sherds, 60 grams, 0.0 EVEs, 15.0 grams ASW

Two thin walled body sherds, heavily sooted externally, both early characteristics of Potters Marston were probably residual in P3323. A jar in CC1 with a simple everted rim was also possibly residual in WC3637, which also contained a highly fired sherd with a brown glaze in fabric CO3, Coventry Cannon Park ware. A heavily knife trimmed and highly fired sherd in CC1 with spots of 'metallic' purple glaze was found in WC3302. Both these latter sherds probably date from the 14th century.

Group G3018 (L3406, L3407, L3419, L3486, L3468) Cess layers in the Privy/Outhouse to the Rear of Building 1.

Assemblage: 34 sherds, 1040 grams, 0.35 EVEs, 30.5 grams ASW

Residual Stamford and Potter Marston and single sherds of CC1 and the Brill Boarstall type ware BR2, dating from the mid 13th century or later were found in the cess pit. Later pottery included the Chilvers Coton fabric CC2, generally dating from the 14th century and the later medieval Medieval Sandy ware fabrics, MS3 and MS7. However, thirteen sherds in the Midland Purple wares MP1, MP2 and MP3, and accounted for over 60% of the assemblage by weight and give a terminal date in the late medieval period for the group.

The identifiable vessels forms included an abraded jar rim in MS7, similar in form to a vessel found in contexts dating to the 14th or early 15th century at the Austin Friars, Leicester, (Woodland 1981, fig.34.124). Two jugs in MP2 and MP3 were also similar to those found at the Austin Friars in the late medieval fabric Pxviii, (*ibid* 1981, fig.38.181, 83).

The large average sherd weight is indicative of the material having been deposited as secondary refuse in the fill of the cess pit. However the lack of joining sherds and the pattern of deposition, with some of the latest pottery occurring in the lowest stratigraphic levels, suggest that the pit was probably emptied on a regular basis.

Table 94 The medieval and later pottery: identifiable vessel forms area 10, phase 10.1, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/Storage Jar	Bowl	Jug	Cup
ST2	1/9/0.085			
PM	1/26/0.07	1/24/0.04	2/46/0.115	
CC1	1/8/0.0		2/32/0.075	
CC5	2/108/0.07			
NO3			2/164/0.0	
SC				
MS2			1/51/0.0	
MS3	1/17/0.055		4/95/0.315	
MS7	1/23/0.055			
CW2				1/80/0.0
MP2			1/135/0.14	
MP3			7/336/0.0	
RH			1/13/0.0	
Totals	7/191/0.335	1/24/0.04	20/872/0.645	1/80/0.0

Group G3031 (W3426) Wall between Buildings 2 and 5

Assemblage: 28 sherds, 656 grams, 0055 EVEs, 23.4 grams ASW.

Four sherds of CC1 and CC2, the former very highly fired, both dating from the 14th century were the only finds within the latest surviving course of the east–west wall, context (3263). Context (3426), which is thought to be a part of the same wall and which had slumped into the pit G3030 below, contained six more sherds in CC1 and CC2 of the same date as the above.

The associated layer immediately above, context (3239) and context (3178), both contained semi vitrified sherds in CC1, with a metallic brown glaze. A highly fired sherd in MS3, a sherd in MS7, and a vitrified sherd of MP2, probably dating from the 15th century or later, also occurred in context (3239). The only identifiable rim from the assemblage was from a jar in MS3 in context (3178), a simple everted type similar to 14th century forms at Chilvers Coton (Mayes and Scott 1984, fig.82.580).

Table 95 The medieval and later pottery: area 10, phase 10.1, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST1/2 - Stamford	4		18		0.085	
PM – Potters Marston	42	26.5	557	16.2	0.225	22.0
OS1 – Oxidised Sandy	1		1			
CS – Coarse Shelly	1		6			
CO2 - Coventry	2		95			
CO3 - Coventry	1		7			
CC1 – Chilvers Coton	31	19.6	746	21.8	0.075	
CC2 – Chilvers Coton	18		316			
CC5– Chilvers Coton	2		108		0.07	
NO1 – Nottingham	1		16			
NO3 – Nottingham	6		276			
BR2 – Brill/Boarstall	1		11			
MS/1 – Medieval Sandy	2		45			
MS2 – Medieval Sandy	5		89			
MS3 – Medieval Sandy	13		190		0.37	36.2
MS7 – Medieval Sandy	4		156		0.055	
TG - Tudor Green/Surrey	2		4			
MP1– Midland Purple	1		20			
MP2 – Midland Purple	5		248		0.14	13.7
MP3 – Midland Purple	13		414	12.1		
CW2 – Cistercian ware	1		80			
RH – Rhenish	2		16			
Totals	158		3419		1.02	

Group G3033 (SG3104) Pitting above lower Garden Soil between Buildings 2 and 5

Assemblage: 54 sherds, 729 grams, 0.05 EVEs, 13.5 grams ASW.

The bulk of this small assemblage was made up of unidentifiable body sherds together with a bowl decorated with a thumbed strip under a simple everted rim in Potters Marston. A jug fragment in the Chilvers Coton fabric CC1 dating from the mid or later 13th century, together with a sherd of the Medieval Sandy ware MS3, with a spot of metallic glaze and another hard fired sherd in the Stanion Lyveden ware LY4 were also present. The two wares suggesting a terminal date in the 14th century for the group.

Group G3019 (L3602) Pitting between Buildings 2 and 5.

Assemblage: 9 sherds, 116 grams, 0.315 EVEs, 12.8 grams ASW.

A jug in MS3, with a bib of brown glaze at the neck and a simple everted rim, and sherds of the Midland Purple fabrics MP2 were recovered from context (3602). A long necked beaker or jug body sherd with two cordons at the neck in Siegburg, a Rhenish stoneware, dating from the *c.*1400 to 1550, was found in the same layer (Hurst *et al* 1986, plate 30 centre, fig.88.262). Similar pottery has also been identified by J. Hurst on a few other major excavations in the city: at the Austin Friars, (Woodland 1981, fig. 34.147), the Little Lane and St. Peters Lane sites (Sawday forthcoming (a)), and in medieval levels above the Roman forum (A302 1971).

Group G3007 (P3204, L3326) Levelling Layers and Pits rear of Building 2

Assemblage: 6 sherds, 54 grams, 0.0 EVEs, 9.0 grams ASW

A sherd of the Medieval Sandy ware MS3, with spots of metallic glaze in context (3199) with a suggested terminal date in the 14th century was probably the latest pottery in this small group. All the sherds were of unidentifiable vessel type.

Group G3030 (L3067, L3341, L3490, L3510, P3604) Pits and dumped layers, to the rear of Building 5

Assemblage: 40 sherds, 923 grams, 0075 EVEs, 23.0 grams ASW.

The bulk of the assemblage, 30 sherds, weighing 700 grams, with an EVE of 0.075, came from the pit P3064. Most of the pottery in the pit was residual, save for a hard fired sherd in the Medieval Sandy ware MS3 and the Midland Purple fabric MP2, the latter suggesting a terminal date in the later 14th or 15th centuries for this group. The Chilvers Coton fabrics CC1 and CC2, the latter – together with a sherd of MS7 dating from the 14th century - dominated the small assemblage from layers associated with the pit. A fragment of Rhenish Stoneware, possibly Frechen, with a speckled brown glaze on the exterior surfaces, is dated from *c.*1500.

Phase 10.2 (Figure 25-Figure 26)

Table 96 The medieval and later pottery: area 10, phase 10.2, by fabric, sherd numbers and weight (grams).

ST2 - Stamford	1		13		0.085	
TO - Torksey	1		46			
RS – Reduced Sandy	1		18			
PM – Potters Marston	79	16.4	1374	11.5	0.51	
CO2 - Coventry	4		400			
SP3 - Leicester Splashed	2		14			
CC1 – Chilvers Coton	223	46.5	5327	44.7	2.17	48.2
CC2 – Chilvers Coton	81	16.9	1834	15.4	0.485	10.7
NO1/2 – Nottingham	5		41			
NO3 – Nottingham	26		401		0.45	
BR2 – Brill/Boarstall	1		1			
BO2- Bourne	1		71			
MS1 – Medieval Sandy	1		12		0.09	
MS2 – Medieval Sandy	1		7			
MS3 – Medieval Sandy	11		140		0.11	
MS7 – Medieval Sandy	4		98			
MS8– Medieval Sandy	29		1931	16.2	0.6	13.3
MP1– Midland Purple	2		92			
MP2 – Midland Purple	2		40			
MP3 – Midland Purple	1		35			
CW2 – Cistercian ware	3		13			
Totals	479		11908		4.5	

Group G3024 (L3154, SG3105) Wall collapse, Building 5.

Assemblage: 58 sherds, 1094 grams, 0.845 EVEs, 18.8 grams ASW.

Residual Chilvers Coton and Potters Marston, Nottingham and Splashed ware was recovered with sherds of late medieval Midland Purple ware, fabrics MP2 and MP3 and the late Medieval Sandy wares MS7 and MS8. The few identifiable vessels were mostly represented by jar rim fragments, save for a flared bowl in Potters Marston.

Group G3032 (L3579, P3216) Layers between Building 2 and Building 5

Assemblage: 421 sherds, 10814 grams, 3.655 EVEs, 25.6 grams ASW.

The stratigraphically earliest layer context (3579) contained a sherd in a reduced fabric, with green glaze on the interior, probably a variant of the Coventry ware, CO2, dating from *c.*1100 to *c.*1400. Most of the assemblage came from the next layer above with finds, context (3205), with 375 sherds, weighing 9589 grams. Unusually 67 % of that, by sherd numbers, was in the Chilvers Coton fabrics CC1 and CC2. Mid 13th century baluster, and conical jugs, the latter with a frilled base, together with body sherds decorated with clay strips, incised or combed horizontal and wavy lines or rilling were present in CC1, (Mayes and Scott 1984, fig.100.17 and fig.19.12). More highly fired shouldered jugs dating from the 14th century also occurred here, (*ibid* 1984, fig.20.30, fig.93.10), together with semi vitrified sherds with brown glaze and jars with everted or upright rims (*ibid* 1984, fig.67.75, fig.83.612) all also in fabric CC1. The terminal date for this fabric is thought to be *c.*1350 (Ratkai and Soden 1997 Warwick's CTS), but typologically these latter jugs could date from mid or later 14th century given the kiln sequence at Chilvers Coton.

Table 97 The medieval and later pottery: identifiable vessel forms area 10, phase 10.2, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar/Storage Jar	Bowl	Jug
ST2	1/13/0.085		
PM	3/38/0.285	2/122/0.15	4/77/0.075
CC1	6/164/0.455	2/53/0.05	60/2764/1.665
CC2	4/193	5/103	42/1002/0.485
NO3			19/316/0.45
MS1			1/12/0.09
MS3	6/73/0.11		
MS8	10/461/0.43	19/1470/0.17	
MP1			1/84/0.0
Totals	30/942/1.365	28/1748/0.37	127/4255/2.765

The Nottingham wares, which are residual in this phase, comprised a stabbed strap handle in NO1, (Coppack 1980, fig.67.81), and several jugs in NO3, including a dark green glazed

fragment with a curvilinear clay strip, similar decoration at Nottingham is associated with face or beard jug (Young *et al* 2005, fig.145.1134), and another fragment decorated with lines of clay pellets. Whilst these have not previously found in Leicester, a range of applied decorative motifs are known to occur in this ware (*ibid* 2005, 173). Another jug fragment in NO3 is also paralleled at Nottingham (Coppack 1980, fig.75.160) where it is dated to the late 13th or early 14th century.

Fourteenth and 15th century sherds in CC2 included a highly fired and warped brown glazed shouldered jug (Mayes and Scott 1984, fig.89.333). Another jug had a collared rim and orange glaze, (*ibid* 1984, fig.78.423), whilst a bowl was identifiable by the glaze on its interior surfaces which was also bright orange in colour.

The Medieval Sandy ware fabric MS3 included two jars with everted rims, paralleled at the Austin Friars, (Woodland 1981, fig.27.13 and fig.32.94), both dating to the 14th or 15th centuries. A rounded jar (Woodland 1981, fig.32.94) and a flared bowl in the late medieval fabric MS7 date from the 14th or 15th centuries. Reduced and glazed body sherds in the Cistercian ware fabric, CW2, give a terminus post quem of *c.*1450 or later for the pottery from this context**.** Numerous joining sherds were found between pottery from this and the two later contexts (3521) and (3452) which contained almost exclusively residual pottery, save perhaps two sherds of Midland Purple, fabrics MP1 and MP2, dating from the later 14th or 15th centuries in (3521).

Phase 11 (not illustrated)

Table 98 The medieval and later pottery: area 10, phase 11, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	%	Weight	%	Eves	%
ST1-3 - Stamford	7		48			
RS – Reduced Sandy	2		31			
PM – Potters Marston	125	29.7	1918	21.2	0.8625	25.1
SP3 – Leicester Splashed	2		50			
CS – Coarse Shelly	2		29		0.08	
CO1/3 - Coventry	3		80		0.17	
CC1 – Chilvers Coton	73	17.3	1541	17.0	0.64	18.6
CC2 – Chilvers Coton	4		48			
CC5– Chilvers Coton	10		269			
NO1-3 – Nottingham	16		277		0.14	
SC - Scarborough	1		7		0.075	
BO3 - Bourne	1		2			
MS1-3 – Medieval Sandy	37		745		0.365	
MS7 – Medieval Sandy	8		247		0.12	
MS8– Medieval Sandy	3		34		0.03	
TG2 - Tudor Green/Surrey	6		52		0.325	
MP2 – Midland Purple	73	17.3	3073	34.0	0.345	10.0
MP3 – Midland Purple	7		185		0.2	
MP4 – Midland Purple	2		85			
CW2 – Cistercian ware	17		112			
MB– Midland Blackware	4		38			
SA - Saintonge	1		1			
DE2 – Anglo/Netherlandish	1		3		0.075	
RH – Rhenish	2		21			

EA1/2 - Earthenware	9		87			
EA3 – Mottled ware	1		6			
EA7 - Slipware	3		35			
EA11 – Tin Glaze	1		1			
Totals	421		9025		3.4275	

Group G3022 (RC3767) Robbed Walls, Building 1.

Assemblage: 8 sherds, 221grams, 0.14 EVEs, 27.6 grams ASW.

All of this pottery is residual save for a single sherd of the Midland Purple fabric, MP3 with a terminal date in the 16th century. Of note was a rilled jug neck with a pulled lip in the green glazed Nottingham fabric NO3, (Coppack 1980, fig.67.81).

Group G3034 (P3238, P3391, RC3274, RC3282) Pitting and Robber Trenches to the Rear of Building 1

Assemblage: 73 sherds, 2033 grams, 0.91 EVEs, 27.8 grams ASW.

Approximately one third of the assemblage, 23 sherds, was in residual fabrics, predominately Potters Marston and Chilvers Coton, with a terminal date of *c.*1350. The late medieval Midland Purple ware occurred in every context with pottery in all the features, save the robber trench RC3282. Here, the only context with pottery, (3281), produced six sherds of Potters Marston, evidently residual in this phase.

Fourteenth century examples of Medieval Sandy ware included a jar with a simple everted rim (Woodland 1981, fig.35.137), and brown glazed and semi vitrified sherds all in fabric MS3. The two sherds in later sandy ware fabrics, MS7 and MS8, were also brown glazed, one tiny fragment was possibly from a wide mouthed bowl. Four sherds of the Tudor Green or Surrey White ware, fabric TG2, in the pit P3391, were from the upper half of a lobed cup. A sherd in the pit, P3238, may be part of the same vessel.

Joining sherds were noted in the pit P3391, in the most common Midland Purple fabric in the assemblage, MP2. However, only two vessel forms were identifiable in this fabric: a concave jar base, heavily sooted externally, and a jar rim, paralleled at Derby (Coppack 1980, fig.107.27). Many of the sherds were highly fired, some to the point of vitrification, with a 'metallic' glaze suggesting a terminal date in the mid 16th century for this group and providing evidence of continuing occupation in the area during the later medieval period.

Group G3029 (L3006, L3377, L3340, P3080, RC3388) Robber Trenches Building 2

Assemblage: 130 sherds, 2656 grams, 1.3075 EVEs, 20.4 grams ASW.

Much of this pottery was residual, notably the Potters Marston and the Chilvers Coton fabric CC1, including a bowl and a baluster jug in the latter (Mayes and Scott 1984, fig.83.630, fig.67.65). Two Nottingham ware baluster jugs, (Coppack 1980, fig.71, fig.83.213) and sherds in the Medieval Sandy wares MS and MS2 were also residual. However, a brown glazed base fragment in the late medieval fabric MS7, and four sherds of semi vitrified Midland Purple, MP2, the latter probably dating from the later 15th or 16th centuries were found in near the bottom of the robber trench RC3388, in context, (3243). Several more

sherds of Midland Purple were retrieved from L3006, context (3005) together with a Cistercian ware cup and one of two semi vitrified shouldered jars in MS3. A two handled necked cup in Cistercian ware (Woodland 1981, fig.41.207) also occurred in P3080, context (3072). A fragment in a fine micaceous white and buff ware, with a mottled, slightly over fired green glaze in L3377, has been tentatively identified as a continental import, possibly late medieval Saintonge from south west France, (Hurst *et al* 1986, 76-82). This is a rare find in the city, but single sherds in these fine white or buff wares thought to be of French origin, have also been identified at three other sites in Leicester, at St. Nicholas Place and Little Lane, and in medieval levels above the Roman forum.

Group G3038 (RC3201, RC3280, RC3179) Robbed Walls, Building 5.

Assemblage: 87sherds, 2341 grams, 0.445 EVEs, 26.9 grams ASW

RC3201 produced an assemblage of predominantly residual pottery, with an Eve of 0.445, and included several large cistern fragments in MP2 and in MP3, both paralleled at the Austin Friars, (Woodland 1981, fig.40.196, fig.36.157). A vessel similar to the latter is dated to the early 16th century at Derby, (Coppack 1980, fig.106.260). The base of a two handled cup in the Cistercian ware fabric CW2 (Woodland 1981, fig.43.258) was found in the same context. RC3280 produced predominantly residual pottery also, including a sherd of Midland Purple ware.

The bulk of the pottery in terms of sherd count came from RC3179, and included some of the latest material in the assemblage, a sherd in the post medieval Earthenware, EA2, and another in Rhenish Stoneware, possibly Frechen, dated from 1600. An oxidised fragment of the early post medieval Earthenware, EA1, and a hard fired piece of Midland Blackware, MB, in RC3201 and RC3280, the latter with a metallic purple glaze on the exterior surface, both date from the 16th century. These finds indicate an early post medieval date for the robbing of Building 5.

Group G3003 Gravel Layer

The 173 sherds of predominantly residual medieval pottery in this layer were not catalogued. Of note, however, was a wheel thrown green glazed sherd, with black interior surfaces and weighing eighteen grams, with an applied and curved rod of clay, approximately 10mm in diameter, placed horizontally on the shoulder. This is probably part of a knight jug, similar vessels have been recorded in Nottingham in 'Off White Sandy ware', (McCarthy and Brooks 1988, fig.162.972-973, 276), but not as here in the Leicester equivalent of Nottingham's often internally reduced Light Bodied Green Glazed ware (Nailor 2005, 172-3).

Group G3036 (L3095, L3110, P3130) Pits and spreads above the gravel layer L3041 covering Building 5 and part of the Yard to the east.

Assemblage: 118 sherds, 1749 grams, 0.485 EVEs, 14.8 grams ASW

Much of this pottery is residual, hence only material from selected contexts with late medieval and early post medieval pottery has been catalogued and is discussed here.

Sixty nine of the sherds in this assemblage consisted of residual Stamford, Potters Marston Chilvers Coton, Nottingham, Coventry and Medieval Sandy wares. A further 32 sherds in an unclassified Surrey White ware or Tudor Green type, fabric TG, the Midland Purple fabrics MP2 and MP3, and the Cistercian ware fabric CW2, having a terminal date of *c.*1550.

Four sherds in the post medieval Earthenware, EA1, and single sherds of Rhenish Stoneware, possibly Frechen, and of the Anglo Netherlandish Earthenware, DE2, date from the 16th century. Pottery dating to the 17th century included three wheel thrown sherds in the Slipware EA7, three sherds in the coarse Earthenware EA2, and single sherds of the Tin Glazed Earthenware EA11 and the Mottled ware, EA3: the latter two wares giving a terminus post quem of *c.*1680 for the group.

The few identifiable forms included two jars in Potters Marston, a cistern in MP2 with a cut out at the rim paralleled at Derby (Coppack 1980, fig.104.249) where it was dated to the end of the 15th century, a jar or albarello rim in the Anglo Netherlandish fabric, DE2, and the strap handle from a jug in the Rhenish Stoneware noted above.

Table 99 The medieval and later pottery: identifiable vessel forms area 10, phase 11.0, by fabric, sherd numbers, weight (grams) and Eves.

Fabric	Jar	Bowl	Jug	Cup/Lobed Cup	Cistern	lamp
RS	2/31/0.0					
PM	10/202/ 0.465	2/88/ 0.0725	8/135/ 0.185			1/9/0.14
SP3			1/35/0.0			
CS			1/24/0.08			
CO1	1/52/0.17					
CC1	1/20/0.08	3/81/0.23	8/281/0.33			
NO3			9/247/0.14			
SC			1/7/0.075			
MS2-3	3/172/0.365		3/48/0.0			
MS7		1/104/0.12				
MS8		1/5/0.03	1/9/0.0			
MP2	2/232/0.125				13/801/0.22	
MP3					1/72/0.2	
TG2				4/49/0.325		
CW2				6/52/0.0		
DE2	1/3/0.075					
RH			1/13/0.0			
Totals	20/712/1.28	7/278/0.4525	33/799/0.81	10/101/0.325	14/873/0.42	1/9/0.14

Phase 12 (not illustrated)

No archaeological evidence was revealed dating to this period.

Phase 13 (not illustrated)

Group G3040 Victorian brick cellar

Only one sherd of modern pottery was found in the Victorian brick cellar G3040

Groups G3041, G3042 Layers Overlying Building 5, G3043 Deposits Overlying Buildings 1 and 2

The 249 sherds in the assemblages from these contexts were in predominantly residual medieval and post medieval pottery

The Pottery Fabrics and Forms - Area 10 (Table 100-Table 104)

In spite of the absence of any phased late Saxon or Saxo Norman assemblages here, the occurrence of the vessel types in phases 8 and 9 is very similar to that found in area 1. The residual pottery included a jar in the late Saxon Leicester ware, LE, in phase 8, and spouted pitchers and bowls in the Stamford fabric ST1 and the Torksey type ware, fabric TO, respectively, in phase 9.

Apart from the typical early medieval Potter Marston, Splashed and Oxidised Sandy wares, the phase 8 assemblage also included later medieval pottery from disturbed contexts relating to the garden soils at the rear of the plot, including a few sherds in the later medieval fabric MS7 and the Midland Purple wares MP2 and MP3.

Table 100 The medieval and later pottery: the major residual and medieval wares, area 10, phase 8, by fabric, sherd numbers and weight (grams) and EVEs

Fabric	Sherds	%	Weight	%	Eves
ST1-3 - Stamford	33		294		1.265
PM – Potters Marston	248	69.4	3979	70.6	2.49
OS1/2 – Oxidised Sandy	14		267		0.13
CC1/2 – Chilvers Coton	47	13.1	856	15.1	0.105
MS1/2/3/7 – Medieval Sandy	15		239		0.1
Totals	357		5635		4.09

Jars, bowls and jugs were the most common identifiable vessel types in both phases 8 and 9 by Eves, sherd count and weight. Jars, chiefly in Potters Marston, predominated by Eves, but typically, jugs in both Potters Marston and in a range of wheel thrown Nottingham Chilvers Coton and Medieval Sandy fabrics became more common in phase 9, together with bowls in

Potters Marston and Medieval Sandy ware**.** Other identifiable vessel types included two dripping dishes in Potters Marston in phase 8, and another in the Medieval Sandy ware, MS2, in phase 9. A cauldron fragment in the Reduced Sandy ware RS1, occurred in the same phase, whilst a Potters Marston lamp is residual in phase 11.

Table 101 The medieval and later pottery: the major residual and medieval wares, area 10, phase 9, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
PM – Potters Marston	716	71.3	10262	70.5	6.96
CS – Coarse Shelly ware	25		230		0.09
CC1/2 /5 – Chilvers Coton	159	15.8	2426	16.6	1.315
NO1/2/3 - Nottingham	46		572		0.35
MS1/2/3/7/8 – Medieval Sandy	57		1055		0.865
Totals	1003		14545		9.58

The presence of Potters Marston, which ceased production some time in the 14th century, does suggest a degree of residuality in phase 9. Coarse Shelly ware is slightly more significant here than in area 1, but the range of fabrics is generally typical of this period in the city.

Table 102 The medieval and later pottery: the major residual and medieval wares, area 10, phase 10.1, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
PM – Potters Marston	42	43.7	557	29.3	0.225
CC2 – Chilvers Coton	18		316		
MS3/7/8 – Medieval Sandy	17		346		0.425
MP1/2/3/4 – Midland Purple	19	19.7	682	35.8	0.14
Totals	96		1901		0.79

Residual Potters Marston dominates the assemblage in phase 10.1, but the later Medieval Sandy wares, and the Midland Purple which is thought to first appear in the city in the later 14th century, are also significant here. In contrast to area 1, only one sherds of the late medieval table ware, Cistercian ware, fabric CW2 occurred here in this phase.

Residuality is also much in evidence in phase 10.2, but the Chilvers Coton fabric CC2, with a terminal date in the 16th century is an important component of this group. This is in contrast to the pottery in area 1, where this fabric only occurs in very small quantities. The Medieval

Sandy wares MS3, 7 and 8 and the Midland Purple wares MP1, 2 and 3, although not present in large quantities are, together with three sherds of Cistercian ware, typical of the later medieval assemblages in the city.

Jugs were common in phases 10.1 and 10.2, chiefly in residual fabrics, notably Potters Marston and the Chilvers Coton fabric, CC1. There was also a range of jars in CC2, and MS3, MS7 and MS8 in these two phases. There were no other late medieval vessel types present save for a cup in the Cistercian ware, CW2 in phase 10.1 and lobed cups in the Tudor Green/Surrey White ware, TG2 in phase 11. Four Midland Purple cisterns were also recovered in phase 11, together with a fragment of a jar or albarello in the Anglo Netherlandish tin glazed earthenware, EA2.

Table 103 The medieval and later pottery: the major residual and medieval wares, area 10, phase 10.2, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
PM – Potters Marston	79	18.2	1374	12.6	0.51
CC1 – Chilvers Coton	223	51.6	5327	49.0	2.17
CC2 – Chilvers Coton	81	18.7	1834	16.8	0.485
MS3/7/8 – Medieval Sandy	44		2169	19.9	0.71
MP1/2//3 – Midland Purple	5		167		
Totals	432		10871		3.875

Table 104 The medieval and later pottery: the major residual and medieval wares, area 10, phase 11, by fabric, sherd numbers and weight (grams) and EVEs.

Fabric	Sherds	%	Weight	%	Eves
PM – Potters Marston	125	52.5	1918	39.1	0.8625
MS3/7/8 – Medieval Sandy	39	16.3	907	18.5	0.515
MP2/2 – Midland Purple	42	17.6	1821	37.1	0.42
CW2/MB – Cistercian/Blackware	18		123		
EA1/2/3/7/11	14		129		
Totals	238		4898		1.7975

Potters Marston continues to represent a significant part of the assemblage even in the post medieval phase 11. Only the Midland Blackware and the post medieval Earthenwares are indicative of a terminal date in the 17th century for this group.

Discussion Area 10

Whilst the major structural sequence seems to have occurred in phase 9, there is some evidence of earlier pitting, particularly behind Building 2. The 22 sherds of late Saxon Leicester and Lincoln Shelly wares hint at activity in the area from the late 9th or 10th centuries, indeed at least some of the 24 more sherds in the coarse Stamford ware, ST3 and the Saint Neots, Torksey may be of a similar date. Their average sherd weight of only twelve grams may indicate that this pottery was associated with horticultural or agricultural activity such as manuring.

No pottery was directly associated with construction of Building 2 in phase 8, however, a few sherds of late Saxon pottery together with Saxo Norman and early medieval pottery with a terminal date in the later 11th or 12th centuries occurred in the backfill of the well G3045 to the rear of the Building 2 in the same phase. Many other contexts in this phase, as noted above, particularly the garden soils, contained pottery with a wide date range indicating that the soils had been re-worked over several generations, perhaps secondary refuse associated with pitting. The make-up levels below Building 1 in phase 9 also contained residual late Saxon and early medieval pottery.

Joining sherds from the upper and lower levels suggested that the foundations of Building 1, G3011, in phase 9 were all of one build, but the floors contained residual late Saxon and Saxo Norman pottery as well as later material. Links were also noted between pottery sherds from the foundation of two walls, G3025, in Building 5 in the same phase, whilst the pottery evidence also suggests that the associated stone staircase, WC3462, may be of one build. The stratigraphic evidence from the pottery associated with the floor layers, G3015, within Building 2 in phase 9 provided a convincing demonstration of the changes in pottery over time, notably form the coarse wares, predominantly 12th century Potters Marston to the fine wheel thrown sandy wares dating from the mid and later 13th and 14th centuries. Conversely, the 'inverted' stratigraphic record from the fill of the cess pit in the privy, G3018, to the rear of Building 1 in phase 10.1, where some of the latest pottery occurs in the lowest layers, suggest that the pit, when in use, was regularly emptied.

In spite of the concentration of industrial features, G3013 and G3016, in Buildings 1 and 2 in phase 9 and in G3004 in Building 12, phase 10.1, no specialist pottery vessel types could be associated with this activity. However, there was an unusual concentration of wheel thrown bowls in G3013, in phase 9 and one heat distorted sherd in the primary industrial pit, P3929, within this group in Building 1, did suggest that it had been backfilled immediately after its last use. Similarly some sherds in the backfill of G3016 were covered internally with a white residue and were possibly associated with the industrial activity.

The large size of Building 5, including the evident width of its frontage onto Dead Lane, and the absence of any evidence of industrial activity has led to the suggestion that this may have been a building of some status (R. Buckley, pers. comm.). The pottery provided no direct evidence of this, save for a single sherd of what is thought to be late medieval Saintonge, a rare continental import, in a robber trench associated with Building 2.

Little activity occurred in the later phases, eleven contexts with post medieval pottery occurred in phase 11, and one other in phase 12. Only thirteen contexts with modern pottery were recorded in phase 13

.

Area 20

Only pottery relating to Buildings 7 and 8 and the Street, in Areas 20A and 20B was examined in detail, as most of this part of the site had been heavily disturbed by Victorian and later activity.

Phase 7.03 (not illustrated)

Table 105 The medieval and later pottery: area 20, phase 7.03, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
LE - Leicester	2	20	0.0
ST3 - Stamford	1	7	0.0
LI Lincoln	1	18	0.0
SN – Saint Neots	1	8	0.0
Totals	9	90	0.0

Group G7024 (SG7924) Fragment of Stone Walling

Assemblage: 6 sherds, 56 grams, 0.0 EVEs, 4.0 grams ASW

Two sherds of the Leicester ware, fabric LE, and a tiny piece of the Reduced Sandy ware, RS3, were recovered from the wall in area 20B. A convex base in the Lincoln Shelly ware fabric LI1, and reduced and abraded fragments of Saint Neots, SN, and of the coarse Stamford ware, ST3 were found in the same context.

Leicester ware, fabric LE, is dated typologically from the mid to late 9th or 10th centuries (Hebditch 1967-8, 8-9), whilst fabric LI1, Lincoln Kiln Type Shelly ware, is dated from the later 9th centuries at Lincoln, and has been previously identified on medieval levels above the Roman forum in Leicester (A302/A295 1971). The Saint Neots type ware, fabric SN, and the unclassified Reduced Sandy ware, fabric RS, may also be contemporary with the rest of the assemblage, and be late Saxon in date.

Phase 8 (not illustrated)

Group G7010 (SG7010) Medieval Building 7

Assemblage: 3 sherds, 34 grams, 0.11 EVEs, 11.3 grams ASW

Two externally sooted and joining sherds in the fine Stamford ware, ST2, were found in the north-south wall, context (7165) in area 20B. Another sooted and burnt sherd, decorated with incised horizontal lines on the exterior, was from a small bowl in the east west wall of the structure, context (7278). The decoration suggesting that it may have been from a socketed vessel, Kilmurry form 12/13-16 (Kilmurry 1980, fig.60, 16), dated from the mid or later 12th century.

Table 106 The medieval and later pottery: area 20, phase 8.0, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight	Eves
ST3 - Stamford	1	13	0.11
ST2 - Stamford	2	21	
Totals	3	34	0.11

Discussion Area 20

The street G7011 is thought to be Roman in date, being constructed in line with the town grid. Medieval pitting in the vicinity certainly hints at medieval occupation nearby. However, the one sherd of early medieval pottery associated with Building 8 is assumed to be intrusive in the wall foundation, context (7162) in phase 3.

The pottery associated with the fragment of stone walling, structure G7024 in Area 20B, is evidently late Saxon in date and the building has consequently been placed with in Phase 7. However, it has been suggested that the similar construction methods used for this and Building 7 in Phase 8, which lies close by to the south, possibly indicate that these structures represent different or perhaps even contemporary phases of the same building, the pottery in the former being, perhaps, residual.

The dating evidence for Building 7 in area 20B is limited, but quite convincing: three sherds in total were recovered, but from both the walls, that running east-west and that running north-south. The paucity of dating evidence often associated with medieval buildings has been noted in relation to the structures in Area 10 above. The building is also on a similar alignment to Building 6 in Area 4, both fronting on to the medieval St. Peters Lane, one of the back lanes of the medieval town, and provides evidence of early medieval occupation in an area which was to become a relative backwater of the town in the later medieval period. Documentary sources suggest that that this building or a similar structure in area 4 may be a stone hall belonging to Leicester Abbey, built near to St. Peter's church, (Courtney 1998, 118).

Site Discussion

The 103 sherds of Leicester ware, fabric LE in area 1, phase 7.01 to 7.03 (Table 21), represents not only the single largest assemblage of its kind recorded in the city to date but also the first from stratified deposits within the town. Two sherds were recorded in area 20 in the same phase, and eleven more in area 10 phase 8. The latter like most of the other sherds tentatively identified as Leicester ware from elsewhere in the city, apparently residual in later contexts. This pottery has been dated typologically from the mid to late 9th or 10th centuries at the kiln site on Southgate Street, (Hebditch 1967-8, 8-9), in the south west quarter of the medieval town. The kiln site lies less than 300 m to the south of the excavation

site on the same major north south thoroughfare, the medieval High Street but, to date only a few other sherds have been identified as possible examples of this fabric in the city, all in residual contexts. Five vessels in Leicester-type ware have also been found at Lincoln, the earliest in a ceramic horizon dating from the mid- to late 9th century, whilst one rim, exactly paralleled at the Southgate Street kiln, was found in the make-up of mainly residual material dating from the mid- 9th to early 10th century (Young *et al* 2005, 72-73).

The Lincoln and Saint Neots wares in particular, may be paralleled at Lincoln (Young *et al* 2005) and Northampton (McCarthy 1979) respectively. Lincoln Kiln- type Shelly ware, fabric LI1 is dated from the mid- to late 9th century and into the 10th century at Lincoln. Similarly, the Lincoln Late Saxon Shelly ware fabric A, identified here as fabric LI2, is commonly found on 10th century sites in York and Lincolnshire. Small quantities of both these and the Lincoln fabrics, B and E have also been previously identified by Jane Young in Leicester, (*ibid* 2005, 62), in residual contexts within medieval tenements on the site of the Roman forum to the west of the town. Interestingly, in spite of the large quantities of Leicester and Lincoln wares, Stamford ware still dominates the late Saxon assemblages here, and as elsewhere in the city, the Saxo Norman assemblages also.

It is instructive to compare the assemblage in area 1 with that from St Nicholas Place, another site in the heart of the medieval town which lay on Holyrood Lane almost opposite St Martin's church, the richest in the borough by the late 13th century, (Courtney 2001, 124-126) and also close to the medieval High Street. Some of the buildings here were also used for industrial purpose including metal working, but also included a stone built undercroft with stone lined cess pits nearby. Whilst Stamford table wares are common on both sites, few copper glazed and highly decorated pots were found in this ware here, but they were common at St Nicholas Place. They were also common at Vine Street, a site in the back lanes within the impoverished parish of St Michael, so perhaps this pottery is not a reliable indicator of wealth or status. There was also a notable absence here of the highly decorated medieval wheel thrown and glazed jugs which characterised the later assemblages at St Nicholas Place, but this may well be a reflection of the generally earlier date of the pottery on the Freeschool Lane excavations. St Nicholas Place also produced another rare find, late medieval beaker or flagon, in a Green Glazed Lincoln ware.

Continental imports are often one of the more obvious indicators of status in medieval ceramic assemblages. Whilst few differences could be ascertained between the pottery assemblages from the three plots in area 1, the only exception was a small group of continental imports in plot 56. This included a rare tripod pitcher and another uncommon form, a cup or jug in Langerwehe stoneware, two Siegburg jugs and a Siegburg or possibly Beauvais, bowl with a thumbed base. Most of this pottery occurred in a large pit at the rear of the plot in phase 10. A somewhat larger group of Langerwehe drinking vessels has been identified by John Hurst on the Little Lane excavations in Leicester, at the rear of buildings fronting on to the other main medieval thoroughfare in the city, the Swinesmarket, and both groups of pottery are potentially evidence of high status or wealth. Other continental imports found in the city include a Siegburg beaker and a rare wine jug or pegau in Saintonge earthenware from St Nicholas Place, noted above. A fragment of Saintonge was also recovered here in a robber trench in area 10.

John Hurst, when assessing the Little Lane assemblage, commented that on a really high status site one would also expect to find a greater range of continental imports, including Spanish and Italian tin glazed wares (J. Hurst, pers. comm.). Continental imports do occur here but in such small quantities that they are unlikely to have been traded directly to

Leicester. All of these pots would presumably have been bought elsewhere, and came to Leicester as part of the domestic equipment of a wealthy family.

Were these continental imports bought on to the site as rubbish from outside the site? This seems to have been a common practice in medieval England, in Southampton, to quote just one example, any area left open for some time would become a target for rubbish (Brown 2002, 158). The evidence here is inconclusive; whilst the frontage seems to have been intensively occupied throughout the medieval period, what about the plots at the rear? This was certainly a late medieval phenomenon at St Nicholas Place when much of the site seems to have been used as a dumping ground. A rare Valencian lustre ware from southern Spain, found on the current St. Peters Lane excavations is also thought to have come, probably as rubbish from a property either on the High Street or the Swinesmarket, both of which lay nearby.

Conclusions

Courtney says of Leicester as a whole, 'it is possible that the 10th century saw both growth and re-organisation of settlement associated with the emergence of a truly urban economy' (Courtney 1998, 115). This momentous event seems to be reflected here in the ceramic record with a significant assemblage of late Saxon pottery unlike anything previously recorded on excavations in the city. However, small assemblages of late Saxon pottery were recovered from the St. Peters Lane excavations in 1988 and from the Little Lane excavations in the same year, both within the north east quarter, north of the main medieval east–west thoroughfare, the Swinesmarket. Conversely, only a few sherds were found on the excavations in Castle Street in the south west quarter and little late Saxon or Saxo Norman pottery has been identified in the extra mural suburbs outside the boundary walls of the medieval town, notably at Bonners Lane in the western suburb of the city (Davies and Sawday 2004, table 12). Much of the early pottery does seem to be concentrated within the north-east quarter, although this may simply reflect a bias resulting from the relatively large number of excavations in this part of town. However documentary evidence appears to support the primacy of the north south street, on which area 1 lay, within the Anglo-Scandinavian borough, (Courtney 1998, 115).

The range of early medieval wares and vessel types from all the excavation areas is very similar to that at Causeway Lane, (Davies and Sawday 1999), the predominance of Potters Marston being absolutely typical of assemblages from the city, (Sawday 1989). The medieval and later medieval assemblages from areas 1 and 10, including pottery from Chilvers Coton, Nottingham and Ticknall are also paralleled at the Austin Friars, (Woodland 1981) and other excavations in the city at, for example, the West Bridge (Sawday 1994, Table 22), Causeway Lane (Davies and Sawday 1999, fig.85), Bonners Lane (Davies and Sawday 2004, 96), and St Nicholas Place, Leicester (Sawday forthcoming b).

The small assemblage of pottery examined from area 4 provides new evidence of medieval occupation on St. Peters Lane, within the back lanes in the north east quarter of the walled town. That occupation seems to pre-date that on Vaughan Way, and possibly, St Nicholas Place also. However, the occupation seems to be relatively short lived in phase 8 whilst phase 9 is characterised by the robbing of earlier buildings and phase 10 by intensive pitting and the accumulation of garden soils.

Documentary sources suggest that this or a similar structure in area 20 may be a stone hall belonging to Leicester Abbey built near to St. Peter's church, (Courtney 1998, 118). The pottery evidence suggest that the building may have been relatively short lived, which also

ties in with the documentary evidence that the area remained a relative backwater throughout the medieval period (*ibid* 1998, 115).

The relative proportions of early medieval ware in area 10 are very similar to that for area 1, where occupation is attested from the early medieval phase 8, and it is possible that these later buildings have destroyed the evidence of earlier occupation on Dead Lane. Indeed one researcher has suggested that Dead Lane may represent part of an early intra mural defensive circuit (*ibid* 1998. 117-118) within what was to become the medieval town. Quite a complex sequence of building and industrial activity in phases 8 and 9 is followed by the collapse of a wall in Building 5 in phase 10.2 and the robbing of all three buildings in phase 11. The subsequent dearth of archaeological activity in phases 12 and 13, together, with the build up of garden soils over Building 5 in the latter phase are clear evidence for the gradual decline and final abandonment of this area.

Area 1 fronted directly on to the medieval High Street, one of the two major thoroughfares in the medieval town. The distribution of timber-framed buildings dating from the 15th to the 17th century confirms the predominance of these axial streets, 'with the exception of the north end of the town', (*ibid* 1998, 136). That this area was not home to local notables could also perhaps be inferred from the narrow width of the three plots, (R. Buckly, pers. comm.) and from the industrial activity, principally metal working and brewing, on the site. Certainly an examination of the pottery from the three plots in area 1 evinced few discernable differences between the assemblages save for a very small group of continental imports in plot 56. This is in marked contrast to at least one house, the 'Lords Place' on the other medieval thoroughfare, the Swinesmarket, home of the Reynolds family, mayors of Leicester and then of the third Earl of Hastings. Even here the pottery did not provide much corroborative evidence of that status (J. Hurst, pers. comm.). It has also been suggested that Building 5 in area 10 with its relatively wide frontage and absence of any evidence of industrial activity, may be a high status building (R. Buckley, pers. comm.) – but the pottery provided little evidence of this. Perhaps, as Duncan Brown pointed out when looking at pottery assemblages from medieval Southampton, famous for the sheer quantity and range of its traded wares, pottery is not perhaps the best expression of wealth or social standing, language, clothing, diet and customs are all more likely to be more potent cultural indicators (Brown 2002, 168).

The decline in the north east quarter of the town is well documented (Courtney 1998, 136). However, this event does not seem to have occurred in area 10 until the end of the medieval period, perhaps because although the site fronted on to a medieval back street, Dead Lane, it also lay close to High Street. Meanwhile, the building of the Free Grammar School in the 16th century signalled the continuing occupation of the plots in area 1 into the post medieval and modern times. However, the hiatus in the archaeological record in the later medieval period, especially in area 1, which is no doubt party due to modern disturbances, has also been recorded on other city sites. This has been attributed to a variety of factors, notably as a response to the threat of plague and disease, leading to a movement away from the digging of pits and the dumping of refuse within the city to the disposal of rubbish outside the city walls, (Connor and Buckley 1999, 90).

The Illustrations – David Hopkins

The Leicester ware illustrations are grouped together, the remainder is ordered by fabric, vessel type, and phase.

Illus. No.	Drawing No.	Group	Sub Group	Context	Area/ Plot	Phase	Fabric	Vessel Type
1	196		X57_8	5822	1/57	8.0	LE	jar
2	261		G5008	5445	1/57	7.01	LE	jar
3	195		SG6262	6259	1/57	8.0	LE	jar
4	260		G5008	5445	1/57	7.01	LE	jar
5	259		G5008	5445	1/57	7.01	LE	jar
6	25		G5008	5445	1/57	7.01	LE	jar
7	194		X57_8	6255	1/57	8.0	LE	jar
8	193		X57_8	6255	1/57	8.0	LE	jar
9	192		X57_8	6255	1/57	8.0	LE	vtu
10	60		X57_702	5202	1/57	7.02	LE	jar
11	47		X56_701	6357	1/56	7.01	LE	vtu
12	197	G3010	SG3149	3541	10	8.0	LE	jar
13	90		SG5015	5547	1/57	7.03	LE	jar
14	89		G0277	273	1/57	7.03	LE	jar
15	27		G5008	6139	1/57	7.01	LE	jar
16	262		X56_703	6302	1/56	7.03	LE	jar
17	93		G5014	5632	1/57	7.03	LE	jar
18	12		G5008	5280	1/57	7.01	LE	jar
19	91	G5035	G0333	332	1/57/58	7.03	LE	jar
20	49		X56_701	6357	1/56	7.01	ST3	jar
21	2		G5008	5280	1/57	7.01	ST3	jar
22	35		G5030	6304	1/57	7.01	ST3	jar
23	1		G5008	5280	1/57	7.01	ST3	jar
24	4		G5008	5280	1/57	7.01	ST3	jar

25	40		X56_701	6357	1/56	7.01	ST3	jar
26	20		G5008	5445	1/57	7.01	ST3	jar
27	36		G5030	6304	1/57	7.01	ST3	jar
28	39		X56_701	6357	1/56	7.01	ST3	jar
29	21		G5008	5445	1/57	7.01	ST3	jar
30	46		X56_701	6357	1/56	7.01	ST3	jar
31	34		G5030	6304	1/57	7.01	ST3	jar
32	52		SG6441	6441	1/56	7.01	ST3	jar
33	61		X57_702	5202	1/57	7.02	ST3	jar
34	155	G5011	G5010	6056	1/56	7.03	ST3	jar
35	176		G0401	401	1/57	7.03	ST3	jar
36	177		G0401	401	1/57	7.03	ST3	jar
37	168		G0277	276	1/57	7.03	ST3	jar
38	169		X56_57_703	301	1/56/57	7.03	ST3	jar
39	162		X56_703	6302	1/56	7.03	ST3	jar
40	178		SG5015	5547	1/57	7.03	ST3	jar
41	159b	G5011	G5010	6136	1/56	7.03	ST3	jar
42	179		SG5015	5547	1/57	7.03	ST3	jar
43	156	G5011	G5010	6137	1/56	7.03	ST3	jar
44	172		X56_57_703	5536	1/56/57	7.03	ST3	jar
45	167	G5011	G5004	6380	1/56	7.03	ST3	jar
46	151	G5011	G5010	6056	1/56	7.03	ST3	jar
47	173		X56_57_703	5536	1/56/57	7.03	ST3	jar
48	170		X56_57_703	303	1/56/57	7.03	ST3	jar
49	149	G5011	G5010	6056	1/56	7.03	ST3	jar
50	171		X56_57_703	303	1/56/57	7.03	ST3	jar
51	153	G5011	G5010	6056	1/56	7.03	ST3	jar
52	158	G5011	G5010	6137	1/56	7.03	ST3	jar
53	182		SG5015	5547	1/57	7.03	ST3	jar

54	161		X56_703	6302	1/56	7.03	ST3	jar
55	175		G0401	401	1/57	7.03	ST3	jar
56	160		X56_703	6301	1/56	7.03	ST3	jar
57	187	G5011	G5004	6381	1/57	7.03	ST3	jar
58	150	G5011	G5010	6056	1/56	7.03	ST3	jar
59	148		G5974	5973	1/56	7.03	ST3	jar
60	145		X56_703	5969	1/56	7.03	ST3	jar
61	185		G5014	5634	1/57	7.03	ST3	jar
62	146		G5974	5973	1/56	7.03	ST3	jar
63	30		G5008	6139	1/57	7.01	ST3	Jar/cup
64	184		G5014	5631	1/57	7.03	ST3	bowl
65	37		X56_701	6357	1/56	7.01	ST3	bowl
66	38		X56_701	6357	1/56	7.01	ST3	bowl
67	164		X56_703	6302	1/56	7.03	ST3	bowl
68	165	G5011	G5004	6329	1/56	7.03	ST3	bowl
69	41		X56_701	6357	1/56	7.01	ST3	Spouted bowl
70	186		G5014	5636	1/57	7.03	ST3	Spouted pitcher
71	166	G5011	G5004	6380	1/56	7.03	ST3	lamp
72	180		SG5015	5547	1/57	7.03	ST3	lamp
73	174		G0401	401	1/57	7.03	ST3	lamp
74	163		X56_703	6302	1/56	7.03	ST3	lamp
75	143		SG5015	5547	1/57	7.03	ST2	jar
76	140		G0401	401	1/57	7.03	ST2	jar
77	142	G5038	G5031	5028	1/57	7.03	ST2	jar
78	137		X56_57_703	292	1/56/57	7.03	ST2	jar
79	141		G0401	401	1/57	7.03	ST2	jar
80	139		G0401	401	1/57	7.03	ST2	jar
81	3		G5008	5280	1/57	7.01	ST2	bowl

82	138		G0401	401	1/57	7.03	ST2	bowl
83	135		G5702	6025	1/56	7.03	ST2	spouted pitcher
84	136		G5702	6025	1/56	7.03	ST2	spouted pitcher
85	144		P6036	5999	1/58	7.03	ST2	jug
86	134		SG0229	229	1/57	7.03	ST1	jar
87	7		G5008	5280	1/57	7.01	LI1	jar
88	54		SG6441	6441	1/56	7.01	LI1	jar
89	43		X56_701	6357	1/56	7.01	LI1	jar
90	53		SG6441	6441	1/56	7.01	LI1	jar
91	50	G5002	G6443	6442	1/56	7.01	LI1	jar
92	9		G5008	5280	1/57	7.01	LI1	jar
93	45		X56_701	6357	1/56	7.01	LI1	jar
94	95		X56_703	6301	1/56	7.03	LI1	jar
95	96	G5011	G5004	6380	1/56	7.03	LI1	jar
96	99		X56_57_703	303	1/56/57	7.03	LI1	jar
97	97	G5011	G5004	6380	1/56	7.03	LI1	jar
98	101		SG5015	5547	1/57	7.03	LI1	jar
99	94		X56_703	295	1/56	7.03	LI1	jar
100	8		G5008	5280	1/57	7.01	LI1	Jar/spouted pitcher
101	22		G5008	5445	1/57	7.01	LI1	Spouted bowl
102	42		X56_701	6357	1/56	7.01	LI1	bowl
103	18		G5008	5445	1/57	7.01	LI1	bowl
104	33		G5030	6304	1/57	7.01	LI1	bowl
105	16		G5008	5436	1/57	7.01	LI1	bowl
106	102		SG5015	5547	1/57	7.03	LI1	bowl
107	100		SG0240	239	1/57	7.03	LI1	bowl
108	55		SG6441	6441	1/56	7.01	LI2	jar

109	13		G5008	5280	1/57	7.01	LI2	jar
110	198		G5008	5445	1/57	7.01	LI2	jar
111	17		G5008	5436	1/57	7.01	LI2	jar
112	11		G5008	5280	1/57	7.01	LI2	jar
113	58		SG6441	6441	1/56	7.01	LI2	jar
114	19		G5008	5445	1/57	7.01	LI2	jar
115	103		X56_703	295	1/56	7.03	LI2	jar
116	105		X56_57_703	5536	1/56/57	7.03	LI2	jar
117	106		SG0229	229	1/57	7.03	LI2	jar
118	104	G5011	G5004	6380	1/56	7.03	LI2	bowl
119	6		G5008	5280	1/57	7.01	SN	jar
120	32		G5030	6304	1/57	7.01	SN	jar
121	44		X56_701	6357	1/56	7.01	SN	jar
122	26		G5008	5445	1/57	7.01	SN	jar
123	5		G5008	5280	1/57	7.01	SN	jar
124	107	G5011	G5004	5536	1/56	7.03	SN	jar
125	133	G5011	G5010	6137	1/56	7.03	SN	jar
126	126	G5011	G5010	6137	1/56	7.03	SN	jar
127	129	G5011	G5004	6380	1/56	7.03	SN	jar
128	132		X57_703	6419	1/57	7.03	SN	jar
129	131		G0401	401	1/57	7.03	SN	jar
130	130		G0401	401	1/57	7.03	SN	jar
131	199		X56_8	5754	1/56	8.00	SN	jar
132	123		X56_703	5969	1/56	7.03	SN	bowl
133	128		X56_703	6302	1/56	7.03	SN	bowl
134	108	G5011	G5004	5636	1/56	7.03	SN	bowl
135	125	G5011	G5010	6056	1/56	7.03	SN	spouted pitcher/ jar

136	248		SG0469	6145	1/56	8.02	TH	vtu stamp 2:1
137	245	G5200	SG5200	5200	1/57	8.00	TO	jar
138	246	G5200	SG5200	5200	1/57	8.00	TO	jar
139	122		SG5015	5547	1/57	7.03	TO	Storage jar
140	51		G6155	6155	1/57	7.01	TO	Handled jar
141	56		SG6441	6441	1/56	7.01	TO	bowl
142	15		G5008	5280	1/57	7.01	TO	bowl
143	14		G5008	5280	1/57	7.01	TO	Bowl
144	188	G5011	G5010	5990	1/56	7.03	TO	bowl
145	191		X56_57_703	303	1/56/57	7.03	TO	Spouted bowl
146	189	G5011	G5004	6136	1/56	7.03	TO	lamp
147	121		G6525	6524	1/57	7.03	RS1	bowl
148	24		G5008	5445	1/57	7.01	RS3	jar
149	31		G5008	6139	1/57	7.01	RS	jar
150	118	G5038	G5005	5002	1/57	7.03	PM	jar
151	115		X56_57_703	303	1/56/57	7.03	PM	jar
152	114		G5974	5973	1/56	7.03	PM	jar
153	119	G5038	G5031	5028	1/57	7.03	PM	jar
154	120	G5035	G0333	332	1/57/58	7.03	PM	jar
155	237		SG5491	5509	1/56	8.00	PM	jar
156	234		SG5491	5511	1/56	8.00	PM	jar
157	236		SG5491	5511	1/56	8.00	PM	jar
158	238		SG5491	5511	1/56	8.00	PM	jar
159	239		SG5491	5511	1/56	8.00	PM	bowl
160	240		SG0251	250	1/56/57	8.00	PM	Spouted pitcher
161	241		PR5953	6122	1/57	10	PM	jug
162	235		X57_901	5812	1/57	9.01	PM	jug
163	244		SG0469	464	1/56	8.02	SP3	jar

164	242		SG6390	6388	1/56	9.00	SP3	jug
165	243		SG6390	6388	1/56	9.00	SP3	jug
166	112	G5038	G5005	5002	1/57	7.03	OS1	jar
167	113	G5038	G5031	5028	1/57	7.03	OS1	jar
168	249		IF5663	5663	1/57	9.02	OS2	jug
169	111		G5014	5631	1/57	7.03	OS	bowl
170	110	G5011	G5010	5990	1/56	7.03	OL	bowl
171	250	G3032	L3579	3205	10	10.02	CC1	jug
172	251	G3032	L3579	3205	10	10.02	CC1	jug
173	252		SG5950	5935	1/57	10	CC1	cistern
174	247		X57_58_9	6144	1/57/58	9.00	RS4	bowl
175	253		X57_12	5380	1/57	12	MP2	cistern
176	255	G5104	SG5428	5428	1/57	11	CW2	cup
177	256	G5104	SG5428	5428	1/57	11	CW2	cup
178	254		X57_12	5380	1/57	12	CW2	cup
179	258		SG5903	5903	1/58	12	EA2	bowl
180	257		X57_12	5380	1/57	12	EA6	bowl

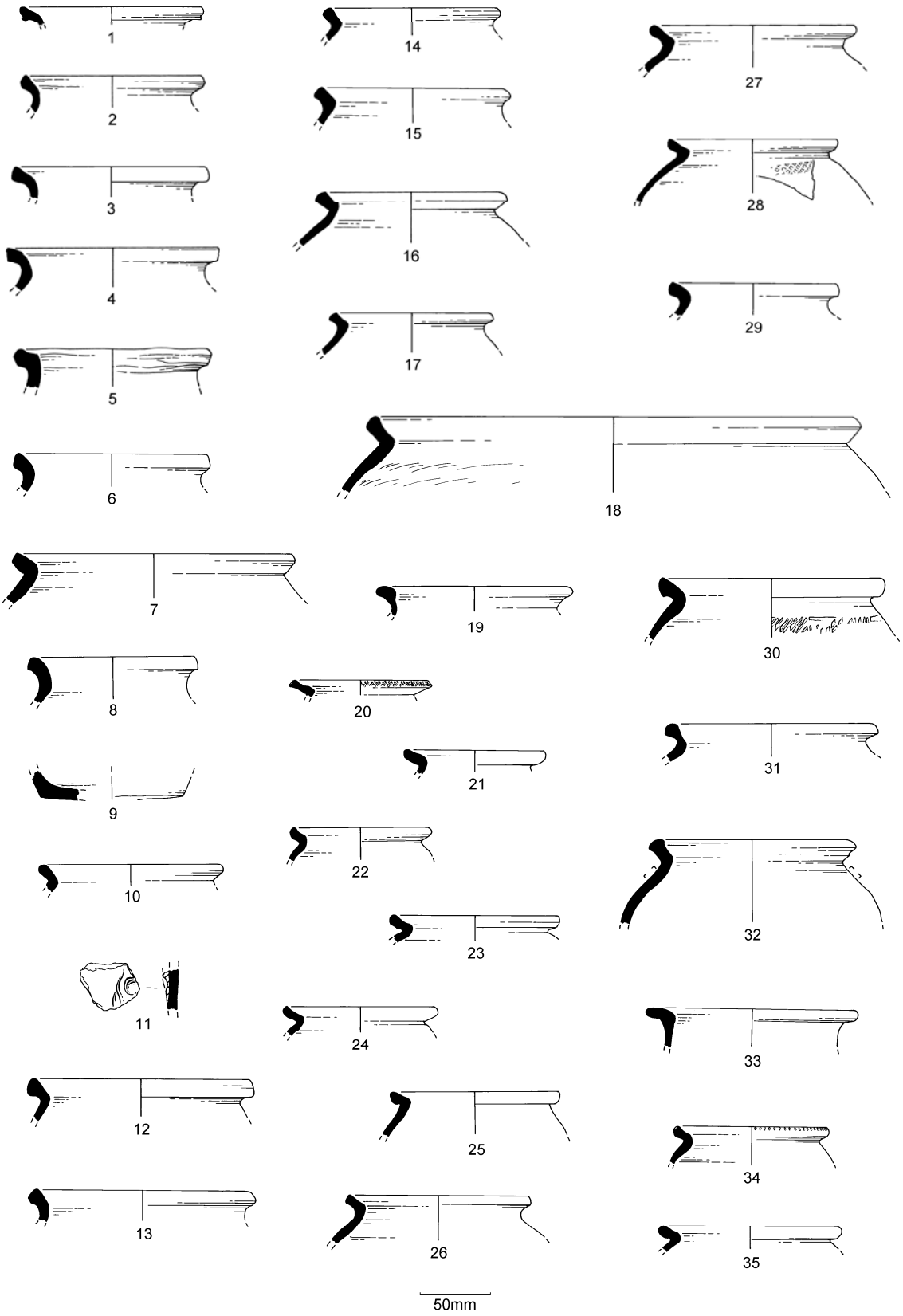

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Figure 20 The medieval and later pottery illustrations: 1-35

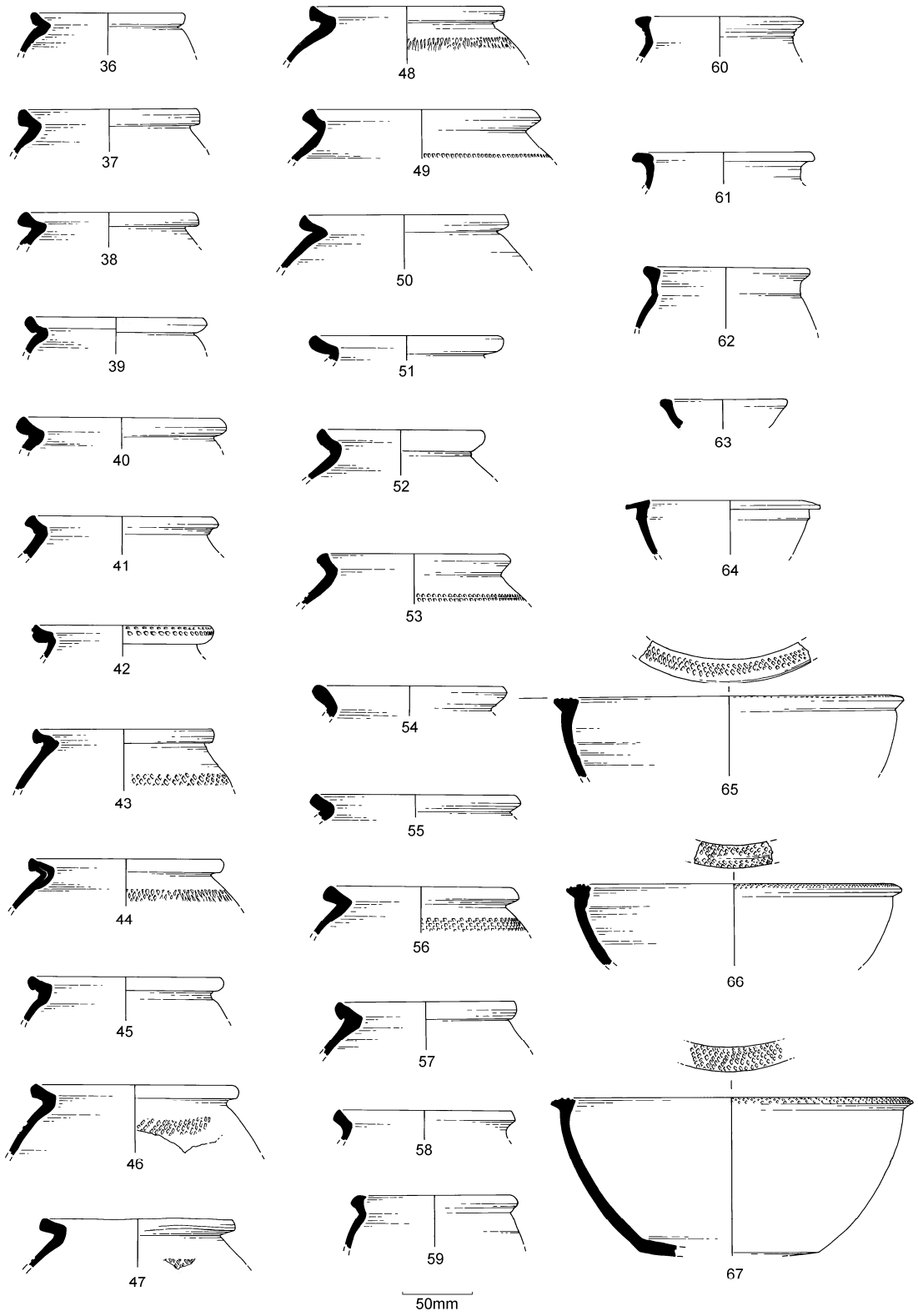

Figure 21 The medieval and later pottery illustrations: 36-67

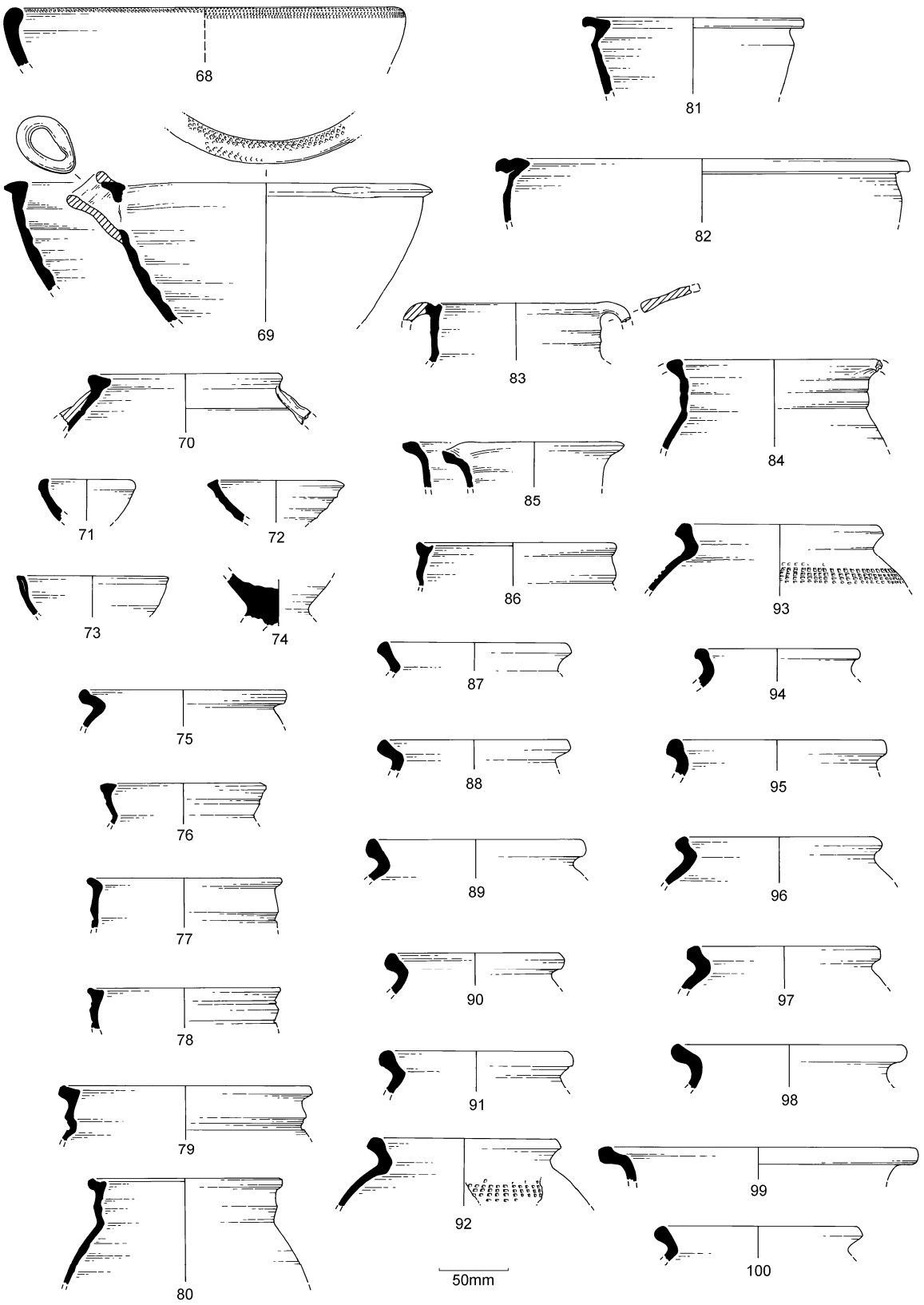

Figure 22 The medieval and later pottery illustrations: 68-100

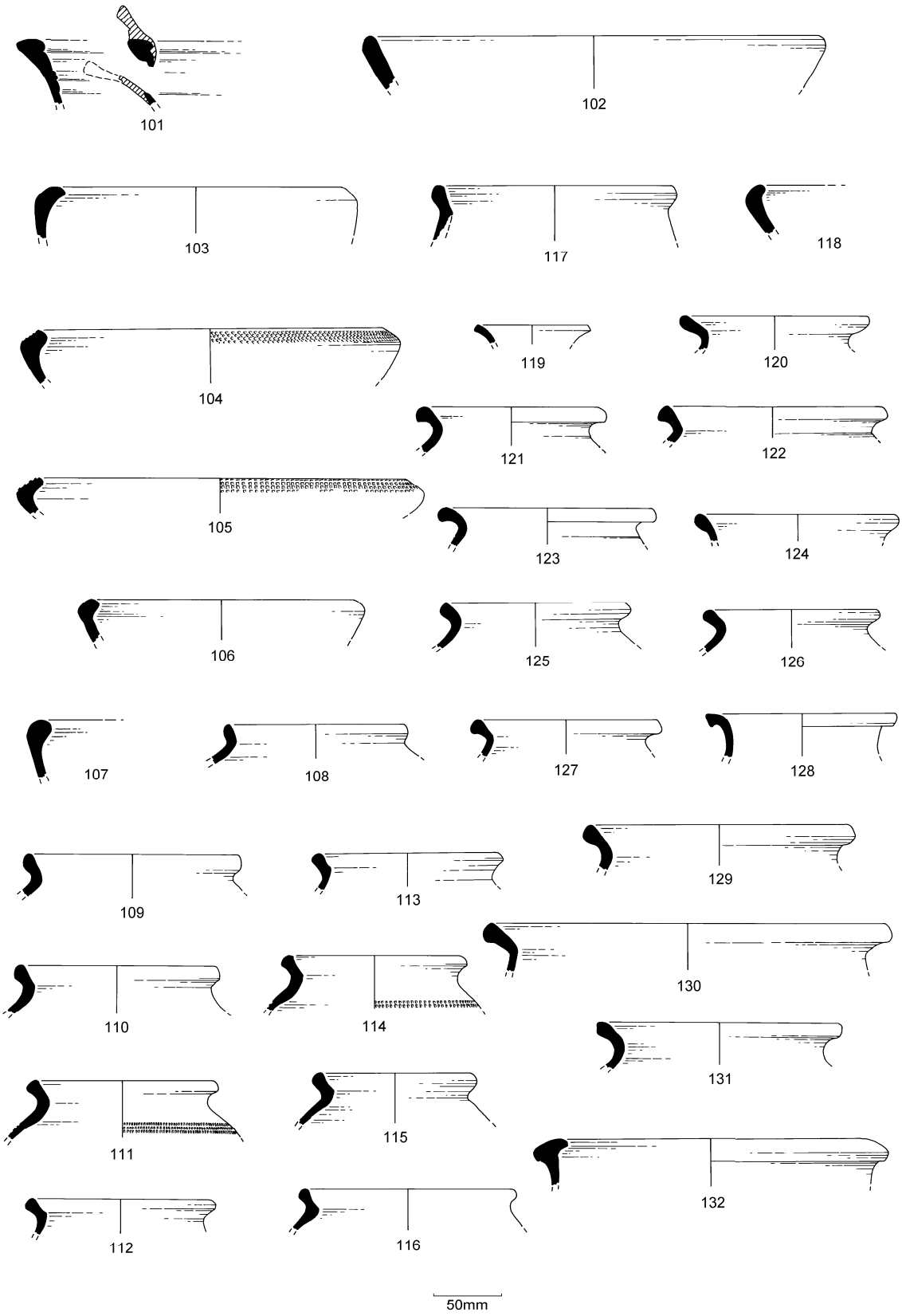

Figure 23 The medieval and later pottery illustrations: 101-132

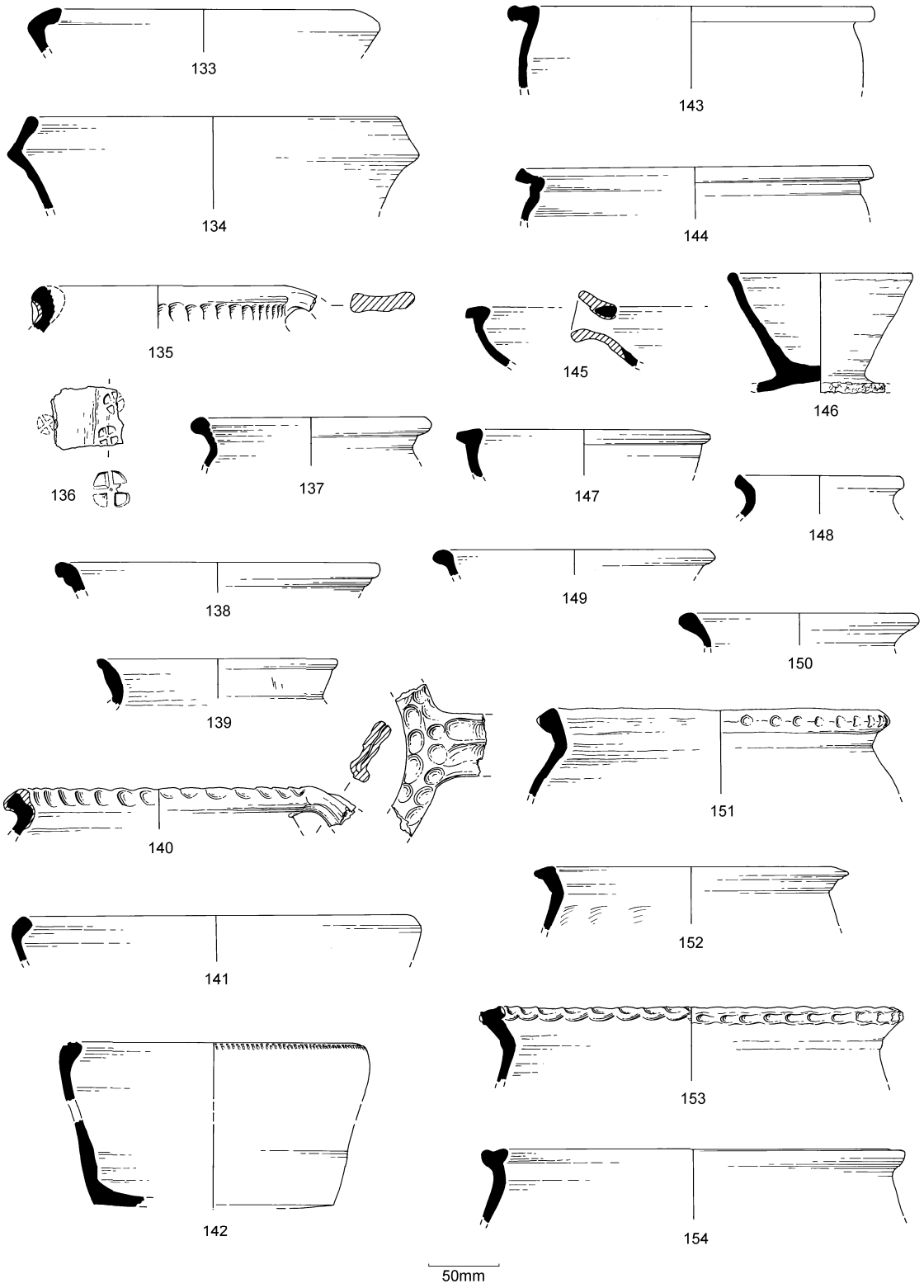

Figure 24 The medieval and later pottery illustrations: 133-154

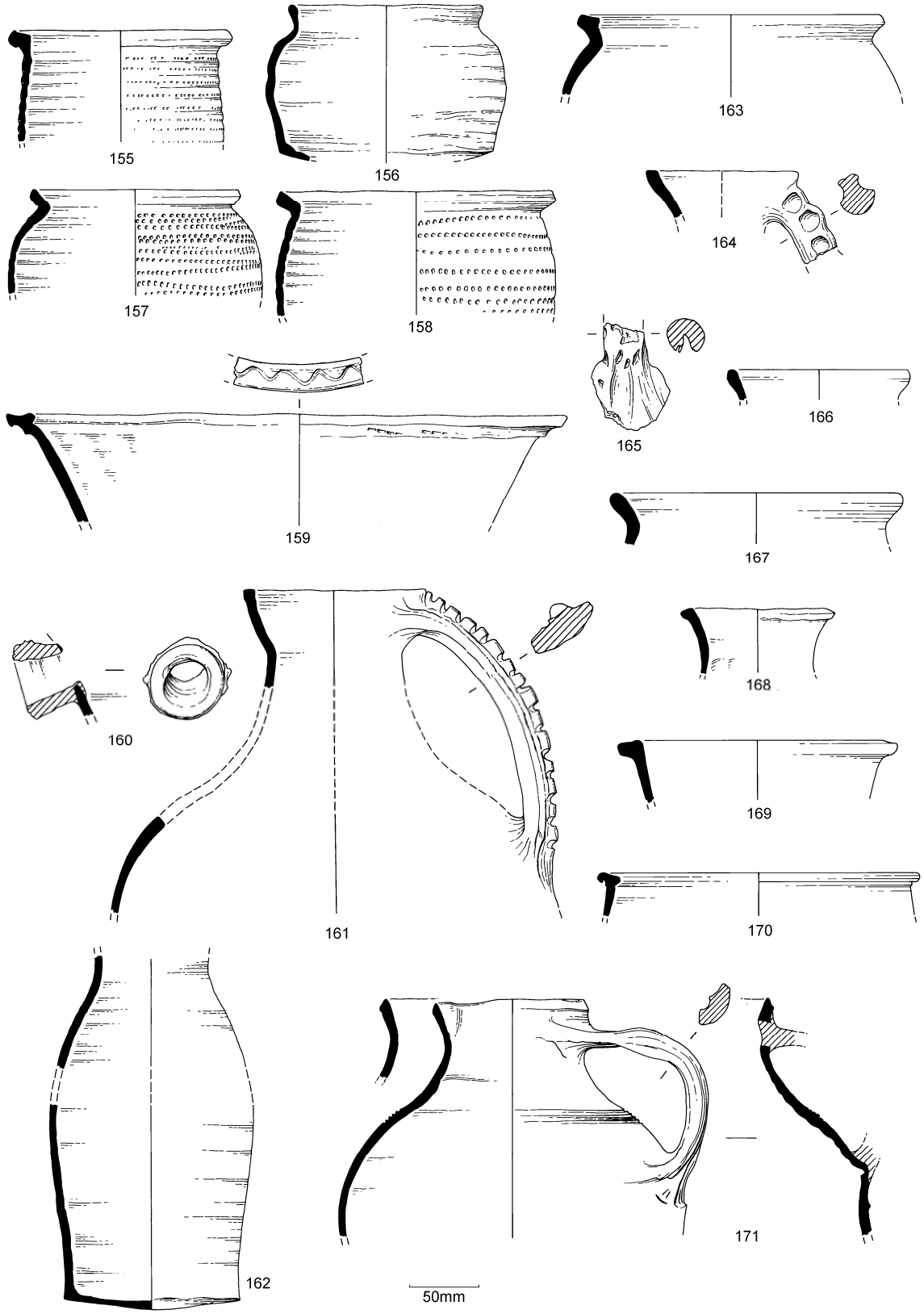

Figure 25 The medieval and later pottery illustrations: 155-171

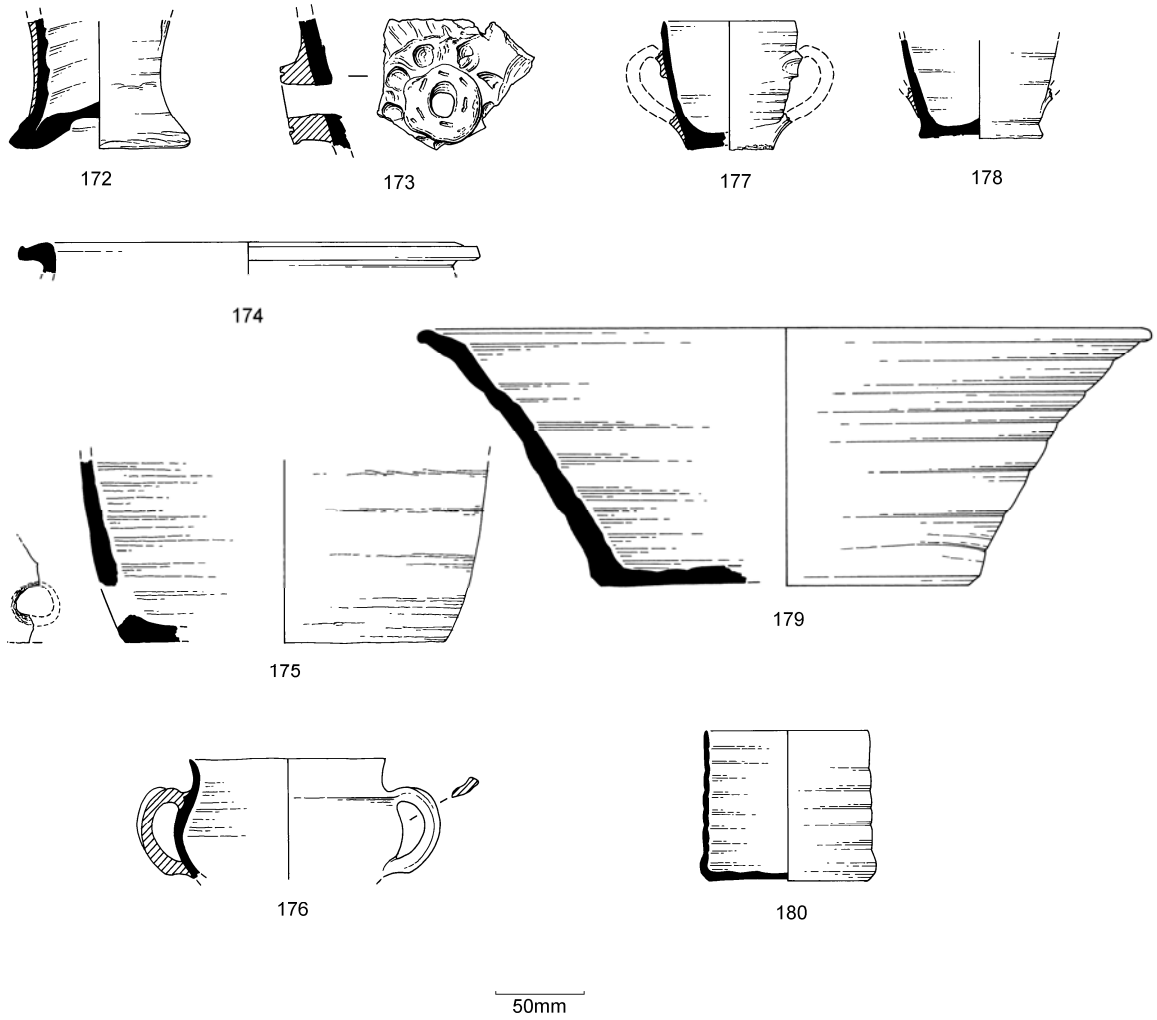

Figure 26 The medieval and later pottery illustrations: 172-180

The Medieval Roof Furniture

Of approximately 1012 fragments of medieval roof furniture from the site, just over half – 637 fragments - occurred in the targeted contexts in areas 1 and 10, phases 8 to 11.

Table 107 The medieval roof furniture: ridge tile by fabric, fragment numbers and weight (grams) by area.

Fabric	Area 1	Area 10	Totals
PM - Potters Marston	28/1565	24/796	52/2361
SP2/3 - Splashed ware	38/2623	18/926	56/3549
CC1/2/5 - Chilvers Coton	144/6784	123/4863	267/11647
NO1/2 Nottingham		2/55	2/55
LY1 - Stanion Lyveden	1/98		1/98
CO1 - Coventry	2/206		2/206
MS1/2 - Medieval Sandy	147/8301	13/328	160/8629
MS3/7 Medieval Sandy	21/1045	21/1032	42/2077
MP1/3 - Midland Purple	21/3651	34/2469	55/6110
Totals	402/24273	235/10459	637/34732

The ridge crest types referred to here are those first characterised at the Austin Friars, Leicester (Allin 1981). Hence the three crests in the Splashed ware fabric SP3 were in Allin's early Types I and III (Allin 1981) the Ram's Horn and Double Horn respectively. Many of the crests seem to be associated with particular fabrics, and the latter was also found in Splashed ware at the Austin Friars. Similarly here as at the Friary, the two Potters Marston crests are the Looped Handles, Type II. The Closed Loop and Open Loop crests, Type V are closely associated with the Chilvers Coton fabrics, in the 14th century (Allin 1981, 59). The later crests here, as at the Austin Friars include examples of a Type VI Pinnacle Crest in the Medieval Sandy ware MS3, and a Type VII Spiked Knob crest in the Midland Purple fabric MP2.

A curved brown and purple glazed roof furniture decorated with an inscribed wavy line in the Midland Purple fabric MP2, from area 1, plot 57, may be part of a chimney or a roof tile, unfortunately the tile is too fragmentary to be identified one way or the other. A similar piece was illustrated from the Austin Friars, (*ibid* 1981, fig.17.18).

Three ventilators in the Splashed ware SP3 are identifiable by their angular shape and by the one or more holes pierced through the body, another by the angled and cut edge at one side of the tile. Two of these fragments were found in area 1 plot 56 and plot 57/58, and two more in

area 10. A Splashed ware ventilator with similar features was found on the site of medieval tenements above the Roman forum in Leicester (A302 1971 17362), but this example was zoomorphic, with animal heads at either end of the ridge. Unfortunately not enough of the Splashed ware fragments survive here to be able to make any but a general identification possible.

A nib tile in the Chilvers Coton fabric CC1 was found in a phase 10 robber trench in the rear of plot 57. The width of the tile, at 110mm, is only slightly narrower than those recorded at the production centre (Mayes and Scott 1984, Table 3). Unlike the Austin Friary examples, this nib is on the sanded underside of the tile, and the mould may have shaped to allow the nib to project above the surface of the tile (Allin 1984, 65). This tile fragment was found in phase 8, in area 1 plot 57.

Table 108 The medieval roof furniture: ridge tile by fabric, fragment numbers and weight (grams) area 1 phases 8 and 9, 9.01, 9.02 and 9.03.

	Phase					
Fabric	8	8	9	9.01	9.02	9.03
	Plot 57	Plot 58	Plot 57	Plot 57	Plot 57	Plot 57
PM	2/97	1/65	1/29		4/223	1/34
SP2				1/60		
SP3	1/64	4/92	3/119	5/310	2/79	
CC1	2/84		1/40	1/145	3/134	
CC2			1/19	1/192		
MS2	2/112		6/246	1/28	18/1691	
MS					1/19	
Totals	7/357	4/92	12/453	9/735	28/2146	1/34

A further 89 ridge tile fragments, weighing 3930 grams and 167 fragments, weighing 9707 grams were recovered from areas 4 and 20 respectively, which owing to lack of time were not catalogued. Those from area 4 were predominantly in the Chilvers Coton fabric CC1; dating from the mid- or later 13th century, with only a few earlier examples in the Leicester Splashed ware SP3. A similar pattern emerged with the tiles from area 20. Four contexts produced tiles in SP3 and Potters Marston possibly dating from the early or mid- 13th century, whilst the bulk of the tiles, 137 in all were in CC1 or the Medieval Sandy wares MS1, MS2 and MS3 dating from the mid- 13th or 14th centuries. Only seven contexts contained late Medieval Midland Purple wares.

Table 109 The medieval roof furniture: ridge tile by fabric, fragment numbers and weight (grams) area 1, phase 10 and 11.

	Phase								
Fabric	10					11			
	Plot 56	Plot 56/ 57	Plot 57	Plot 57/ 58	Plot 58	Plot 56	Plot 56/ 57	Plot 57	Plot 58
PM	2/295		8/594	1/12	1/38				
SP3	2/144		3/125	2/83	1/134				1/242
CC1	14/790	2/81	41/1670	5/101	31/954	3/162		4/165	
CC2								1/21	
LY1								1/98	
MS1	3/274		7/467						
MS2	4/238		60/3151	16/645		5/147		1/26	1/54
MS3	3/246		6/234	1/9			1/18	4/148	
MS7			5/386						
MP2	2/111		14/3225		1/12			2/219	
MP3			2/84						
Totals	30/2098	2/81	146/9936	25/850	34/1138	8/309	1/18	13/677	2/296

Table 110 The medieval roof furniture: ridge tile by fabric, fragment numbers and weight (grams), area 10, phases 8 to11.

	Phase			
Fabric	8	9	10	11
PM		2/20	11/503	11/273
SP3		5/304	10/503	3/119
CC1	3/95	12/382	34/1282	73/3001
CC2	1/38			
CC5				1/103
NO1/2		1/17		
MS1		1/8	2/54	1/52
MS2			5/117	4/97
MS3		1/34	9/414	10/486
MS7				1/98
MP1	1/25		2/170	2/130
MP2		1/62	7/725	17/1246
MP3		1/32	2/34	1/35
Totals	5/158	24/859	82/3802	124/5640

Discussion

The roof furniture occurred in all the phases across the targeted areas. This is evidence perhaps of residuality in some instances, but also of the longevity in the use and re-use of roofing material in the medieval period, where even the stockpiling of roofing material was not uncommon (Moorhouse 1988, 37).

In terms of the fabrics, the range is typical of that found on sites in the city as a whole, the tiles evidently originating from many of the same production centres as that for the medieval pottery. That it is not unusual to tiles in a range of different fabrics is confirmed by the documentary evidence. Moorhouse notes that there are many references to instances where tiles were bought from different tilers for the same building.

Whilst it is not unlikely that at least some of this material, as with the pottery, may be rubbish dumped on the site from elsewhere, many of the tiles probably were used on site. Those in areas 4 and 20, for instance could have roofed either or both of the stone buildings found there, at least one of which may have been a hall belonging to Leicester Abbey, built near to St. Peter's church, (Courtney 1998, 118). Given the different types of structures found here, it is also worth noting that ceramic tiles were used not just for major buildings such as houses and churches, but also to roof outbuildings, for examples bakehouses and ovens, to mitigate the danger of fire, and also as coping along the tops of walls to protect against rain and frost (Moorhouse 1988, 39) .

The Medieval Floor Tile

Twenty-seven fragments of medieval floor tile were recovered chiefly in residual contexts from all areas across the site. Eleven fragments were found in area 1, and six of these occurred in plot 57, or plot 56/57. Eleven more were recovered from areas 4 and 20. Most were abraded and very fragmentary, but a minimum of eight fragments showed definite evidence of inlaid decoration, and of these two patterns could be identified, Whitcomb 'types' W57, and W63 (Whitcomb 1956). The former design, the Arms of Despenser, has been recorded at Evington Church, and at the Austin Friars, Leicester, with a suggested date range of *c.*1240 to 1347. (Lucas 1981). Design W63 is a simplified and poorer version of W62, a shield placed vertically between a key and an oak tree with acorns, all within a plain border (Whitcomb 1956, 53). This tile is also found elsewhere in the city, at All Saints Church, St Mary de Castro and Leicester Abbey.

Some of the remainder were evidently glazed plain tiles, and there were two rectangular and triangular border or mosaic tiles, the fabrics suggesting that they were contemporary with the inlaid tiles. One green glazed tile in a coarse sandy fabric, possibly a variant of the Chilvers Coton fabric CC1, is stabbed underneath

Discussion

The floor tiles were found in every excavation area across the site as noted above. What are they doing here? In the mid- to late 13th century only very wealthy monasteries and royal establishments had tiled floors, (Eames 1980, 280), whilst research elsewhere has shown that by the early 14th century at least tile pavements they were being used in smaller monasteries and parish churches (Vince 1984, 8). It is possible that these floor tiles relate to a town house on the frontage of the medieval High Street an important thoroughfare of the medieval town. Perhaps the tiles are evidence of a high status building in area 1, plot 57, where the largest single assemblage of five floor tile fragments was found, another occurred in plot 56/57, but, given the industrial activity in all the plots, the evidence is hardly compelling. The structure in either area 4 or area 20 could be the stone hall belonging to Leicester Abbey; referred to in documentary records, (Courtney 1998, 118), and is perhaps the source of the floor tiles. However, the apparent poverty in the back lanes in this quarter of the medieval town by the late 13th century, suggest that this is unlikely (*ibid* 1988, 133), and it is possible that much of this assemblage was bought in from elsewhere, perhaps as hard core for levelling, or simply dumped on the site as rubbish.

THE COINS *John A. Davies*

This assemblage has a total of 90 items, of which 87 are Roman coins and 3 post-Roman. The earliest coin is an *as* of Vespasian, which was issued in the year 71. There is a small group of early coin, issued before 260, which includes just three *aes*, alongside three *denarii*, two of which are base examples. A small cluster of late 3rd century radiates contains four barbarous examples and a worn Gallic Empire issue of Allectus.

Perhaps the most interesting coin from this site collection is a small copper-alloy item (Cat. 13; SF 1122). Although very worn, this coin contains features which contrast it from the other standard Roman issues. Both faces can be seen to carry a right-facing bust. This is a Roman provincial issue, struck some time between the 1st and 3rd century. Unfortunately, the very worn condition has not enabled closer identification.

There is a very high proportion of late Roman issues, with nearly 80% of the site finds belonging to the period after 330. This is the highest percentage of late coin from any of the site groups. The mid-Constantinian issues, of the period 330-48, are numerous, with only a single irregular example present. In contrast to this, the years 348-64 contain a very high number of irregulars. These are eleven 'falling horseman' types, mainly of small size. Eight are just 14mm or less, with the smallest being a mere 8mm in diameter. Although irregular 'falling horseman' coins are known from across Britain, they are not found in high numbers on all sites.

The strongest group of coins is the Valentinianic component, of the years 364-78. The legible examples among these eighteen coins come from the mints of Lyons (1), Arles (5), Aquileia (2) and Siscia (1). The two latest datable coins continue the group through to the end of the 4th century.

This site assemblage includes a high proportion of very worn, partially-legible, coins. There are a further nineteen that can only be dated broadly, to the 3rd or 4th century.

There are three post-Roman items, all of which are heavily worn. All appear to be post-medieval. Two are halfpenny/farthings and one is a badly corroded jetton.

Table 111: The coins: coin deposition as summarised by chronological phase

Closely identifiable		64%
Phase A	Before AD 260	9.4
Phase B	260-296	9.4
Phase C	296-330	3.1
Phase D	330-402	78.1

Table 112 The coins: chronological distribution for site A8 2005

Period	Date	No.	%
1	To AD 41		
2a	41-54		
2b	54-69		
3	69-96	1	1.6
4	96-117	1	1.6
5	117-138	1	1.6
6	138-161	1	1.6
7a	161-180	1	1.6
7b	180-193		
8	193-222		
9a	222-238	1	1.6
9b	238-259		
10	259-275	1	1.6
11	275-294	5	7.8
12	294-317		
13a	317-330	2	3.1
13b	330-348	15	23.4
14	348-364	14	21.9
15a	364-378	18	28.1
15b	378-388	1	1.6
16	388-402	2	3.1
		Total **64**	

1C-2C		3	
3C-4C		19	
Roman Provincial		1	
Post-Roman		3	
Total items		**90**	

Table 113: The coins: listing

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
1	1047	5838		Vespasian	As	AD 71	Obv [IMP CAE]S VESPASIAN AVG COS [III]	Rev FIDES PVBLICA; SC	RIC 2: 486	Rome	
2	567	1175		Nerva	Denarius	AD 97	Obv IMP NERVA CAES AVG [PM TR PO[T]	Rev COS III PATER PATRIAE	RIC 2: 24	Rome	
3	6	us		Hadrian	Sestertius	AD 119-22	Obv IMP CAESAR TRAIANVS HADRIAN[VS AVG]	Rev PONT M[AX TR POT] COS III; SC	RIC 2: 563	Rome	
4	154	2051		Faustina I (deified)	Dupondius/as	AD 141-61	Obv DIVA AVG----	Rev Illeg. and corroded.			
5	87	2005		Marcus Aurelius	Base denarius	AD 161-80	Obv Illeg.	Rev Illeg.			
6	568	1175		Severus Alexander	Base denarius	AD 222-35	Obv IMP CM [AVR SEV] ALEX[AND AVG]	Rev Illeg. Fem. figure seated left.			
7	1242	6551		Gallienus	Radiate	AD 260-8	Obv Illeg.	Rev [DIANAE CONS AVG]; doe	As RIC 5: 176	Rome	
8	859	5280		Barbarous radiate – Tetricus I		AD 270-84	Obv Illeg.	Rev [PAX AVG]	16mm		
9	1221	6537		Barbarous radiate – Tetricus I		AD 270-84	Obv IMP C TE……..	Rev PAX AVG (vertical sceptre)	As Elmer 771		

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
10	1092	6302		Barbarous radiate – Tetricus II		AD 270-84	Obv Illeg.	Rev Sacrificial implements	16mm		
11	1206	6450		Barbarous radiate	Illeg. and corroded.	AD 270-84	Obv Radiate bust.		16mm		
12	879	5393		Allectus	Radiate	AD 293-6	Obv ----PF AVG	Rev PA[X AV]G			
13	1122	us			Roman Provincial copper alloy coin.	1st-3rd century	Obv Illeg. and worn smooth. Bust facing r.	Rev Illeg. and worn smooth. Bust facing r.16mm			
14	1182(b)	us		Illeg.	Follis	AD 318-20	Obv Illeg. Corroded.	Rev. [VICTORIAE LAETAE PRINC PERP]			
15	1119	6357		Constantine I	Follis	AD 324-5	Obv CONSTANTINVS AVG	Rev PROVIDEN[TIAE A]VGG	RIC 7: 449	Trier	
16	7	us		House of Constantine	Follis	AD 330	Obv CON[STANTINOPOLIS]	Rev Victory on prow	As RIC 7: 344	Arles	
17	1216	6537		Constantine II	Follis	AD 333-4	Obv CONSTANTINVS IVN NOB C	Rev GLORIA EXERCITVS 2 st.	RIC 7: 263	Lyons	
18	1222	6537		(Context 6537)	House of Constantine	Follis	AD 330-5	Obv VRBS ROMA	Rev Wolf and twins		
19	1093	us		House of Constantine	Follis	AD 335-40	Obv CO------VG	Rev GLORIA EXERCITVS; 1 st.	As RIC 8: 80	Trier	
20	1046	6204		House of Constantine	Follis	AD 335-40	Obv Illeg.	Rev [GLORIA EXERCITVS]	1 st.	Trier	

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
21	895	466		House of Constantine	Follis	AD 335-40	Obv Illeg.	Rev [GLOR]IA EXER[CITVS]; 1 st.			
22	1170	6450		House of Constantine	Follis	AD 335-40	Obv FL IVL CONST --	Rev [GLORIA EXERCITVS]; 1 st.			
23	1214	6537		Constans	Follis	AD 337-40	Obv CONSTANS PF AVG	Rev GLORIA EXERCITVS; 1 st.	As RIC 8: 50	Trier	
24	1057	5575		Theodora	Follis	AD 337-40	Obv FL MAX THEODORAE AVG	Rev PIETA[S ROMANA]	RIC 8: 79	Trier	
25	1164	6450		Theodora	Follis	AD 337-40	Obv [FL MAX] THEODORAE AVG	Rev PIETAS RO[MANA]	RIC 8: 79	Trier	
26	1231	6537		Helena	Follis	AD 337-40	Obv FL IVL HE[LENAE AVG]	Rev PAX PV[BLICA]			
27	1205	6450		House of Constantine	Follis	AD 341-6	Obv Illeg.	Rev [GLORIA EXERCITVS]; 1 st.	Irregular		13mm
28	1083	7143		Constantius II	Follis	AD 347-8	Obv [CONST]ANTIVS PF AVG	Rev [VIC]TOR[IAE DD] AVGG [Q NN]	RIC 8: 185	Trier	
29	1200	6450		Constans	Follis	AD 347-8	Obv [CONSTAN]S PF AVG	Rev VICTORIAE DD AVGG Q NN	RIC 8: 196	Trier	
30	1107	us		House of Constantine	Follis	AD 347-8	Obv Illeg.	Rev [VICTORIAE DD AVGG Q NN]			
31	645	1249		Magnentius	AE2	AD 350-3	Obv [IM CAE MAGN]ENTI[VS AVG]	Rev [SECVRITAS] REIPVBLICE	As RIC 8: 264	Trier	
32	1217	6537		Constantius II	AE3	AD 353-55	Obv DN CONSTANTIVS PF AVG	Rev FEL TEMP R[EPARA]TIO; falling horseman	As RIC 8: 216	Arles	

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
33	1201	6450		House of Constantine	AE2	AD 350-60	Obv Illeg.	Rev [FEL TEMP REPARATIO]; hut			
34	5	111		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		10mm Broken half coin.
35	11	119		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		10mm
36	1152	6439		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		11mm
37	1156	6454		House of Constantine		AD 354-64	Obv ----IVS PF AVG	Rev FEL TEMP REPARATIO; falling horseman	Irregular		14mm
38	1163	6450		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		12mm
39	1224	6537		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		16mm
40	1241	6543		House of Constantine	AE3	AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		16mm
41	1243	6543		Constantius II		AD 354-64	Obv CONSTANTIVS PF AVG	Rev FEL TEMP REPARATIO; falling horseman	Irregular		
42	1259	us		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		14mm

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
43	1260	us		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		13mm
44	No SF no	6439		House of Constantine		AD 354-64		Rev FEL TEMP REPARATIO; falling horseman	Irregular		8mm
45	1084	us		Gratian	AE3	AD 367-75	Obv DN GRATIAN[VS AVGG AVG]	Rev GLORIA ROMANORVM	RIC 9: 20c	Lyons	
46	1251	6537		Gratian	AE3	AD 367-75	Obv DN GRATIANVS AVGG AVG	Rev [GLORIA NOVI SAECVLI]	RIC 9: 15	Arles	
47	945	7000		Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev GLORIA ROMANORVM	RIC 9: 17b	Arles	
48	1215	6537		Valens	AE3	AD 375-78	Obv DN VALEN [S PF AVG]	Rev SECVRITAS REIPVBLICAE	RIC 9: 19a	Arles	
49	1225	6542		Gratian	AE3	AD 375-78	Obv DN GRATIANVS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 19b	Arles	
50	1199	6450		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev GLORIA ROMANORVM		Arles	
51	1219	6537		Valentinian I	AE3	AD 364-7	Obv DN V[ALENTINIA]NVS [PF AVG]	Rev SECVRITAS [REIPVBLICAE]	RIC 9: 9a	Aquileia	
52	1197	6450		Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev SECVRITAS REIPVBLICAE	RIC 9: 12b	Aquileia	
53	1160	6450		Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev [SECVRITAS] REIPVBLICAE	RIC 9: 15b	Siscia	
54	1228	6537		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [GLORIA ROMANORVM]			

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
55	1250	6537		Valentinian I	AE3	AD 364-78	Obv ---INI---	Rev [GLORIA ROMANORVM]			
56	9	us		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPVBLICAE]			
57	1070	7081		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPVBLICAE]			
58	607	3007		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPVBLICAE]		Lyons or Arles	
59	1195	6526		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPVBLICAE]			
60	1196	6450		House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPVBLICAE]			
61	1227	6537		Valens	AE3	AD 364-78	Obv DN VALENS [PF AVG	Rev SECVRITAS REIPVBLICAE			
62	1258	us		Valens	AE3	AD 364-78	Obv ---LEN---	Rev [SECVRITAS REIPVBLICAE]			
63	1129	6408		Gratian	AE2	AD 378-83	Obv DN GRATIANVS [PF AVG]	Rev REPARATIO REIPVB			
64	1183	us		Valentinian I	AE3	AD 388-92	Obv DN VALENTINIANVS PF AVG	Rev VICT[ORIA AVGGG]	RIC 9.30a:	Arles	
65	1222	6537		House of Theodosius	AE4	AD 388-95	Obv ----S PF A---	Rev. Illeg.			(Context 6537)
66	892	5420		Illegible and corroded	Sestertius	1st-2nd century	Obv Illeg. and corroded	Rev Illeg. and corroded			
67	624	us		Illegible and	Dupondius/as	1st-2nd	Obv Illeg. and corroded	Rev Illeg. and very			

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
				corroded		century		worn			
68	633	us		Illegible	As	1st-2nd century	Obv Illeg. and corroded	Rev Illeg. and very worn			
69	455	5011		Illeg.	AE3	AD 260-378					
70	1143	5575		Illeg. and corroded	AE3	AD 260-378					
71	1245	6543		Illeg. and corroded	AE3	AD 260-378					
72	483	5123		Illeg.	AE2/3	AD 260-400					
73	956	us		Illeg. and corroded	AE3/4	AD 260-400					
74	1244	6543		Illeg. and corroded	AE3	AD 260-400					
75	1144	us		Illeg. incomplete coin	AE4	AD 270-400	Small angular flan				
76	1191	6449		Illeg. and corroded	AE4	AD 270-400					
77	1133	5575		Illeg.	AE4	AD 335-400					
78	1202	6450		Illeg.Faint portrait on obv.	AE4	AD 335-400					

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
79	1257	us		Illeg.	AE4	AD 335-400					
80	1142	5575		Illeg.	AE4	AD 330-400					
81	1207	6450		Illeg. and corroded	AE4	AD 330-400					
82	1246	6537		Illeg.	AE4	AD 330-400					
83	955	5558		Illeg. and corroded	AE2	3rd-4th century					
84	480	5108		Copper alloy coin fragment. Illeg.		3rd-4th century					
85	484	5161		Illeg. and corroded	AE3	3rd-4th century					
86	1182(a) Illeg. Highly corroded coin.	us			AE3/4	3rd-4th century					
87	295	3370		Illeg.	AE3	4th century					
88	598	1155		Post-Roman coin	Halfpenny	AD 1670-1850	Illeg. and corroded.				

Ref	Small find	Cont	Phase	Emp/type	Denom	Date	Obverse	Reverse	Rel.	Mint	Comment
89	984	5896		Illegible and corroded.		Possibly a post-Medieval jetton.	22mm				
90	1190	6450		Illeg. and heavily corroded.	Halfpenny/farthing.	Post-1800					

THE SMALL FINDS *H.E.M. Cool*

Introduction

The excavations at Freeschool Lane produced a large number of small finds, of which 252 were diagnostic enough to be assigned to a specific functional category (Crummy 1983) and have been catalogued and discussed below. Miscellaneous items such as rings, shank fragments, and unidentifiable fragments of metal have not been included but details of these are available in the archive. Diagnostic items of copper alloy were conserved and all metal objects were x-rayed.

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 114 and Table 115 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). 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. 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 Freeschool Lane 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. This is a problem for this site where the majority of the material belongs to the post-Roman period as 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 thematic volume (Buckley and Cooper, eds, forthcoming).

Table 114: The small finds: the discussed finds by material and site phasing

Phase	*Copper alloy*	*Lead alloy*	*Iron*	*Slag*	*Fired clay*	*Glass*	*Bone and ivory*	*Stone*	*Total*
2	1	-	-	-	-	-	-	-	1
3	1	-	-	-	-	-	-	-	1
4	4	-	5	-	-	-	-	-	9
5	2	-	1	-	-	-	2	1	6
7	7	-	1	14	-	2	10	10	44
8	4	-	9	6	1	1	7	6	35
9	17	-	8	4	-	-	7	2	37
10	77	1	15	3	-	-	5	3	104
11	9	-	-	-	-	-	2	-	11
12	10	-	-	-	-	-	1	-	11
13	2	-	-	-	-	-	-	-	2
U/S	4	-	-	-	-	-	1	1	6
Total	138	1	39	27	1	3	35	23	267

Table 115: The small finds: the discussed finds by date of find and function

Function	*LPRIA*	*Roman*	*Anglo Saxon*	*Saxo-Norman*	*Medieval*	*Post Medieval*	*Total*
Personal	1	11	2	6	94	18	132
Toilet	-	4	-	-	3	-	7
Textile	-	2	-	9	8	-	19
House	-	-	2	2	1	-	5
Recreation	-	-	-	-	1	-	1
Weighing	-	-	-	-	1	-	1
Writing	-	1	-	-	1	-	2
Transport	-	-	-	2	19	-	21
tools	-	-	2	6	11	2	21
Fasteners	-	3	-	5	7	1	16

Function	*LPRIA*	*Roman*	*Anglo Saxon*	*Saxo-Norman*	*Medieval*	*Post Medieval*	*Total*
Military	-	1	-	-	3	-	4
Craft debris	-	-	-	15	15	-	30
Misc	-	-	-	3	5	-	8
Total	1	22	6	48	169	21	267

Prehistoric Finds

Lynden Cooper comments: ten pieces of struck flint of broad Mesolithic to Bronze Age date were retrieved during the excavations, none occurring in contexts contemporary with their use. The assemblage comprises two scrapers, two utilised blades, a bipolar core and six struck flakes.

Late pre-Roman Iron Age finds

Personal equipment

Amongst the Highcross sites excavated, only one item could be assigned to the late pre-Roman Iron Age and it occurred at this site. No. 1 is a most remarkable find as it belongs to a group of brooches believed to have been made in Bibracte during the final quarter of the 1st century BC (Feugère 1985, 279 Type 18B). The distribution is overwhelmingly in the eastern and central eastern parts of France. Its rarity in Britain is shown by the fact that Hull did not include the type in his corpus and the examples in Mr Hattatt's collection all came from outside of the country (Hattatt 1989, Fig. 166). This piece was found residually in a Saxo-Norman context which is of little help in establishing quite when the brooch arrived in Leicester. In France the type has been found in early to mid- 1st- century AD contexts (Feugère 1985, 285), so it is just possible that it could have arrived after the coming of Rome. The absence of other examples that can be associated with the army in Britain though, probably argues for this little brooch being associated with the Iron Age occupation of the town.

1 Lion brooch; upper part only. Copper alloy. Broken cylindrical spring cover; spring of *c.* seven turns, pin missing. Upper bow consists of outstretched lion, rear body and legs solid and united with spring cover; front has modelling of lions head and two short front legs; square-sectioned tenon on back of lower bow that would have joined the upper and lower bow together. Present length 22mm, spring width 16mm. sf1173: 6357: Phase 7.01 (ID390). Figure 27

Roman finds

Personal Ornaments

In general Roman finds are relatively scarce at this site as can be seen inTable 115. This is demonstrated very well by the small number of personal ornaments, normally

a very prolific category amongst Roman assemblages. Most of the examples found belong to types well represented elsewhere at Leicester.

The earlier Roman ornaments are represented by the brooch (no. 2), the hairpin (no. 3) and the finger ring (no. 8). The brooch is a Colchester Derivative with a pierced catchplate and the spring held by a forward-facing hook. Both of these features would place the brooch early in the development of the type and a mid- 1st-century date is appropriate (Bayley and Butcher 2004, 157). Colchester Derivative brooches are the commonest type of Roman brooch to have been recovered from Leicester (See Vine Street small find report, Cool 2009b). The hairpin also belongs to the commonest type found at Leicester which was current during the 2nd century (See Vine Street small find report). The finger ring (no. 8) belongs to the simple expanded type dominant in the 1st and 2nd centuries (Henig 1974, type IV). The form is not infrequent at Leicester. Other copper alloy examples have 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.

The late Roman ornaments are represented by the bracelets (nos. 4-7). There is one example of a 4th-century light bangle (no. 4). In general it would fall within my Group XXV (Cool 1983) though I recorded no precise parallel for the combination of ring and dots and vertical grooves and it is a useful addition to the corpus. Light bangles are a very common form of ornament in the 4th century, often worn several at a time. A variety of different patterns have been found previously in Leicester at such sites as Jewry Wall (Kenyon 1948, 253 nos. 1-6, fig. 83) and Causeway Lane (Cooper 1999, 261 nos. 95-6) and The Shires (forthcoming Catalogue no. 27). The commonest type of Roman bracelet from site is the cable twist bracelets (nos. 5-7). This is not surprising as they were the commonest metal bracelet type in use in Roman Britain with most being used in the 4th century, though they do occur earlier. Earlier examples from Leicester include six from Jewry Wall, one of which came from a 2nd century context (Kenyon 1948, 253 type D, fig. 83 no. 7) and two from the Causeway Lane excavations (Cooper 1999, 261 nos. 92-3).

All of these items are either unstratified or residual and it is of some interest to note that the only items in this category found in contexts contemporaneous with their use are the hobnails (nos. 9-10). Although only three were recognised from the X-radiographs, they do form just under a third of the Roman personal ornaments and 13% of all Roman finds identified. In discussing those from Vine Street, it was suggested that the hobnail total from the site was very low. Even in this very small Roman assemblage from Freeschool Lane, it can be seen that the much higher totals of hobnails from Causeway Lane (Cooper 1999, 275-6) are more likely to be the normal pattern for Leicester

2 Colchester brooch. Copper alloy. Oval-sectioned bow with short beaten out wings, spring of *c.* four turns with chord held by forward facing hook, twisted broken spring; broken triangular catchplate with at least three perforations. Length 46mm, width wings 13mm. sf 1071: unstratified. (ID406).Figure 27

3 Hair pin (Crummy type 2) in two joining fragments. Bone. Circular-sectioned shank tapering to broken end; head has slightly rounded terminal with two grooves below. Present length 75mm, shank section 5mm. sf952: 1335: Phase 8. (ID520)

4 Light bangle bracelet; flattened fragment. Copper alloy. Very shallow 'D'-sectioned hoop. Alternating units of vertical grooves and ring and dot units, one ring and dot and pair of ring and dots extant. Present length 41mm, section 4 x 1mm. Sf1151: 6439: Phase 5.02. (ID392). Figure 27

5 Cable bracelet, 4 fragments. Copper alloy. Two strand left-hand twist; one fragment retains one strand bent into loop; one fragment appears to have been broken and strands wrapped around each other. Present length 85mm. sf724: 5070: Phase 10. (ID439)

6 Cable bracelet. Copper alloy. Two strand left-hand twist with loop terminal. Present length 27mm, section 3mm. Sf870: 458: Phase 9. (ID447).

7 Cable bracelet?. Copper alloy. Two strand right-hand twist, three fragments much corroded. Now straight. Present length 61mm, section 3mm. Sf721: 5066: Phase 10. (ID453).

8 Simple expanded ring; upper part only. 'D'-sectioned shoulders expanding to flattened bezel. Details not much obscured by corrosion. Bezel section *c.* 5 x 3mm. Sf 906: 5445: Phase 7.01. (ID402).

9 Hobnail. Iron. (1 – head only). -- 6549: Phase 4. (ID 643)

10 Hobnail. Iron. (2 singletons). -- 6542: Phase 4. (ID 644)

Toilet Equipment

The Roman toilet equipment from this site is somewhat unusual within a Leicester milieu as can be see from Table 116. The normal pattern is for sites to produce several items of short-handled equipment of the type suitable to be part of a toilet set, several ligulae and virtually nothing else. Here only one item in each of those categories was found, a nail cleaner (no. 13) and a ligula (no. 12), but there is also the probe end of a double ended implement (no. 11), a cosmetic pestle (no. 14) and a fragment of a mirror (no. 15)

Table 116: 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

The long-handled implements are of particular interest. Such implements were multi-purpose as they could be used for cosmetic purposes, for preparing drugs and as medical implements. A noticeable feature of the ones which occur as part of medical sets is that the central part is often decorated with ribs, careful faceting and sometimes inlaid (see for example Jackson 1986, fig. 4; Jackson 2007, fig. 124 no. CF47.37).

This is not purely just for show. All these features would have enabled a firm grip to have been kept on the instrument in the slippery context of an operation. The ligulae from Vine Street and Causeway Lane (Cooper 1999, 263 no. 116) have smooth handles, the example from Freeschool Lane, by contrast, has a very carefully facetted shank with a displacement of the faceting at one point to provide an even firmer grip. There are some grounds for thinking therefore that this was a medical implement rather than one intended for toilet purposes. The olivary probe instrument (no. 11) also has a carefully faceted and ribbed shank which might hint at a similar function. The ligula was unstratified whilst the olivary probe came from a levelling layer above Building G5006 so it is not possible to explore whether they were associated in any way.

The nail cleaner is another example of a high shouldered nail cleaner like the example from Vine Street. It is a 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. The recovery of two examples from Leicester might indeed suggest that these were favoured in the East Midlands.

No. 14 is the pestle element of an end-looped cosmetic set. These were a native British artefact that pre-dated the Roman conquest and which were in use during the 1st and 2nd centuries. In the first definitive study of the type (Jackson 1985) the distribution was predominantly a southern one and he only knew of one example from a Leicestershire site (Thistleton – Jackson 1985, 179 no. 20). Subsequently additional ones have been recognised from excavations, but this is a category of artefact where the quantities known have been transformed by the systematic recording of metal detecting finds by the Portable Antiquities Scheme. By early in 2009, for example, the database associated with the scheme listed well over a 100 examples, i.e. more than Jackson had managed to locate in his study[1]. It is now clear that they are not uncommon in the Midlands. In Leicestershire though this is the first to be found in the town, examples can be also be listed from Enderby (ref no. LEIC-9FF107) and Sileby (Ref no. LEIC-51A252) (both end-looped) as well as from the Sapcote area (ref. no. LEIC-9F9AA7 – central-looped).

The dominance of metal detector finds in the overall corpus now biases the distribution towards rural sites, but it was noticeable even in Jackson's initial survey that they were very strongly represented on such sites and were rare on city centre ones. Like the lion brooch (no. 1) this pestle is residual in a Phase 7 context, but the possibility does exist that this piece might originally have been associated with the pre- or very early Roman occupation on the site, rather than belonging to someone who lived in the urbanised environment it was to develop into.

The site also produced a fragment of a mirror from a Phase 2 context (no.15). This is an unusual find for Leicester, the only other mirror having come from Vine Street (Cool 1999b). Insufficient remains to assign it to a type with any certainty but like the Vine Street example the features are consistent with it being an example of a Lloyd Morgan (1981) Group H hand mirror and the date of the context would be consistent with this.

11 Olivary probe. Copper alloy. Circular-sectioned olivary probe; hexagonal-sectioned shank broken at central moulding – two very narrow ribs with rounded wider one, moulding obscured by corrosion. Present length 92mm, section probe 5mm, section shank 2.5mm. Sf 1166: 6454: Phase 4. (ID395).Figure 27.

12 Ligula. Copper alloy. Hexagonal-sectioned shank, one end pointed, other has small disc with oval outline at slight angle to shank; shank expands evenly from point along three-quarters of length and then tapers to disc, the faceting shifts to one side at that point producing a zig-zag junction. Length 134mm, diameter disc 6 x 4.5mm, maximum shank section 3mm. Sf 659: unstratified. (ID 389). Figure 27

13 Nail cleaner. Copper alloy. Rectangular-sectioned, leaf-shaped blade; broken loop in same plane as blade, other end broken retaining top of groove. Present length 63mm, maximum section 10 x 1.5mm. Sf 252: 3205: Phase 10. (ID 424).

14 End-looped cosmetic pestle. Copper alloy. Circular loop worn thin at outer edge; collar on upper face of oval-sectioned curved pestle at junction with loop; pestle tapers upwards to point at outer end. Length 53mm, maximum section 7.5 x 7mm. Sf 464: 5060: Phase 7.02. (ID 445). Figure 27.

15 Mirror. Copper alloy. Copper alloy disc with bright reflecting surfaces on both faces; an area of differential corrosion, possibly retaining mineralised organics, possibly indicates that the mirror had a handle. Original diameter *c.* 130-140 mm (*c.* 17% of circumference), thickness 2mm, maximum length 39mm. Sf 1001: 5850: Phase 2. (ID396). Figure 28

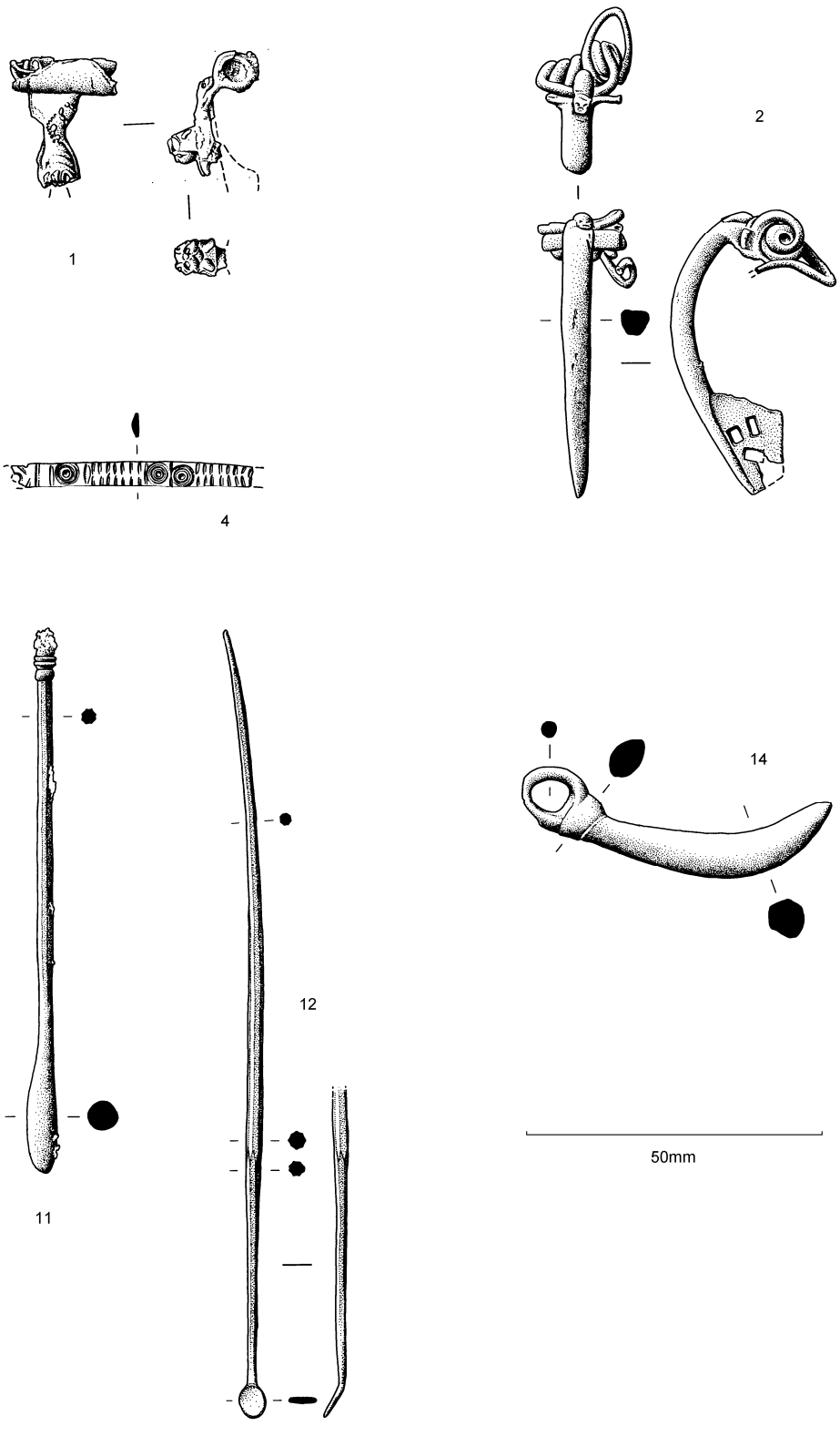

Figure 27 Small finds 1, 2, 4, 11, 14

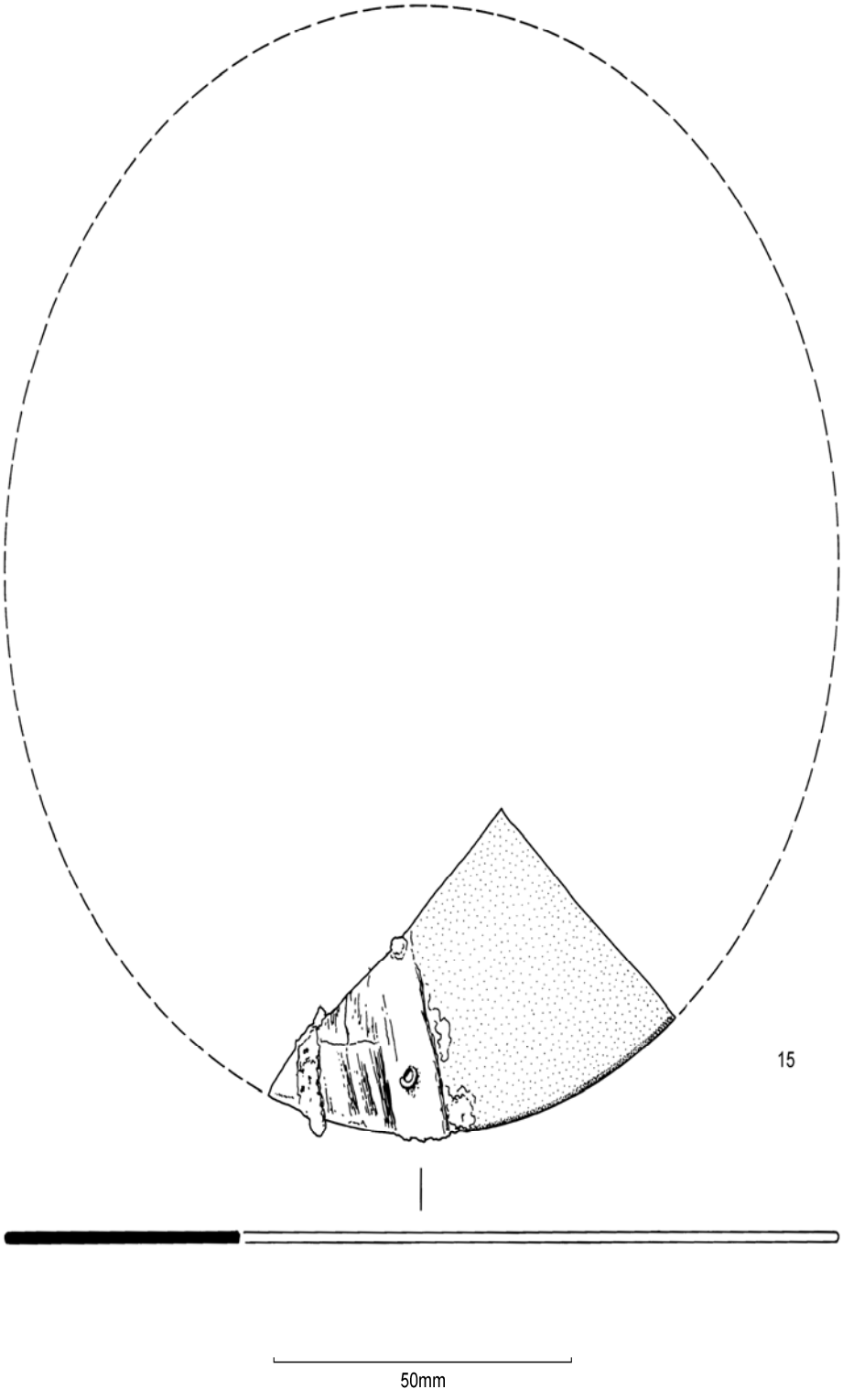

Figure 28 Small Find 15

Textile Equipment

The only item of Roman textile equipment was a copper alloy needle from a Phase 4 context which would be consistent with the late Roman date of the context. Three other examples were recovered from Jewry Wall, one interestingly from an early pre-Forum context (Kenyon 1948, 262 no. 19). The type was also made in bone and examples of those have been found at Causeway Lane (Cooper 1999, 265 no. 127), Bonners Lane (A168.1993 cat. no. 72) and Redcross Street (A316. 1962 cat no. 72).

16 Needle (Crummy type 2). Copper alloy. Circular-sectioned shank tapering from rectangular sectioned hear to point; upper end broken across base of eye; lower end broken before tip. Present length 81mm, shank section 2.5mm Sf 1153: 6454: Phase 4. (ID410).

Writing equipment

The only stylus (no. 17) came from a Phase 4 levelling layer and falls into Manning's (1985) Type 4 where he gathered together all decorated styli. With the regular application of X-radiography to iron assemblages it has become apparent that there is a greater variety in the decorated examples than was hitherto appreciated (e.g. Major 2002). This example certainly seems to have been decorated with non-ferrous metal inlay and it may also have had transverse ribs, though only investigative conservation would confirm whether the irregular undulations on the side of the shank were deliberate or the result of corrosion.

17 Stylus. Iron. Square eraser head; Shank expanding with conical point at end. Traces of transverse non-ferrous inlay on shank visible in X-radiograph. Length 93mm, width head 9mm. --: 6453: Phase 4. (ID 631).

Fastening and fittings

This category contains one of the most puzzling Roman items from all of the Highcross sites. No. 18 was recovered from a Phase 4 levelling layer and was clearly part of a composite item. It was clearly designed to hold something in the cruciform centre. The split pin at one end could have fastened it to a second element. The rolled over end might have been intended as a strengthening element in which case it is possible that the elements were not fixed together rigidly, and possibly this element might have acted as a type of hinge. This is not the only example of this type of fitting from Leicester because the central part of one was found in the disturbed levels of the Jewry Wall excavations (Kenyon 1948, 255 no. 8 – I am grateful to Mr Nick Cooper for drawing my attention to this). That piece was found with 3rd and 4th century coins, supporting the late Roman date suggested by the context of no. 18. One suggestion for function is that it acted as a hinge fitting for a small flat box (P. Ottaway pers. comm.).

The only other item in this category worthy of comment is the stud no. 20. This has the typical composite composition of the studs and fittings used to decorate boxes (see

for example the first box recovered from the Butt Road cemetery – Crummy 1983, 85). The shank of no. 20, which is now missing would probably have been of iron.

18 Mount. Copper alloy. Cross-shaped with long central arm, short arms bent down, long arms bent down and up; probably now distorted; one end of long arm expanded and rolled over, short split pin articulates with roll through perforation below it; legs of pin pinched closed; other end of long arm bent over with small perforation; double ring and dot on central junction of arms. Length 87mm, width 34mm, thickness 2mm, length loop-headed spike 29mm. Sf 1153: 6454: Phase 4. (ID 411). Figure 29

19 Split pin. Iron. Loop head with straight legs. Length 40mm. -- 6484: Phase 4. (ID 645).

20 Composite stud. Hemispherical sheet head with lead filling retaining square void for shank. Diameter 13mm. Sf 1247: 6543: Phase 4. (ID 418).

Military Equipment

Roman military equipment forms a small but regular element in the Leicester assemblages as may be seen from Table 117 and Freeschool Lane is no exception.

Table 117 The small finds: Roman military equipment from Leicester (Table 11 in the Vine Street report)

	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).

One piece of Roman armour can be identified with certainty despite coming from a Phase 10 context. No. 21 consists of two typical *lorica squamata* scales still wired together. This type of armour was in use throughout the Roman period, though the wiring pattern seen here is one often recovered on 1st to 2nd century sites (Bishop and Coulston 2006, 95, fig 54 nos. 2-4). Hitherto armour elements have been rare from Leicester, the only other piece being the cavalry helmet cheek-piece from Bath Lane (Clay and Mellor 1985, 64 no. 2). It is therefore of some interest that the site has produced a second item in this category (no. 232), a piece of copper alloy mail. It too came from a Phase 10 context and is discussed with the medieval finds, though it should perhaps be noted here that were it to have been found within a Roman context there would have been no problems in identifying it as a piece of *lorica hamata.*

21 Scale armour. Copper alloy. Two sheet scales, probably originally found linked. Upper edge of each scale has two square perforations, and a pair of circular perforations on the upper part of each edge, each scale retains the wire twist joining it to the next one. Dimensions of scale 24.5 x 12.5mm. sf502: 1120: Phase 10 (ID431). Figure 29.

Early to Mid-Saxon finds

As the site produced structural evidence for early to mid- Saxon occupation it is not surprising to find some items that can be typologically assigned to the period. Other items that were recovered from Phase 5 contexts have also been included here though some may be residual.

The item that is most obviously of early Saxon date is the small long brooch no. 22. It belongs to Leeds' 'square-head plain' category (Leeds 1945, 26). Small long brooches are a very common type of Anglo-Saxon brooch and are notorious for their diversity. It is probably for these reasons that no comprehensive modern survey has been undertaken. They are a 5th to 6th century type but within all the variation it has not been possible to discern any chronological patterning (Walton Rogers 2007, 118-9). The presence of this example from a well-stratified context associated with the collapsed wall is therefore a very useful find.

Early Anglo-Saxon brooches were rare finds from Leicester prior to the Highcross excavations with only a small fragment of a silver-gilt equal-armed brooch having been recorded from Causeway Lane (Liddle 1999). There are now also two small long brooches, this one and an example from Vaughan Way.

The bead no. 23 has also tentatively been included here though it was found in an early medieval Phase 8 context. Glass beads were not a medieval fashion and so it is likely that this piece was residual in its context. Segmented beads are a common late Roman form but this example is of a larger diameter than is normal for those. Glass beads were also a very common fashion in the early to middle Anglo-Saxon period and segmented beads of such larger dimension were in use then (see for example Guido 1999, 51), so it seems possible that no. 24 may most likely be of this date.

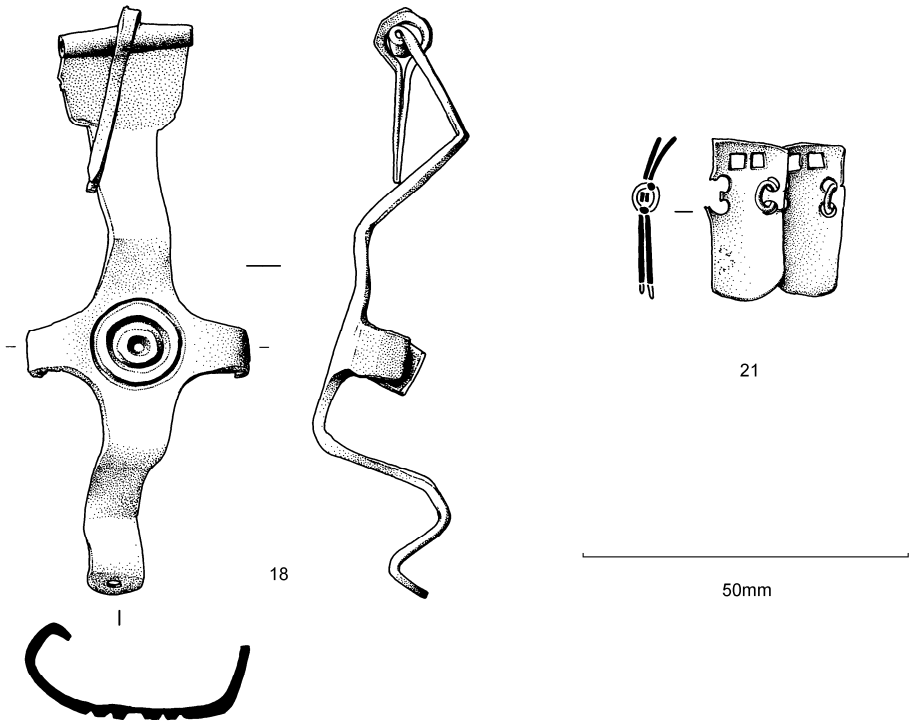

Figure 29 Small finds 18,21

The next two items the bone inlay plates nos. 24-5 could well be residual Roman items as such inlays are common finds on late Roman sites. At Leicester they have been found during excavations in the Forum and Basilica (Hebditch and Mellor 1973, 52 nos. 39-40), The Shires (forthcoming cat nos. 61-2) and at Vine Street.

Finally the other two items catalogued here, the hone no. 276 and the knife no. 29, are not chronologically sensitive items and as functional pieces could be contemporary with their contexts.

Personal ornaments

22 Small long brooch. Copper alloy. Rectangular head with small perforated lug on back, front of head has edge nicks along top and sides with row of 'C'-shaped incised motifs parallel to these edges, ring and dot centrally; curved upper bow has bevelled edges with transverse groove above and below; slightly expanded foot with transverse groove top and bottom and pair of grooves centrally, ring and dot at base; short catch plate on upper part of foot with grooves on return. Length 58mm, width head 23mm. sf1155: 6439: Phase 5.02 (ID405). Figure 31.

23 Bead. Segmented. Dark glass now too corroded to reveal the original colour. Tube neatly crimped into four globular segments. Diameter 5mm, length 13mm, perforation diameter 2mm. Sf 1000: 6114: Phase 8. (ID 765)

Household Equipment

24 Inlay. Bone. Rectangular strip with one end broken across a perforation. Two grooves parallel to long edge; two large ring and dots separated by a pair small single ring and dots. Present length 26mm, width 15mm, thickness 1.5mm. Sf 1204: 6450: Phase 5.01. (ID 499) Figure 31.

25 Inlay. Bone. Rectangular strip. Two lines parallel to each long side. Dimensions 19mm, width 9mm, thickness 2mm. Sf1176: 6449: Phase 5.02. (ID511)

Tools and knives

26 Hone. Dark grey, finely laminated very fine-grained stone. Rectangular-sectioned rectangular bar; transverse grooves at one short end; three sides worn smooth. Length 100mm, section 21 x 13mm. Sf 1098: 6313: Phase 5.03 (ID 526)

27 Knife. Iron. Central tang with edge and blade tapering to point. Length 70mm, length blade 40mm, maximum width blade 9mm. Sf 150: 2051: Phase 5.03. (ID 650).

Saxo-Norman finds

Freeschool Lane has produced one of the largest assemblages of Saxo-Norman finds yet found in Leicester. Many common categories of the finds in use during this period are present though there is a curious absence of bone combs, an artefact that is normally very common in later Saxon assemblages, possibly suggesting the Saxo-Norman occupation on the site was concentrated late in the period.

Personal ornaments

The site has produced three items of personal adornment that do no appear to be paralleled elsewhere in Leicester. No. 28 from the Phase 7.01 soils in Plot 57 is a front plate of a late Saxon nummular brooch (for recent discussion see Leahy 2006). The majority of examples known are without dated provenances, being either antiquarian or metal detector finds, and so the recovery of one in a well-dated archaeological context is a most useful find. This style of brooch imitated coinage and some were indeed made from coins. This disc appears to be imitating a large late Roman coin. The details are not very distinct but a profiled figure can be made out together with motifs that might indicate lettering. On the Continent the imitation of late Roman coinage for these brooches has been interpreted as deliberate classicism as part of the Carolingian renaissance. It is clear that not all such brooches found in England were Continental imports as similar imitations were definitely being made in Britain (Leahy 2006, 227).

Judged by the issue dates of the contemporary coinage used, the fashion for nummular brooches started in the 9th century and continued in the 10th but given that the majority of examples known are without dated provenances, the length of time they were in use is not always clear. Winchester is one of the few sites that has produced such brooches in any quantity in circumstances that allow the date of the coinage used

and the date of the context to be compared. A complete example made from two silver pennies dates to *c.* AD 865-75 was found in a mid- to late 13th-century context and its condition suggested that it was unlikely to be a residual find (Dolley and Mays 1990, 633 no. 2006). Copper-alloy examples were also found in contexts that noticeably post-dated the coinage they were imitating as a disc from one imitating coinage of the second or third decade of the 10th century was found in a late 11th to early 12th century context (*ibid* 633 no. 2005A).

Two glass rings were found in the same Phase 7.01 soil layer (nos. 29-30. Such rings often made in green or yellow glass as here are not uncommon in late Saxon assemblages of the later 10th and 11th centuries. Three came from Period 5B deposits dated to *c.* 975 to the early to mid- 11th century (Mainman and Rogers 2000, 2585). At Winchester one was dated to the mid- to late 10th century context and one was found associated with the construction of the motte in 1071-2 (Charleston 1990), though at both sites other examples continued to be found in contexts up to the 13th centuries.

Pins made from pig fibulae (nos. 31-4) are a regular element of late Saxon/early Norman assemblages as may be seen at Coppergate, York (MacGregor *et al* 1999, 1950-51), though as noted in the Vine Street report they are occasionally found in very late Roman contexts. 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. Like the pair found at Vine Street, the three from Freeschool Lane have quite glossy surfaces, possibly hinting they were used as textile tools. The type was also been found at Jewry Wall (Kenyon 1948, 266 no 8).

28 Nummular brooch. Copper alloy. Circular sheet disc damaged on one edge. Repoussé decoration; frame of three beaded rings internal decoration now indistinct but appears to consist of the bust of a profiled figure looking right with draped shoulders and a possible diadem or laurel wreath; motifs on either side including S shapes may indicate lettering. Diameter 28.5mm, thickness 0.5mm. Sf 1055: 5280: Phase 7.01. (ID 764). (Figure 30)

29 Finger ring. Translucent emerald green glass. 'D'-sectioned annular ring. Diameter 20mm, section 4 x 3mm. sf854: 5280: Phase 7.01. (ID506). Figure 31.

30 Finger ring; half extant. Translucent yellow glass. 'D'-sectioned annular ring. Diameter 21mm, section 3.5 x 3mm. sf819: 5280: Phase 7.01. (ID498).

31 Fibula pin. Pig fibula with proximal end trimmed to truncated point; broken diaphysis; circular perforation in head. Surfaces glossy. Length 69mm, perforation diameter 3mm. sf1061: 6257: Phase 7.01. (ID516).

32 Fibula pin. Fibula with proximal end trimmed straight; diaphysis broken; circular perforation in head. Surfaces glossy. Present length 59mm, perforation diameter 4.5mm. Sf1262: 6308: Phase 8. (ID517).

33 Fibula pin. Fibula with proximal and distal ends broken; two small circular perforation in head. Surfaces glossy. Present length 59mm, perforation diameter 4.5mm. Sf225: 3305: Phase 9. (ID513).

34 Buckle and plate. Copper alloy. Broken square buckle frame with integral diamond-shaped plate with six perforations, one holding the pin. Present length 42mm, maximum width 19mm. Sf 403: 229: Phase 7.03. (ID 654).

Figure 30 Small find 28

Textile equipment

The textile equipment belonging to this period consists of two picker-cum-beaters (nos. 35-6) and seven spindle whorls (nos. 37- 43). The presence of the picker-cum-beaters from Phase 7.01 is of some interest as 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 and examples from Phase 8 contexts have been found both on this site (see nos. 180-81) and at Vine Street. Their presence in the Phase 7.01 supports the suggestion made above that these finds point to occupation late in the Saxo-Norman period. Had the occupation started earlier, the appropriate tool for weaving would have been the double-ended pin beater.

The Freeschool Lane spindle whorls provide a good example of the changing shapes preferred over time from the late Saxon to medieval periods as can be seen from Table 118.

Table 118 The small finds: spindle whorls from Freeschool Lane found in stratified contexts

Type	*Phase 7*	*Phase 8*	*Phase 9*	*Phase 10*	*Total*
Femur head	1	-	-	1	2
Hemispherical	1	1	-	-	2
Segmental	2	-	-	-	2
Drum-shaped	1	-	-	-	1
Cylindrical	-	1	1	-	2
Squashed globular	-	1	-	-	1
Total	5	3	1	1	10

The use of femur heads such as nos. 37 and 38 to make spindle whorls is very occasionally seen in middle Saxon (Walton Rogers 2007, 25) contexts, but is most common in the 10th to 11th centuries. During the excavations at Winchester, just over 50 were recovered with the earliest example from a 9th- to 10th-century context, and their use clearly peaked in the 11th century (Woodland 1990, 222 nos. 129-82, fig. 45f). A similar number were recovered from 16-22 Coppergate, York and there too their use was concentrated in the mid- 10th to mid- 11th centuries (Walton Rogers 1999, Table 177). Here it is likely that no. 38 is residual in its context as Table 118 clearly shows that spindle whorl use was concentrated in Phases 7 and 8.

At Coppergate the stratigraphy and the number of spindle whorls recovered allowed Walton Rogers to show the progression in shape with time of the stone whorls (Walton Rogers 1997, 1736-41, fig. 805). The Leicester examples clearly follow this progression as well. There are two examples of decorated hemispherical stone whorls (nos. 39 and 41) and two plain ones with a more segmental outline (nos. 40 and 42). All would fall within her type A typical of the later Saxon period and which at Coppergate could be shown to decline markedly from the 11th to 12th centuries when the fashion for globular and rounded biconical forms (Type C) took over (see no. 185 below). At Coppergate the cylindrical form Type B had a 10th to 11th century floruit. At Freeschool Lane the cylindrical form in stone only comes from Phase 9 context (no. 182) with a fired clay example (no. 183) from a Phase 8 one. The presence of two fired clay whorls is of some interest as generally fired clay was not used for spindle whorls in the Anglo-Saxon and Medieval periods (Walton Rogers 1997, 1741)

35 Picker-cum-beater. Bone. Rectangular-sectioned and slightly curved; squared at one end and tapering to point at the other. Squared end shows cancellous tissue. High gloss on all surfaces. Length 97mm, maximum section 12.5 x 7mm. Sf1097: 6304: Phase 7.01. (ID515).

36 Picker-cum-beater. Bone. Rectangular-sectioned; neatly squared at one end and tapering to point at the other. High gloss on all surfaces. Now broken into two and chip missing from one face. Length 97mm, maximum section 12.5 x 7mm. Sf820: 5280: Phase 7.01. (ID523).

37 Spindle whorl. Bone, femur head. Segmental; lower face cancellous tissue with. Diameter 38mm, perforation diameter 10.5mm, height 21mm. Sf 916: 5444: Phase 7.01. (ID 495). Figure 31

38 Spindle whorl. Bone, femur head retaining part of neck. Hemispherical; lower face of cancellous tissue; one side now removed, also revealing cancellous tissue. Original diameter *c.* 40mm, perforation diameter 12mm, height 30mm. Sf 662: 3823: Phase 10. (ID 496)

39 Spindle whorl. Stone. Fine grained white. Hemispherical, cylindrical perforation; Outer face has horizontal grooves crossed with vertical grooves producing a chequer pattern. Diameter 31mm, thickness 21mm, perforation diameter 9mm. Sf 412: 292: Phase 7.03. (ID 505).

40 Spindle whorl. Stone. Very fine-grained grey. Segmental; cylindrical perforation. Diameter 26mm, thickness 12mm, perforation diameter 9mm. Sf 1068: 6260: Phase 7.01. (ID553)

41 Spindle whorl. Stone, very fine grained grey. Hemispherical; cylindrical perforation. Side divided into eight zones by vertical lines, alternating plain and decorated; decorated zones consist of one with horizontal grooves and three each with band of three triangles produced by diagonal lines; upper face also divided into eight radiating plain and decorated zones, the decorated ones butting against plain zones on the side and having transverse grooves with an additional diagonal groove in one. Diameter 32 x 30mm, height 20mm, perforation diameter 10mm, Sf 1094: 5822: Phase 8. (ID497). Figure 31.

42 Spindle whorl. Possibly very decayed chalk, now extremely powdery. Segmental; cylindrical perforation. Diameter 36mm, height 17mm, perforation diameter 10.5mm. Sf 410: 284: Phase 7.03. (ID 550)

43 Spindle whorl. Fired clay; creamish grey. Drum-shaped tapering toward top, lower face shows ring pattern where clay was rolled to shape. Edge decorated by diagonal lines forming a diamond-shaped lattice. Diameter 31 x 30mm, height 19mm, perforation diameter 10mm. Sf 1120: 6357: Phase 7.01. (ID530). Figure 31.

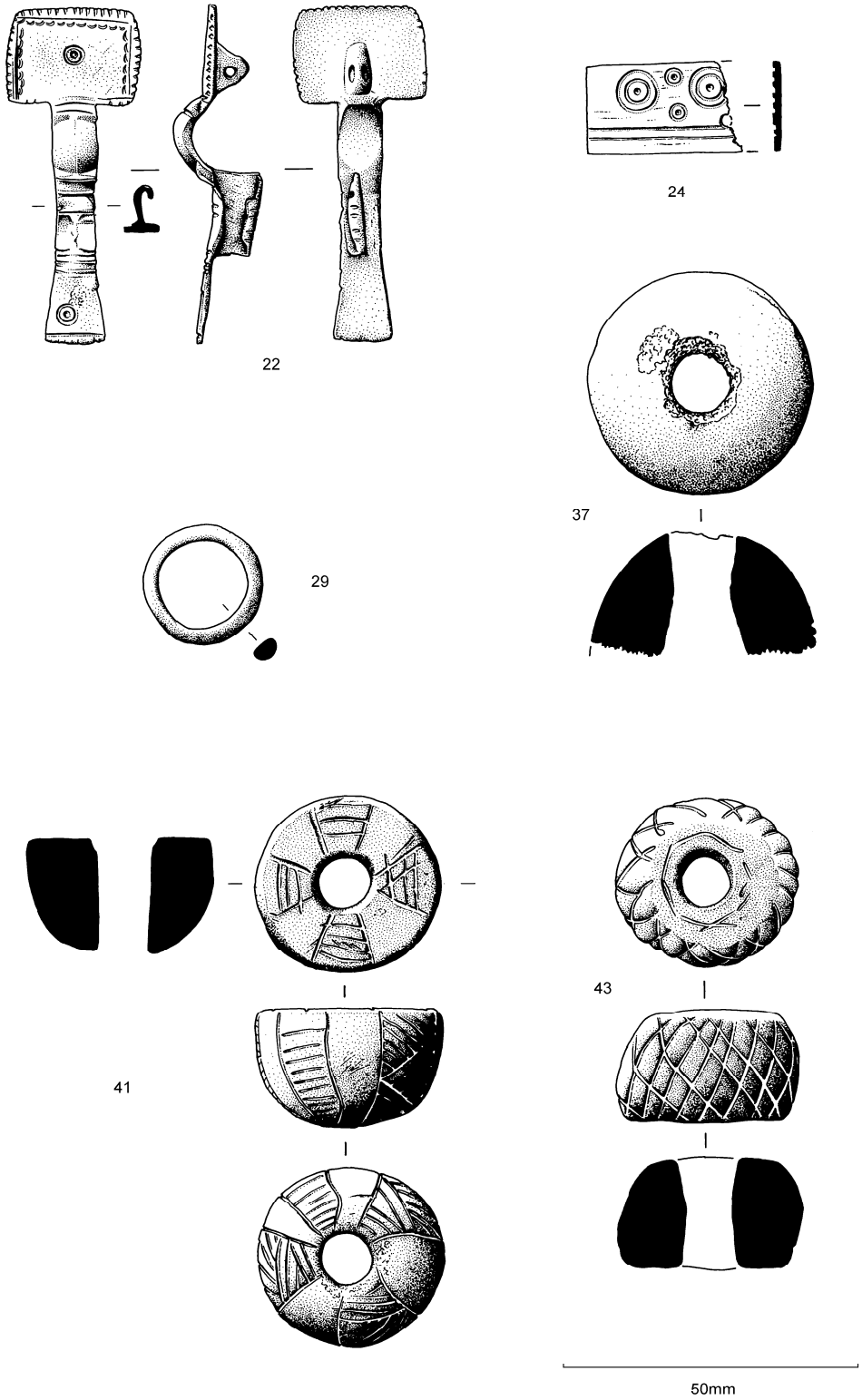

Figure 31 Small finds 22, 24, 29, 37, 41, 43

Household Equipment

Lava querns were imported into Britain during two periods, the Roman and the late Saxon. No 44 shows many of the features of the typical Roman lava quern (see Welfare 1985, 156-7 for description) though it lacks any evidence for the hopper that is typical on Roman querns. Lava querns were also common in the mid- and late Saxon period and into the 12th century (see for example, Biddle and Smith 1990, 888, Table 89; Rogers 1993, 1322; Mainman and Rogers 2000, 2551 Table 255). Given that no. 44 came from a Phase 8 pit, it seems most likely that it was in origin a late Saxon – Norman piece rather than a residual Roman one, especially as lava is a very friable stone and residual Roman pieces are frequently reduced to much smaller fragments than no. 44.

Though as already noted in connection with no. 24 and 25 above, bone inlay was common in the Roman period, it seems likely that no. 45 is contemporary with its context as the ring and dot decoration is typical of late Saxon and medieval pieces (see for example Biddle and Hinton 1990). Another piece of this later inlay from Leicester is probably represented by a fragment from Jewry Wall (Kenyon 1948, 269, fig. 92 no. 2).

44 Upper quernstone. Lava. Fragment from edge showing heavy wear around edge of skirt with traces only remaining of radial dressing grooves; upper face dressed with deep parallel grooves forming parts of two segments. Diameter *c.* 400mm (*c.* 16% extant), thickness 31mm. Sf1303: 6255: Phase 8. (ID577). Figure 32

45 Inlay. Bone. Long strip with one broken original end, other end broken; damaged end probably broken across a circular perforation, two iron rivets in half of strip near finished end, one additional circular perforation close to inner rivet. Upper face has row of double ring and dot; lower face has cancellous tissue. Present length 222mm. width 18mm, thickness 2.5mm, length rivet 10mm. Sf 1008: 5280: Phase 7.01. (ID504). Figure 32

Transport

Shaped horse and cattle metapodials such as no. 46 are a common feature of late Saxon and Norman assemblages and a broad date range of the eight 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). No 46 has the typical striations associated with use as a skate. These could be seen as well on a particularly well-made example from Vine Street and on one from the Shires (forthcoming cat no.140). Whether nos. 47and 48 should be viewed as skates is open to some doubt as they lack these striations and on no. 48 there are striations bands of short striations that are at right angles to those that would have developed had the bone been used as a skate.

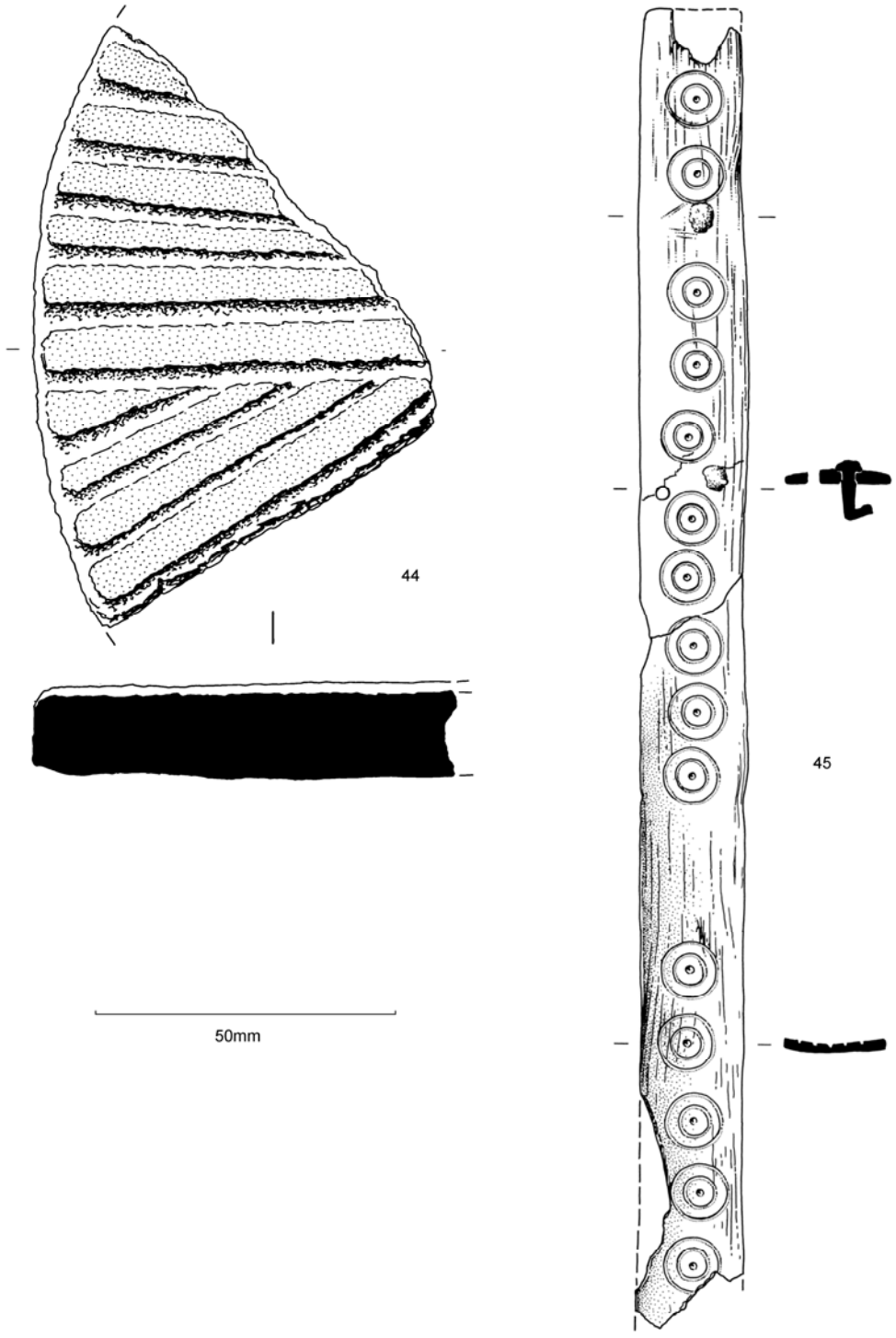

Figure 32 Small finds 44,45.

46 Skate. Distal end of metapodial bone. Unmodified apart from flat smooth surface on anterior face showing typical striations. Present length 110mm. Sf 1305: 229: Phase 7.03. (ID 622)

47 Skate ? Metapodial bone. Virtually unmodified apart from having been worn very smooth and glossy on anterior face, lacks typical striations. Length 253mm. Sf 1310: 6380: Phase 7.03. (ID 551).

48 Skate (?). Metapodial bone; distal end trimmed to point. Anterior surface very glossy with bands of short transverse grooves. longitudinal striations. Length 206mm. Sf 89: unstratified. (ID 537).

Tools

The items in this category found stratified in Phase 7 contexts are mainly hones. In the absence of expert geological identifications of the lithology of the stone, little of use can be said about them, other than to note their presence. One of them (no. 49), is a fragment from a small carefully made hone with circular perforation. Two other examples were found at Vine Street in phase 8 and 9 contexts. They appeared to be made from the stones imported from Norway.

49 Perforated hone. Very fine grained dark stone. Rectangular-sectioned bar expanding slightly; both ends broken, upper break across a circular perforation. Present length 35mm. maximum extant section 21 x 7mm. Sf 938: 5547: Phase 7.03. (ID 527)

50 Hone. Very fine-grained stone appearing brown. Square-sectioned rectangular bar worn down at one end with facetted junctions between faces producing an octagonal section. Length 58mm, maximum section 17 x 15mm, Sf 1132: 6408: Phase 7.03. (ID 569).Figure 33

51 Hone. Very fine grained grey stone with white streaks. Thin rectangular bar tapering in thickness to rounded chipped ends; worn thin centrally. Length 141mm, maximum diameter 26 x 6.5mm. Sf 404: 248: Phase 7.03. (ID 528).

52 Sharpening or polishing stone. Very dark fine grained stone. Approximately square-sectioned rectangular bar with rounded ends; one long face flat, other faces rounded. Length 57mm, section 17 x 15mm. Sf 858: 5280: Phase 7.01. (ID 564)

53 Sharpening or polishing stone. Brown banded sandstone with pock-marked surface. Rectangular-sectioned, rectangular block; one of the large faces worn very flat and smooth. Length 89mm, maximum section 25 x 16mm. Sf 1101: 6304: Phase 7.01. (ID 568).

54 Awl (?) Iron. Rod tapering to points at each end. Length 55mm, width 5mm. --: 6304: Phase 7.01. (ID 665).

Fasteners

A typical fastener found in many Saxo-Norman assemblages is the riveted mount, and there are three examples from Freeschool Lane (nos. 55-7). 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 mounts 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). Two of the Freeschool Lane examples were recovered came from a Phase 8 context and one from a Phase 9 one. They thus post-date the normal date range. All are damaged with nos. 56 and 57 consisting only of fragments of one bar. No. 55, by contrast, retains both bars and so seems less likely to be residual to any great degree. It is possible, therefore, that in Leicester they remained in use into 12th century. Unfortunately the only other example from Leicester to be identified came from an unphased context at Vine Street and so cannot help elucidate this point.

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.

Small rivets and studs were also found in Phase 7 contexts (nos. 58 and 59) whilst they could well be contemporary with their contexts it is probably worth noting that they tend to be much commoner in Roman assemblages than in ones of the 10th to 12th centuries, so the possibility that they are residual cannot be ruled out.

55 Rivetted mount. Bone. Two rectangular plates, one complete, other retaining only one end; complete end fastened together by iron rivet, rivet hole at other end damaged. Exterior face polished. Interior face retains cancellous tissue. Long edges damaged. Length 73mm, section 19 x 3mm, section of rivet *c.* 4mm. Length of rivet 12mm. Sf 1111: 6247: Phase 8. (ID524) Figure 33

56 Rivetted mount. Bone. One rectangular plate retaining one original short end, other end broken; two circular perforations in complete end. Present length 68mm, section 13 x 2mm. Sf 417: 300: Phase 8. (ID507).

57 Rivetted mount. Bone. One rectangular plate, both ends broken; retaining one iron rivet.. Exterior face polished. Interior face retains cancellous tissue. Present length 44mm, section 15 x 2mm, section of rivet *c.* 4mm. Length of rivet 11mm. Sf 1113: 6256: Phase 9. (ID508).

58 Stud head (?). Copper alloy. Very heavily corroded disc with shallow domed upper face and concave under surface. Diameter 24mm. Sf 439: 401: Phase 7.03. ID450.

59 Stud or rivet shank. copper alloy. Circular-sectioned bent shank. Length *c.* 20mm, section 2mm. Sf 14095: 6302: Phase 7.03. (ID 397).

Craft debris

There is one item of bone that appears to be a roughout. Ian Riddler when commenting on various of the items of worked bone suggested it was a roughout for a single-ended weaving tool of the picker-cum-beater type. Given the presence of finished examples of these in the assemblage in contemporary contexts (nos. 35 and 36) this seems a likely identification.

The X-radiographs also produced evidence for a certain amount of iron smelting (see separate report on industrial deposits below).

60 Picker-cum-beater roughout ? Bone. Roughly faceted circular rod tapering asymmetrically to each broken end. Present length 96mm, maximum diameter 12mm. Sf1082: 5280: Phase 7.01 (ID 701).

61 Smithing slag. 11 pieces. -: 5280: Phase 7.01. (ID 630).

62 Smithing slag. --: 6309: Phase 7.01. (ID 647)

63 Smithing slag. (1). --: 276: Phase 7.03. (ID 669).

Miscellaneous

Toggles made from modified phalanges first appear in Phase 7 contexts on this site. 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 119.

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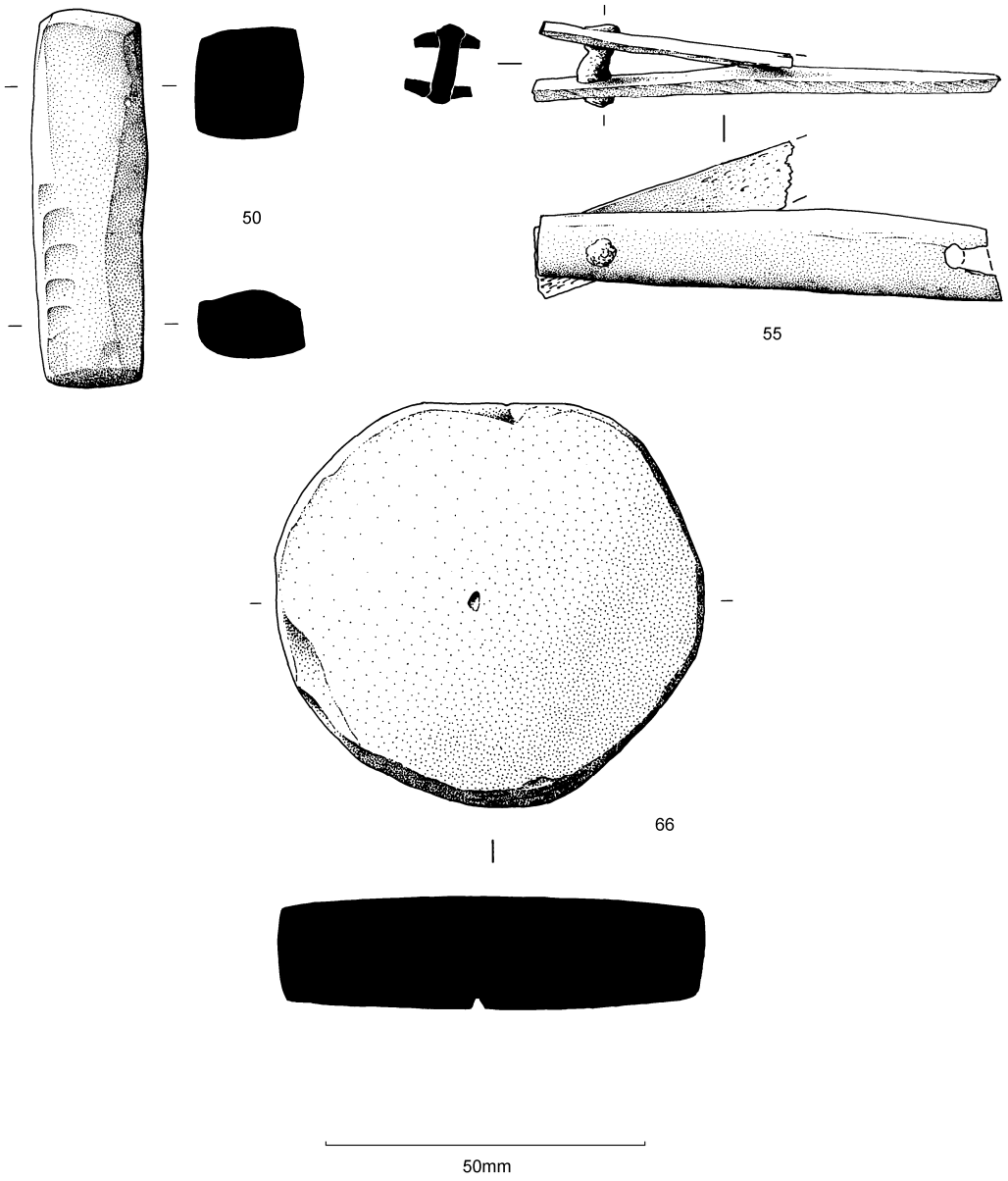

Figure 33 Small finds 50, 55, 66.

Table 119: The small finds: distribution of toggles from the Highcross sites (Table 17 of the Vine Street report)

Phase	*Vine Street*	*Freeschool Lane*	*Vaughan Way*	*Total*
7	-	2	-	2
8	3	-	-	3

9	-	2	-	2
10	-	1	-	1
Unstratified	-	-	1	1
Total	3	5	1	9

64 Toggle. Phalange with central circular perforation. Length 26mm. Sf1112: 5280: Phase 7.01. (ID 518)

65 Toggle. Phalange with central circular perforation. Length 48mm. Sf735: 273: Phase 7.03. (ID 510).

66 Stone disc. Brown sandstone. Flat disc ground to an approximately circular shape. Small circular depression centrally on obverse face; three bevelled facets around the edge on the reverse. Diameter 77mm, thickness 14mm. Sf 1252: 6004: Phase 7.03. (ID548) Figure 33

Medieval finds

The medieval assemblage from the site is much larger than those from any other period but this is to a great extent due to the large numbers of lace chapes and sewing pins recovered. Even allowing for that though, this is a useful assemblage for Leicester because of the range of functions represented.

Personal Ornaments and dress accessories

This is the largest functional category within the medieval assemblage and even allowing for the numbers of lace chapes and 'sewing pins', it contains a useful range of material.

Dress and hair pins

The dress and hair pins from Leicester (other than the 'sewing' pins discussed below) are summarised in Table 120. As can be seen, Freeschool Lane has produced one of the larger groups.

Table 120 The small finds: medieval dress and hair pins from Leicester (Table 13 in Vine Street report)

	Vine St.	*Freeschool Lane*	*Vaughan Way*	*Austin Friars*	*Other sites*	*Total*
Diminutive	2	1	1	-	5	9
Hemispherical	2	2	-	-	-	4

head						
Cupped glass head	1	-	-	-	-	1
Composite head	-	1	2	1		4
Total	5	4	3	1	5	18

No. 67 from a Phase 10 context where it is presumably residual, is an example of the type of short pins with decorative and frequently perforated heads (diminutive pins) that were fashionable in the later 11th and first half of the 12th centuries. 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. 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).

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. 68 and 69 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. Of the two from Freeschool Lane, no. 68, was found in a contemporary context to its period of use, but no. 69 is clearly intrusive in a Roman context.

No 70 seems likely to have been the type of pin where the head was formed from two hemispheres of copper alloy sheet filled with a white substance. These were identified with more certainty at Vaughan Way. This is the Winchester Type E found in context ranging in date from the 10th to 17th centuries there (Biddle 1990, 555). In discussing these Biddle suggested they were a development of the 14th or 15th centuries though drew attention to the earlier contexts of some. Crummy (in Rees *et al* 2008, 210) in discussing ones from later excavations at Winchester, regarded them as a 15th to 16th century form, and suggested that the examples from a 12th to 13th century pit and from medieval soil accumulation to be either intrusive or residual Roman. Personally I have never encountered a pin of this type from a secure Roman context, so the latter explanation seems to be unlikely. This example comes from a Phase 9 context and so would be to early for the Crummy dating, but given the

contexts of those from Winchester, it seems distinctly possible that this type too was initially a development of the 14th century.

67 Dress pin. Copper alloy. Rectangular-sectioned head, thistle-shaped outline with two perforations; small collar projecting on either side at base of head; oval-sectioned shank pointed at end. Length 35mm, head section 3 x 1mm, shank section 1.5 x 1mm. sf640: 1080: Phase 10. (ID426). Figure 34.

68 Pin. Copper alloy. Hemispherical knob head with wire shank inserted into base; pointed end. Length 61mm, head section 4mm, shank section 1mm. sf995: 6089: Phase 9. (ID399). Figure 34.

69 Pin. Copper alloy. Hemispherical knob head with void for wire shank in base; two small detached fragments of wire could come from shank. Head section 4mm. sf1079: 7143: Phase 3. (ID403)

70 Pin head. Copper alloy. Spherical head made in two hemispheres; scar for shank. Much corroded. Diameter 9.5mm. Sf693: 3931: Phase 9. (ID 422).

71 Pin head? Bone. Rectangular-sectioned diamond-shaped head with oblique top; small central circular perforation retaining small fragment of copper alloy wire; much green staining on both faces and one side in the vicinity of the perforation. Present length 27mm, maximum section 8 x 5mm, perforation diameter 1mm. Sf 229: 3303: Phase 9. (ID 619)

Finger rings

In the records available to me of the finds previously recovered from Leicester, there do not appear to be any medieval finger rings so the two recovered from this site and the one from Vaughan Way are very useful additions to the overall corpus, especially as they come from stratified contexts. Most of the scholarship concerning medieval finger rings concentrates on those of precious metals often dated by analogy to those depicted in paintings or on tomb sculptures. Material from archaeological excavations can show what the people below the level of the aristocracy were wearing. Compared to the amount of belt fittings most medieval sites produce, there are generally a much smaller number of finger rings recovered, probably indicating that this was not a fashion adopted by everybody. It is possible that where they do occur, they may be indicative of households with above average spending power.

The general shape of no. 72 with a narrow hoop and an expanded bezel setting is one found in gold in the 14th century (e.g. Bury 1984, 23 nos. B-G; Egan and Pritchard 2002, 327 nos. 1612-4). This suggests that no. 72 was contemporary with its context. The use of enamel to produce a flower design in the bezel is an interesting feature. No. 73 is less elaborate, lacking a bezel. Similar cast rings with simpler decoration than that seen on no. 73 were found in contexts dating to the first half of the 15th century at London (Egan and Pritchard 2002, 332 nos.1627-9) and are thus contemporary with it, so this may well be a slightly later fashion amongst copper alloy rings.

72 Finger ring. Copper alloy. 'D'-sectioned hoop; square box bezel with sides sloping out; small transverse rib at junction of bezel with hoop. Box infilled with (?) enamel now appearing pale green but in X-radiograph cells forming a petalloid pattern can be seen. Diameter 21mm, bezel dimensions 7mm, bezel depth 4mm, hoop section 2 x 1.5mm. Sf 247: 3331: Phase 9. (ID444). Figure 34.

73 Finger ring. Copper alloy. Rectangular-sectioned, widest to finger annular ring. Outer face has moulded decoration consisting of a rib parallel to each edge and angular pyramidal bosses between, Diameter 21mm, section 5 x 1.5mm. Sf395: 3521: Phase 10. (ID440). Figure 34.

Buckles and buckle plates

In the report on the Vine Street finds the opportunity was taken to divide the buckles and plates from Leicester into a number of different types to ease comparison and the table that illustrated that is repeated here Table 121)

Two copper alloy buckles were found. No. 74 belongs to the commonest type found at Leicester, the type 5 with a lipped frame. At London Type 5 buckles are 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 well as being found at all of the Highcross sites and probably at Austin Friars (see note to table 15), an example with a slightly unusual outline was recovered from Causeway Lane (Cooper 1999, 263 no. 107). No 74 came from a Phase 11 context where it would have been residual.

Small spectacle buckles like no. 75 were used on shoes. They are not closely dateable within 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 al* 2008, 225-6; Hinton 1990, 521 no. 1209-10). Three examples have been recovered from the Highcross excavations, but only that from Vaughan Way was stratified but in a Phase 12 context where it was probably residual.

Two iron buckles with plates were recognised from the X-radiographs (nos. 77-8), as they have not been investigated no attempt has been made to include them within the typology. On both non-ferrous plating or riveting can be seen which suggests they may have been intended for use as belt buckles rather than for any other purpose. Iron buckles and plates were clearly used on the belts worn by the late medieval inhabitants of Leicester as three of the people buried at Austin Friars were buried wearing such belts (Clay 1981, 139 nos. 65-7)

Table 121 The small finds: buckles and buckle plates from Leicester sites (Table 15 in the Vine Street report)

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
Not classified	-	2	-	-	-	-
Recessed plate	4	1		2	4	11
Non-recessed plate	4	3	1	1	1	10
Total	19	7	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)

In addition to the buckles one certain (no. 76) and three possible (nos. 79-81) belt plates are present. Even if the latter are belt plates the total of belt fittings from the site is noticeably lower than at Vine Street. As discussed in that report, the Vine Street numbers may well have been inflated through people being interred wearing belts as happened at the Austin Friars. Freeschool Lane probably gives a more accurate reflection of how many of these fittings can be expected from a domestic site.

74 Oval buckle frame. (Type 5). Copper alloy. Oval lipped frame with recessed crossbar. Length 22mm, maximum width 23.5mm, cross bar width 18mm. Sf 255: 3206: Phase 11. (ID 441)

75 Spectacle buckle frame. (Type 11). Copper alloy. Double oval loops with line of central crossbar continued beyond outer edge of frame by small knobs. Tongue formed by narrow triangular strip wound around crossbar. Length 23.5mm, maximum width 22mm, width crossbar 12mm. sf1005: 5574: Phase 10. ID 393 Figure 34.

76 Buckle plate, lower part only. Copper alloy. Plate broken at fold; recess for buckle cross bar, circular opening for pin; two rivet holes at back and one centrally at crossbar end retaining fragment of rivet. Length 33mm, width 19.5mm. sf890: 5414: Phase 9. (ID435)

77 Buckle and plate. Iron. Oval frame, rectangular plate. Non-ferrous plating indicated on exterior edge of frame on X-radiograph. Total length 43mm, buckle – length 24mm, width 39mm, plate – length 35mm, width 19mm. – 5231: Phase 8. (ID 667).

78 Buckle. Iron. Oval frame with pin, possibly with small plate which retains a circular non-ferrous rivet. Dimensions of frame 22 x 17mm. Sf 294: 3351: Phase 10. (ID 651).

79 Buckle plate ? Copper alloy. Trapezoidal sheet bent into 'U'-shape; remains of iron rivet in each end. Original length (flattened) 50mm, maximum width 14mm. Sf 981: 5988: Phase 9. (ID 416).

80 Buckle plate ? Copper alloy. Rectangular sheet, narrowing slightly to one end, now flattened but probably originally bent in two, perforation at either end, one retaining remains of iron rivet. Length 30mm, maximum width 13mm. Sf 536: 3463: Phase 10. (ID 420).

81 Buckle plate ? Copper alloy. Rectangular sheet folded in two; central perforation at back. Length 12mm, width 9mm. Sf138: 3039: Phase 11. (ID425)

Strap fittings

Strap fittings are well represented. The composite strap end no. 82 with the sort of buckle referred to as Type 6 here (Egan and Pritchard 2002, 143 no. 676-84). This example came from an unphased context but it would have been in the later 14th to 15th century. Strap ends of this type was also recovered from Vine Street and the Shires (forthcoming, cat no. 41). The strap-end no. 83 would have been used as a set with a folding clasp rather than a buckle, and this style was in use from the end of the 13th century to the early 15th century (Egan and Pritchard 2002, 157 fig. 76).

The rest of the items in this section are from stratified contexts and all could be contemporary with them. Late medieval fashions required a considerable number of belts and straps and these were frequently provided not only with metal strap ends and stiffeners but also mounts. It is possible that no. 84 may not have been a strap stiffener as there is iron corrosion on the back and it may have been a mount from an iron item. The use of the rest of the items as strap fittings is generally well demonstrated by the organic remains, both actual and mineralised, associated with them. The two small mounts no. 90 have exceptionally good mineral preservation of fabric on the backs and there are also traces of mineralised fabric on the strap end no. 86. Fragments of

leather are still in place on nos. 88 and 91, and there is also mineralised organic on the back of no. 85.

82 Composite forked strap end. Copper alloy. Angular 'U'-shaped forked spacer bar with ridged oval-sectioned acorn terminal terminal; parts of two sheet plates still attached, concave upper edge and circular perforations for rivet. Length 73mm, width 20mm, thickness 5.5mm. Sf 942: 5698: unphased. (ID430). Figure 34.

83 Shield-shaped strap end. Copper alloy. Sheet strap end with transverse bar at one end; rivet and washer at both ends on under side. Length 19mm, width 8mm. Sf1086: unstratified. (ID388). Figure 34.

84 Strap stiffener. Copper alloy. Rectangular-sectioned bar with expanded perforated ends. Iron corrosion on back. Length 40mm, maximum width 8.8mm, thickness 1mm Sf983: 5988: Phase 9. (ID421). Figure 34.

85 Strap end. Copper alloy. Shield-shaped terminal with trapezoidal expansion; expansion has central rivet retaining fragment of second plate; mineralised organic on back of plate; horizontal groove at expansion/shield junction. Length 24mm, maximum width 10mm. SF 910: 270: Phase 11. (ID428)

86 Strap end. Copper alloy. Sheet folded lengthways, long sides do not overlap neatly. Rivet in outer corner of one end, two rivet holes at other end. Traces of mineralised fabric on one face. Length 57 x 20mm. Sf 1065: 7040: Phase 10. (ID432)

87 Strap end (?) Copper alloy. Triangular seating with down-turned sides and small rivet centrally on back at outer edge; circular-sectioned bar terminal with spherical finial. Length 68mm, maximum width 27mm, section of terminal bar 4mm. Sf 897: 5228: Phase 10. (ID 434).Figure 34

88 Mount. Copper alloy. Sheet strip with three rows of repoussé bosses bent into semi-circular tube with both ends broken; forms a strengthening edge to a small fragment of leather which is attached by two rivets, one with expanded washer. Leather has two small slits. Length 34mm, width tube 8.5mm. Sf570: 1191: Phase 9. (ID 415). Figure 34.

89 Mount. Copper alloy. Hollow circular domed mount with octagonal flat beaded flange, chipped on one side; small rivet inserted through centre of mount. Diameter 14mm. Sf 1007: 6113: Phase 10. (ID419). Figure 34.

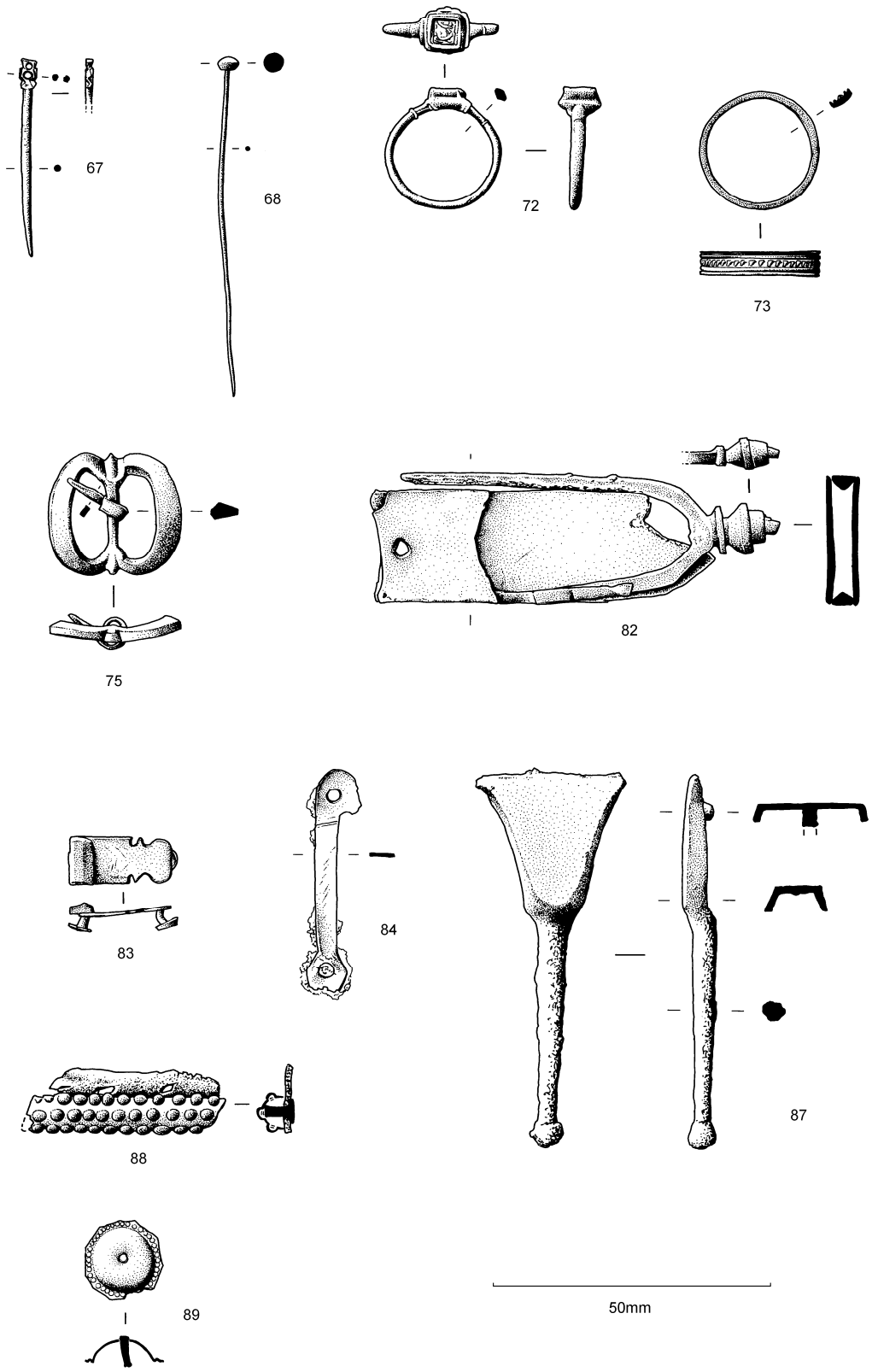

Figure 34 Small finds 67, 68, 72, 73, 75, 82, 83, 84, 87, 88, 89.

90 Mounts (2). Copper alloy. Rectangular with central circular frame and bars with curvilinear edges either side; one circular frame has central aperture, other may have moulded, pelleted decoration. Both have rivet with washer below each end bar. Fabric preserved on undersides. Length 14mm, width 10mm. Sf1010: 6112: Phase 10. (ID404).

91 Strap fitting. copper alloy. Two much corroded rectangular sheet plates with leather strap between; one short end broken but this may have been a buckle plate. Present length *c.* 31mm, width 16mm. sf 907: 5431: Phase 10. (ID407)

Buttons

This small fragment is a particularly welcome addition as it is clearly the back plate of a button. This is a type of dress fitting that became important from the 13th century onwards as tighter fitting costumes were adopted, but which until moderately recently was not often recorded from archaeological sites, possibly because of their small size. At London similar composite sheet buttons were recovered from later 13th- to mid-14th- century contexts (Egan and Pritchard 2002, 276). This example comes from a 15th-century context.

92 Hollow sheet button. Copper alloy. Damaged hemispherical back plate with ends of wire loop held in place internally by solder. Original diameter at least 10mm, length of loop 4mm. sf596: 3205: Phase 10. (ID423).

Badge

No. 93 is part of a lead alloy secular badge of the type that was popular in the 14th and 15th centuries. The beading around the outer edge is frequently observed on these (Spencer 1990, especially figs 219 and 237 for the beading).

93 Badge. Lead alloy. Annular ring with beaded inner edge, outer edge has five wavy rays and broken section of ribbing; rays have beaded outer edges. Small lug with remnants of hinged pin on back of one ray with the broken remains of a catch plate behind the ribbing. Dimensions 45 x 35mm. Sf 361 : 1146 : Phase 10. (ID 655). Figure 00 Photograph (Illustrate from X-radiograph it is on plate 812).

Lace chapes

Laces were a vital fastening element of medieval clothing and the ends of these were protected by small chapes made of rolled sheet. Here most of the chapes were made simply clamping the sheet around the lace end. Five do show perforations in their upper ends and the X-radiographs occasionally show a fine wire associated with the perforation which presumably fixed the lace in place.

The examples from the Highcross sites are summarised in Table 122. 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.

Table 122 The small finds: lace chapes from the Highcross sites

Phase	*Vine Street*	*Freeschool Lane*	*Vaughan Way*	*Total*
9	-	1	-	1
10	1	19	4	24
11	-	-	5	5
12	-	1	-	1
13	1	-	-	1
Unstratified	-	-	1	1
Total	2	21	10	32

94 Lace chape. Copper alloy. Sheet wrapped into cone. Length 18mm, section 2.5mm. sf 863 ; 5352: Phase 9. (ID 680).

95 Lace chape. Copper alloy. Sheet wrapped into tapering cone. Length 35mm, section 3x2mm. Sf1028; 5575: Phase 10. (ID 686).

96 Lace chape. Copper alloy. Sheet wrapped into cone with widened top. Length 29mm, section 3.5mm. Sf 376; 1146: Phase 10. (ID 695).

97 Lace chape. Copper alloy. Sheet wrapped into cylinder, three fragments. Length 21mm, section *c.* 2.5mm. Sf 613; 3628: Phase 10. (ID 693).

98 Lace chape. Copper alloy. Sheet wrapped into cylinder, in two fragments. Length 21.5m, section 2mm. Sf 465; 50795: Phase 10. (ID 701).

99 Lace chape. Copper alloy. Sheet wrapped into cylinder. Length 23mm, section 1.5mm. Sf 362; 1146: Phase 10. (ID 696).

100 Lace chape. Copper alloy. Sheet wrapped into cylinder, two fragments. Length 24mm, section 1.5mm. Sf1024; 5575: Phase 10. (ID 690).

101 Lace chape. Copper alloy. Sheet wrapped into cylinder, two fragments. Length 25mm, section 2mm. sf1042; 5575: Phase 10. (ID 682)

102 Lace chape. Copper alloy. Sheet wrapped into cylinder, three fragments. Length 27mm, section 2.5mm. Sf1031; 5575: Phase 10. (ID 688).

103 Lace chape. Copper alloy. Sheet wrapped into cylinder, two fragments. Length 28mm, section 2mm. Sf1030; 5575: Phase 10. (ID 691).

104 Lace chape. Copper alloy. Sheet wrapped into cylinder. Length 29mm, section 2mm. Sf 1035; 5575: Phase 10. (ID 700).

105 Lace chape. Copper alloy. Sheet wrapped into cylinder, bent. Length 32mm, section 2 x 1.5mm. sf555; 1118: Phase 10. (ID 681)

106 Lace chape. Copper alloy. Sheet wrapped into cylinder, two fragments. Length 30mm, section 2mm. Sf1031; 5575: Phase 10. (ID 687).

107 Lace chape. Copper alloy. Sheet wrapped into cylinder. Length 32mm, section 2mm. Sf1021; 5575: Phase 10. (ID 684).

108 Lace chape. Copper alloy. Sheet wrapped into cylinder, one end flattened, incomplete. Length 13mm. Sf1030; 5575: Phase 10. (ID 692).

109 Lace chape. Copper alloy. Sheet wrapped into cylinder; much corroded. Length 17mm, section 3 x 2mm. Sf 733; 5071: Phase 10. (ID 694).

110 Lace chape. Copper alloy. Sheet wrapped into cylinder, two fragments; perforation in upper end. Length 26mm, section 2mm. Sf1042; 5575: Phase 10. (ID 683)

111 Lace chape. Copper alloy. Sheet wrapped into cylinder with perforation at one end. Length 30mm, section 1.5mm. Sf 182; 1081: Phase 10. (ID 697).

112 Lace chape. Copper alloy. Sheet wrapped into cylinder with perforation at one end. Length 33mm, section 2mm. Sf 184; 108: Phase 10. (ID 698).

113 Lace chape. Copper alloy. Sheet wrapped into cylinder, perforation in upper end bent. Length 34mm, section 2mm. Sf557; 1118: Phase 10. (ID 685).

114 Lace chape. Copper alloy. Sheet wrapped into cylinder with perforation at one end. Length 20mm, section 2mm. Sf 85; 3001: Phase 12. (ID 699).

'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 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 Those from this site also support the supposition that length decreases with time.

Table 123 The small finds: the sewing pins from Vine Street and Freeschool Lane

Phase	*Vine St.*	*Freeschool Lane*	*Vaughan Way*	*Total*
8	1	1	-	2
9	4	6	1	11
10	-	39	-	39
11	-	5	1	6
12	-	10	2	12
13-14	2	2	-	4
Unstratified	1	-	2	3
Total	8	63	6	77

Table 124 The small finds: catalogue of the 'sewing' pins from Freeschool Lane

All the following pins have pointed wire shanks with wound wire head. Where pins have been small found together and are fragmented, only the fragments with heads have been catalogued. The absence of a length measurement indicates the pin is broken.

Cat. no.	*Length*	*Head diameter*	*Shank diameter*	*Head*	*Sf. no.*	*Context*	*Phase*	*ID no.*
115	92	2	>1	Disc	272	3351	10	702
116	57	1.5	1	Disc	506	1120	10	703
117	57	2	1	Disc	556	1118	10	704
118	51	1.5	>1	Disc	1014	5575	10	705
119	50	2.5	>1	Mushroom	169	1060	10	706
120	47	3	1.5	Globular	963	5908	10	707
121	47	-	>1	Missing	1032	5575	10	708
122	47	-	0.5	Missing	283	3367	11	709
123	46	3	>1	Disc	162	1060	10	710

124	45	1.5	>1	Globular	143	3092	10	711
125	45	1.5	>	Globular	115	3063	11	712
126	43	-	1	missing	82	2004	9	713
127	43	1.5	1	Disc	1034	5575	10	714
128	42	1.5	>1	Globular	1043	5575	10	715
129	42	2	>1	Displaced disc	548	1180	13	716
130	41	2	>1	Disc	1050	7023	9	717
131	40	1.5	0.5	Disc	1043	5575	10	718
132	40	1.5	>1	Globular	163	1060	10	719
133	38	2	>1	Disc	1043	5575	10	720
134	37	-	0.5	Missing	545	1191	9	721
135	37	1.5	0.5	Disc	1043		10	722
136	37	2	>1	Globular	937	5690	10	723
137	36	2	0.5	Globular	1050	7023	9	724
138	36	1.5	0.5	Globular	189	1081	10	725
139	35	1.5	1	Globular	546	1191	9	726
140	35	1.5	>1	Globular	396	3521	10	727
141	35	1.5	>1	Disc	543	1177	10	728
142	35	1.5	0.5	Disc	112	3060	11	729
143	35	1.5	>1	Disc	118	3052	11	730
144	35	-	0.5	Broken	919	5501	10	731
145	34	1.5	>1	globular	163	1060	10	732
146	34	1.5	0.5	Globular	169	1060	10	733
147	34	-	>1	Missing	525	1115	10	734
148	32	-	0.5	Missing	201	3233	11	735
149	30	-	1	Missing	1031	5557	10	689

150	29	1.5	1	Globular	152	1028	12	736
151	28	1.5	>1	Globular	742	5051	10	737
152	28	1.5	>1	Globular	194	3223	10	738
153	28	1.5	>1	Globular	257	3284	12	739
154	27	1.5	0.5	Globular	977	5903	12	740
155	27	1.5	>1	Displaced globular	977	5903	12	741
156	26	1	>1	Globular	967	5903	12	742
157	25	1.5	1	Globular	419	243	8	743
158	25	1.5	>1	Globular	967	5903	12	744
159	25	1.5	>1	Globular	967	5903	12	745
160	24	1	>1	Globular	967	5903	12	746
161	24	1.5	0.5	Globular	977	5903	12	747
162	24	1.5	>1	Globular	967	5903	12	748
163	24	1.5	>1	Globular	743	5088	13	749
164	-	3	1	Globular (solid?)	703	5070	10	750
165	-	1.5	0.5	Globular	166	3199	9	751
166	-	1.5	0.5	Disc	1043	5575	10	752
167	-	1.5	0.5	Disc	1043	5575	10	753
168	-	2	1	Globular	1043	5575	10	754
169	-	1.5	0.5	Displaced disc	1043	5575	10	755
170	-	1.5	>1	Disc	1025	5575	10	756
171	-	1.5	1	Globular	1032	5575	10	757
172	-	2	0.5	Globular	1036	5575	10	758
173	-	2	0.5	Globular	1020	5575	10	759
174	-	2	>1	Globular	771	5067	10	760

175	-	1.5	>1	Globular	466	5079	10	761
176	-	1	0.5	Disc	1022	5575	10	762
177	-	1.5	>1	Globular	1023	5575	10	763

Toilet equipment

Both no. 178 and 179 came from the same cess pit at the back of Plot 57. The differing thickness clearly indicates that the fragments represent two different combs. The cess pit itself is assigned to Phase 10 but the presence of these combs suggests that it continued to be used into Phase 11 as slender double-sided ivory combs like these tend to be found in 16th and 17th century contexts rather than 15th century ones (MacGregor 1985, 81). The fact that people living in this property were using, and disposing of, ivory combs argues for a degree of wealth in the household. The Mary Rose which sank in 1545 preserved an exceptional collection of 82 combs which were an essential item of personal equipment then as now. Only one ivory example was found, all the others were made of wood. Wooden combs were very cheap and were what most people would have used (Richards 2005, 156).

178 Double-sided comb. Ivory. Central part not retaining any side plates; long widely spaced teeth on one side (4.5 teeth to 10mm); shorter fine teeth on other side (10 teeth to 10mm). Present length 48mm, total width 57mm, length fine teeth 23mm, length wide teeth 26mm, thickness 7mm. Sf 773: 5073: Phase 10. (ID 502). Figure 35.

179 Double-sided (?) comb. Ivory. One end retaining straight bar with very fine teeth (9 teeth to 10mm); central bar has notches from more widely spaced teeth on other side, none now remain and outer edge now smooth. Present length 66mm, width central bar 9mm, length teeth 28mm, thickness 4mm. Sf 772: 5073: Phase 10. (ID 503).

Textile equipment

The medieval textile equipment consists in the main of similar sorts of items as were discussed in connection with the Saxo-Norman equipment. There were two picker-cum-beaters (nos. 180-81) of the same sort as nos. 35-6. Both nos. 180 and 181 came from Phase 8 contexts probably suggesting that weaving on the site was concentrated in the Saxo-Norman to earlier medieval period. Spinning activity too might have been confined to that period (summarised in Table 118). The later biconical form of whorl is only represented by a single example (no. 185), and only one whorl was recovered from a Phase 9 context, the rest where stratified coming from Phase 8 ones.

Sewing activity in Phase 10 is represented by the iron needle no. 187.

180 Picker-cum-beater. Bone. Approximately oval-sectioned and slightly curved; squared at one end and tapering to point at the other. Squared end shows cancellous

tissue. High gloss on all surfaces. Length 117mm, maximum section 11 x 6.5mm. Sf1306: 362: Phase 8. (ID571). Figure 35.

181 Picker-cum-beater. Bone. Rectangular-sectioned and curving slightly to one side; squared at one end and tapering to point at the other. Squared end shows cancellous tissue. High gloss on all surfaces and dimple on one face towards end possibly from repeated use. Length 97mm, maximum section 13 x 6.5mm. Sf1254: 6247: Phase 8. (ID512).

182 Spindle whorl. Stone, grey black. Cylindrical with flat faces; cylindrical perforation; intermittent slightly diagonal grooves around edge. Diameter 39mm, thickness 16mm, perforation diameter 11mm. Sf 524: 3065: Phase 9. (ID 563), Figure 35.

183 Spindle whorl; approximately half extant. Fired clay; oxidised with brighter red core. Cylindrical with flat faces; cylindrical perforation. Diameter *c.* 42mm, thickness 15mm, perforation diameter 9mm. Sf893: 5200: Phase 8. (ID556)

184 Spindle whorl; approximately half extant. Stone – very fine grained greyish cream with pink patches. Approximately cylindrical with sides and lower face being very gently convex-curved; cylindrical perforation; traces of two radiating grooves on upper face. Diameter *c.* 41mm, thickness 19mm,perforation diameter 10.5mm. Sf 991: unstratified. (ID554).

185 Spindle whorl; approximately 40% extant. Stone – very fine grained pale grey. Squashed globular; cylindrical perforation damaged towards one end. Traces of band of red paint close to one perforation. Original diameter *c.* 32mm, thickness 23mm. Sf886: 464: Phase 8.02. (ID562)

186 Whorl. Fired clay. Circular-sectioned ring-shaped whorl. Diameter 30mm, thickness 10mm, perforation diameter 8.5mm. Sf 664: 1007: Phase 8. (ID 572). Figure 35.

187 Needle. Iron. Shank tapering to point with rectangular eye in head. Length 120mm, maximum width 3mm. --: 1034: Phase 10. (ID 668).

Household Equipment

A single fragment of a mortar was found associated with the earliest phase of the privy in Plot 57 (Phase 10). Its lithology has not been expertly identified but it is certainly a limestone and possibly an oolitic limestone like the 14th century ones found at the Austin Friars (Clay 1982, 144 nos. 99-100).

188 Mortar. Cream gritty limestone. Fragment of side retaining part of lug; upper part of rim and lug flat. Present height 100mm, wall thickness 35mm. Sf 1256: 5335: Phase 10. (ID576). Figure 35.

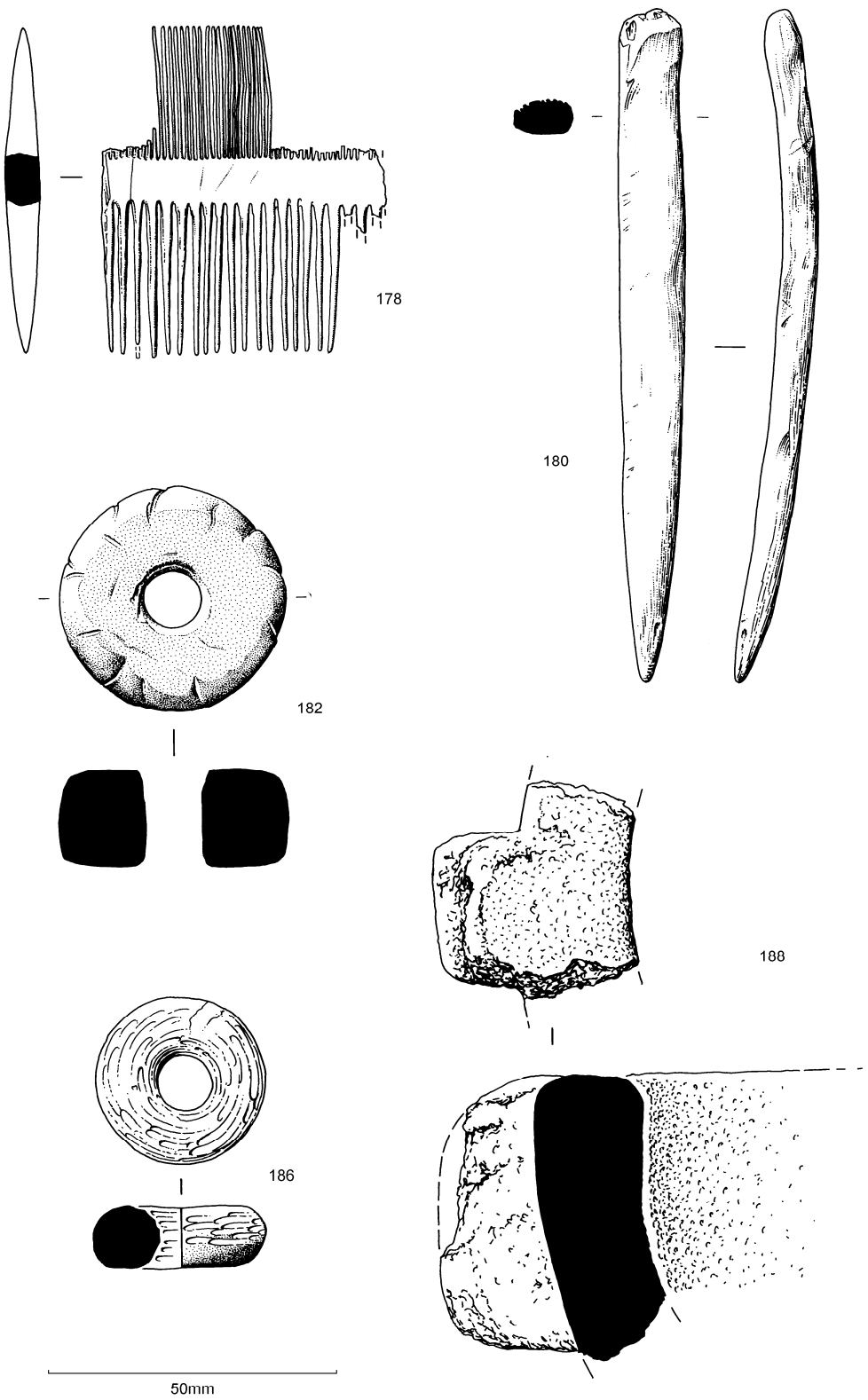

Figure 35 Small finds 178, 180, 182, 186, 188.

Recreational equipment

Dr Ian Riddler commented as follows on the counter no. 189.

'This is a good example of a tabula counter, probably made from a cattle mandible, although it is difficult to tell without an illustration of the section. These might have been present in England before the Norman Conquest (Riddler 1994; Payne 2006) but equally they might have arrived with the Normans, as my 1994 table suggests. I now suspect that the latter is the case and that the game arrived at more or less the same time as chess. There are few stratified examples from contexts later than the 13th century and it is possible that late medieval examples are smaller in diameter, conceivably as a result of the introduction of the game of draughts at that time. Smaller tabula counters could then be used for both that game and draughts (Riddler 1999)'.

Dr Riddler clearly only saw the piece as an illustration and it can be confirmed that the piece is made from bone and not antler or ivory which these pieces were also made from. The introduction at about the time of the Norman Conquest or shortly afterwards is the one that is generally accepted (MacGregor 1985, 135-7) and would agree with the Phase 8 context the piece came from.

This appears to be the only example of such a counter from Leicester but the same basic form with similar decoration but with a central perforation to allow it to be used as a spindle whorl was found at Vine Street.

189 Counter. Bone, cancellous tissue visible in edges. Flat disc with tapering thickness to one side; upper face has central pit with three deep concentric grooves on inner part of face and three shallower ones on outer part; in the band between the fourth and fifth groove from centre a ring of ring and dots. Diameter 49mm. maximum thickness 8.5mm. Sf1076: 6282: Phase 8. (ID521). Figure 36.

Weighing equipment

Equal-armed balances are a regular find on medieval sites and Leicester is no exception. In addition to no. 190 from this site there are examples from the Shires (folding balance, forthcoming cat no. 96), from Vine Street (folding balance), 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. 190 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. From its context, this example was used in the early medieval period. From the fact that the balance of no. 190 was lost in the folded position and that one of its pans was associated with it, it might be suspected that originally the whole set was discarded or lost.

190 Equal-armed folding balance with one pan. 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 terminal retaining loop of wire from chain, inner ends of arms 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 squared moulding 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. Arms vertical and beam was lost in a closed shape. Shallow concave pan with three small perforations at terminals. Length 97mm, section of central beam 4.5mm, length of pointer 24mm, length of suspension fork 30mm. Diameter of pan 36mm. Sf1074: 6255: Phase 8. (ID 401). Figure 36.

Items associated with reading and writing

Items such as no. 191 are normally identified as tweezers, but although the ends on this example curve in very slightly, on other very similar pieces it has been noted that they do not. This is the case in both the two examples from the monastery at Whitby occupied between AD 657-867 (Peers and Radford 1943, 62 type III, fig.13 no. 11) and the two from Jewry Wall (Kenyon 1948, 257 Type C, fig. 86 no. 3). To be effective as tweezers an implement need jaws that turn in and the possibility of pressing these together so that they can grip whatever is to be plucked out. No. 191 and its fellows lack these features as the twisted handle leaves only a very small area to be pinched shut and most do not have jaws.

An alternate use would be as a page holder. The implement normally identified as serving this purpose had square end plates with a tie along the handle to keep the plates closed (see Biddle and Hinton 1990, 756). The twisted handles of these examples would have been sufficient to keep the ends sufficiently together to grip any page.

The dating of the type is currently unclear. The Whitby examples cannot be taken as secure evidence of a late Saxon date as later material is present in the assemblage. The Jewry Wall examples come from disturbed levels. This one comes from a Period 9 context and so has been placed amongst the medieval finds, though with the proviso that it could be a residual piece.

191 Page clasp (?). Copper alloy. Rectangular-sectioned strip expanding to either end; bent in half with upper part having a left-hand twist, ends slightly inturned. Length 67mm, width blade 7mm. Sf 994: 6076: Phase 9. (ID 398). Figure 36.

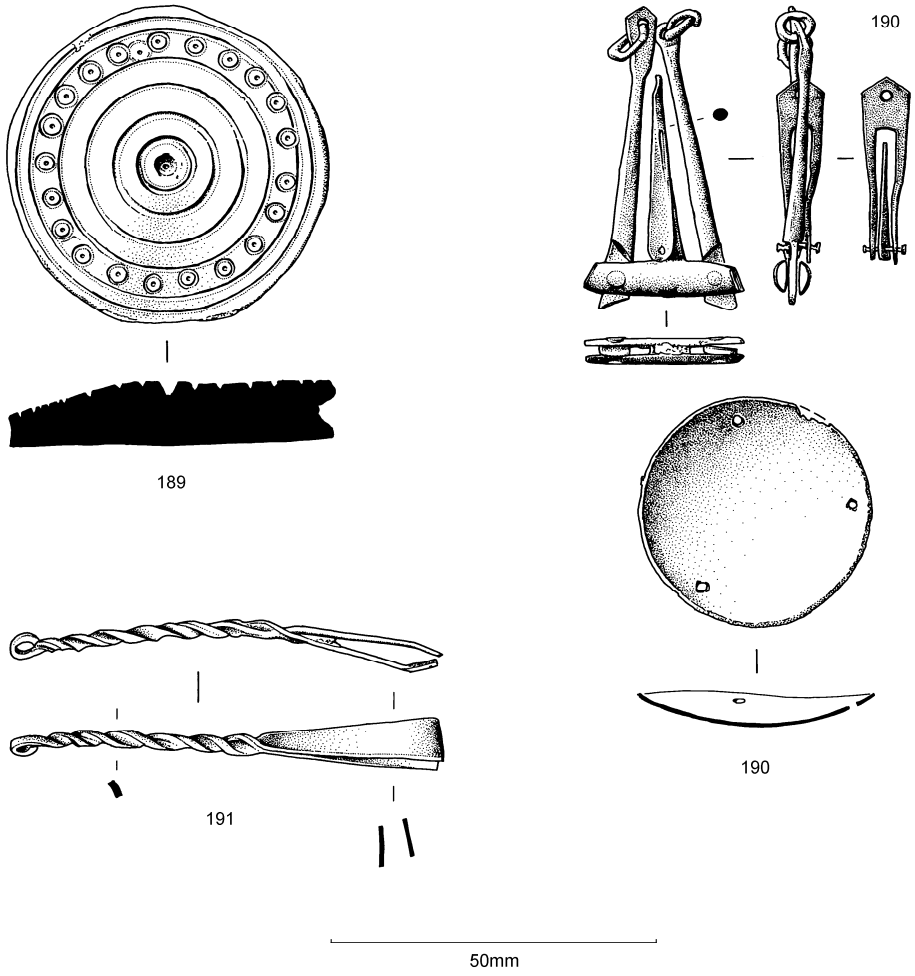

Figure 36 Small finds 189, 190, 191.

Transport

All of the items in this category have been identified from inspection of the X-radiographs. The category is dominated by fiddle key nails that would have fixed horseshoes. The nails are fairly evenly spread through Phases 8 to 10 and do not show any particular spatial concentration. This might suggest that horses were visiting the yards associated with the properties fairly regularly.

In addition to the horseshoes and their fittings, three iron buckles (nos. 209-11) from Phase 10 contexts have been catalogued here as possible horse harness equipment. In the case of no 209 the identification seems secure as the X-radiograph indicates that the cross bars had non-ferrous rollers. As Goodall has pointed out (1990, 523) these would have prevented chafing on the straps and are a good indication that one is dealing with a harness buckle. The identification of the two other buckles as harness buckles is more tentative but neither show any evidence of being associated with plates as the ones assigned to the belt buckle category did (see nos. 77 and 78)

192 Horseshoe. Iron. Part of one arm missing; possibly four rectangular nail holes on each side. Length 120mm, width 110mm, maximum thickness of web 30mm. --: 1084: Phase 10. (ID 675).

193 Horseshoe. Iron. Outer end of one arm with straight sides; much damaged. Present length 75mm. Sf 980: 5902: Phase 9. (ID 656).

194 Fiddle key nail. Iron. Straight shank. Length 40mm. -: 5589: Phase 8. (ID 632).

195 Fiddle key nail. Iron. Straight shank. Length 35mm. -: 5563: Phase 8. (ID 661).

196 Fiddle key nail. Iron. Triangular head, straight shank. Length 37mm. -- 5862: Phase 8. (ID 639).

197 Fiddle key nail. Iron. Worn head, straight shank with tip bent. Length 28mm. --: 362: Phase 8. (ID 933).

198 Fiddle key nail. Iron. Straight shank. Length 30mm. --: 440: Phase 8.01. (ID 636).

199 Fiddle key nail ? Iron. Triangular head, straight shank. Length 40mm. -: 469: Phase 8.02. (ID 633)

200 Fiddle key nail. Iron. Straight shank. Length 35mm. --: 468: Phase 8.02: (ID 642)

201 Fiddle key nail. Iron. Bent shank. Length *c.* 25mm. -: 3164: Phase 9 (ID 629).

202 Fiddle key nail Iron. Straight shank. Length 38mm. -: 6108: Phase 9. (ID 634).

203 Fiddle key nail. Iron. Straight shank. Length 40mm. Sf 218: 2004: Phase 9. (ID 652).

204 Fiddle key nail. Iron. Worn head, bent shank. Length 35mm. -: 5909: Phase 9. (ID 662).

205 Fiddle key nail. Iron. Bent shank Length *c.* 25mm. -: 1120: Phase 10. (ID628).

206 Fiddle key nail (?). Wide 'T'-shaped head, straight shank with tip curved up. Length 30mm. --: 5136: Phase 10: (ID 641)

207 Fiddle key nail. Iron. Straight shank. Length 35mm. --: 6113: Phase 10. (ID 677).

208 Fiddle key nail. Iron. Straight shank with tip curved. Length *c.* 40mm. --: 6113: Phase 10. (ID 678).

209 Buckle. Iron. Rectangular frame with central bar with pin attached. X-radiograph suggests rollers of non-ferrous metal together with plating on sides. Length 25mm, width 17mm. --: 5575: Phase 10. (ID 659).).

210 Buckle. Iron. Rectangular frame, central bar with pin attached. Length *c.* 30mm, width 45mm. --: 5575: Phase 10. (ID 657).

211 Buckle. Iron. 'D'-shaped frame with pin. Length 29mm, width 42mm. --: 6113: Phase 10. (ID 679).

Tools and knives

The commonest item in this category are the hones as very few knives or blade fragments could be identified amongst the X-radiographed iron. The hones have not had their lithologies commented on by a competent geologist, but it can be suggested that nos. 212, 214 and 215 were most likely imported as they are made of schist and could well be of the types imported from Norway (for descriptions and references see Gaunt in Mainman and Rogers 2000, 2484-5). A similar suggestion can be made for some of the hones from Vine Street. 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 had a virtual monopoly in the town in the late Saxon and medieval periods (Moore and Oakley 1979. 283).

Two handles from knives with scale tangs and probably copper alloy fittings were found in Phase 9 and 10 contexts (nos. 218-9). From their size they would have been appropriate for the small personal knives that everyone would have needed in the medieval period to use at table.

One remarkable find from a Phase 10 pit is a large claw hammer head (no. 221). For obvious reasons such sizeable tools are not common finds. From the X-radiograph it would appear probable that it was similar to one found in Winchester in an 11th to 12th century context (Goodall 1990, 277 no. 400). Finally, also from a Phase 10 pit, no. 222 might be another woodworking tool as from the X-radiograph it appears to be jointed at the top and so might be a compass (see for example Goodall 1990, 377 no. 410)

212 Hone. Very dark grey schist. Thin rectangular-sectioned rectangular bar; one end rounded, other broken; some transverse scratch marks. Present length 66mm, maximum extant section 26 x 7mm. Sf 959: 363: Phase 8. (ID 559).

213 Hone. Very dark grey stone. Rectangular-section rectangular bar; one end broken, other straight and bevelled. Present length 40mm, section 29 x 9mm. Sf 405: 257: Phase 8. (ID 558)

214 Hone. Micaceous schist. Rectangular-sectioned bar with diagonal short ends and waisted outline from use; one face has small circular pit, possiblly used for sharpening the ends of pins. Length 162mm, maximum section 26 x 21mm. Sf 522: 3065: Phase 9. (ID529). Figure 37.

215 Hone. Micaceous schist. Probably originally square-sectioned, now worn down to rectangular section at one point; one face has grooved channel; both ends broken. Present length 97mm, maximum section 22 x 27mm. Sf 607: 3622: Phase 10. (ID560). Figure 37.

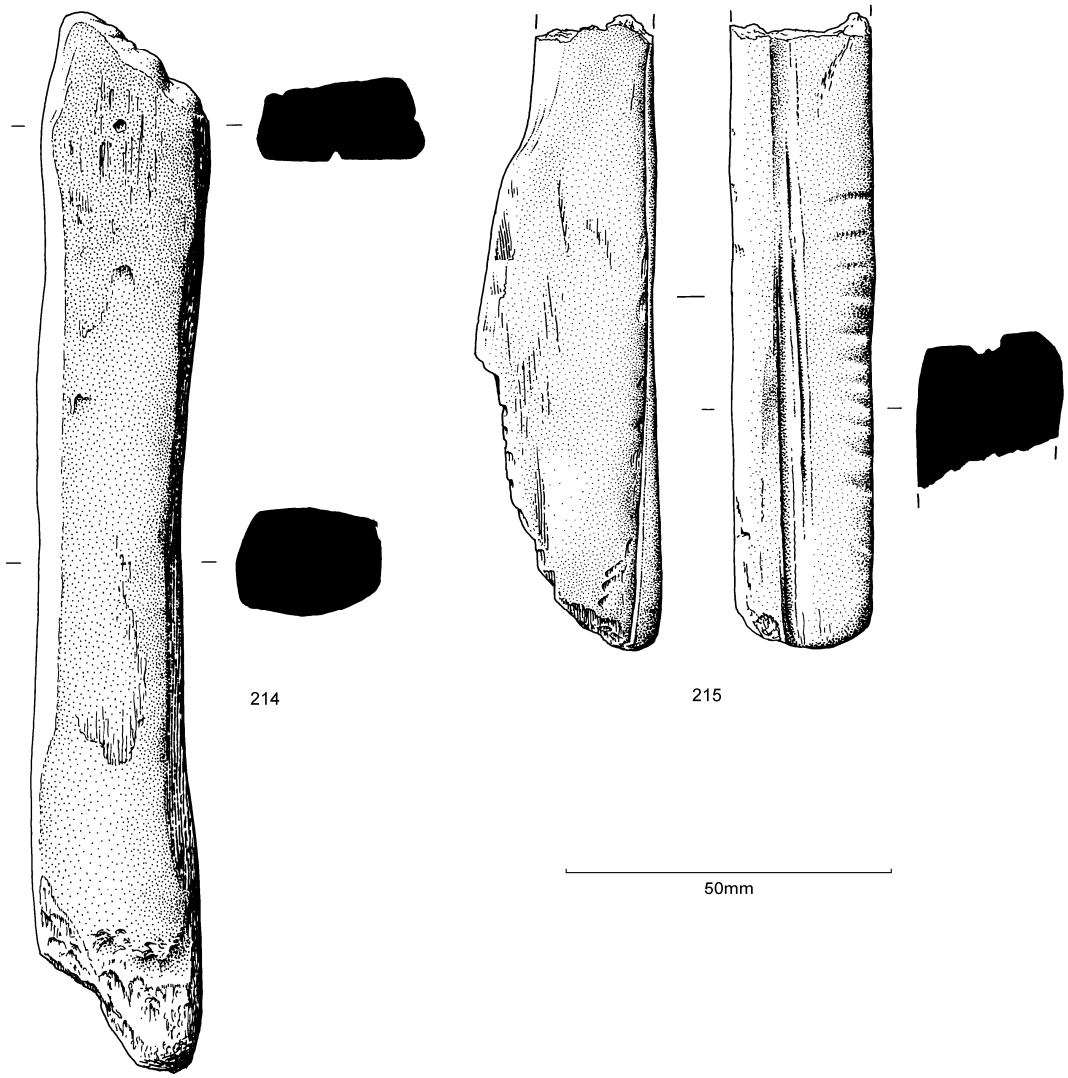

Figure 37 Small finds 214,215

216 Hone. Very fine-grained grey stone. Square-sectioned rectangular bar; one end broken, other has vertical channels; one face has long channels close to the grooved end; sides worn down away from the original end. Present length 85mm, maximum section 22 x 21mm. Sf 191: 3215: Phase 10. (ID 557).

217 Handle (?) Bone. Rectangular strip; one short end slightly angled; other broken but retaining end of slot. Small cylindrical perforation in upper end. Upper face decorated by vertical and transverse grooves forming a cross-hatched decoration. Present length 74mm, maximum section 14 x 4.5mm. Sf 101: 3205: Phase 10 (ID 621).

218 Handle with scale tang. Iron scale tang with minerally preserved organic handle plates; one end broken, other has remains of copper alloy hilt plate. X-radiograph shows two non ferrous rivets away from hilt guard. Present length 51mm, section 16 x 7mm. Sf 1053: 7051: Phase 9. (ID 766 (Need a decent X-radiograph.

219 Handle with scale tang. Iron with non-ferrous elements. Upper part of scale tang with non-ferrous end plate and three non-ferrous rivets. (Only seen as X-radiograph image Plate 774). Present length 66mm, width 15mm. 106: 2019: Phase 10. (ID 649).

220 Blade fragment. Iron. Straight back, sloping edge; both ends broken. Present length 70mm. --: 5575: Phase 10. (ID 660).

221 Claw-hammer head. Iron. Complete and retaining part of minerally replaced wooden handle. Rectangular eye. Length 126mm, width 21mm. 159 : 1052 : Phase 10. (ID648). (X-radiograph on plate 769)

222 Dividers or compass? Iron. Two arms jointed at top (?) (seen only in X-radiograph Plate 993). Length 90mm. --: 1084: Phase 10. (ID 676).

Fasteners and Fittings

The most interesting of the mounts recovered from the site is the large gilded copper alloy one from a Phase 8 pit (no. 223). In discussing this type of decorative strip, Goodall (1983, 235) drew attention to the fact that they were commonly found on castle and manor sites in the 12th and 13th century but that their precise function was unknown as they were generally found in a fragmentary state. It was suggested that they may have ornamented books or caskets of wood covered with leather. This example is more complete than many but equally retained no evidence of what it might have been attached to. Similar mounts are found in urban contexts at sites such as Northampton (Oakley 1979, 254 no. Cu54), and Winchester (Hinton 1990, 775 nos. 2367-8), so their association with elite sites is not exclusive, but the recovery of this piece at Freeschool Lane does hint at some refinement in the lives of the people who lived in the vicinity.

The other items call for little special comment under than to note that no. 227 with its screw thread may be of post medieval date and therefore intrusive in its context. Dating small dome-headed nails like no. 228 on solely typological grounds is difficult but it may be noted that this form is common in Roman assemblages so no. 228 may well be residual here.

223 Mount. Copper alloy. 'D'-sectioned shank with pointed oval loop and terminal; terminal and end of shank expanded and perforated, perforation at end of shank retains rivet; junction of loop and shank also has perforation, terminal bent back on itself and loop curved over; front face gilded. Length 140mm, section 4.5 x 2mm. Sf 146: 1011: Phase 8. (ID 391). Figure 38.

224 Mount. Copper alloy. Part of sheet disc with rectangular strip loop threaded through central slot, sheet folded flat. Dimensions 21 x 10mm. Sf 219: 2004: Phase 9. (ID 417).

225 Mount. Copper alloy. Rectangular head; square-sectioned shank with burred end. Length 21mm, head dimensions 29 x 20mm, thickness head 4mm, shank section 5.5mm. Sf 899: 5455: Phase 10. (ID 436).

226 Finial. Copper alloy. Copper alloy. Hexagonal-sectioned knob head with upper part tall and pointed; two angular cordons below square-sectioned shank originally inserted in lead alloy. Length maximum head section 15mm, shank section 5.5mm. Sf 183: 1082: Phase 8. (ID442).

227 Finial. Copper alloy. Hour glass-shaped with pointed knob terminal; central cylindrical aperture with screw thread. Length 23mm, maximum diameter 14mm, aperture diameter 4mm. Sf 908:5067: Phase 10. (ID 412).

228 Dome-headed nail. Copper alloy. Hemispherical knob head; faceted shank tapering to point' constriction between head and shank. Length 27mm, head diameter 7mm, shank diameter 3mm. Sf 1165: 6454: Phase 10. (ID 394)

229 Mount ? Iron. L-shaped bar with one end bifurcated and ending in outward loops. Length *c.* 35mm, maximum width 8mm. - 5780: Phase 9. (ID 21).

Military and Hunting Equipment

Two items associated with archery were recovered, neither need have had a military use as they could have been used in hunting. No. 230 is the nut from a crossbow. Originally it would have been like the nut found in a mid- to late 13th-century context at Winchester (Credland 1990) and would have been very close to it in size. This is the second example of a crossbow nut to have been recovered from Leicester as a complete example was also found at the Shires (Cooper 2007, cat no. 183).

Precisely when the crossbow came into use is a matter of some debate (see MacGregor 1985, 158-61), but it is generally agreed that it became popular after the Norman Conquest. The example from Winchester had an iron insert into the notch which would have articulated with the trigger and a similar wedge was noted in the Shires nut (see MacGregor 1985, fig. 84a for how the items worked). The iron corrosion products associated with the less well preserved notch on no. 230 suggest that the same might have been the case here. In connection with the Winchester example, Credland has argued that such an iron reinforcement would have been appropriate for the type of composite bow introduced into England in the late 12th century following the Crusades. A 13th-century date is thus probably appropriate for this piece which comes from an unphased context.

The arrowhead no. 231 seems most likely from its X-radiograph image to have the type used with a long bow (see Goodall 1990, 1070 nos. 3990-95). This piece was found in a Phase 10 robber trench and so could relate to the earlier medieval occupation on the site.

The final piece catalogued in this section (no. 232) is something of a puzzle. It is easily identified as a piece of copper alloy ring mail. It now has an approximately triangular shape, though it should be noted that some of the rings on the edges are broken so this may not have been its original dimensions. It came from a phase 10 pit with a contemporary pottery assemblage and with no residual Roman material.

In a preliminary report on the piece (Bacon undated) it was identified as a decorative dag used in conjunction with iron mail and dated to the period 1350 to 1475. Given its context this is a very possible interpretation as far as date goes. It is perhaps worth noting that when I originally saw it without the knowledge of its context, I immediately identified it as a piece of Roman *lorica hamata*.

In as far as it is possible to confirm on visual inspection without the benefit of X-radiographs, the way in which it is manufactured – butted or stamped rings alternating with riveted rings – is typical of the Roman armourer's technique (Bishop and Coulston 2006, 241-2, fig. 148, see also Sim 1997). Most of the discussion of manufacture of Roman *lorica hamata* related to that made of iron, but it is clear that copper alloy mail was manufactured in the same way as can be seen from the X-radiograph of a set of interconnected copper alloy rings found at Chester (Cool 2008, 309 Ill 5.10.1a). The technique for making medieval mail appears to be very similar but an authority on medieval mail has stressed that 'The rivets were always made of iron even if the rings were brass' (Pfaffenbichler 1992, 59). On Roman mail the rivets were copper alloy as is the case here.

So we are faced with something of a conundrum. Is it likely that such a relatively large piece of mail could be a residual Roman piece? On the face of it that seems unlikely but we may note that a piece of Roman scale armour consisting of two scales still wired together (no. 21) was found also residually in a Phase 10 context. With the advent of X-radiography and sieving, fragments of mail are now recognised as not uncommon finds on Roman military sites. The same does not appear to be true of medieval sites. Leicester is not a recognised Roman military site, but as we have seen military finds have been found regularly.

So we are left with the puzzle that had the rivets been made of iron, there would have been no problem in identifying this as a medieval piece, though it would have been an unexpected and unusual find in a medieval urban environment. Had the piece been smaller, there would have been no problem in identifying it as a residual Roman item. Quite what the significance of the piece is must, therefore, remain an open question.

230 Crossbow nut. Antler. Approximately one-third of a lathe-turned cylinder broken across a narrow longitudinal perforation; also broken across two notches on outer face at approximately 120^{o} to each other; one of these has traces of iron corrosion on outer face and by inner edge. Shallow channel centrally around extant circumference. Original diameter *c.* 28mm, length 19mm, perforation diameter 4mm. sf1173: 6357: unphased. (ID575). Figure 38.

231 Arrowhead. Iron. Elongated triangular blade with socket. Length 70mm, blade length *c.* 30mm, width of blade *c.* 15mm. --: 424: Phase 10. (ID 674). (X-ray pl.991)

232 Ring mail. Copper alloy. A triangular fragment consisting of parts of 17 rows of interlinked rings. Circular-sectioned wire rings, some have ends butted together and others have slightly expanded overlapping ends and riveted together. Rows of butt-ended rings alternate with rows of riveted ones, each ring interlinks with two above and two below. Dimensions 55 x 50mm, ring diameter *c.* 6mm. 925: 5575: Phase 10. (ID409).

Religious Items

The bead no. 232a has been placed in the religious category as it is almost certainly a rosary bead. As noted in connection with the glass bead no. 23, beads were not a common element of medieval jewellery. There is documentary evidence in the form

of a jeweller's stock list of 1381 from London that bone rosaries were thought appropriate for children (Egan and Pritchard 2002, 305).

232a Bead. Bone. Barrel-shaped bead, one end slightly irregular. Highly polished. Diameter 6mm, length 5.5mm, perforation diameter 2mm. sf1294 : 3199 : ID 804. Phase 9.

Craft Debris

If craft and industrial activities were being carried out on the site in the medieval period they have left little trace in the finds record. There is an intermittent presence of iron smelting waste judged from the slag but this appears to show no particular concentrations.

233 Offcut. Bone. Fragment of hollowed-out long bone retaining edge of circular (?) cut-out. Dimensions 44 x 18mm. Sf 745: 3192: Phase 9. (ID 620)

234 Smithing slag. -- 5563: Phase 8. (ID 646)

235 Smithing slag. (1). --: 1057: Phase 8. (ID 671).

236 Smithing slag. Three pieces. --: 464: Phase 8.02. (ID 635)

237 Smithing slag. (1). --: 440: Phase 8.01. (ID 637).

238 Smithing slag (1). - 5926: Phase 9. (ID 663).

239 Smithing slag (1). - 7125: Phase 9. (ID 664).

240 Smithing slag. (1). --: 1285: Phase 9. (ID 670).

241 Smithing slag. (1). --: 3639: Phase 9. (ID 672).

Miscellaneous

242 Loop-ended rod. Iron. In four fragments only seen in X-radiograph. One fragment retaining an expanded oval perforated plate terminal; shank shows diagonal spiral inlay of non-ferrous metal, sometimes this is only visible on the edges and it is possible that the different fragments represent a laminated piece. (Item only seen in X-radiograph). Terminal width 15mm, shank width 6mm. --: 6291: Phase 9. (ID 673).

243 Toggle. Phalange with central circular perforation. Length 48mm. Sf1304: 497: Phase 9. (ID 574)

244 Toggle. Fibula?, broken with distal end missing, circular perforation possibly originally centrally. Present length 55mm. Sf 1308: 3450: Phase 9. (ID 566).

245 Bone point. Ulna (?) sawn through proximal end and shaped to form a tapering point with end broken; cylindrical perforation through proximal end. Patches of copper alloy corrosion. Length 210mm. Sf 190; 1081: Phase 10. (ID 617).

246 Bone point. Bone. Distal end of long bone ? Chopped through to provide triangular-sectioned tapering point with broken tip. Length 95mm. Sf 1136:6188: Phase 9. (ID 618).

Post-Medieval

The post medieval finds of interest are catalogued here as a record may be useful for future work on Leicester's material culture. They call for little comment other than to draw attention to the bone toilet scoop no. 249. Though found in a modern context it is of 16th-century date as it belongs to the type of toilet equipment that became popular about that time (MacGregor 1985, fig. 57). Two sets and three individual scoops as here, for example, were found on the Mary Rose which sunk in 1545 (Richards 2005, 159-61).

Personal

247 Tie ring. Copper alloy. Wire bent into oval loop with twisted ends. Dimensions 12 x 9mm, section 1mm. sf130: 3071: Phase 11. (ID449).

248a Fan ribs. Bone. Lower parts of seven slender rectangular-sectioned strips of bone with rounded ends; ends fastened together by circular-sectioned copper alloy bar possibly made from rolled sheet. Maximum length rib 70mm, section rib 4 x 1mm, length bar 14mm, section bar 2mm. Sf 902: 5228: Phase 13. (ID611).

248b Fan ribs. Bone. Parts of five slender rectangular-sectioned strips of bone with expanded rounded ends; one fragment retaining copper alloy sheet rolled into bar; other perforations retain copper alloy staining. Maximum length 45mm, maximum extant section 9 x 2mm, length bar 12mm, section 2.5mm. Sf 903: 5228: Phase 13. (ID612).

Toilet Equipment

249 Toilet scoop. Bone. flat oval-sectioned shank broken at one end and with baluster-shaped terminal finishing in a scoop; shank broken at a double transverse rib, rest of shank alternates wide units and separating transverse ribs; units decorated by grooved decoration on either side, from top to bottom - (1) diagonal grooves, (2) diagonal cross, (3) diagonal cross-hatch, (4) diagonal grooves. Present length 48mm, section 6 x 2.5mm. Sf 841: 5221: Phase 13. (ID613). Figure 38.

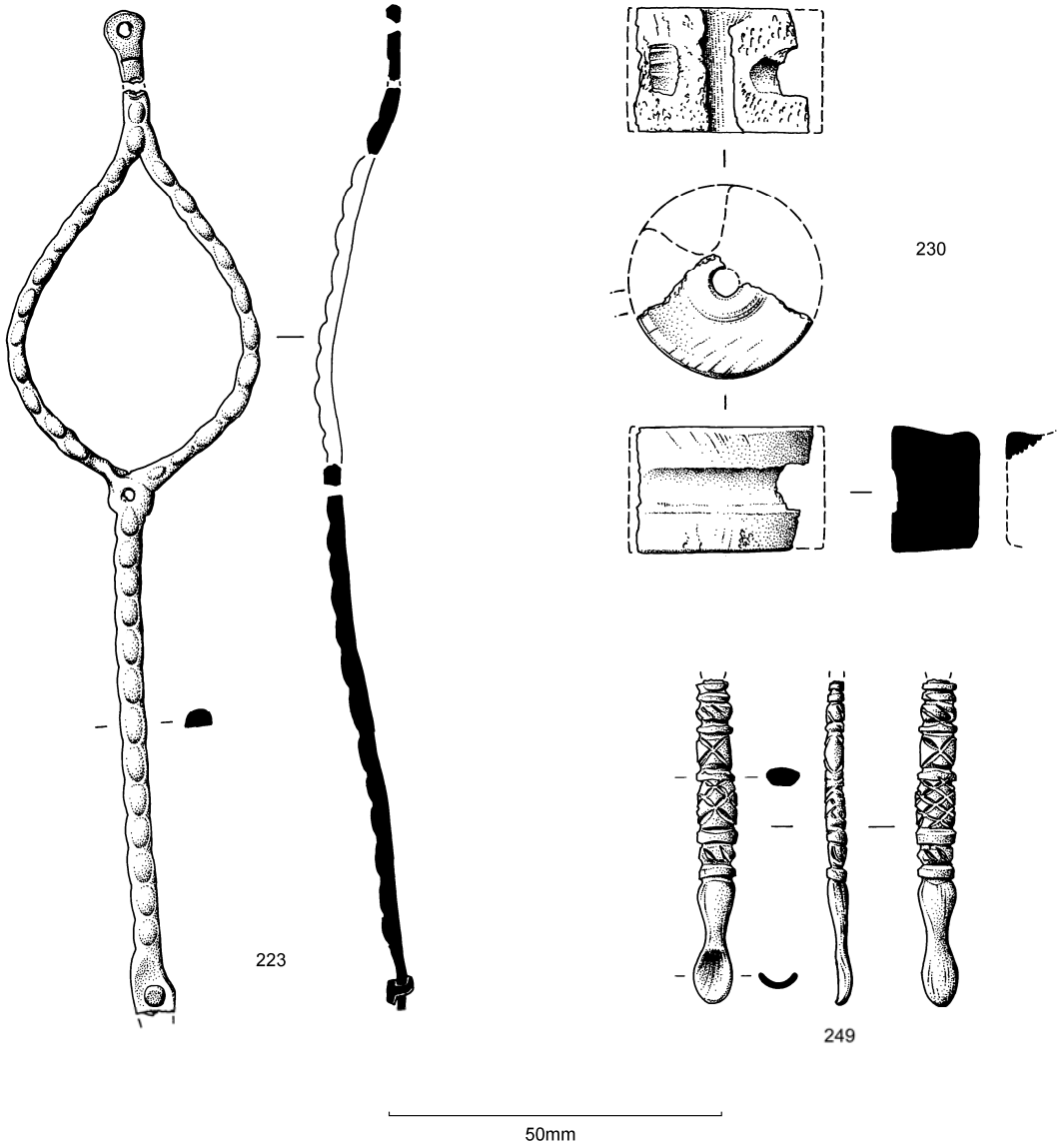

Figure 38 Small finds 223, 230, 249.

Tools and knives

250 Cutlery handle. Ivory. Part of four faces of handle with rounded end and octagonal section alternating wide and narrow faces; part of central void for tang. Present length 73mm, maximum width *c.* 23mm. Sf 158: 3176: Phase 11 (ID 509).

251 Handle. Bone. Rectangular–sectioned tapering hollow handle; Widest end has narrow band of zig-zag groove; lowest end broken. Present length 71mm, maximum section 11 x 9mm. Sf1307: 2010: Phase 12. (ID552).

Fasteners

252 Boss. Bone, probably part of a small femur head. Shallow hemisphere with central cylindrical perforation; convex face decorated by seep regular, diagonally cross-hatched grooves; flat face has more random shallow grooves arranged in a triangle around the perforation. diameter 28mm, depth 12.5mm, perforation diameter 3mm. Sf 108: 3050: Phase 11. (ID 500).

Small Finds Overview

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 Freeschool Lane from the pre-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 1 – Pre-Roman

This is the only Highcross site where it is possible to postulate pre-Roman occupation on the basis of the finds. The lion brooch no 1 would be exceptional in a Roman context and so seems more likely to relate to pre-Roman Iron Age occupation. Earlier native occupation on the site might also account for the pestle no. 14. The brooch would point to long distance contacts.

Phase 2-4 – Roman

The Roman assemblage is too small for it to be worth sub-dividing. The finds stretch from the mid- 1st century to the 4th century where dateable. On the whole they are typical of what might be expected from a Leicester site. The only slightly unusual features are the two likely medical instruments (nos. 11-12). Given the position in the centre of the town, it would have been a good place for a doctor to have his practise.

Phase 5 – Early Saxon

The small assemblage relating to this phase of occupation does include items that are contemporary with it, but again the assemblage is much too small to characterise the assemblage as anything other than general domestic.

Phase 6 – Mid- Saxon

There are no finds that indicate occupation at this period.

Phase 7 – Saxo-Norman

This site has produced the largest assemblage of finds relating to this period from Leicester. Judged by the types present, the focus of activity was late in the period, i.e. occupation started in the 10th century rather than the 9th. It is a typical domestic assemblage of the period with the normal range of activities such as spinning and weaving being carried out. The people do not appear to have been either particularly poor or particularly rich though the presence of a nummular brooch is of interest (no. 27) as these do not appear to be very common.

Phase 8 - Earlier medieval

Continuity can certainly be seen in the finds between this phase and the previous one. Spinning and weaving, for example, continue to be well represented by the textile equipment though this activity would seem to finish during this period. On the whole the finds are ones that are typical for the time but there are some hints that the inhabitants may have been well-to-do. There is a tabula counter (no. 189) which indicates the adoption of new pastimes, and indeed the leisure to indulge in them. There is the mount no. 223 that might indicate the possession of a book or at least an elegant item of furniture. The horse-shoe nails also indicate that from this period shod horses were regular visitors to the properties. It is not possible to date the archery equipment from its contexts but typologically that too must belong to either to the later part of this phase or the next. This too might indicate an interest in the elite pastime of hunting. The need for small balances like no. 190 might have been common at this time, but it too indicates the inhabitants had a regular need to check the weight of the coinage.

Phase 9 – Medieval

In this phase too there are indications that the inhabitants might have continued to be well-to-do. As discussed above the wearing of finger rings is not a particularly common habit amongst the lower orders at this time. Here a pretty finger-ring was found (no. 72) indicating the desire to imitate the elite. Equally if the book clasp no. 191 has been correctly identified, then books might have been present in one of the households.

Phase 10 – Later medieval

Though this is the phase that produced the biggest single assemblage, it is of less use than might be hoped for characterising the occupation given that it includes finds that are clearly residual and a considerable number of the items are small dress accessories. Some indications of later wealth are present most notably the ivory combs nos. 178-9, especially if they are of 15th- rather than 16th-century date.

THE ROMAN TO POST-MEDIEVAL VESSEL GLASS *H.E.M Cool*

The Roman glass

The site produced a small assemblage of Roman vessel glass which is summarised in Table 1 by colour and site phase

Table 125 Roman to medieval vessel glass: Roman vessel glass by colour and site phase (fragment count)

Phase	Deep blue	Light green yellow	Colourless	Blue/green	C4 green	Total
2	-	1	1	1	-	3
4	-	-	1	2	1	4
5	-	2	3	3	5	13
7	-	-	-	3	1	4
8	-	-	3	6	1	10
9	-	-	-	4	1	5
10	-	-	-	3	-	3
0	1	-	-	1	-	2
Total	1	3	8	23	9	44

1st to mid- 2nd-century tablewares

First-century glass is rare and is represented by a single vessel (no. 1). This is a collared jar (Price and Cottam 1998, 137-8), a type in general in use from the mid- 1st century until early in the 2nd century but the deep blue colour this example is made from indicates a date probably in the third quarter of the 1st century. Another example of the form was found in blue/green glass (no. 8) and this could be of either 1st or early 2nd-century date. The form is a common one at Leicester having been noted previously at Causeway Lane (Davies 1999, 284), the Forum site (Charlesworth 1974, 54). Bath Lane (Clay and Mellor 1985, 70 no 28) and at Vine Street.

Collared jars are part of a suite of vessels that also include tubular rimmed bowls in use from the mid- 1st to mid- 2nd century (Price and Cottam 1998, 44-6)., and globular and conical jugs (Price and Cottam 1998, 150-52) which are broadly contemporary though the globular ones go out of use early in the 2nd century. No 7 is an example of the bowl form and the rim no. 10 could come from either of the jug forms. Both have frequently been found in Leicester before. Tubular rimmed bowls

and globular jugs found at Causeway Lane (Davies 1999, 284), the Forum (Charlesworth 1974, 54), High Street / Silver Street ((Jewry Wall Museum 3316; 33173319'87) and Vine Street. Handles most probably from globular jugs 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).

The facet-cut beaker no. 2 is a less common form. It has not been noted in the published reports on the glass from Leicester before, but another one is present in the Jewry Wall Museum (Accession code LP123.9). The type comes in use in the 60s and continues to be popular into the second quarter of the 2nd century (Price and Cottam 1998, 80-81).

Late 2nd to 3rd century tablewares

Plain cylindrical cups with fire rounded rims such as nos. 3-5 are normally very common in assemblages of this date (Price and Cottam 1998, 99-101), though curiously were comparatively rare at Vine Street. Freeschool Lane joins the Causeway Lane assemblage in producing what may be termed a 'normal' late 2nd- to 3rd-century tableware assemblage, wherein they should form a substantial part of an assemblage of that date. They have also been found at the forum (Charlesworth 1974, 53) and the Shires (unpublished).

1st to 3rd century containers

Blue/green bottles are only represented by seven body fragments (catalogued in archive). There is one very poor quality globular flask (no. 12) and also a base fragment from what appears to be a small cylindrical unguent bottle (no. 14). The latter is made of blue/green glass but is so full of bubbles that it appears virtually opaque. Cylindrical unguent bottles such as this are not a regularly encountered Roman form, though a pair of colourless examples full of impurities were found as part of the grave goods accompanying an inhumation burial at Walmgate, York (Harden 1962, 140; pl. 67 no.H.321.7-8. Allason-Jones 1996, fig.15). It is tempting to suggest that both nos. 12 and 14 are poor quality local products given that it is known that Leicester had a glass blowing industry (Price and Cool 1991)

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. 16 is an example of the former. 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 5th century (Price and Cottam 1998, 129-31). No. 17 is an example of the beaker form. As the pontil scar clearly shows that it had a fire-rounded rim. Another late 4th century form is also present as no. 18 is an example of a segmental bowl no. 100 (Price and Cottam 1998, 128-9).

One closed 4th-century vessel is definitely present as the base no. 19 comes from the commonest type of 4th-century jug (Price and Cottam 1998, 163-5). The small ring handle fragment no. 20 is less common. It might be from either a handled cup (Price and Cottam 1998, 133-4) or a handled flask (*ibid*. 165-6) or a globular jug with two handles (*ibid* 167-8). In any of these cases it would indicate late 4th to 5th century activity.

Given this is a very small Roman glass assemblage, the strong presence of very late 4th-century/5th-century forms is of some interest and joins the small long brooch from the site as indicative of 5th-century activity.

Deep blue

1 Collared jar; rim fragment. Deep blue. Rim edge bent in unevenly, then out and down and tooled to give concave profile; broken at junction with body. Rim diameter 50mm, present height 9mm. EVE 0.19. U/S; sf615. (ID G263) (Figure 39.1)

Colourless

2 Facet-cut beaker; rim fragment. Colourless; exterior externally ground. Slightly outbent rim; side sloping in. Pair of ground-out ribs at rim edge, one at rim/body junction; upper parts of three long oval facets. Rim diameter 82mm, wall thickness 2.5mm, present height 26mm. EVE 0.4. 5783: sf974. ID G269. Phase 8. (Figure 39.2)

3 Cylindrical cup; rim fragment. Colourless; slight green tinge. Vertical rim with fire rounded edge; straight side. Rim diameter 85mm, wall thickness 1mm, present height 20mm. EVE 0.4. 6545: sf 1239. IDG278. Phase 4.

4 Cylindrical cup; rim fragment. Colourless. Vertical rim with fire rounded edge thickened externally; straight side. Rim diameter 82mm, wall thickness 1mm, present height 25mm. EVE 0.4. 6450: sf 1162. IDG260. Phase 5.01.(Figure 39.3)

5 Cylindrical cup; rim fragment. Colourless. Vertical rim with fire rounded edge; straight side. Rim diameter 100mm, wall thickness 1.5mm, present height 25mm. EVE 0.4. 6450: sf 1211. IDG274. Phase 5.01.

6 Body fragment. Colourless. Convex curved body; part of one narrow curved rib. Dimensions 16 x 12mm, wall thickness 1mm. 1270: sf660 ID G266. Phase 8.

Blue/green

7 Tubular rimmed bowl; rim fragment. Blue/green. Vertical rim bent out and down. Height to rim 15mm, wall thickness 1mm. EVE 0.2. 5850: sf1016. ID G265. Phase 10.

8 Collared jar; rim fragment. Blue/green. Rim edge bent in, then out and down and upper tube bent out; broken at junction with body. Rim diameter 70mm, present height 11mm. EVE 0.19. 3788 ; sf1106. (ID G271) (Figure 39.4)

9 Jar or bowl; rim fragment. Blue/green. Rim bent out horizontally and rim either bent up and in or down and in. Rim diameter *c.* 150mm. 1175: sf552: ID G288.

10 Jug; rim and handle fragment. Blue/green. Part of cylindrical neck with outer part of rim bent out, up, in and flattened; upper attachment of ribbon handle sloping down and attached to neck, then trailed back onto handle with small return trailing towards rim. Handle section 27 x 7mm. EVE 0.14. 6136: sf1114: ID G270. Phase 7.03.

11 Jug; handle fragment. Blue/green. Straight ribbon handle. Section 15.5 x 5mm, length 23mm. EVE 0.14. 1033: sf253: ID G290. Phase 10.

12 Globular flask; neck and shoulder fragment. Large streaky bubbles. Cylindrical neck with light tooling at junction with convex-curved shoulder. Neck diameter *c.* 25mm, present height *c.* 25mm, wall thickness 2mm. EVE 0.4. 6537: 1213: IDG Phase 4.

13 Jug or bottle; cylindrical neck fragment. Dimensions 32 x 22mm. 348: sf 951. IDG 284. Phase 8.

14 Cylindrical unguent bottle ?; lower body and base fragment. Blue/green; many bubbles making piece virtually opaque; some black impurities. Straight side; concave base. Base diameter *c.* 45mm, wall thickness 2mm, present height 26mm. EVE 0.4. 6505: sf1264. ID G688. Phase 5.02(Figure 39.14)

15 Base fragment. Blue/green. Shallow concave base with thickened centre and small central kick; circular pontil scar on under side. Base diameter *c.* 70mm, pontil scar diameter 13mm, wall thickness 1.5mm. 6530: sf1234: ID G276. Phase 4.

4th century green

16 Hemispherical cup; rim and body fragment. Yellow/green; some small bubbles. Curved rim, edge cracked off and not ground; convex-curved body. Abraded band on upper body. Numerous wear scratches on rim and body. Rim diameter 80mm, wall thickness 2mm, present height 42mm. EVE 0.6. 6450: 1209. Phase 5.01. (IDG254) (Figure 39.16)

17 Conical beaker; lower body and virtually complete base. Light green; many small bubbles. Straight side sloping into base with conical kick; circular pontil scar on underside. Present height 26mm, wall thickness 1mm, base diameter 22mm, diameter of pontil scar 17mm. EVE 0.6mm. 5632: 939: ID G300. Phase 7.03 (Figure 39.17)

18 Segmental bowl; rim fragment. Light green; many small bubbles. Curved rim, edge cracked off and not ground; convex -cuved side. Abraded band at rimm/body

junction. Rim diameter 110mm, wall thickness 1mm, present height 20mm. EVE 0.4. 6450: 1126: ID G289. Phase 5.01. (Figure 39.18)

19 Jug; complete base; Yellow/green; many small bubbles. High pushed-in base ring with hollow tube at end; concave base with small central kick; cylindrical pontil scar retaining small amount of glass on underside; carefully grozed at junction with body. Base diameter 60mm, present height 15mm. EVE 0.28. 5470 ; sf912. Phase 2. (ID G255) (Figure 39.19)

20 Handle; fragment. Light greenish bubbly glass. Oval section curved rod handle, both ends broken. Present length 29mm, section 5 x 4mm. 6450: sf 1187: ID G287. (Figure 39.20)

Late Saxon glass

There are two fragments from Phase 7 and 8 contexts in colours that suggest they may well be of mid- to late Saxon date. The colour of no. 22 would be unusual in Roman glass and whilst peacock glass is a Roman shade it is commonest in the 1st century and as has been noted there is very little glass of this date in this assemblage. Unfortunately, neither preserve sufficient details for it to be possible to assign them to a form.

21 Body fragment. Strong green/blue (peacock). Straight side with shallow optic blown vertical rib and horizontal trail. Dimensions 12.5 x 10mm, wall thickness 1.5mm. 736: 5085: IDG 301. Phase 8.

22 Body or base fragment. Mid- to deep blue. Flat body fragment with curved trail. Dimensions 13.5 x 9mm, wall thickness 1.5mm. 5032: sf 699. ID G262. Phase 7.03.

Medieval glass

This is one small fragment of glass that comes from a medieval vessel. The identification has to remain tentative but the overall rim diameter, the fact that it is vertical and that it is made of forest glass might suggest it came from a distilling vessel, though insufficient is preserved to allow any suggestion as to which particular type (see Tyson 2000, 168-78).

23 Rim fragment. Potash glass. Vertical rim, edge fire rounded. Rim diameter *c.* 70mm, wall thickness 2mm, present height 10.5mm. 5315: sf822: ID

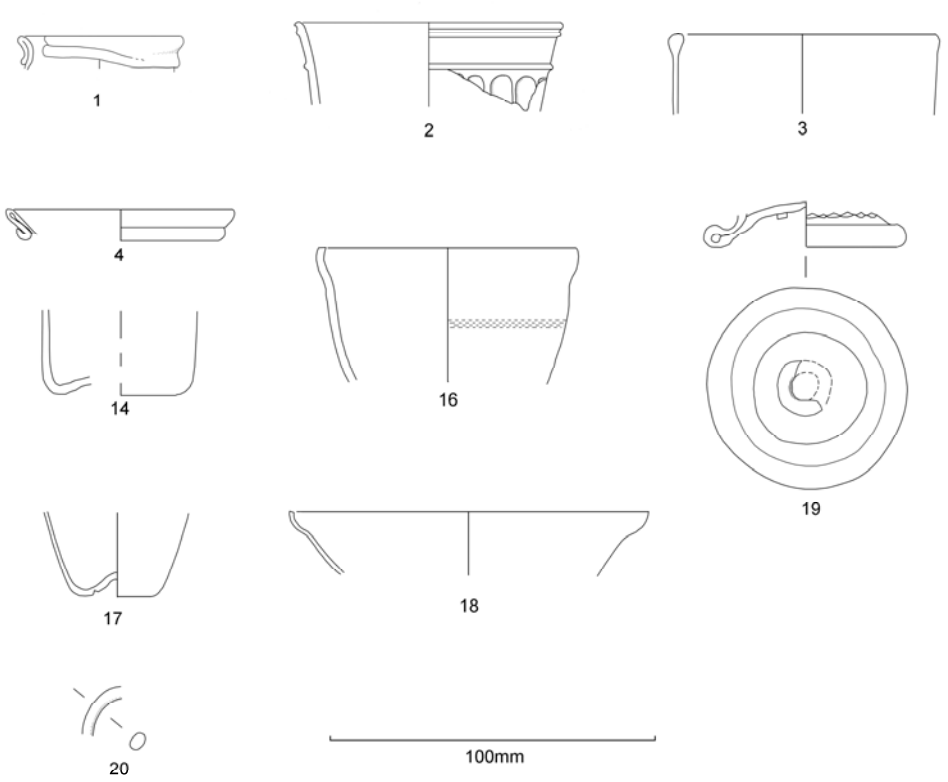

Figure 39 Roman to Medieval Glass: 1 - 4, 14, 16 – 20

Post-medieval glass

The only items of post-medieval glass that is worthy of note is a complete oval flask that was recovered from a Phase 11 fill of a stone privy. The context presumably accounts for the fact the state of preservation as the only damage consists of two chips close to the base. Oval flasks in general are rarer than globular ones, and examples with this very diagnostic shallow optic blown ribbing with a thick body were counted by Wilmott as uncommon in his survey of early post-medieval glass in Britain (Wilmott 2002, 82 type 21.2). The form was a sixteenth century one and hitherto the distribution has been in the south with one outlier at Norwich.

Of particular interest are three similar flasks found in the cabin of the barber-surgeon aboard the Mary Rose which sank in 1545. Two of these were found in the wooden chest where he kept his equipment and one near-by, and in two cases the flasks still maintained their corks (Castle and Denham 2005, 192-3). Whether their contents were related to his role as surgeon or barber is unknown. The authors of the discussion point out that they may have been intended to store volatile, caustic or corrosive liquids such as the mercury found in the chest. Equally though barber were expected to have scented waters to hand.

Whatever the precise function, this flask and its contents is likely to have been expensive. The barber-surgeon's chest was an expensive item in its own right (Castle and Denham 2005, 189). Willmott knew of only eight examples (excluding the Mary Rose ones) and two of those came from castle and palace sites.

24 Oval flask, complete. Potash glass; pale green. Asymmetrical outbent rim, edge sheared; cylindrical neck; thickened body with irregular ridge at junction with neck; concave base with additional glass from pontil. Optic blown shallow diagonal ribbing on body. Height 100mm, rim diameter 24 x 23mm, maximum body diameter 72 x 48mm, base diameter 34 x 26mm. 6039 : sf990 : ID G361. Phase 11 (Figure 40; see also report cover photograph)

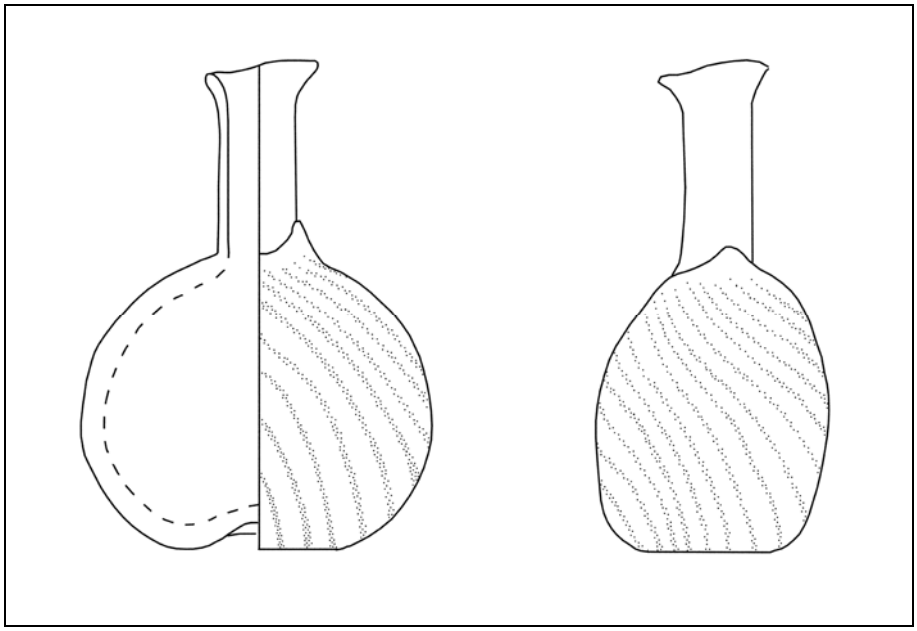

Figure 40 Oval Flask no. 24. Height 100mm

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 in Freeschool Lane, Leicester, which were carried out during 2005-6. The site code used for this work is A8.2005. The pipes from the excavation were examined and this report prepared during September and October 2008.

Material recovered and methodology

A total of 532 fragments of clay tobacco pipe were recovered from this excavation, comprising 81 bowl fragments, 423 stem fragments and 28 mouthpieces. The assemblage as a whole does not include any maker's marks and there are only three fragments with moulded decoration on them. The low numbers of marked and decorated fragments reflect the nature of the material recovered, which is predominantly of 17th-century date, with smaller amounts of 18th-century material and then just a few pieces of 19th-century date. Only a very few of the fragments are burnished and there is one stem with a ground end.

The pipes were recovered from a total of fifty different contexts, in addition to which there were ten bags of unstratified finds from various parts of the site. Most of the context groups are small and, with three exceptions, they all comprise eight fragments or less in total. The three exceptions are contexts 5380, 7033 and 7089, which produced 183, 81 and 95 fragments respectively. These three contexts all date from between c1660 and c1690 and provide a useful opportunity to examine the pipes of this period in more detail. These three groups are described and discussed in more detail below.

The other contexts contained smaller and/or more mixed groups that are not worth detailed study in themselves although they contain some interesting individual pieces, which are highlighted in this report. All of the fragments from this site have been examined and a context summary prepared as an Excel table, a copy of which can be found as Table 129 below. A detailed record has also been made of the bowl fragments from the three largest groups, a copy of which can be found in the site archive. To facilitate cross referencing of the artefacts with this more detailed record, a running sequence of letters (A, B, C, etc) has been allocated to the individual bowl fragments in each context where necessary. These reference letters have been pencilled onto the bowls and can be used to cross-refer the individual fragment to the digital record. This letter is also given in the following report where individual pieces are referred to. The recording system used for the detailed record is based on that developed at the University of Liverpool (Higgins and Davey 1994).

The Pipes

Over two thirds of all the pipes recovered from this site came from just three nearly contemporary 17th-century context groups. These context groups are described and discussed below, followed by notes on the other significant pieces from the site. The numbers of bowl, stem and mouthpiece recovered from the three largest groups,

together with the total number of fragments that this represents, are given in brackets after the context number, e.g., (25/146/12 = 183). The figure/bowl numbers for illustrated examples are also given with each group entry but the figures from the site as a whole (Figure 41, nos. 1-17) have been placed in roughly chronological order since some of the forms are typical of the finds from ore than one context.

5380 (25/146/12 = 183; Figure 41 nos. 5, 8 and 10-12). This context formed part of the fill of a privy and is by far the largest group of pipes recovered from the site. All of the stems from this context are of general 17th-century types but with the bowls all clustering within a *c*.1660-90 range. There are a few of the smaller, slightly more slender types such as Figure 41 no. 5 in this group, but the majority are fairly large, heavy forms, typical of those seen in Figure 41 9-12. This dominance of large, heavy forms suggests a likely deposition date towards the end of the 1660-90 range and probably between 1670 and 1690. Most of the bowls in this context are complete and there are some long fragments of stem and so an attempt was made to reconstruct the pipes. Although quite a number of joins were found, no complete pipes could be reassembled. This is unfortunate since no complete 17th-century pipes have yet been recovered from Leicestershire and very little is known about the range or evolution of stem lengths in the Midlands as a whole.

The longest mouthpiece end that could be reconstructed measures 227mm in length while the longest stem attached to a bowl measures 172mm. The extrapolated taper of these fragments suggests that the complete pipes would have had stem lengths of somewhere between about 250 and 300mm, which fits well with complete examples of this date that have been recorded from elsewhere nationally (Higgins 1987, 64). It is possible, however, that some of the larger bowl forms could have had longer stems and so the recovery of complete examples remains a priority.

Within the context group as a whole spur forms dominate, representing 23 of the 24 identifiable examples. Although the pipes are too neatly formed and finished to allow the reliable identification of individual mould types using mould flaws, it is clear that there are many different mould types represented by these spur forms, as is shown by slight variations in size, profile and stem thickness at the bowl junction. This in turn suggests that the range of pipes present in this group is representative of what was being produced and consumed in Leicester at this period, rather than just being the product of a single production unit or individual bulk purchase for a household.

Although the spur forms vary slightly in size, this could reflect different styles or stem lengths as much as different dates for the pieces present. Even if the size differences do represent a gradual evolution of style, it is quite conceivable that moulds of slightly different ages were in contemporary production so that this group could represent a single deposit with a very limited chronological range of material in it. The general size of these bowls is slightly larger than those from contexts 7033 and 7089, which contained similar groups, but which probably date from a decade of so earlier that this group.

Context 5380 only contained a single heel bowl (Figure 41 no. 8), which also dates from *c*.1670-90. Similar examples have occasionally been noted from Leicester, and they were presumably also made locally, although in very much smaller numbers than the spur forms. This preference for spur bowls may be a characteristic of the city in particular rather than the county as a whole, since quite a number of heel forms were recovered in 1986 from excavations at a site on the London Road in Mountsorrel (A18.1986) and from the recent work at Ashby de la Zouch castle (Higgins, 2007).

7033 (12/64/5 = 81; Figure 41 nos. 3 and 13). This group came from a layer and comprises the smallest of the three large groups. All but one of the stems and mouthpieces are of 17th-century types, the exception being a stem that looks later than everything else in the group and which possibly dates from *c*.1680-1780. This seems likely to be intrusive, especially given the consistent nature of the bowl forms, all of which date from between about 1640 and 1690, with most dating from *c*.1660-80 – this being the most likely date for the group as a whole. The majority of the forms are similar to those seen in Figure 41 nos 4 and 9 but with one or two later looking pieces, such as Figure 41 No. 13. All twelve bowls from this context are spur types, nine of which are substantially complete. One of the bowls has been quite badly squashed at the rim while still soft (not illustrated, but a similar form to Figure 41 No. 4). This piece would certainly have been a 'second', if not an outright waster. This group is a little more fragmented than 5380 and without any obvious joins between the fragments. Despite this, it still looks like a good consistent group, deposited over a relatively short period of time. It is still rather too small to draw any detailed conclusions from detailed analysis and so has been considered with the contemporary looking material from 7089 in the discussion below.

7089 (16/74/5 = 95; Figure 41 Nos 1, 4 and 9) This material is from another layer and is the second largest group from the excavations as a whole. All of the stems are of 17th- or early 18th-century types but a much better dating is provided by the bowls, almost all of which date from *c*.1660-80. There are three fragments where the bowl form cannot be determined but all of the other 13 examples are spur types. One of these is much smaller than the others and, on size alone, would normally be dated to *c*.1610-40 (Figure 41 No. 1). The form of this bowl, however, is slightly odd for an early pipe and it is just possible that this is as 'miniature' form and that it is, in fact, contemporary with the other bowls. Miniature pipes are known to have been produced during the 17th century but they are normally even smaller than this example. Another example of this unusually small form, almost certainly made in the same mould, was recovered from context 3846. There is also one slightly larger form in context 7089 (and, possibly, the spur from a second – bowls I and J) that would normally be dated to *c*.1670-90. These slightly later looking styles (similar to no. 12) do, however, overlap with the bulk of the pipes and the group as a whole looks very coherent and likely to have been deposited over a relatively short period of time, probably around 1660-80. This apparent consistency of the deposit is another reason why the small pipe may date from the same period rather than being residual.

In terms of the style of the pipes, they are all very plain and without any marks or decoration, other than the rim milling, which was normal finishing practice at this time. Where the complete rim survived, about half of the rims could be seen to have been fully milled and about a quarter each were either half or three-quarters milled. All of the pipes tend to be very neatly finished and with smooth, matt surfaces. The pipes tend to have a granular fracture and the Leicester pipemakers may have been using a specific source of clay that gives an 'eggshell' finish to the pipes. None of the fragments appears to have been burnished although a few, including the 'miniature' pipe, have a naturally glossy surface to the fabric. The stem bores of the bowls, where they were measurable, were nearly all 8/64" (12 examples) with two being larger (9/64"). The stems are generally quite stocky, tapering quite markedly to a slender mouthpiece.

Discussion

The three large context groups (5380, 7033 and 7089) all appear to contain homogeneous groups of pipes that are likely to represent deposits of either a single date or a very limited date range. Two of these groups have been dated to *c.*1660-80 (7033 and 7089) while the third (5380) dates from a decade or so later, *c.*1670-1690. A detailed analysis of the bowls from these groups allows their characteristics to be defined while a comparison of them allows changing trends and production techniques to be observed over a short period of time. Taken together these three groups allow a baseline to be established that should represent the 'norm' for Leicester pipes during this period and against which other groups can be compared and contrasted. It would be very interesting to compare a contemporary group from a site of known but different status, such as Bradgate House, with the initial picture that has been suggested here.

In this section the two slightly earlier two groups can be taken together to provide an equivalent sized sample to the slightly later group, as can be seen in the following table: -

Table 126 The clay tobacco pipes: quantification of the material from the three large 17th-century context groups.

Context	Date	Bowl	Stem	Mouthpiece	Total	Min. No. Spurs	Min. No. Heels
5380	1670-90	25	146	12	183	23	1
7033	1660-80	12	64	5	81	12	0
7089	1660-80	16	74	5	95	13	0
(7033 and 7089)	(1660-80)	(28)	(138)	(10)	(176)	(25)	(0)
Total		53	284	22	359	28	1

Combining the two groups of *c.*1660-80 provides a sample of 176 pieces to compare with the 183 fragments from the slightly later group of *c.*1670-90. In the following discussion the figures for contexts 7033 and 7089 are given separately as well as in the combined form, but with the groups only being counted once in the totals at the foot of each table.

The first point of comparison was the stem bores for the two groups. Only the bores of the stems actually attached to the bowl fragments were measured so as to avoid logging duplicate measurements for stem fragments which could have come from the same pipe. This methodology also ensures that no 'stray' readings are included for intrusive or residual stems that may have found their way into the group, i.e., all the stem bores are directly related to a datable bowl form. This analysis shows that the earlier two groups both have an average bore size of 8/64" while the slightly later group has an average bore size of just over 7/64". This evidence of a decrease in bore

size during the later 17th century is in keeping with general national trends, although it is worth noting that late 17th-century stem bores in Bury St Edmunds (Higgins 2003), Norwich (Atkin and Davey 1985, 319-20) and at Landguard Fort near Felixstowe (Higgins, forthcoming) all show a slight increase in size during this period. This not only suggests an East Anglian trend towards larger stem bores at the end of the 17th century but also suggests that Leicester falls outside of this region and within the 'normal' pattern of stem bore change.

Table 127 The clay tobacco pipes: stem bore data for bowls from the three large 17th-century context groups.

Context	Date	6/64"	7/64"	8/64"	9/64"	Total	Average
5380	1670-90	1 (4%)	15 (66%)	8 (33%)		24	7.29
7033	1660-80		3 (25%)	9 (75%)		12	7.75
7089	1660-80			12 (80%)	3 (20%)	15	8.20
7033 and 7089	1660-80		3 (11%)	21 (78%)	3 (11%)	27	8.00
Total		1	18	29	3	51	

Although the groups are probably very close in date, there seems to be a clear difference in the stem bore size between them. A similar pattern is seen when the rim milling is considered (Table 3). This shows that all of the bowls in the two slightly earlier groups (7033 and 7089) have at least half of the rim milled and that half of them are fully milled. In contrast, the slightly later group (5380) has only 40% of the bowls with full milling and there are three examples (20%) with no milling at all. The average value for milling drops from more than three-quarters milled to just over half milled between the two groups. This demonstrates that changes in rim finish are evident between the two groups with less care being taken towards the end of the century and with some types being made without milling at all. Unmilled bowls occur as both heel and spur forms, for example, Figure 41 nos 8 and12.

Table 128 The clay tobacco pipes: bowl milling on pipes from the three large 17th-century context groups. M0 = no milling; M2 = half milled; M3 = three-quarters milled; M4 = fully milled. The average is expressed as the number of quarters of the rim circumference that is milled.

Context	Date	M0	M2	M3	M4	Total	Average
5380	1670-90	3 (20%)	5 (33%)	1 (7%)	6 (40%)	15	2.46
7033	1660-80		2 (25%)	2 (25%)	4 (50%)	8	3.25
7089	1660-80		2 (20%)	3 (30%)	5 (50%)	10	3.30
7033 and 7089	1660-80		4 (22%)	5 (28%)	9 (50%)	18	3.28
Total		3 (9%)	9 (27%)	6 (18%)	15 (45%)	33	2.90

The final point to emphasize is the dominance of spur forms within these groups. All of the identifiable bowl forms in the earlier two groups (25 examples) are spur types, as are 23 out of the 24 identifiable examples in the later group. There is only one heel form amongst these 49 examples (Figure 41 no 8) and only a couple of others from the site as a whole (Nos 6 and 7). This regional distinctiveness is evident when pipes from other areas are compared. In both the Broseley area of Shropshire to the west (Higgins 1987) and at Landguard Fort in Suffolk (Higgins forthcoming) the opposite situation is found, with an almost complete dominance of heel forms. In London both types occur, but with heel types outnumbering spur forms.

When other fragments from this site are considered, it is possible to illustrate a range of bowl forms spanning most of the 17th century (Figure 41 nos 1-15). These show how the bowls grew in size and evolved in shape over time as well as emphasising their very plain nature. They are well made and finished but not generally marked, decorated or burnished (there were only a couple of burnished fragments amongst the entire assemblage). One 18th- century example (no. 16) shows the very different styles that developed during this century, but which are generally poorly represented in the archaeological record.

Marked and Decorated Pipes. There are no moulded marks (apart from two internal bowl crosses, mentioned below) from the excavation and only three bowls with moulded decoration. Two of these mould decorated bowls were made in the same mould (contexts 5224 and 5225) and both have an internal bowl cross. This particular mould type, with fluted decoration and leaf seams, has been previously recorded from Leicester (Higgins 1985, Fig 6.88-89; Higgins 1999, Fig 100.29), and at one of these sites it was been found with kiln waste attributable to Richard King and dated to *c*.1820. The two examples from theses excavations were both found in post-medieval dumped layers but they provide a good date of *c*.1810-30 for these deposits. The third 19th-century bowl (Figure 41 no.17) simply has leaf-decorated seams. It dates from *c*.1820-70 and is typical of those found in Leicester during this period.

Ground Stem. One fragment of stem with a ground end was found in the excavations. This was recovered from context 3278 and probably dates from the later 18th or 19th century. The fragment is only 27mm long with a bore of 6/64" and the narrower end has been smoothed off roughly square to the stem (it has broken at a slight angle). The ground end does not appear to have been reused as a mouthpiece and so this is likely to represent idle doodling rather than any serious effort to reuse the broken pipe.

Summary

As well as providing dating evidence for the excavated contexts and features, the pipes also contribute to a broader understanding of production and consumption patterns within Leicester, particularly during the second half of the 17th century. The majority of the finds came from just three contexts, including a very good group form a privy fill (5380). The potential of this group for analysis was limited by the incomplete recovery of the contents, and sieving to recover all the artefactual evidence from key groups such as this is recommended for the future.

Analysis of the pipes from the three principal context groups has shown that many different mould types were present, suggesting that a large number of different manufacturers were competing in Leicester by the second half of the 17th century. In contrast to groups from the rest of the county, those from the city are dominated by spur forms. These are generally neatly made and finished with smooth surfaces and they may have been made from a locally sources clay with a natural 'eggshell' finish that was very rarely burnished. The rims were nearly finished and milled although the degree of milling declined towards the end of the century, as did the size of the stem bores.

The detailed recording and analysis of larger bodies of material, preferably from both the city and county, are needed to strengthen and refine the preliminary observations that have been made. In particular, pipes of known but differing social status would be useful to study. It seems likely that the pipes from this site represent the average quality products that were being made in the city at this time. They are very plain and without either marks or decoration, but they are neat and well finished, providing a good and serviceable product. There is no evidence for any particular import of pipes at this time and it seems that local makers were able to meet the demand for pipes while at the same time developing their own particular style, which is distinct from neighbouring towns in the region.

Catalogue of Pipe Bowls Figure 41

1 Spur bowl of *c.*1610-1640 size but just possibly a later 'miniature' dating from *c.*1660-90. Rim bottered and fully milled, stem bore 8/64". Context 7089 (A). There is an identical bowl, made in the same mould and with the same finish and stem bore, from Context 3846.

2 Spur bowl of *c.*1640-1660, rim bottered and fully milled, stem bore 8/64". Context U/S (A).

3 Spur bowl of *c.*1650-1670, rim bottered and fully milled, stem bore 8/64". Context 7033 (A).

4 Spur bowl of *c.*1660-1680, rim bottered and fully milled, stem bore 8/64". Context 7089 (B).

5 Spur bowl of *c.*1660-1680, rim bottered and three-quarters milled, stem bore 7/64". Context 5380 (B).

6 Heel fragment of *c.*1610-1660 (most likely c1610-40), stem bore 7/64". Context 7169.

7 Heel bowl of *c.*1660-1680, rim bottered and fully milled, stem bore 8/64". Context 5358 (A).

8 Heel bowl of *c.*1670-1690, rim bottered but not milled, stem bore 8/64". Context 5380 (X).

9 Spur bowl of *c.*1660-1690, rim bottered and three-quarters milled, stem bore 8/64". Context 7089 (I).

10 Spur bowl of *c.*1670-1690, rim bottered and fully milled, stem bore 7/64". Context 5380 (F).

11 Spur bowl of *c.*1670-1690, rim IB and half milled, stem bore 7/64". Context 5380 (K).

12 Spur bowl of *c.*1670-1690, rim bottered but not milled, stem bore 7/64". Context 5380 (S).

13 Spur bowl of *c.*1670-1690, rim bottered and half milled, stem bore 7/64". Context 7033 (I).

14 Spur bowl of *c.*1670-1690, rim bottered and half milled, stem bore 8/64". Context 5358 (B).

15 Spur bowl of *c.*1680-1710, rim bottered and half milled, stem bore 7/64". Context 5310 (A).

16 Spur bowl of *c.*1720-1780, rim cut and wiped but not milled, stem bore 5/64". Context U/S (C).

17 Spur bowl of *c.*1820-1870, rim cut but not milled, stem bore 5/64". Context 3278.

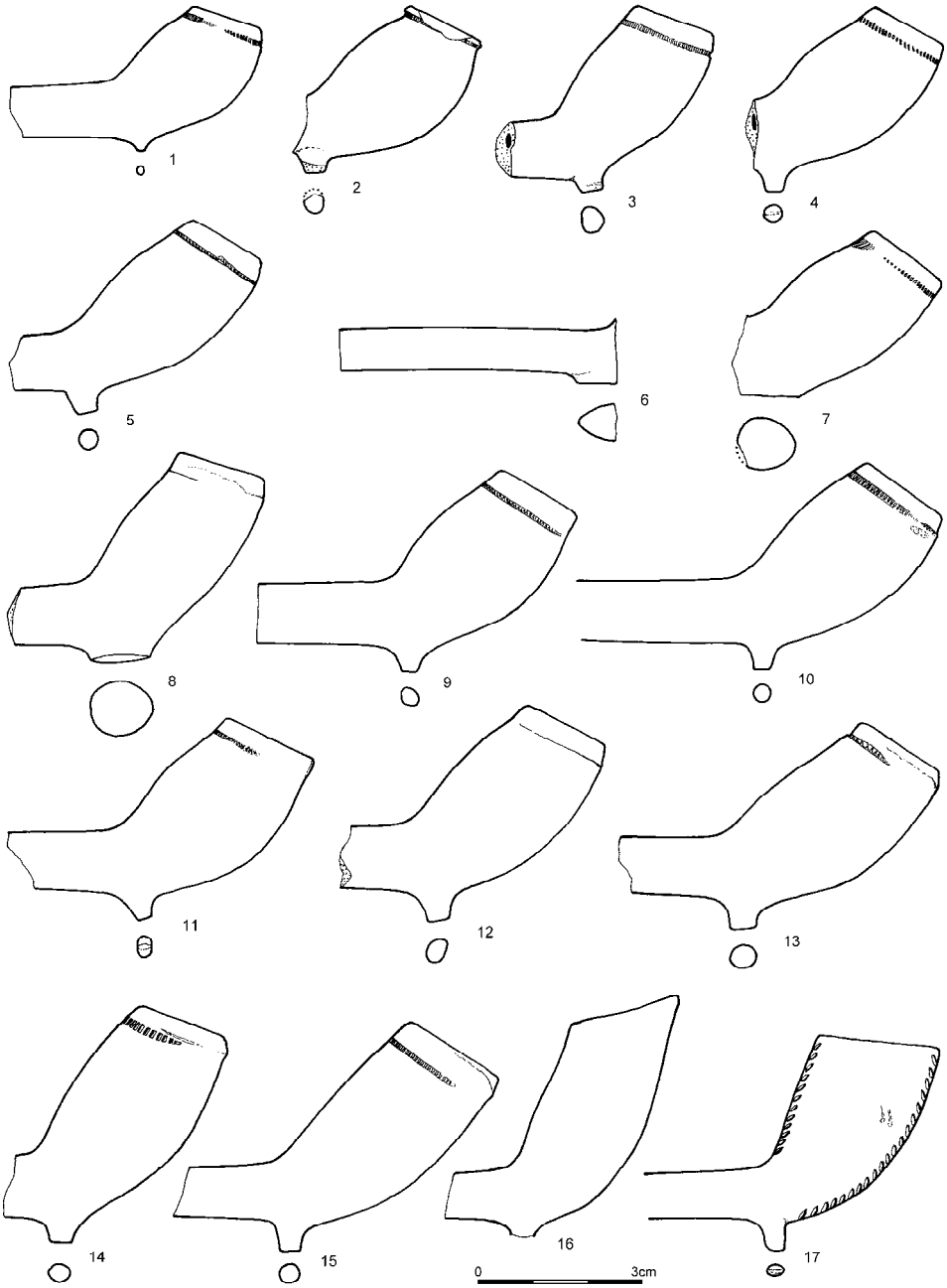

Figure 39 The clay tobacco pipes: pipe bowls 1-17.

Table 129 The clay tobacco pipes: pieces by context

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
124		1		**1**	1660-1720	1660-1720			
199		2		**2**	1650-1740	1650-1740			
200		5		**5**	1610-1740	1680-1740			Hard to date accurately but the latest pieces present are most likely *c.*1680-1740.
1312		1		**1**	1610-1730	1610-1730			
2010		1		**1**	1770-1910	1770-1910			
3021		1		**1**	1770-1910	1770-1910			
3038		2	1	**3**	1760-1910	1760-1910			The two stems join (old break); the mouthpiece has a simple cut end. These fragments are hard to date but most likely late C18th or early C19th.
3052		2		**2**	1660-1710	1660-1710			
3063		2		**2**	1610-1910	1750-1910			One stem is of C17th date and the other probably *c.*1750-1910 - but this piece hard to date accurately.
3068		2		**2**	1700-1770	1700-1770			
3075		3		**3**	1760-1910	1760-1910			Most likely late C18th to mid-C19th fragments.
3111		1		**1**	1680-1780	1680-1780			Probably *c.*1680-1780 but could possibly be earlier.
3176		3		**3**	1750-1910	1750-1910			Most likely late C18th to mid-C19th fragments.
3210		1		**1**	1770-1910	1770-1910			
3278	1	3		**4**	1700-1910	1820-1870	leaf seams x1; ground end x1	17	The stems are hard to date, bring general C18th or C19th types, one of which has its end ground smooth. The bowl , however, is complete and with 28mm of stem, which suggests it provides a reliable date for this group (Fig 17). It dates from *c.*1820-70 and is very similar to an example from Vine Street (A22 2003 2213), but is from a different mould.
3283		3		**3**	1750-1910	1750-1910			Hard to date accurately but deposition most likely late C18th to mid-C19th.
3363		1		**1**	1760-1880	1760-1880			

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
3846	1			**1**	1630-1660	1630-1660	burnished x 1		Neatly made local spur bowl with a very diminutive spur (from same mould as Figure 1, which is from context 7089 (A)). The rim is bottered and fully milled and there is an average (but very light) burnish on both the bowl and stem. Stem bore 8/64".
5008		6		**6**	1610-1710	1630-1700			Consistent looking C17th group, including some thicker pieces likely to narrow the range to *c.*1630-1700.
5024	1	1		**2**	1660-1750	1670-1720			Includes a small fragment from a spur bowl, probably dating from *c.*1670-1720.
5077	2			**2**	1690-1770	1700-1750			The earlier fragment comprises the larger part of a local bowl style bowl of *c.*1690-1730 with the heel or spur missing. About three quarters of the rim, which has been lightly bottered, survives, none of it milled. There is no internal bowl cross. Stem bore 7/64". The second piece is a fragmentary bowl of an upright 18th century style, similar to a group from Vaughan Way (A2 2003 823 D-I). No rim survives and there is no internal bowl cross. The heel is plain and the stem bore is 5/64". This piece could be as late as c1770 but seems most likely date from the first half of the century (especially early in the century) given the associated fragment.
5088		7	1	**8**	1610-1710	1660-1710			All these pieces are of C17th styles with some thick stems suggesting a later C17th date fro the group as a whole. The mouthpiece has a simple cut end.
5188		2		**2**	1610-1710	1610-1710			
5220		5		**5**	1660-1860	1760-1860			Two residual fragments of later C17th date and three pieces of late C18th to mid-C19th types.
5221		3	1	**4**	1760-1850	1760-1850			Probably all of later C18th or first half of the C19th date. Mouthpiece has a simple cut end.
5223		1		**1**	1660-1710	1660-1710			

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
5224 SF834	1			**1**	1810-1830	1810-1830	Fluted bowl with stars, leaf seams and internal bowl cross x 1		A complete bowl (Small Find Number 834) that has been crushed into many pieces since excavation. The bowl is decorated with stars around the rim, four flutes on each side and leaf seams. It also has an off-centre internal bowl cross. This mould type has been found at various sites in Leicester, including a pipe kiln dump of *c.*1810-20 (Higgins 1999, Fig 100.29). This dump could be attributed to the Leicester pipemaker Richard King, who is recorded working from 1805-28.
5225	1	1		**2**	1640-1830	1810-1830	Fluted bowl with stars, leaf seams and internal bowl cross x 1		This context produced one residual stem fragment of C17th or early C18th date and a complete bowl decorated with stars around the rim, four flutes on each side and leaf seams. It also has an off-centre internal bowl cross. This mould type has been found at various sites in Leicester, including a pipe kiln dump of *c.*1810-20 (Higgins 1999, Fig 100.29). This dump could be attributed to the Leicester pipemaker Richard King, who is recorded working from 1805-28.
5228		3		**3**	1640-1750	1680-1750			Three stems of C17th to early C18th types, the latest probably dating from *c.*1680-1750.
5257		2		**2**	1680-1750	1680-1750			Two joining stem fragments of late C17th or early C18th type - an early C18th date seems most likely.
5276	1	3		**4**	1610-1710	1660-1700			The stems are all of general C17th or early C18th types (2 join; freshly broken) and the bowl fragment comprises the lower part of a spur bowl of *c.*1660-1700. This bowl fragment provides the likely date for this deposit and all the stems would fit with this dating.
5308		5	1	**6**	1610-1740	1680-1740		5, 8, 10-12	Fragments of general C17th to early C18th types, but with the feel of the group as a whole being most likely to date from *c.*1680-1740. The mouthpiece has a simple cut end to a rather deep, oval stem .
5310	2			**2**	1680-1710	1680-1710		15	Two very similar spur bowls, one complete (Fig 15) and the

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
									other nearly so, both dating from *c.*1680-1710 (similar to Higgins 1999, Fig 98.8).
5332	1	6		**7**	1610-1900	1800-1900			Most of these pieces, including a very fragmentary bowl junction, date from the C17th or early C18th, with a late C17th or early C18th date seeming most likely for the latest pieces. There is one large fragment, however, of C18th type - perhaps most likely *c.*1720-80. Either this stem is intrusive in this context or it contains a lot of earlier redeposited material.
5333		8		**8**	1610-1750	1680-1750			Five stems of C17th or early C18th types and three of late C18th or early C18th types. Taken together they could all represent a late C17th to early C18th deposit.
5358	2	4	1	**7**	1610-1720	1660-1690		7, 14	Stems and a cut mouthpiece are all of general C17th to early C18th types but there are also two complete bowls (one heel, one spur; Figs 7 and 14 respectively) dating from *c.*1660-90, which provide a good date for the group as a whole. One stem has a very large bore of nearly 10/64". The spur bowl has actually been marked 5538 but has been bagged with the other 5358 material and it is assumed the numbers were transposed in error during labelling.
5361	2			**2**	1630-1730	1630-1730			One stem fragment and some crushed chips from another - too small to identify properly but of similar date. The intact piece is of a general C17th or early C18th type and most likely to date from the late C17th or early C18th.
5379	4			**4**	1610-1730	1660-1730			Some large, fresh looking pieces (up to 112mm long) of C17th or early C18th types. Taken together, they are most likely to represent a late C17th or early C18th deposit.
5380	25	146	12	**183**	1710-1710	1670-1690			A large and extremely consistent looking group of pipes with all the stems being of general C17th types but with the bowls all clustering within a *c.*1660-90 range. Within this range, large,

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
									heavy forms dominate, suggesting a likely deposition date of *c.*1670-90. Although quite a number of joins were found, no complete pipes could be reassembled. Spur forms dominate (23 of 24 identifiable examples). This group is similar to, but very slightly later than, two other groups of spur bowls from the excavations - contexts 7033 and 7089.
5597	1	2		**3**	1640-1860	1760-1860			One C17th stem and a fragment of late C17th milled bowl are both residual in this context, which includes a stem of later C18th or C19th date (most likely *c.*1760-1860).
7001	1	3		**4**	1610-1710	1670-1690			Three stems of C17th type and a large complete spur bowl of *c.*1670-90, which provides the likely date for the group (almost identical to Fig 13)
7029		7		**7**	1640-1900	1780-1900			Three of these stems are of C17th types and must be residual since the other four are all late C18th or C19th in date (most likely late C18th or early C19th).
7033	12	64	5	**81**	1610-1780	1660-1680		3, 13	All but one of the stems and mouthpieces are of C17th types, the exception being a stem that looks possibly *c.*1680-1780 and later than everything else in the group. This seems likely to be intrusive, especially given the consistent nature of the bowl forms, all of which date from between 1640 and 1690, with most dating c1660-80 - this being the most likely date for the group as a whole. All 12 are spur types, 9 of which are substantially complete. All the mouthpieces are cut. No obvious joins amongst the group and look a little too fragmented to be worth attempting reassembly since the pipes are slightly more fragmented than those from 5380. However, this still looks like a good consistent group, deposited over a relatively short period of time.
7089	16	74	5	**95**	1610-1710	1660-1680		1, 4, 9	All of the stems are of C17th or early C18th types but a much better dating is provided by the bowls, almost all of which date from *c.*1660-80. There is just one earlier looking form,

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
									although this could possibly be a 'miniature' and one or two slightly larger forms that would normally be dated to *c.*1670-90. Taken together, a date of *c.*1660-80 seems most likely for this very consistent looking group.
7098		1		**1**	1610-1710	1610-1710			Quite a large fragment (94mm) of C17th type stem - most likely dating from the second half of the century.
7125		1		**1**	1610-1710	1610-1710			Fragment of C17th type stem - most likely dating from the second half of the century.
7156		1		**1**	1610-1710	1610-1710			Fragment of C17th type stem - most likely dating from the second half of the century.
7167		7		**7**	1610-1710	1610-1710			Fragments of C17th type stem - most likely dating from the second half of the century.
7168	1	3	1	**5**	1610-1710	1640-1710			Stems and a cut mouthpiece of general C17th types and a spur fragment, probably dating from somewhere between 1640 and 1710.
7169	1			**1**	1610-1660	1610-1660		6	Unusual fragment comprising half of a small, heart-shaped heel with a relatively thin stem and a stem bore of 7/64" (Fig 6). Hard to date accurately but perhaps most likely to be *c.*1610-40. An unusual form for Leicester.
U/S	5	23		**28**	1610-1900	1610-1900		2, 16	There are 10 bags of unstratified material from various parts of the site. Most of these fragments date from the C17th with just a few of C18th (and possibly later) date. None of the fragments are marked or decorated but they include one fragment of C17th bowl as well as four complete or substantially complete spur bowls, three of which date from the C17th and one from the C18th. The C18th bowl is of interest (Fig 16), since it dates from a period that is rarely represented in the archaeological record.
	81	**423**	**28**	**532**					

ROMAN CERAMIC BUILDING MATERIAL *Phil Mills (summarised by R Buckley and N Cooper from archive report)*

Introduction

A stratified assemblage of 2,448 fragments of ceramic brick and tile, weighing 513.596 kg was recovered from the excavations.

The assemblage derives from *in situ* material incorporated into the collapsed wall SG5012 (Phase 5.02), which was recorded and sampled during the excavation, with the remainder being mostly residual material from stratified deposits. It was not considered worthwhile to undertake detailed fabric analysis of the entire assemblage as with the exception of wall SG5012, little evidence of Roman structural activity was identified on the site and the majority of the material was, in any event, manufactured in the variety of orange sand-tempered fabrics typical of products found across the City and County. Within each context, tile was recorded by type and quantified by fragment count and weight.

Results

General

The stratified material derives from 534 contexts. Only four context groups (364, 471, 5200 and 5562), yielded more than 10kg which indicates a very disturbed assemblage, most of which is residual within medieval deposits. Table 130 summarises the stratified assemblage by form. The small quantities of flue tile probably represent a 'background' scatter of flue tile reused as hardcore – of note are examples of shelly box flue tiles from this site. The wide regional trade in Harold shelly ware CBM probably parallels that of the expansion of trade in pottery vessels from the same source, from the 3rd to 4th century. The high level of wall tile reflects those found within the collapsed wall.

Table 130 The Roman ceramic building material: quantification of assemblage by form

Form	Frags	Weight(g)	AvFragWt	%Weight
Boxflue	84	12188	145	2
Imbrex	319	33683	105	7
Tegula	577	139784	242	27
Wall	475	298841	629	58
Total Class	1445	484496	210	94
Unclassified	993	29100	29	6
Total	2448	513596	289	100

A comparison of the relative quantities of Roman roof tile (tegula and Imbrex) with Roman and medieval roof slates clearly shows that, in common with most sites in the City, that CBM dominates slate by fragment count.

Table 131 The Roman ceramic building materials: comparison of quantities of ceramic roof tiles and slates

Site	Roof tile		All Slate		Roman Roofing Slate
	No	Wt	No	Wt	No
Freeschool Lane	2358	472887	24	20284	8

Table 132 The Roman ceramic building material: boot and animal prints

Site	Boot Print	Animal	N
Freeschool Lane	0.08%	0.54%	2403

Collapsed wall, SG5012 (Phase 5.02)

A substantial wall of mortared granite rubble with tile bonding courses and tile arches collapsed in the early post-Roman period over the north-south Roman street running through Area 1. The wall measured 7.8m long (north-south) by *c.*6m wide (east-west). From its position, the wall would seem to be the eastern, gable-end, wall of a large basilican building excavated by J.S. Wacher in 1958 and interpreted by him as a *macellum* or market hall, constructed in the early 3rd century (Wacher 1974; Cooper and Wacher 2009). Based on excavated data from the *macellum*, the wall was probably originally a minimum of 1.4m thick.

Four tile bonding layers were identified, each composed of 3-4 courses of tile. This construction method is known as *opus vittatum mixtum* (Jones 2003, 67). The tiles share the same dimensions and tiler's marks suggesting that they represent a batch produced for single building project. The use of tegulae in place of wall tiles indicates the reuse of material or surplus stocks not being used for roofing. A total of 80 wall tiles were recorded within the collapsed wall, together with 31 tegulae which had been reused as wall tiles in the upper courses. Measurements were obtained from fifty complete examples of wall tiles and fourteen tegulae together with details of finger signatures, flanges, and animal and human and hobnailed footprints. Fourteen complete wall tiles and five tegulae were retained.

The dated tegula cutaways, after Warry 2006, include cutaway type B (AD 100-180) from the collapsed wall (tile TRI13) and examples of cutaway type C (AD 160-260).

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 is mainly from mid-2nd to mid-3rd century deposits, 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.

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 Harrold, 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 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 patterns suggested by the animal markings suggest that alongside the importation of the Harrold materials, local production continued, but on a more ad hoc basis, than previously.

Acknowledgments

I would like to thank Laura Hadland of the Leicester Museum Service for help in accessing the Norfolk Street Villa fabric series.

THE SLATE Terri Davies

A stratified assemblage of 23 nearly complete, identifiable slates weighing 20kg was recovered from the excavations. The assessment entailed the creation of an MS excel database recording the shape and size of slates, quantified by weight and count, and the shape and size of the suspension hole. The material derives from 10 stratified contexts. Twenty-two slates are medieval in date, and a group of nine came from (5993). One slate was of Roman date. The slates originate from quarries in Swithland and Groby in the Charnwood district of north-west Leicestershire.

THE INDUSTRIAL RESIDUES *Alice Forward and Graham Morgan*

Introduction

There is very little evidence for metal working at Freeschool Lane. Of the 30 contexts recorded as containing industrial material, 14 have produced objects which are metal or, as with a hearth bottom for example, have metal adhering. Clay mould fragments represent a high proportion of the assemblage with examples from nine contexts. All the material is believed to be redeposited as there is no evidence from the excavated contexts for *in situ* industrial metal-working features at Freeschool Lane.

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.

Some ferrous slag was selected for microscopic investigation. Samples were removed using a rock saw. Samples were not mounted in resin or polished, as the intention was to obtain a quick idea of the potential of the material. The sections were examined under a transmitted light microscope, allowing an assessment of slag phases.

The terminology 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 and non ferrous metal Waste

Fourteen contexts dating from the Saxo-Norman to Medieval periods contained metal waste. Smithing slag represents the majority of the material, retrieved from eleven contexts across the site and identified as redeposited from pit fills and soil layers. Two of the eleven contexts (5563; phase 8.02, Area 1, plot 56) and (5445; phase 7.01, Area 1, plot 57) containing smithing slag, had other industrial material associated. A fragment of vitrified tile retrieved from (5563), a pit fill dating to the early medieval period, is thought to have been part of a hearth lining. (5445) contained not just hearth slag but also hearth lining, and a fragment of iron slag. The context is dated to the Saxo-Norman period and represents a series of dumping layers that also contained bone, pottery and other redeposited refuse.

Three other contexts contained metal industrial material comprising 722g of fayalitic slag from (5460; phase 9.0, Area 1), 2419g of iron hearth slag from (6179; unphased) and 28g of clay mould fragments with copper traces from (3237; unphased). Contexts (5460) and (6179) are pit fills and (3237) is a rubbish layer, all of which are dated to the medieval and later medieval period. The volume of the material is small and indicates redeposition rather than *in situ* working.

The microscopic analysis of the ferrous slag revealed it to have a fayalitic composition, containing the iron silicate (2FeO.SiO). Although different processes

(bloomery smelting and smithing) can produce morphologically distinct slags, compositionally they tend to be similar (Bayley *et al.* 2001, 11) and it is therefore not possible to determine the process (smelting or smithing) based on this alone.

Smithing 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, are unlikely to be confused with the waste products of smelting, and are therefore considered to be diagnostic of iron smithing. As the diagnostic slag was produced by iron smithing, it is likely that the undiagnostic ironworking slag was also a by-product of smithing. Although the ferrous slag is redeposited it does suggest that secondary iron working was in action in this area during the early medieval period.

Clay Moulds

In total 1190g of clay mould fragments from nine contexts attributed to Phases 10 and 11 were retrieved. The clay moulds were not found in association with any other metal working waste or in features which represented metal working activity. The clay moulds had traces of copper alloy metals on their inner surface. A few of the fragments have the imprint of an artefact but none are complete enough to be diagnostic. As with the metal waste, the clay moulds are redeposited, associated with floor layers and rubbish layers and have no relationship with any industrial features.

Discussion

Evidence for metal working is limited and there are no specific features with associated industrial material at Freeschool Lane to indicate industrial activity. Late Roman hearths G5007, were found under the collapsed macellum wall; they had obviously been exposed to high temperatures, but were devoid of objects which could associate them with a specific metallurgical process.

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THE ARCHITECTURAL STONEWORK *Tony Gnanaratnam*

Introduction

The excavations at Freeschool Lane produced 42 fragments of architectural stonework. Each has been assigned an archive catalogue (ID) number and 26 pieces have been selected for the report catalogue which follows. The material not included in the report catalogue comprises eight squared blocks and eight chamfered blocks of medieval date which were recorded on site, examined for tool marks, and discarded. Where context numbers have not been assigned, these fragments were recovered during demolition of the plot boundary walls running perpendicular to Highcross Street.

Roman Stonework

Two pieces of Roman date have been recorded, a column base from Phase 4 and a drum, residually in a Phase 7 context.

1) – ID4. Sf 1238 (6549) fill within Phase 4 hearth [6555]. – coarse grained, mid-grey sandstone, possible millstone grit. Fragment of Roman column base. No tooling survives on the faces, presumably having been either abraded or polished, although marks of a point survive on the base, which is about 3mm from flat. The moulding seems to be based on a cyma recta moulding separated by a fillet and quirk from a second cyma recta below it (Figure 42).

Figure 42 The architectural stonework: ID4 (cm/mm scale)

2) – ID11. Sf1100 (6325). ?Millstone grit. Stone drum from a, possibly unfinished, colonette or baluster. The piece was worked to an approximate circular section, with a point. Very crude bead mouldings at the top and bottom and the piece flares out at

the base (Figure 43). In the middle of the piece is a pecked sub-square hole measuring 70mm wide and 60mm deep. This may be for locating the adjoining drum (Figure 44).

This would be of a size and scale consistent with use on a residential building within a Roman context. However, given that this was found in a Phase 7 (Saxo-Norman) context it is possible that thus was of late Saxon workmanship, although this seems less likely, given that the stone type is not local, and that there seems less of a context for such work in late Saxon Leicester.

Figure 43 The architectural stonework: ID11 (cm/mm scale)

Figure 44 The architectural stonework: ID11 (cm/mm scale) from above

Medieval Stonework

Abbreviations used:

OL: oolitic limestone

DHss: Danehills sandstone

MGrit: millstone grit

Voussoirs

3) – ID27. DHss voussoir fragment. Plain soffit flanked by two hollow chamfers of differing sizes, one of which joins the sloping face of the wall. On the rear of a small hollow chamfer which might indicate a second order. This has three layers of paint, a first yellowish/cream coat, a middle yellowish/cream and an upper white layer.

The tooling has been polished away on the face. The surviving bed is around 2mm from flat.

4) – ID 29. Sf97. Chevron moulded voussoir. Traces of white paint on surfaces. Has roll moulding, above a frontal chevron moulding. Below a narrow frontal fillet is a soffit chevron moulding. The rear of the piece has a plain chamfered splay. This implies a second order to the rear.

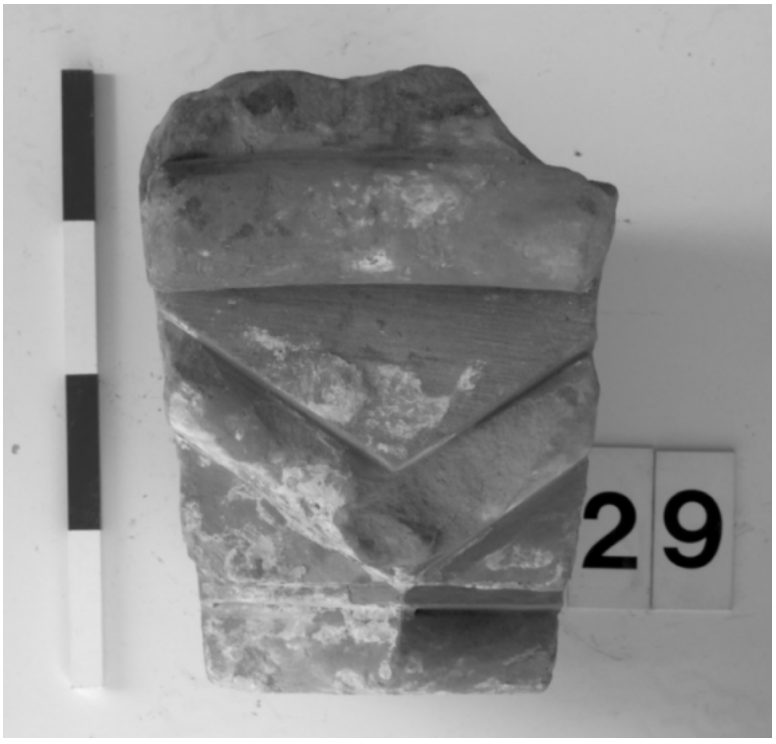

Figure 45 The architectural stonework: ID29 front (40cm scale)

This piece is potentially from a doorway or window. Similar chevron moulded voussoirs were recorded from the Shires (Graves 2007, voussoir no. 1) and were of late 12th century. The form is identical with the later Norman north and west

doorways at St Mary de Castro, Leicester, the former being of two repeated orders and the latter of only one. Whilst these were restored, the originals may have been part of the 1160s rebuilding of the church.

String Courses

5) – ID1. Sf783/698 wall (5010) Phase 9 (or possible Phase 11 rebuild). DHss – string course with quarter round moulding. Two fragments as ID13

6) – ID3. Sf783/698 wall (5010) Phase 9 (or possible Phase 11 rebuild). Three fragments of string course, one of which was from a corner, measuring at least 200 by 160mm. The string was embellished with a sunk quarter round moulding, which was slightly flattened on the underside. On the visible faces the tooling was largely polished away. However, on the upper surface of one piece were drag marks, which have not often been recorded on Leicester's masonry. A further fragment bore two masons marks, both in the form of a T (Figure 46).

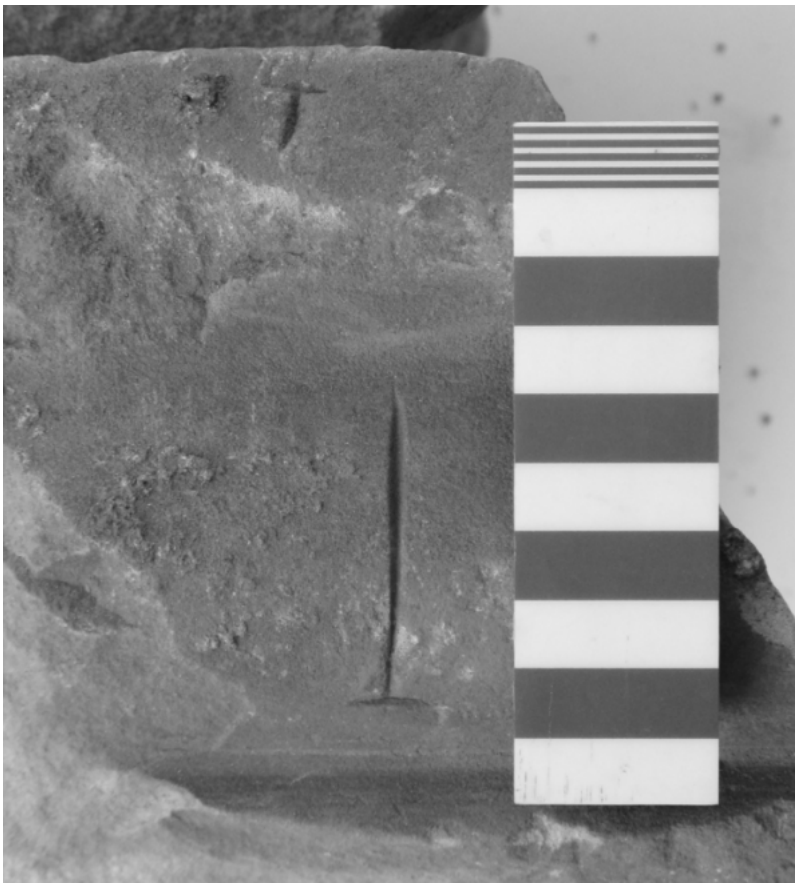

Figure 46 The architectural stonework: Masons mark ID3 (cm/mm scale)

7) – ID13. 783 DHss – Two fragments of string course with a sunken, quarter round moulding, which is slightly elongated. Some deeper chisel marks were visible on the upper surface. Same as ID1.

Reveals or Jambs

8) – ID2. Reveal/jamb/decorated angle fragment. Comprises an outer splay leading to an angled, nearly three-quarter round moulding and fillet adjacent to a quarter-round hollow moulding. The angle of the roll matches the attached colonette on ID 21 as does the hollow moulding, and this probably sat above ID21 (Figure 47).

The faces are largely covered with later mortar, having been re-used in a post-medieval wall. However, traces of whitewash survive over the face, together with presumably accidental traces of paint over part of the rough worked rear. Most of the faces were polished removing tool marks, although some deeper blade marks survived on the inner face. The lower bed was worked to around 2mm from flat, with blade marks 30mm wide. The upper bed was been hacked down, with blade marks 17mm wide and up to 4mm deep. On the inner face is a mason's mark (Figure 48).

9)- ID21 DHss – probable reveal. Consists of an angled block with architectural decoration at the corner consisting of an attached colonette with a hollow chamfered octagonal base adjacent to the corner, and a quarter round vertical hollow moulding on the corner with an angled stop. This matches ID2 which is the upper part (Figure 47), with the colonette continuing upwards. Below this, part of a plinth projects. A further block could be postulated above this. The rest of the piece is damaged; it is likely that there was further decoration, perhaps architectural in form. The piece retains traces of two coats of paint. A thinner white coat is succeeded by a thicker off-white coat. The tooling on the faces has been polished away except for deeper blade marks surviving in the inner face. The upper bed is around 1mm from flat, indicating precise fitting of next course. The lower bed is around 2mm from flat, with blade marks 35mm long and 1mm deep. The hollow chamfered octagonal column base is more typically Perpendicular in style. The scale of the piece may be suited for a window reveal.

Figure 47 The architectural stonework: ID2 (top) and ID21 (bottom) (50cm scale)

Figure 48 The architectural stonework: Mason's mark on ID2 (cm/mm scale)

10) - ID7. (6347) fill within phase 9 pit [6351] DHss – door or window jamb. The jamb has a plain chamfered external chamfer, with an internal rebate for a window or door frame. There is striated tooling on the outer faces, which are all ashlar 0.5 to 1mm deep. There are chisel marks on the beds of 30+mm in length.

11) – ID8. DHss - ?jamb. Central axial portion has been broken off, has shallow hollow chamfer on corner. The piece is covered with a pale yellow whitewash. The external faces are worn and no tooling survives.

12) – ID9. Sf993 -DHss. Probable window jamb fragment. The piece has a wide external splay and a smaller internal splay. There are two holes, one probably unfinished and *c.*10mm deep and the other 35mm deep, to secure window bars.

13) – ID12. DHss - jamb with internal plain chamfer. The finished faces are ashlar, and there are traces of two coats of paint, an upper white and lower cream. On upper bed are seemingly two recesses for cramps, although no trace of lead or iron survives.

14) - ID14. DHss – jamb/reveal. The moulding consists of a quarter round moulding and fillet, flanked by two further fillets (Figure 49).

Figure 49 The architectural stonework: profile of ID14 (cm scale)

15) – ID22. DHss - jamb. Jamb with angled sloping face adjoining a quarter round hollow chamfer on the corner. A much smaller quarter round hollow is cut into the second corner of the jamb. Some diagonal tooling with blades 35+mm long. The moulding matches ID26 and ID27.

Tracery

16) – ID32. Sf95. DHss – slightly curving tracery. The rear of the piece is broken but appears to mirror the front. This consists of an axial roll with frontal fillet, which is flanked by hollow chamfers. The frontal fillet merges into the roll, which might suggest a later date. The rear consists of two hollow chamfers flanking a broken axial member. The piece has one glazing groove on the inner face, the rebate 20mm wide by 15mm deep. The outer face is damaged and no trace of a corresponding slot survives. There are traces of whitewash on the complete, perhaps inner face. The fragment is similar to the central mullions on the western nave windows at the nearby All Saints Church. On the bed is a setting out line (Figure 50). The combination of hollow flanking chamfers and the well cut glazing groove suggest a Perpendicular date of mid- 14th to mid- 16th century. This was probably retrieved from the demolition rubble of the Headmaster's House at the Free Grammar School and thus in turn came from the 16th century demolition of St Peter's Church.

Figure 50 The architectural stonework: ID32 with marking out line (cm scale)

17) – ID33. Sf94 – DHss – tracery. Heavily damaged fragment. This appears to be junction of two unequal curves, the smaller perhaps being a cusp (Figure 51). On the soffits are shallow pecked glazing grooves. The fragment is too small and damaged to date. Traces of cream paint survive in the angles. This was probably retrieved from the demolition rubble of the Headmaster's House at the Free Grammar School and thus in turn came from the 16th century demolition of St Peter's Church.

Figure 51 The architectural stonework: ID33 (cm scale)

18) – ID34. DHss - tracery. This consists of curving member with a chamfer cusp fragment on the inside and a second chamfer cusp on the outside of the curve (Figure 52The chamfers are plain. Presumably this was part of the cusped head of a light with a motif, such as a dagger, between the light and window arch. Although small, the fragment is likely be of early to mid-14th-century date or possibly later.

Traces of cream paint survive in the angles, although there was no paint surviving on the soffits. Shallow pecked glazing grooves survive on the soffits. This was probably retrieved from the demolition rubble of the Headmaster's House at the Free Grammar School and thus in turn came from the 16th century demolition of St Peter's Church.

Figure 52 The architectural stonework: ID34 (cm scale)

Mullions

19) – ID10. DHss mullion. Very abraded with the trace of a hollow chamfer. With well-cut glazing grooves, 20mm wide and 10mm and 15mm deep. On the top bed is a star-shaped chiseled recess for mortar.

20) – ID16 DHss? Very dense and abraded mullion fragment, with a crudely pecked glazing groove, *c.*10mm x10mm.

21) – ID17. DHss abraded mullion fragment. This has a cut channel for glazing, 13mm deep and 5+mm wide. The mullion seems to have been cut in half at a later date.

Window Sills

22) – ID5. DHss – window sill. Plain chamfered window sill. It is possible that this piece could derive from the demolished schoolmaster's house, which was part of the Free Grammar School (See similar ID 24 below and Figure 53). There is striated tooling on the outer faces, which are all ashlar 0.5 to 1mm deep. There are chisel marks on the beds of 30+mm in length.

23) – ID24. Light yellow brown, oolitic limestone. Window sill (see also ID5). Sill has plain chamfered internal and external sill and reveals (Figure 53). It is possible that this piece could have come from the schoolmaster's house at the Free Grammar School. A 20mm deep glazing groove had been pecked into sill. The sill is similar dimensions and thickness to those surviving in the Free Grammar School. However given that some are of oolitic limestone and some of Dane Hills sandstone, it is not clear whether they were cut specifically for the School or were simply re-used. As

ID24 seems to have been recovered from the post-medieval plot boundary walls, this may indicate that the school windows were simply re-used.

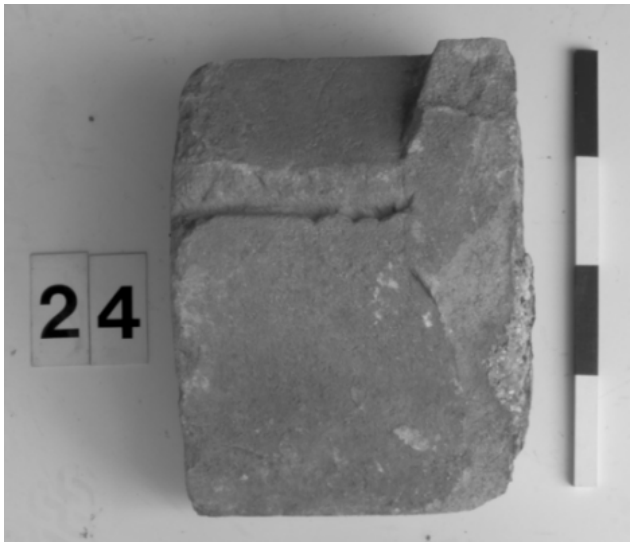

Figure 53 The architectural stonework: ID24 from above (40cm scale)

Coffins

24) – ID30. Sf784.from rubble deposit (5204) against phase 9 wall (5156). pale yellow brown oolitic limestone. ?Coffin fragment (Figure 54). Block of stone with two adjoining depressions cut down to the same level. These are part of a circle and a right angled, flat-based near vertical sided depression. The depression was chiseled out, and the rear and outsides of the piece were roughly finished suggesting they were not visible. Whilst this superficially resembles A2.2003 ID 2, this may be the head end of a child's stone coffin; probably a composite rather than monolithic coffin. The use of simply a support for the head and shoulders is known from St Oswald's Gloucester (Heighway and Bryant 1999, 218). The early date indicates that this did not derive from the 16th century demolition of St Peter's although this could still have come from the cemetery.

Figure 54 The architectural stonework: ID30 from above (40cm scale)

25) – ID20. Sf935 (5557) fill of Phase 12, stone lined, cess pit. Oolitic limestone fragment.

Probably from the head end of a composite coffin; although this could have even used on its own. The base and sides seem much too thin to have been part of a complete stone coffin.

26) – ID18. Phase 12 Stone-lined cesspit [5335] oolitic limestone slab 67mm thick, with pecked hole in side. This is 20mm wide and 40mm deep. There is no clear function for the piece.

27) - ID19. (7801). Mid-yellow brown sandstone. Fragment from basin, trough or coffin.

Discussion

The Roman column base (Figure 42) may have come from a public building such as the adjacent macellum, whilst the smaller drum is probably domestic in scale and may have come from a wealthier private house, though much of the comparable evidence for columns comes from rural villas such as Bignor, Gadebridge Parks and Chedworth (de la Bedoyere 1991, 31).

The bulk of the medieval stonework was recovered from earlier post-medieval boundary walls, built of stone almost certainly derived from the nearby St Peter's church. Some of the stone (sfs 93, 94, 95) was also recovered during an evaluation stage from demolition debris from the headmaster's house attached to the Free

Grammar School, and can be more certainly tied to the church. The two window sills were very similar in both form and dimensions to those surviving on the Free Grammar School. However, these seem to have been retrieved from the post-medieval plot boundary walls, and it is possible that these, and the Freeschool windows, both ultimately derive from the same source; the church of St Peter. This would also be consistent with the use of two stone types on the Freeschool and the use of both plain and hollow chamfers. Were these from major windows, then they might be expected to be nearer one foot rather than six inches in height, and so these could derive from smaller windows such as from a clerestory.

It is likely that most of the medieval pieces were derived from the nearby medieval church of St Peter. This was being demolished from the mid-16th century and in 1573 was recorded as providing building stone and timber for the Free Grammar School. It is not possible to relate them to any particular part of the church. However, the stone indicates construction work from the Norman through to Perpendicular periods. The Norman chevron moulded voussoir is strongly reminiscent of the north and west doorways at St Mary de Castro, and is probably of similar later 12th-century date. The survival of paint might indicate that it came from within the church. Unlike the other fragments of masonry however, this was recovered from the east end of the site and so can be less easily associated with the church of St Peter. That said there were few other likely sources for work of this quality, other than perhaps the Hospital of St John, part of which was standing in the later 18th century and could later have been robbed and re-used. However, the engraving shown by Throsby appears to have a slightly different moulding with a plain inner order (Throsby 1777, 437).

Plain chamfer moulded tracery such as ID 3 and 34 may derive from more elaborate Decorated windows, perhaps from the early 14th century. However, too little survives to be certain. A date before the mid-13th century is however highly unlikely. A single mullion fragment ID32, with ogival fillet and defined glazing grooves, may be of Perpendicular date.

IDs21 and 2 are probably elaborate reveal or jamb fragments. The use of a single narrow column on a jamb might be consistent with either an elaborate Perpendicular window or less likely an ornate minor doorway. Similar, if earlier, elaborate reveals are used on the aisles at St Margaret's Church.

THE ANIMAL BONE *Jennifer Browning*

Introduction

A large assemblage of animal bone was recovered from excavations at Freeschool Lane. Although archaeology dating to the Roman and early Saxon periods was identified, the majority of the remains were associated with occupation between the Saxo-Norman and Post-medieval periods (Phase 7 to Phase 11). There is a sufficient quantity of bone to allow a broad analysis of economic trends, examining species proportions, dietary preferences and changes in animal husbandry. More specifically an attempt has been made to analyse the assemblage with reference to particular plots, considering evidence pointing to individual household activities, selective disposal of waste and, possibly, fluctuating wealth and status in this part of Leicester. This is therefore a fortuitous opportunity to compare the assemblages of adjacent plots in different phases.

The analysis of faunal material from urban sites presents particular challenges; on the one hand assemblages are often large, well-preserved and rich in species diversity compared with their rural counterparts. However, re-working of deposits is common and since bone is not intrinsically dateable, analysis is largely dependent on the integrity of the stratigraphy. This project attempted to address these concerns by, as far as possible, basing analysis on larger groups of material recovered from sealed, well-dated and discrete deposits. The entire assemblage was scanned during the assessment phase but detailed recording proceeded only where subsequent stratigraphic analysis indicated that contexts could be confidently assigned to phase or were unlikely to contain significant quantities of residual or intrusive material. Despite these precautions some contamination will undoubtedly have occurred; a large proportion of deposits contained small amounts of earlier pottery and it is unrealistic to assume that residual fragments do not exist among the bone assemblage. Having said that, there is not necessarily a direct correlation between residual pottery and residual bone, since activities which result in a good animal bone assemblage, such as butchery, may not necessarily yield a decent ceramic assemblage.

The nature of the archaeology and the prioritisation of selected deposits mean that some phases are better represented than others. In all phases, Area 1 has been emphasised because of the potential to explore intra-site patterns of distribution. Except when otherwise stated, sub-groups are the basic stratigraphic unit used for analysis throughout the report.

Methodology

Specimens were identified with reference to comparative modern and ancient skeletal material held by Leicester University, School of Archaeology and Ancient History. Information was compiled directly into a specially designed 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 for skulls developed by the author. Condition of the bone 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 result 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.

Species proportions were calculated using NISP (Number of Identified Specimens) and a restricted count based on all fragments with a recognisable ‘zone’. Minimum Numbers of Individuals (MNI) was calculated using the most frequently occurring zone of the most common bone element (after Serjeantson 1996). Minimum Numbers of Individuals (MNI) is not considered a particularly appropriate method of quantification for urban sites (O’Connor 2003, 156) due to the diverse possible sources for the material and has not therefore been routinely utilised, except when describing material from particular groups. As most of the bones are likely to be meat and slaughter waste, side (although recorded) was not been taken into account when calculating carcass units. When quantifying carcass components the raw counts were standardised, using zones, to ensure that only non-repeatable parts were included and were comparable across species. In order to examine the proportion of carcass components on each plot, individual elements were grouped following O’Connor (2003).

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). Age at death was further estimated for the main domestic species using tooth-wear patterns for cattle, sheep and pigs. Recording of wear on mandibular teeth followed Grant (1982) and the resulting mandible wear stages were then grouped into age categories following O’Connor (2003, table 31), as shown below.

Table 133 The animal bone: 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 horncore, skull and teeth, scapula, humerus, femur, metacarpal and metatarsal. In addition, all metacarpals were measured and the results plotted 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.

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 was firstly to identify bones from small mammal, birds and fish species that would not otherwise be recovered and secondly to check the recovery rates of the larger species. As is usual, a high proportion of this material consisted of tiny fragments of unidentifiable mammalian bone. Consequently, the abundance of bone from each sample was assessed on a scale of 1-3, however only fragments recovered from prioritised contexts and deemed identifiable were included in the following analysis. A separate record of sieved fragments was retained. It should be noted that not all prioritised contexts were sampled and that not all the samples contained bone.

During the assessment phase of the project the entire assemblage was scanned by context and, where appropriate, observations from this work have been used to supplement the data obtained from detailed analysis.

Structure of the Report

The excavations at Freeschool Lane were archaeologically complex, the stratigraphic sequence spanning a period of around 1500 years. This report aims to explore the faunal remains in sufficient detail to allow comparisons between plots and excavation areas to be made. The first section provides a synthetic account, summarising the basic information from each phase, considering each species in turn and looking at particular themes, such as butchery, that were felt to be more readily understandable by direct comparison with other phases. A detailed narrative follows, arranged on a phase-by-phase basis, and divided further into sub-phases, areas, plots and sub-groups.

Preservation and Taphonomy

Bones from the excavations were generally in a suitable condition for facilitating examination for butchery marks, pathologies and other modifications. Overall 53% of bone was in 'good' condition, while a further 42% was classed as 'medium'. Only a small proportion of the bone was at either end of the scale, assessed as 'excellent', 'poor' or 'very poor'. There was some variation in condition between phases and within particular feature groups; this will be explored in the relevant section where it is thought to be significant. Whole bones were very rare, particularly among the main domestic taxa (Table 134), which is probably a result of extensive carcass processing coupled with taphonomic processes, such as trampling and the re-working of deposits. Cattle and large mammal bone were particularly affected. Bird, cat, dog and wild mammal bones were more likely to be complete, suggesting minimal processing and disturbance.

Table 134: The animal bone: proportion of whole bones in the assemblage, based on zones (no allowance has been made for juvenile bones, therefore the percentage for pig and domestic fowl will be under-estimated)

Species	Whole bones	Total number of bones	Percentage of whole bones
Cat	63	123	51%
Wild bird	32	63	51%
Dog	39	87	45%
Duck	10	25	40%
Fallow deer	10	30	34%
Domestic fowl	213	744	29%
Goat	1	4	25%
Wild mammal	22	98	22%
Goose	75	386	19%
Horse	8	55	15%
Red deer	2	17	12%
Pig	95	1169	8%
Sheep/goat	117	1453	8%
Medium mammal	33	2037	2%
Cattle	162	1693	1%
Indeterminate bird	7	793	1%
Large mammal	5	2409	<1%

Gnawed bone is relatively uncommon, in most phases affecting only 2-3% of bones, which suggests that refuse were for the most part, quickly deposited and not easily

available to dogs and other scavengers (Table 135). A significantly greater proportion is present among the Phase 7 assemblage (8%), which may relate to the fact that a larger number of bones were recovered from occupation layers (more accessible to scavengers) than pits. Phase 11 also contained a slightly greater proportion of gnawed bones than the other phases.

Table 135 The animal bone: proportion of gnawed bone in each phase (total number of bones in brackets)

Phase	Number of gnawed bones	Percentage affected
4	7 (274)	3%
5	11 (395)	3%
7	198 (2598)	8%
8	55 (1860)	3%
9	40 (1559)	3%
10	112 (5020)	2%
11	38 (921)	4%

Context of the material

A total of 12771 bone fragments were recorded from 272 different contexts. Phase 10 produced the largest quantity of bones (

Table 136) but useful assemblages were also recovered from Phases 7.01 and 7.02, Phase 8 and Phase 9.The bulk of material was hand-recovered and only 301 sieved fragments from the selected priority contexts were included, with only half of these identified to species level (Table 137).

The majority of bone prioritised for recording was recovered from pits, as shown by

Table 138. In the later phases a significant proportion of the bone was recovered from privies; these were defined as stone- built structures, as opposed to earth-fast cess-pits, and did not necessarily contain cess, as many were presumably backfilled with other materials at the end of use (J. Coward *pers. comm.*). Features likely to belong to the interior of buildings, such as floors and hearths produced relatively small assemblages, indicating that these features were regularly cleaned out. Differences in abundance are almost certainly due to the greater volume of deposit excavated from pits and wells and also, of course, reflect that many pits were created specifically for the disposal of bones, as part of the household rubbish.

Table 136 The animal bone: number of fragments per phase

Phase	Area 1	Area 10	Area 20	Area 4	Area 7	Phase total	Percentage of Assemblage
2	8					8	<1%
4	274					274	2%
5.01	224					224	2%
5.03	6				165	171	1%
7.01	1147					1147	9%
7.03	1451					1451	11%
8	808	263		170		1241	10%
8.01	238					238	2%
8.02	381					381	3%
9	611	610	3	234		1458	11%
9.01	34					34	<1%
9.02	67					67	<1%
10	3821		7	377		4205	33%
10.01		410				410	3%
10.02		405				405	3%
11	270	649			2	921	7%
12	1			1	1	3	<1
13		119		1		120	1%
Total	9341	2456	10	783	168	12758	

Table 137 The animal bone: identified bones retrieved through sieving (NISP)

Species	5_03	7_01	7_03	8	9	10	10_1	11	Total
Cattle	2		1	3		1	3	2	12
Sheep/Goat	1	1	3	1	2	1	4	2	15
Sheep							1		1
Pig	1	1	2	4	8	31	1	1	49
Fallow deer						1			1
Cat					1	1			2
Rat						43			43
Mouse					1	9			10
Red squirrel				1					1
Domestic fowl	1				6	12	1		20
Goose						2		1	3
Amphibian				8					8
Total	5	2	6	17	18	101	10	6	165

Table 138 The animal bone: distribution of bone fragments within different feature types (prioritised contexts only, categories derived from the site database)

Feature Type	2	4	5.1	5.3	7.1	7.3	8	8.1	8.2	9	9.1	9.2	10	10.1	10.2	11	Percent of total
industrial		148											362				*4%*
corn dryer												67					*1%*
hearth		16			7		1			2							*<1%*
surface/floor						59	74		154								*2%*
linear						27	27	82		6							*1%*
makeup						105		57									*1%*
occupation layer						268											*2%*
SFB				165													*1%*
wall							65			56				1			*1%*
other masonry						12				161							*1%*
posthole				6		13	54										*1%*
robber trench										37							*0%*
pit		104			75	543	673		47	318	34		2674	67	1	571	*40%*
privy										197			378			53	*5%*
cess pit														253			*2%*
well							39						1		404		*4%*
slot													4				*0%*
Not specified	8	6	66		798	405	306	99	181	678			786	93		229	*29%*
other			158		271	22	2			4						68	*4%*
Total	*8*	*274*	*224*	*171*	*1151*	*1454*	*1241*	*238*	*382*	*1459*	*34*	*67*	*4205*	*414*	*405*	*921*	*100%*

On Area 1, the largest assemblages were recovered from plots 56 and 57 in every phase. It was not possible to make comparisons with plot 58, since little of it was exposed during excavation and consequently few bones were recovered: small assemblages were retrieved from Phase 9 and 10 features only. Plot 56 and plot 57 produced similar-sized bone assemblages overall (3889 and 4065 bones respectively) but only in Phase 7.03 and 10 were these divided equally between the plots; in all other phases the amount of material from one plot greatly exceeded that from the other. Plot 56 was dominated by cattle bones in all phases, except Phase 8 and Phase 11, when sheep and domestic fowl bones were more common numerically. Plot 57 was more variable; cattle were most frequent in Phases 7.01 and 11, sheep in Phase 7.03, domestic fowl in Phase 9 and pig in Phases 8 and 10. It is clear that there are differences in the waste deposited on the plots, possibly indicating differences in diet and activities taking place.

Phase Summaries

Phase 2: Early Roman (mid- 1st-early 2nd century)

Phase 2 produced a very small number of bone fragments (n=143), reduced to only eight from priority contexts. Within the tiny assemblage, cattle and large mammal bones dominated.

Phase 4: Late Roman (4th century)

Prioritised bones from this phase included a single sub-group, SG5007 (hearths cut into edge of Roman road), although this sub-group also included bones from a pit. Pig was most frequent taxa, contributing 35% (NISP) of the identified remains. Most of the pig bones were juvenile and some neonatal bones were present. Domestic fowl were the second most common species, providing a further 24% of the identified assemblage. Bones of both juvenile and adult domestic fowl were present. Cattle and sheep bones were less common (providing 15% and 11% of bones respectively) yet were more likely to be butchered. The assemblage appears to represent domestic debris from consumption, coupled with evidence for animal keeping.

Phase 5: Early Anglo-Saxon (c.400-650)

Of the three sub-phases defined within the Early-Saxon period, only two provided suitable bone assemblages for analysis. The earliest sub-phase 5.01 consisted of material accumulating within a 'dark earth' soil above the collapsed macellum wall (SG5028) in Area 1. A number of observations suggested that the deposit had been re-worked, including a fragment of a human ulna and the presence of loose animal teeth not associated with a mandible. Within the assemblage cattle and sheep/goat bones were fairly evenly represented.

A small group of material was retrieved from the fill of a Sunken-Featured Building (SFB) in Area 7. A relatively meagre proportion of the assemblage was identifiable to species, the majority consisting of un-diagnostic large and medium mammal rib vertebra and shaft fragments. There are fairly equal numbers of identified cattle, sheep/goat and pig bones.

Phase 7: Saxo-Norman period (c.850-1150)

Archaeology pertaining to the Saxo-Norman period was identified only in Area 1 and was truncated by later deposits. It seems likely that the plot boundaries were already defined. However, material was only recovered from plots 56 and 57; very little of plot 58 was excavated at this level. As features of this date are comparatively rare, a high priority was given to Phase 7 material and the entire assemblage was examined. The archaeology was divided into two sub-phases, each containing over a thousand specimens. The bone from 7.01 derived from a relatively small number of groups, with the largest proportion coming from plot 57. Cattle were the dominant species on both plots, in terms of numbers of bone fragments, with lesser numbers of sheep/goat and considerably fewer pig bones. Other species were represented only sporadically. In Phase 7.03, more intensive occupation is indicated by the greater number of groups (23 compared with only seven in Phase 7.01) which produced animal bone. There was a discrepancy in terms of species proportions with Plot 56 dominated by cattle bones (41%) and plot 57 by sheep/goat (43%).

Phase 8: Earlier medieval (c.1100-1250)

Occupation on the frontage of Plot 56 and Plot 57 in Area 1 produced 927 and 446 fragments respectively from pits, postholes, beamslots and layers. No groups from plot 58 were considered suitable for analysis. In plot 56 sheep/goat bones were most frequent, accounting for a third of the assemblage, and were more than twice as common as pig. Cattle bones contributed 25% of the assemblage. Domestic fowl and goose were well-represented, each providing 10% of the total. Cattle, sheep/goat and pig were present in all the sub-group assemblages in Plot 57. Of the main mammal species, pig was most common with 33% followed by sheep/goat (27%) and then cattle (24%). In addition, small numbers of bones were recovered from Area 4 and Area 10 in this phase. On the whole, the assemblages from individual features were small, with the exception of SG0469 in plot 56. In Area 4 the chosen features were floor and yard surfaces associated with the building in that phase, pig was slightly dominant but the assemblages were small. In Area 10 a group of bone from a well was examined, from which the most common species was goose.

Phase 9: Medieval (c1250-1400)

Activity in Area 1 was characterised by industrial activities, in particular the brewing of ale. The environmental remains included grains such as oats and barley, particularly on plot 58 and vetches, sorrel and field bean, which are suggestive of animal fodder (*A. Radini* pers. comm.). It was difficult to identify potentially informative bone groups; consequently Phase 9 produced a smaller stratified assemblage than most of the other phases. It could therefore be suggested that that the activities occurring on the plots in this phase were not centred on the breeding, butchering, or processing of livestock. Rixson notes that the grain residues from ale brewing could have provided a large component of the pig diet (Rixson 2000, 120), therefore it is interesting that the large increase in neonatal and juvenile pigs was not seen in this phase. The assemblage was largely recovered from pits, a stone privy and contexts associated with a malting kiln. Plot 56 once again produced the larger assemblage and only a single bone group from plot 58 was included. On plot 56, there were similar numbers of cattle and domestic fowl bones, although obviously their relative contribution to the diet would have been rather different. The three main mammal species numbers were roughly equivalent on Plot 57 but were outstripped by domestic fowl. The partial skeleton of a dog was retrieved from a context associated with the malting kiln.

Activity in Area 10 increased in this phase and bones were retrieved from ‘industrial features’ and contexts associated with a structure (Building 5). Cattle were the dominant species comprising 42% of the identifiable bones compared with 25% for sheep/goat and 20% for pig.

Phase 10: Late Medieval (c.1400-1500)

The late medieval phases produced a considerably greater quantity of bone; 39% of the entire assemblage. This increase appears to be related to the large number of pits (a greater quantity of deposit producing a larger amount of bone) but must surely also reflect the truncation of earlier features.

In Area 1, four Plot 56 sub-groups were analysed; the bulk of the assemblage retrieved from a single pit, SG5574, the remainder consisting of smaller pit assemblages. Plot 57 was similarly dominated by a single feature, PR5953, a backfilled privy, with material also recovered from pits, a second privy and layers. Four sub-groups from plot 58 produced a smaller bone assemblage from pits and layers. The material from each plot appears to have its own character, although the results are heavily biased by the dominant group in each case (SG5574 and PR5953).

Activity in Area 10 was divided into two sub-phases; the first associated with continued occupation of Building 5 and the later sub-phase associated with its disuse and demolition. In Area 4 the only prioritised feature of this phase was P1111, a narrow, deep pit that initially had an industrial purpose but may later have served a domestic function (A. Radini *pers. comm.*). Interestingly, black rat bones were recovered from fills close to the top of the feature suggesting that it was open to scavengers.

Phase 11: Post-medieval (c.1500-1650)

The faunal assemblage indicates that activity peaked in Phase 10 and only a small bone assemblage was recovered from pits, a privy and, other contexts in Phase 11. Plot 56 witnessed the building of the Free Grammar School but there was little associated faunal evidence. No new development occurred on plot 57 but privy fills indicate continuing occupation (J. Coward *pers. comm.*). A range of species were recovered including dog, cat, deer, domestic fowl and goose. There were slightly higher numbers of sheep/goat bones than cattle on plot 57 and both prioritised features contained examples of fallow deer antler, in one case apparently modified for display as a hunting trophy. Area 10 produced a larger group of material, all retrieved from pits associated with the use of the area as a yard, possibly contemporary with the final robbing of the walls of Building 5.

Species Proportions

Table 139 The animal bone: number of different *taxa* in each phase

Phase	No of different taxa	Total NISP	Ratio
2	2	5	0.4
4	9	90	0.1
5	8	138	0.06
7	19	1352	0.01
8	21	922	0.02
9	15	727	0.02
10	31	2187	0.01
11	15	449	0.03

Table 139 shows that the variety of identified *taxa* increases dramatically in Phase 10. Although, a crude ratio investigating the relationship between diversity and the number of identified specimens suggests that the assemblage size is the most significant factor. It is unsurprising that the phases with the lowest number of bones, Phases 2, 4 and 5, produced the least variety of species. However, the result from Phase 11, where 15 species were noted among a rather small assemblage, implies that there is a genuine increase in species variety in the later phase.

Across all phases, the five most common species, cattle, sheep/goat and pig, together with domestic fowl and goose account for over 80% of the identified fragments (Table 140) and it is reasonable to assume that these animals, in varying proportions, formed the majority of the diet. In the discussion that follows it should be borne in mind that even where there were higher numbers of smaller creatures, they still were unlikely to have made a significant dietary contribution; one cattle carcass will feed far more people than, for example, five chickens. The relationship between numbers of bones and the resulting meat yield is a problematic one. Factors such as species, age, carcass size, butchery methods, cultural habits and the proportion of waste are all likely to have a significant impact on the quantity of meat available for consumption. For example, 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 (Cool 2006, 81-2).

Table 140 the animal bone: the contribution of the main domestic species in each phase

Phase	Main species (cattle, sheep/goat, pig, domestic fowl, goose)	Total identified fragments (All species)	Contribution of main species (%)
2	4	5	80%
4	87	90	97%
5	126	138	91%
7	1285	1352	95%
8	868	922	94%
9	675	727	93%
10	1933	2187	88%
11	421	449	94%
All	5399	5870	92%

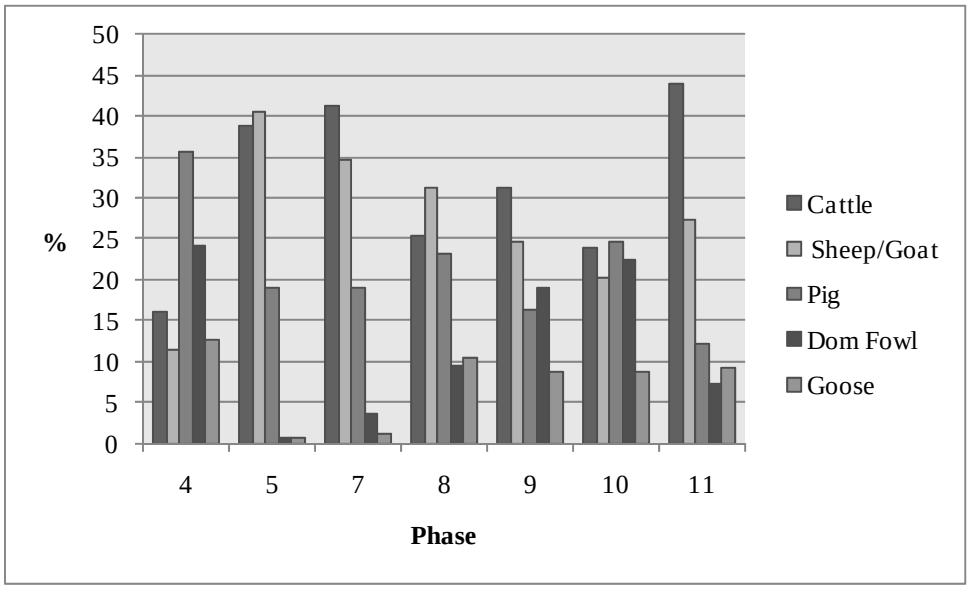

Figure 55 The animal bone: proportions of the most common species (a raw count of the Number of Identified Specimens) in priority contexts in phases 4-11

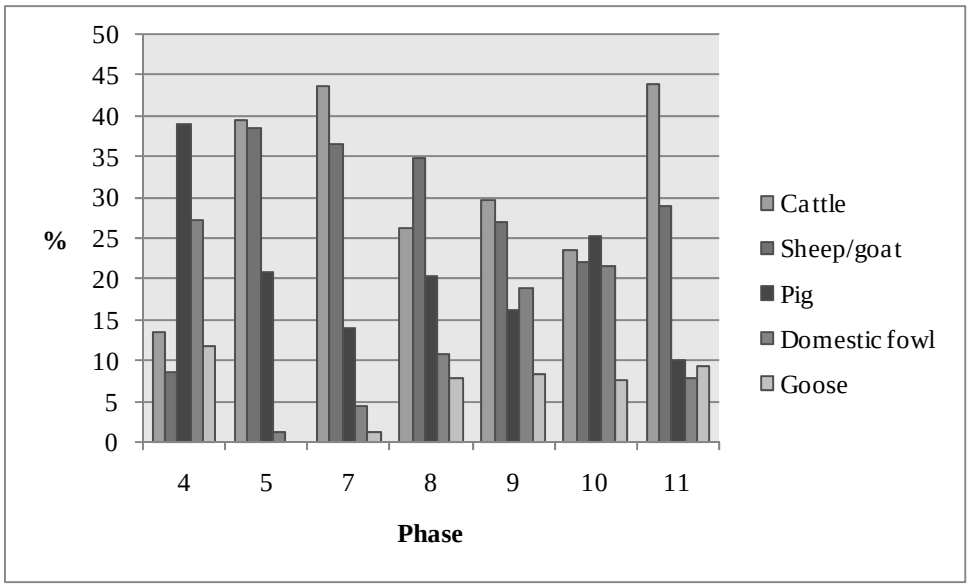

Figure 56 The animal bone: proportions of the main domestic species (bones with 1 or more 'zones')

The proportions of the most common species varied across the phases (Figure 55). The two quantification methods employed (NISP and Zones), produced very similar results. It can be seen that the proportion of geese and domestic fowl is generally low in the Saxon period (Phases 5 and 7) but increases in the medieval period (Phases 8-10). In most phases goose bones were less common than domestic fowl but there was a slightly greater abundance in the post-medieval period (Phase 11). Cattle and sheep were consistently well-represented, except in Phase 4 (Late Roman), which is dominated by a single group (SG5007), perhaps containing a non-typical assemblage. Sheep/goat made a similar contribution to cattle in most phases, except Phase 11 and was particularly prevalent in Phase 8, a trend which is emphasised by the zones count. Pig is usually the third most frequent *taxa* and appears to be present in similar quantities to domestic fowl in Phase 9 onwards. The proportion of pig bones fluctuates over time and it is the most common species only in Phase 4, although the Phase 10 'zones' count also suggests a slight emphasis on pig. Comparison of relative proportions of cattle, sheep/goat and pig only (Figure 57) indicates that Freeschool Lane is slightly at variance with other sites: countywide trends suggest that pig husbandry declines relative to sheep throughout the medieval period, specifically following the Norman Conquest, with pig-keeping at a high point in the Late Saxon period (Albarella 2006, 74). This trend is not in evidence at Freeschool Lane, given the high proportion of pig bones in Phase 10. However, these results may be specific to the prioritised features at the site.

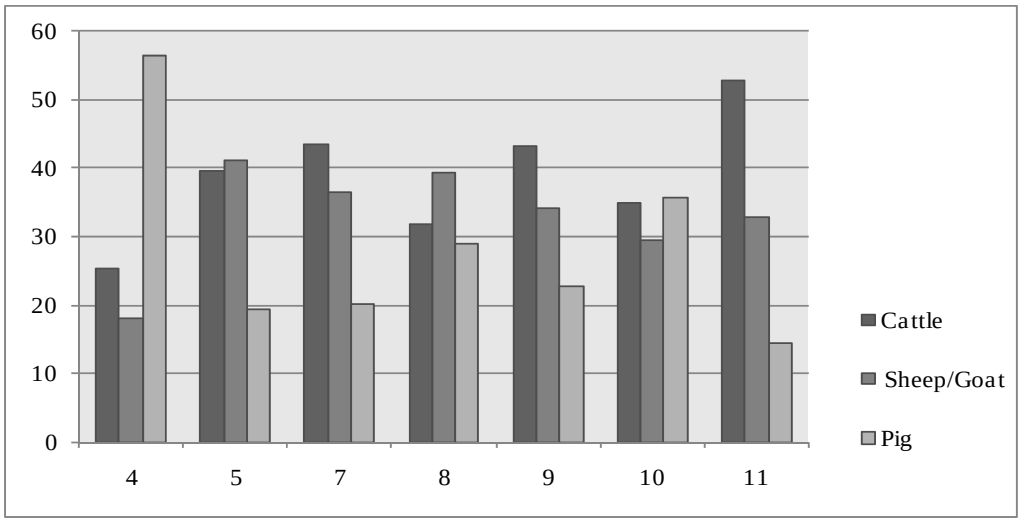

Figure 57 The animal bone: relative proportions of cattle, sheep/goat and pig (NISP)

The main domestic mammals

Cattle

Cattle bones were widely distributed on the site, present in all areas and phases and cattle were the most common species in Phases 7, 9 and 11.

The available evidence suggests that the cattle were horned and even in the later phases of the site, no evidence for polled skulls was identified. This is consistent with evidence from other Leicester sites such as St Peter's Lane (Gidney, 1991b), Little Lane excavations (Old Shires) (Gidney 1991a) and Causeway Lane (Gidney 1999, 321). Many of the horncores recovered from the site were incomplete, inhibiting assessment of horn morphology. However, the examples recovered suggest that the cattle were of a short-horned type.

Sheep

Sheep with different cranial morphology were recovered from the site, including examples of animals with particularly large horncores, with a broad triangular cross-section. From visual observations this variety was noted in Phase 7 (G5008, contexts 6357 and 295), Phase 8 (SG5508) and a fragment in Phase 10 (P1111). Certainly these animals are likely to represent rams, however, a possible chronological factor was observed. Of eight basal circumference measurements of over 100mm, five belonged to Phase 7 sheep. By contrast, of the nine circumferences below 100mm, only one belonged to a Phase 7 sheep. A plot of maximum basal diameter against minimum basal diameter of the available sheep horncores (n=14) also indicated that the large variety was predominantly present in Phases 7 and 8. However, while agreeing with the visual observations, the sample size is too small to convincingly suggest a trend, since horncore size is affected by factors such as sex and breed, which it has not been possible to take into account. At Flaxengate, Lincolnshire (O'Connor 1982, 29) large-horned sheep occurred slightly more frequently in pre-Norman deposits (roughly equating to the end of Phase 7 at Highcross) and disappeared in the 13th century (O'Connor 1982, figure 58). It was cautiously

suggested that the large horncores resembled a variety of sheep introduced in the Saxon period, although a link with a specific breed was not inferred (O'Connor 1982, 30).

Figure 58 The animal bone: an example of a polled skull from Area 4

Hornlessness or polled skulls are more often associated with females and in some breeds of sheep can be a sexually dimorphic characteristic. However, in other varieties both the males and the females are horned and research has suggested that the presence or otherwise of horns does not necessarily denote the sex of the individual (Armitage and Goodall 1977, 84). At Freeschool Lane, polled skulls were relatively uncommon and do not occur before 1400; present only in Phases 10 and 11 (P3082, SG5034, W3139 and P1082). Sheep with very small 'vestigial' horncores were observed in W3139 and P1111. It is possible that these animals are wethers (castrated rams), since castration in some breeds appears to stunt the growth of the horn, especially when carried out at a very young age (Armitage and Goodall 1977, 85). The sheep deposited on the site in the later phases are a mixture of horned and polled since five horncores and five examples of horned skulls were also recovered from Phases 10 and 11. However, it is difficult to know whether these represent males, females and wethers from the same regional population or sheep with different morphologies. The findings are in keeping with the assemblage at Little Lane (Gidney 1991), where both horned and polled skulls were recovered but horned were most common.

Goat

Goat bones were only positively identified on four occasions; a juvenile metacarpal from Phase 4 (SG5007), a horncore from the soils above the macellum wall (Phase 7.01, SG5008) and a skull fragment and metacarpal from two plot 56 contexts belonging to Phase 9. By contrast, bones positively identified as sheep (mainly skull, horncores and metapodials) were recovered from many contexts and in every phase. A further attempt to distinguish sheep and goat was made by plotting the width of the distal condyle against the width of the trochlea (after Payne 1969) (Figure 59; Figure 60). The linear variation within the main cluster can be explained by the presence of larger and smaller individuals and perhaps ewes and rams. Outliers on the upper left

hand side of the main cluster could potentially represent goats (see Figure 60). In the light of this evidence and in the absence of observed goat characteristics, it is suggested that the majority of bones, which have been rather cautiously classed as 'sheep/goat' are likely to be sheep. This accords with other Leicester assemblages, such as Causeway Lane (Gidney 1999), as well as reflecting the qualities of the surrounding landscape, which is well-suited to grazing animals.

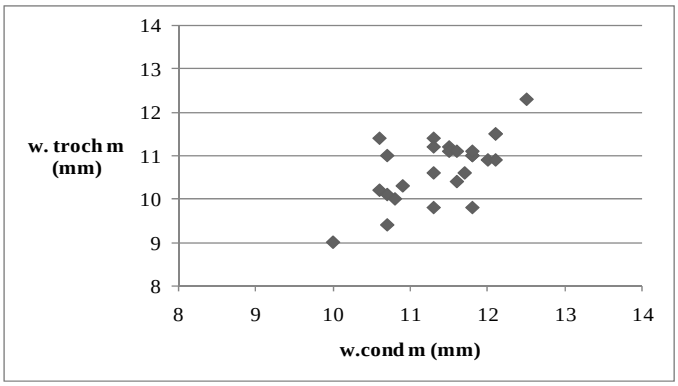

Figure 59 The animal bone: medial distal condyle measurements plotted after Payne (1969)

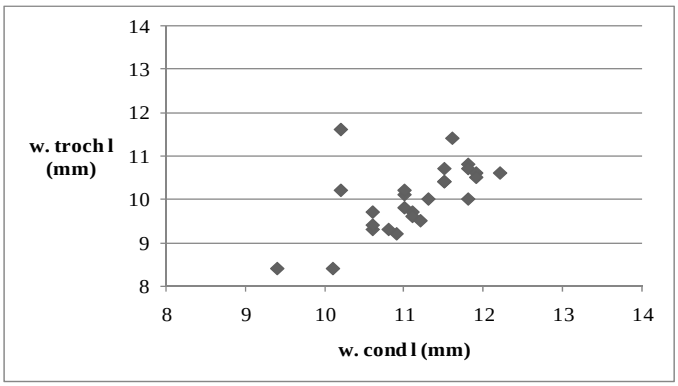

Figure 60 The animal bone: lateral distal condyle measurements plotted after Payne (1969)

Pig

A lack of complete skulls in the assemblage precluded analysis of skull morphology but the characteristics observed suggested that the pigs were of the long-snouted unimproved variety, previously observed in Leicester assemblages (Baxter 2004, 20).

Summary of Age Structure

Cattle

Information of age at death is presented only for those phases which produced sufficient quantities of data, namely Phases 7, 8, 9 and 10. There were insufficient bones with fusion surfaces or mandibles with ageable teeth to allow the examination of age profiles for Phases 2, 4 or 5. However, both fused and un-fused bones suggest that the bones represent a mixture of juvenile and adult animals.

In Phase 7 cattle were killed both as sub-adults and adults. A large proportion of the mandibles were from elderly cattle. In Phase 8 the peak of slaughter was between 18 months and 3 years. In both of these earlier medieval phases the evidence from epiphysial fusion indicated that approximately 20% of cattle survived beyond the age of 5 years. A slightly different pattern emerged for Phase 9, although the drop in the number of fused bones still indicates a mortality peak between 18 months and three years; 50% of cattle survived beyond the age of 5 years. In all three phases, there is very little evidence for mortality among cattle aged less than 18 months. There was an apparent change in the late medieval period and in Phase 10, an increase in the proportion of young cattle suggests a significant number were killed as juveniles. This evidence suggests a bimodal pattern, as less than half the cattle survived beyond the age of three but, of these, most continued over the age of five. Although evidence from Phase 11 was sparse, there is continuing evidence for an elevated number of juveniles compared with the earlier phases. These results correspond with a major change in cattle exploitation observed in previous work at Leicester and elsewhere. However, unlike assemblages from Little Lane and St Peter's Lane (Gidney 2000, 176) the animals are not a few weeks but rather a few months old. These may have been procured through a variety of different sources; surplus from the dairy industry, prime meat animals or those not needed for pulling ploughs. It is also possible that early improvements have resulted in faster maturing breeds, suitable for slaughter at an earlier age (R. Thomas *pers. comm*.)

Sheep

As with the cattle, too few epiphyses or mandibles were recovered to allow analysis of age structures from the early phases of the site. In Phase 7, there is little evidence for juvenile sheep among the post-cranial bones, epiphysial fusion suggesting that although a small proportion of immature animals were killed, most were slaughtered between 2 ½ to 3 ½ years. The toothwear evidence presents a slightly contradictory scenario, which may be influenced by lower survival among the bones from younger animals, indicating a peak in the numbers of animals below two years. In Phase 8, around 10% of animals were killed before the age of 16 months and there was a mortality peak between around 18 months and 3 years. However, a number of mature animals are also present and 50% of the mandibles derive from these. There are a similar proportion of older animals in Phase 9, once again under-represented in the fusion data but also a mortality peak amongst yearlings and animals below 2 years of age. In Phase 10 the mandibles and the post-cranial bones show different patterns, with the dental evidence suggesting that the majority of sheep were older than indicated by epiphysial fusion, with mandibles strongly suggesting a cull of older animals from about 5 years of age. Such evidence is consistent with countrywide

trends, linked with the growing importance of the wool industry (Grant 1988, 153-4); such animals would have provided a number of shearings.

Proportions of juvenile and neonatal cattle and sheep

Consideration of the neonatal and very young juvenile bones from the site displayed some interesting trends, which did not emerge so clearly through analysis of epiphysial fusion and toothwear alone. The proportion of bones from lambs is slightly higher amongst the bones of Phase 8 but remains relatively stable, normally constituting only 2% of the total number of sheep bones. In Phase 10 a significant proportion of calf bones are present and this trend continues into Phase 11. Countrywide trends suggest that there was greater consumption of younger animals in the late medieval period, with calves sent to towns as the demand for veal increased (Sykes 2006, 64; Woolgar 2006, 92). At first these supplies were a by-product of the growing dairy industry, which produced a surplus of male calves (Sykes 2006, 64) and was facilitated by the invention of the horse harness (R. Thomas *pers.comm.*), effectively un-yoking cattle from the plough.

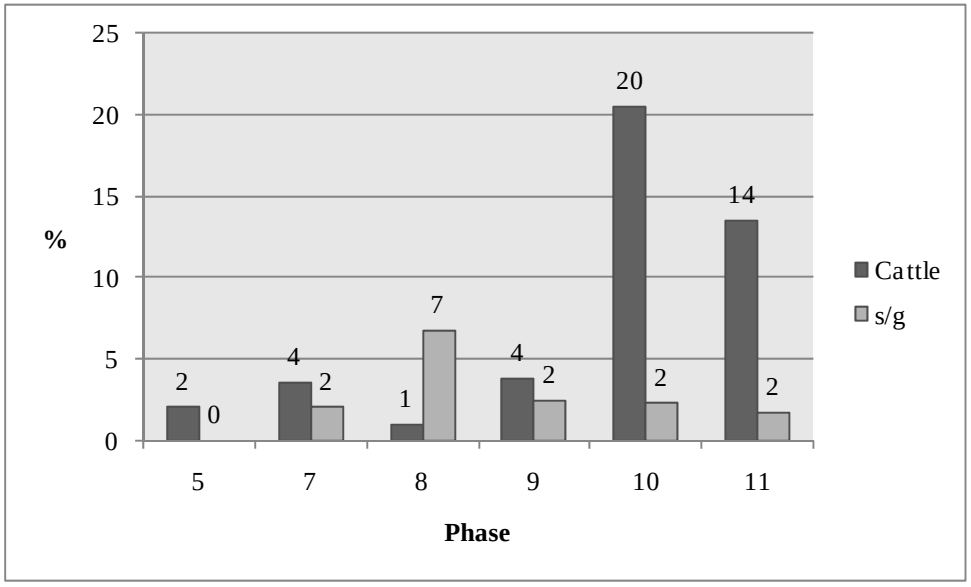

Figure 61: The animal bone: percentage of juvenile cattle bones in each phase contrasted with the percentage of sheep/goat (bones classed as neonatal/juvenile, not defined purely by epiphyses or mandibles)

Pigs

Most pigs were killed while still juvenile in all phases of the site; there were no united late fusing bones in any of the phases, indicating that pigs were slaughtered prior to their third year. This accords with evidence from other sites, both in Leicester and elsewhere and, probably reflects the fact that pigs were valued most highly for their meat rather than any products they could supply while alive. Animals over the age of two years (the 'Adult' category as defined by O'Connor 2003) are rare amongst the mandibular evidence, occurring only in small numbers in Phases 7, 8 and 9. In Phase 7, older adult individuals were also represented, which could represent breeding sows.

In the later phases, evidence from epiphysial fusion points to younger slaughter ages: in Phase 7, 31% of animals were killed before the end of their first year, rising to 42% in Phase 8, 44% in Phase 9 and, in Phase 10, 76% of animals were aged less than a year, with Phase 11 also producing evidence for juvenile mortality. This may also reflect the presence of faster- maturing breeds (R. Thomas *pers. comm.*). The dental evidence indicates that 87% of pigs in Phase 10 were neonatal or juvenile, although the paucity of evidence from other phases makes comparison difficult. The proportion of piglets was higher than cattle and sheep in all phases but dramatically so in Phase 10, a spike which is mainly accounted for by the contents of privy PR5953. The presence of neonatal remains provides strong evidence that pigs were bred in on or near the site in Phases 7, 8 and particularly 10 (Figure 62). Infant pigs have been recorded at other Leicester sites, including York Road (Browning 1999) and Causeway Lane (Gidney 1999, 325). There are parallels in other towns, such as Norwich where an increase in the neonatal bones was noted in the 16th century (Albarella 2005, 79).

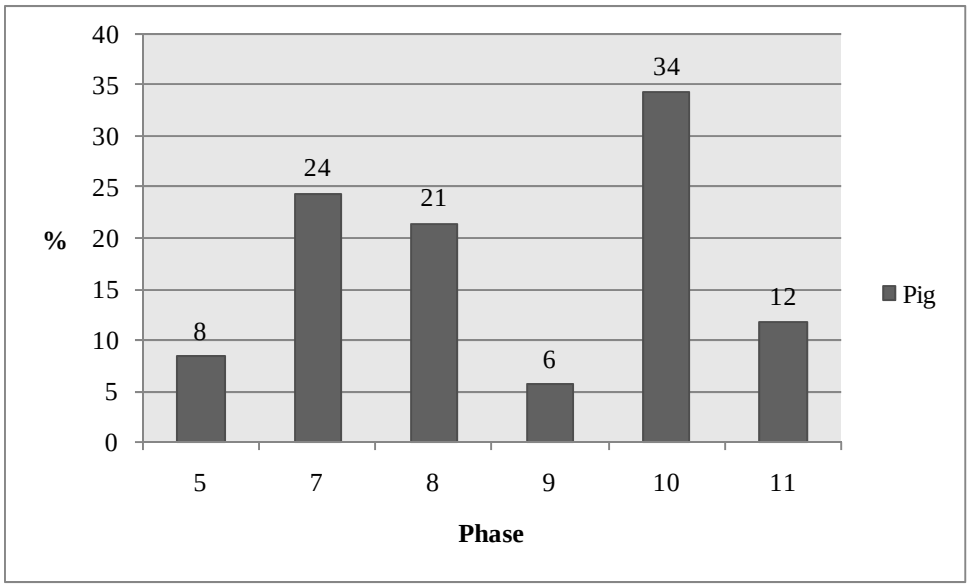

Figure 62: The animal bone: neonatal pig bones recorded (NISP), as a percentage of all pig bones

Documentary evidence for pig-keeping in towns abounds and a proclamation of 1297 in the City of London banned pigsties in the street (Rixson 2000, 115). Pigs in Leicester during the medieval period were most likely to have been stall-fed on household waste, although it is possible that they were sometimes allowed to run free as a method of street cleaning (Albarella 2006, 79). It is interesting that few piglets appear to be present in Phase 9, which contains environmental evidence for fodder plants as well as the spent cereals from brewing activity (A. Radini *pers. comm.*), which could have been used to feed the pigs. The bones from Freeschool Lane may represent a mixture of neonatal casualties, sucking pigs and tender pork; Mrs Beeton, writing in a later period, notes that small hogs produced for the 19th-century market were aged between 12 and 16 weeks (Beeton 1861, 371), while sucking pigs were ideally three weeks old (Beeton 1861, 397).

Carcass Representation of the main species

Analysis of carcass representation was undertaken for each of the main mammal species and used to examine differences between the plots. The primary aims were to consider whether there were patterns to the waste discarded by each household in each phase and thereby identify dietary preferences or activities that could have been taking place on the plot. The attempt was partially successful and revealed that the assemblage was not homogenous in nature. Inevitably, some fluctuations noted will be a product of small sample size, as suggested by the erratic nature of some of the data and the difficulty in achieving a coherent interpretation. The low representation of pig and sheep/goat phalanxes was fairly universal and is likely to reflect a bias against the recovery of these small elements. The following summarises the main trends observed but the details for each plot can be found in the second section of this report.

In Phase 7, it was possible to compare plot 56 material with that from plot 57. Whole carcasses from the main mammal species were represented on both plots. Some differences between the plot assemblages were noted, for example, cattle metapodials were common on both plots in Phase 7.01 and particularly well-represented on Plot 56 in Phase 7.03, perhaps hinting that butchery waste was a common component. Representation of the sheep/goat carcass was fairly consistent on both plots and in both sub-phases. For pigs the skull was a common element, especially in plot 56, Phase 7.01. This trend was noted throughout the assemblage but it is not clear whether this reflects dietary preference or better survival of the more durable cranial elements (Albarella 2006, 84).

Phase 8 also shows utilisation of the entire carcass for the three main species. Cattle carcass components were similarly distributed on both plots, comprising a slight under-representation of elements from the hindquarters relative to marginally increased levels of forequarters. Greater differences are noted pertaining to the sheep/goat skeleton, where higher proportions of limb bones were noted on plot 56, suggesting an emphasis on meat, compared with more elements from the horncore, skull, pelvic and thoracic girdle and metapodials on plot 57. The distribution of pig elements is based on a small number of bones and the results lack resolution. In Phase 9, some differences between plots were observed, however these are based on relatively low numbers of bones. The cattle carcass is represented in differing proportions on all three plots. The axial parts and extremities of the sheep/goat skeleton appear to be better represented than limb bones. Among pig bones a greater abundance of forelimbs and ribs on plot 58 may indicate an emphasis on joints of meat.

The larger sample size for all three species in Phase 10 meant that the results lacked the erratic nature of some of the Phase 8 and 9 data. For the cattle skeleton all post-cranial parts of the body are present but there was a marked difference between the proportion of skull and horncores on plot 57 compared with the other plots, potentially indicating less of an emphasis on consumption and more on butchery or small-scale trade activities. The sheep/goat carcass was also distributed differently on plot 56, where there was a stronger emphasis on joints of meat and low numbers of metapodials and skull elements. The carcass was more evenly represented in plots 57 and 58. All parts of the pig carcass are represented and only minor differences were observed between the plots. Plot 57, containing a high proportion of neonatal bones, had better representation of scapulae and pelves, and forelimbs; while Plot 56 and 58

exhibited similar even carcass distributions. Vertebrae, metapodials and phalanges were scarce on all the plots.

In Area 10, (Phase 10) the main distinguishing feature for cattle was the relative abundance of metapodials, which could suggest butchery or skinning waste, although this was not accompanied by a corresponding quantity of skulls.

The assemblage size from each plot in Phase 11 was too small to permit comparison. Low numbers of bones also necessitated a cautious interpretation for Area 10 indicating an abundance of elements from the hind-limb for sheep/goat.

Butchery

During recording butchery marks were generally categorised by the type of implement that might have caused them, therefore 'cuts' were fine and narrow, probably produced by a knife, 'chops' were heavier marks likely to have been inflicted by a cleaver or small axe and which often resulted in the shearing of the bone, while 'saw' marks had the characteristic striations associated with that tool. In addition, some bones appeared to have been deliberately shattered or roughly broken, possibly using a heavy blade. Although it is possible that some of this damage was caused by taphonomic processes, such as trampling, the elements usually affected were those with a high marrow yield. A small number of additional marks were noted, which did not fit into any of the previous categories, such as hook marks and depressions. During analysis, 'large mammal' and 'medium mammal' bones were considered alongside cattle and sheep/goat respectively. In the following text most of the proportions quoted are based on the tables in the Appendix, which compare proportions of non-butchered elements against those with butchery marks.

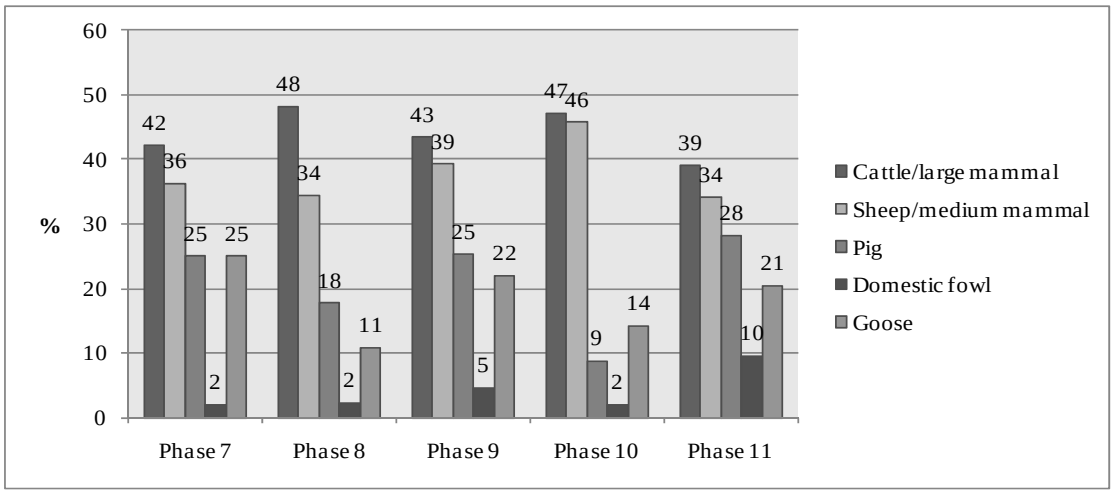

Figure 63: The animal bone: comparison of proportion of bones with butchery marks for the main mammal and bird species

Evidence from both Britain and Europe suggests that the meat trade expanded from the second half of the 14th century, as both meat supplies and the consumer market increased (Woolgar 2006, 90). At Freeschool Lane, processing of the cattle carcass was more intense in every phase than that of other species, and only in Phase 11 were less than 40% of bones affected. This is the expected result since the large size of the

carcass requires a higher degree of processing to reduce it to manageable cuts of meat, compared to smaller animals such as sheep and pigs.

There is a relatively consistent level of butchery on the sheep carcass in Phases 7, 8, 9 and 11, with 34% - 39% of bones affected. Butchery appears to have intensified in Phase 10, affecting 46% of bones and therefore suggesting levels of processing similar to treatment of the cattle carcass.

Butchery of the pig carcass varied considerably between phases but there was always less evidence for butchery among pig bones than cattle and sheep/goat; the reasons for this are not always clear but do imply a different approach to the processing of the pig carcass. Phases 7 and 9 had similar levels of butchery with a quarter of bones exhibiting butchery marks, but the proportion was lower in Phase 8, with less than a fifth of bone affected. There was a distinct change in Phase 10, where only 9% of pig bones were butchered. This reduction is likely to be associated with larger numbers of neonatal and juvenile animals, which, if they were eaten, would require less division of the carcass.

In every phase and for each of the main three mammals, chop marks were most common, in most cases comprising between 60% and 80% of observed butchery marks. The proportions of other marks such as cuts were rather more variable. However, it was noticeable that 'shatter' marks tended to decline in the later phases examined which may suggest a reduction in the demand for marrow, perhaps indicating an improved meat supply, or else that a less destructive method of extracting it was employed.

There were considerably lower levels of butchery on domestic fowl bones in all phases compared with mammal bones, a fact that can largely be attributed to small carcass size, which could be jointed easily, especially when cooked. Only in Phase 11 did more than 5% of domestic fowl bones exhibit butchery marks, however, this was based upon a very small sample. Butchery marks recorded were usually found on the tibiotarsus and tarsometatarsus, implying removal of the meatless part of the legs before cooking. By contrast, the proportion of butchered goose bones is never less than 10% and in Phase 7 a quarter of goose bones were affected. The distribution of butchery marks was much widespread, affecting bones throughout the carcass.

Cat metapodials in phases 7 and 10 had fine cut marks associated with skinning (G5013 and X58_10). No butchery marks were observed on dog bones.

Cattle

As previously noted, the cattle carcass exhibited a high level of butchery, affecting most bones. For example, in Phase 10, marks occurred on all elements except the second phalanx. There appears to have been little temporal variation in the butchery techniques employed, with only minor changes observed in each phase.

Head

The skull exhibited a mixture of chop and cut marks, linked to different butchery processes. Cut marks noted on the frontal, the upper orbit and below the base of the horncore are likely to indicate skinning, while other marks suggest removal of the horncore. The occipital condyles were severed in several cases, probably during

decapitation. In Phase 11, a skull had an indentation suggesting that that the slaughter method was pole-axing. In another example the pre-maxilla and nasal parts were removed, possibly for hygienic purposes, while the pre-maxilla of another animal had been chopped sagitally. Hyoid fragments with fine cut marks and chops were noted in Phases 7 and 8. Marks such as these could have been inflicted during slaughter, bleeding of the carcass or removal of the tongue.

Butchery was also common on the lower jaw, where both cleaver and knife cuts were apparent. The mandible was frequently chopped through the upper part of the ascending ramus, below the condyle, most probably during disarticulation of the jaw. Fine cut-marks were often noted on the coronoid process, presumably as a result of a similar process. In a more unusual example a cattle mandible had been chopped through the anterior face of the ascending ramus, immediately posterior to and curving beneath the toothrow, as if to remove it.

In Phase 10, several of the butchered skull fragments were from juveniles. Fine cuts indicating skinning were observed as well as chop marks through the occipital condyles suggesting decapitation. Butchery on the mandibles concentrated on the condyle and coronoid process and was therefore associated with disarticulation of the jaw, presumably to access the tongue and cheek meat.

Vertebrae

Butchery marks on vertebrae are important because of the information they can provide on techniques and available facilities, such as the existence of professional butchers and dedicated premises to butcher and store meat (Seetah 2006, 111). In Phase 7 a quarter of the butchered vertebrae were split sagitally through the body. This proportion rose to almost half in Phase 8 and there were also relatively frequent examples of vertebrae split off-centre. The spine was the focus for much of the butchery in Phases 9 and 10 and an even greater proportion (two thirds) had been processed in this manner, while the rest showed division of the spine into sections. The increase in numbers of split vertebrae could indicate that there was a greater reliance on butchering establishments in the later phases, with professional facilities for hoisting and halving the carcass. In Phase 11, chops through the vertebrae of both large and medium mammal were almost as likely to be off-centre as sagitally through the body, which may suggest that the work was carried out more rapidly in response to an increase in demand.

Perpendicular chops through the body of vertebrae were more common in Phase 7 and indicated that the carcass had been divided into smaller sections, although it was not possible to ascertain the exact position. In Phase 8, some of the lumbar vertebrae exhibited cut marks on the underside of the lateral processes suggesting filleting of the sirloin and once again the spine had been divided into shorter sections. In a number of cases, the spinous process had been trimmed or removed.

Ribs

Division of the rib slab was especially common in Phase 7. Straight chops across the axis of the bone were most frequent but sometimes the chop was obliquely angled, possibly reflecting the position of the rib in the body (Landon 1996, 74). The ribs were predominantly chopped from the visceral surface, suggesting that this took place

after halving of the carcass or was perhaps carried out while it was still hoisted: Seetah notes that it is easier to chop the ribs of cattle while the carcass is still hanging (2006, 111). There were several examples of the head and tubercle being chopped just below the articulation in order to separate the rib from the vertebral column although in some cases only either the head or the tubercle was removed. Many deeper cut marks noted on the visceral surface, parallel with where the rib had been cut through, were interpreted as swift chops which had not initially severed the bone, requiring further blows. Finer, shallower cut marks may denote filleting of the meat.

The proportion of butchered ribs was at its highest in Phase 9, occurring on 61% of zoned ribs, but the rib was a common location for butchery in all phases, with processing methods remaining similar. In addition to the butchery observed on zoned ribs, fragments of the rib shaft were evidently cut into sections of varying length. In Phase 11, the ribs were generally cut into sections of between 100-150mm, implying systematic division. On some occasions, similar sized rib shafts were found in the same contexts suggesting that they had originally been part of the same joint. This region of the body provides good roasting joints and the prevalence of ribs is indicative of waste from consumption rather than slaughter or processing.

Scapulae and Pelves

Butchered scapulae were very common in phases 7 and 8 but less than half were butchered in subsequent phases. Scapulae were commonly chopped through the neck of the bone, separating the glenoid cavity from the shaft. In a small number of cases the spinous process had been trimmed or removed. In Phase 7, a number of blade fragments (often including the caudal or cranial border) had been chopped to form roughly rectangular shapes measuring 90-100mm x 40-50mm. In one case it was possible to ascertain that the width of the cleaver blade used was 1.6mm.

In Phase 7, the pelvis was frequently chopped through the acetabulum. The ilium was another common site of butchery, although the exact location varied; in some cases the blow was clearly intended to disarticulate the pelvis from the spine, while in others the neck of the bone was divided, as though portioning. Fine cut marks noted on the neck of the ilium may denote filleting, while on the surface of the acetabulum they are likely to relate to the disarticulation of the hip joint. In Phase 10, the pelvis was chopped through the ilium, the acetabulum and also the ischium.

Limbs

The main limb bones exhibited signs of dismemberment and portioning as well as occasional filleting marks.

Many butchered humeri were chopped or broken mid-shaft; in many cases this was presumably to access their marrow content. Clusters of short cut marks indicated filleting of meat. At the distal end of the bone, disarticulation of the humerus from the lower forelimb was indicated by fine cut marks and heavy chopping. In Phase 10, humeri were mostly dismembered through the shoulder joint but also commonly chopped at the distal end, severing the trochlea.

The radius seemed to have been a particular focus for butchery in most phases and deliberate shattering sometimes left a hollow cylinder or jagged shards of bone: cut

marks were few. It was often messily hacked through the shaft and was presumably exploited for marrow.

There was a little more variety in the butchery of femora, which were chopped either mid-shaft or towards the distal end of the bone, but occasionally butchered at the proximal end during dismemberment from the pelvis. In several cases the femoral head had been chopped off during dismemberment.

The tibia was often heavily butchered and in that sense it appeared to be treated in a similar manner to the radius. It was often chopped transversely mid-shaft or towards the distal end of the bone. Deliberate shattering or breakage was common both mid-shaft and towards the distal end and in several cases it appeared to have been exploited for its marrow content. Chop marks also sometimes occurred on the proximal part of the posterior face.

Metapodials

Two metapodials in Phase 7 had cut marks close to the proximal face, which are probably evidence for skinning; a small number of metapodials with similar fine cut marks was noted in Phase 10. A number of bones were split lengthways (sagitally) possibly to remove the marrow. Rough transverse hacking through the middle of the shaft was also common and in Phase 9, metapodials were split open or divided into chunks. Only one sawn example was noted, which might suggest bone-working for craft purposes rather than butchery (Grant 1987, 55).

Extremities

The extremities rarely exhibited butchery marks in any phase, although single first phalanges in Phases 7, 8 and 10 were butchered, indicative of skinning. In Phase 10, a single third phalanx had a butchery mark.

Sheep/goat

Head

Butchery on the skull in Phases 7, 8 and 9 was primarily aimed at removing the horncores and the cleaver or axe appeared to be the usual tools for this work. Two examples of sawn horncores were noted in Phase 7 and one in each of Phases 8 and 9. The process does not appear to have been carried out with particular delicacy: in several cases chops were made below the base of the horncore removing part of the frontal as well. Cutmarks noted around the bases of the horncores may also have occurred when removing the skin. The only other processing observed was the sagittal division of the skull, presumably to access the brain. The skulls were not cleanly split down the centre, suggesting that speed was of importance. In Phase 10, the skull and horncore often bore evidence for more than one process. Horncores were cleanly chopped off suggesting removal for working, while chops through the occipital condyles suggested decapitation. A number of skulls were chopped down the sagittal line, while fine cuts on the frontal suggested skinning. Sheep/goat skulls of Phase 11 also showed signs of decapitation and were heavily chopped.

Both cut and chop marks were noted on the mandible. Cut marks were usually orientated perpendicular to the bone and those identified on the medial side of the ramus and below the tooth row may relate to cutting out of the tongue (Landon 1996, 69). Chopmarks concentrated on the ascending ramus probably represent the disarticulation of the mandible. This was butchered at various points, sometimes removing only the coronoid process but in other cases including the condyle and even part of the ascending ramus.

Vertebrae

As with cattle, the spine was a focus for butchery of the sheep/goat carcass. Just over half of the butchered vertebrae in Phase 7 (53%) were split sagitally or slightly off-centre through the body, suggesting the use of professional butchering facilities. A lesser proportion (30%) was chopped transversely, evidently to divide the spine into manageable units. This trend continued in Phases 8 and 9. In Phase 10, the spine was the most heavily butchered region, and the the carcass was routinely split sagitally, as indicated by 80% of butchered vertebrae. The available evidence suggests that there was a greater use of professional butchering facilities as time progressed, although these may have been less essential when dealing with the smaller sheep carcass.

Ribs

Sheep/goat and medium mammal ribs consistently exhibited high numbers of cut and chop marks, often at the vertebral end. Cut marks were more common than on the ribs of large mammals, although still less frequent than blows from a cleaver. Cut marks on the visceral surface, close to the vertebral end, may have resulted from cutting the rib slab free. In some examples these marks were a prelude to division of the rib shaft to divide the rib slab into smaller sections, possibly joints for roasting. In one case, a group of similarly-sized ribs found together probably represented a joint of meat such as a crown or rack of mutton.

In Phase 8, proximal rib and rib fragments accounted for a quarter of the butchered bones recorded. The vertebral end and tubercle were frequently chopped off and another set of chop marks was observed at the ventral end of the bones, possibly separating the belly end.

Scapulae and pelves

In Phase 7 and 8, scapulae were often butchered, with most evidence close to the distal end of the bone and marks occurring most often on the medial surface. Cut marks appeared to relate both to filleting and dismemberment of the joint. Scapulae were usually chopped through the neck of the bone, although one specimen had been chopped further back through the blade. The glenoid cavity appeared to have been trimmed in a couple of cases, perhaps during disarticulation. One bone displayed a hole in the broad part of the blade, which may have resulted from the use of a hook to suspend the joint. The proportion of butchered scapulae declined from Phase 9 onwards, a pattern also noted among cattle scapula and which suggests a change in butchery practice.

Carcasses were frequently disarticulated at the pelvis and in all phases, except 7 and 10, more than 50% of pelvis fragments were affected. In Phase 7, the pelvis was usually divided by chopping through the shaft of the ilium. In a smaller number of cases the acetabulum was chopped and cut marks relating to disarticulation of the hip joint were also noted. In Phase 8, chop marks through the pubic symphysis provide further evidence for the sagittal splitting of the carcass. The acetabulum was a particular focus for butchery in Phase 8 but in phase 9 most marks were concentrated on the ilium.

Limbs

As with the cattle carcass, limb-bones and metapodials were usually divided mid-shaft, but occasionally separated at the joints. A mixture of chops, cut marks and deliberate shattering were observed on the humerus, which was often disarticulated through the trochlea. In common with cattle, the sheep/goat radius was heavily butchered, particulary on the mid-shaft portion; chop marks and deliberate shattering usually reducing it to a shaft fragment.

Chops, cuts and deliberate breakage were noted on the femur. Clusters of fine knife marks indicated filleting, while several shafts were broken open, probably to extract the marrow. One bone was disarticulated from the pelvis by cleanly chopping the proximal articulation off. A small number of proximal femori also exhibited cut marks associated with the disarticulation of the hip joint.

The tibia was generally butchered in a rather haphazard manner and chopped or deliberately broken either mid-shaft or towards the distal end of the bone. Examples of fine parallel marks, suggesting filleting, were also seen on Phase 8 bones, these particular marks possibly suggesting a lamb shank.

In Phase 10, femori and tibiae both had a high proportion of butchery. Dismemberment was frequently effected by chopping to remove the femoral head. Dismemberment at the knee joint was less common, as indicated by chopping through the distal femur or proximal tibia. The shaft of the femur sometimes bore fine cut marks representing filleting. The tibia was usually chopped at an oblique angle either mid-shaft or towards the distal end of the bone. A few bones bore chops at the articular ends, indicating butchery through the joint.

Metapodials

Metapodials were not commonly butchered. One Phase 7 example was split sagitally, in a similar manner to the previously described cattle metapodials. Another had a cut mark possibly relating to disarticulation or skinning. The remainder of the butchered bones were deliberately broken open, possibly for marrow. Metapodials were generally treated rather roughly and were more likely to be deliberately shattered than to show fine cut marks or be cleanly cut with a cleaver.

Phalanges

Similar to the cattle skeleton, butchery on the phalanges was extremely rare, occurring only on one bone from Phase 11. However, it is difficult to assess the validity of this trend due to the under-representation of the phalanxes in all phases.

Pig

As previously noted, the pig carcass appears to have been butchered less extensively than either cattle or sheep/goat. There do not appear to have been substantial differences in the butchery methods of each phase, with both limbs and skulls attracting butchery. As it appears that pigs were bred on site in several phases at Freeschool Lane, it is possible to speculate that butchery could have been carried out on site, rather than at a professional location. Phase 7 had the highest number of butchered bones (n=40) and low numbers generally preclude a consideration of more than the basic trends. The proportion of butchered pig bones was particularly low in Phase 10 although there were a relatively high number of cut marks (35% compared with 60% produced by a cleaver), possibly because of the small size of the carcasses. The butchery observed in these cases was concentrated on the limb bones, indicating jointing. There was some evidence from vertebrae and skull that the carcass was split into two halves; Albarella notes that longitudinal splitting of the carcass is usually only found on urban sites and indicates systematic distribution of meat (Albarella 2006, 84).

Head

The most common location for butchery in Phase 7 was the mandible. Mandibles appear to have frequently been chopped through the symphysis, presumably during the sagittal division of the head and similar butchery was also observed in Phases 9 and 10. A small number of jaws had cut marks on the medial face, below the toothrow, which may relate to removal of the tongue. Two other types of marks were noted; one mandible was chopped through between the first and second molar, while another was chopped beneath the toothrow. In both cases the marrow cavity was exposed which may have been the aim of the butcher. In Phase 8, chops were noted on the maxillae, parallel with the toothrow, as though to separate the teeth from the top of the skull.

Vertebrae

A small number of vertebrae were chopped through the centre of the body, during division of the carcass. However, transverse chops of the vertebrae also showed that the spine was divided into smaller sections; the exact location is uncertain but they certainly occurred in both the cervical and the lumbar region.

Scapulae and Pelves

The scapula was also frequently butchered and chopped through the neck in a similar manner to sheep with marks relating to disarticulation and filleting. An example of a hook mark, possibly denoting a cured joint, was also identified. Cut or chop marks were noted on all three pelvic fragments in Phase 11.

Limbs

In Phase 7, the humerus was consistently chopped or broken through the distal part of the shaft and similarly the tibia was roughly chopped or shattered around the central portion of the bone, often with little care taken. A Phase 8 femur had been chopped at the distal end and it appeared that the marrow had been extracted.

Only eleven butchered pig bones were recovered from Phase 11 deposits, comprising 28% of the total number of bones. Of these, butchery concentrated around the femur, affecting five of eight specimens, which were chopped obliquely or transversely.

Metapodials

Two butchered metapodials found in different areas of the site in Phase 9 had holes drilled through their shafts to form a toggle.

Other mammals

Horse

Small numbers of horse bones were present in Phases 7, 8, 9 10 and 11, tending to occur singly rather than in groups and therefore suggesting that they may have been incorporated into backfill from their original burial place. The most frequently identified elements were teeth, probably because of their greater durability; these were less commonly found still anchored within the jaw, which provides further evidence for re-deposition. Metapodials, phalanges and mandible fragments were not infrequent while limb bones were rare. All but one of the seven butchered horse bones was recovered from Phase 7. These included two bone skates, as well as metapodials and phalanges with cut marks suggesting skinning. The two horse metatarsals which had been shaped into skates (SF1305 and SF1310), were recovered from Phase 7.03; one each from plot 56 and plot 57 (subgroups: G0229 and G5004). The only evidence suggestive of consumption was a butchered pelvis in the same phase. A Phase 9 horse metapodial had been partially worked into a handle for a large tool. These factors raise the possibility that horse carcasses entered the site either as hides or as the raw materials for bone artefacts.

Dog

Dog bones mostly occur as isolated specimens in the prioritised contexts, with the exception of a partial dog skeleton in Phase 9 (SG5884) and bones in Phase 11, which may have belonged to the same animal. Small curved dog bones recovered from Phases 4 and 5 may represent dwarf bow-legged animals of the type popular in the Roman period. A measurement on the Phase 5 example produced a shoulder height 27cm (using Harcourt 1974), which is within the range for Romano-British dogs but slightly below the Anglo-Saxon range quoted by Harcourt (1974). However, the curvature of the bone is likely to have affected the calculation of the shoulder height: bow-legged animals were not included in the original design of the calculation (Harcourt 1974, 154). Similar dogs were recovered during recent Roman excavations at Vine Street, Leicester (Browning forthcoming a) and at previous excavations at

Causeway lane (Gidney 1999) and York Road (Baxter 2006). The Phase 9 animal was found within the entrance to a malting kiln, where it had presumably been deposited following the abandonment of the feature. A shoulder height, calculated following the factors of Harcourt (1974) suggest that the animal stood 49cm high. The Phase 11 bones were recovered from pit SG5327, and may represent a disturbed skeleton incorporated into the backfill of the pit. Measurements indicated that this was a tall animal with an estimated shoulder height of 73cm.

Cat

By fragment number, cat bones are considerably more numerous than dog in the assemblage. Feline bones tended to occur in groups rather than in isolation, indicating that these were deliberately deposited rather than simply incorporated into backfill. Both adult and juvenile animals were represented. Although cat was present in small numbers within Phases 7.03, 8 and 9, the majority of bones were recovered from Phase 10, with small concentrations among features of plots 57 and 58 and Area 10.

Thirteen cat bones, mostly juvenile, were recovered from Phase 10 PR5953. A further bone was retrieved from PR6384, the lower contexts of the same feature, in Phase 9. The bones must have belonged to at least one kitten as well as an older animal. Context 6113 in plot 58 (subgroup X58_10) contained 41 cat metapodials, predominantly metacarpals, from a minimum of four cats. Eleven of these had fine cut marks on the shaft, indicating that cat fur was utilised, and perhaps representing debris from a small cottage industry. No other elements were recovered from the context. Unfortunately there is little that can be said about the deposit itself as it was a layer within a pile box. A stone-lined pit in plot 58 (SG5916) produced four cat limb bones which could conceivably have derived from a single animal.

A Phase 11 well in Area 10 (W3139) contained 10 cat bones, representing a minimum of two animals.

Deer

Deer bones were present in all medieval and post-medieval phases (7, 8, 9, 10 and 11). Antler fragments with chop and saw marks occurred in Phases 7.01 and 10, appearing to represent the discarded raw material rather than partially worked objects. Where the coronet was present it was possible to establish that the antler was a mixture of shed and hunted examples.

The deer bones in Phases 7 and 9 belong only to the skull and antler, lower leg and feet. These are elements that could have been remained with the hide, rather than representing consumption of joints of meat. By Phase 10, the late medieval period, fallow deer is by far the most common deer species and several of the tentative ‘red deer’ identifications relate to fragments of antler that could also conceivably belong to fallow deer. Roe is the rarest of the three deer species identified. Of the 33 deer bones recovered from Phase 10, only six bones were identified that did not belong to the skull or extremities and all but one of these were humeri. Ritual practices associated with the hunting and butchering of deer were of great importance in the medieval period and the shoulder was considered to be the ‘legitimate’ hunters portion (Sykes

2007, 156). However, as observed in assemblages from other urban centres, deer carcasses may have been imported via a variety of other mechanisms, many of which were illicit. Certainly the presence of mandibles and foot bones suggests that whole carcasses were brought into the town (Sykes 2007, 157). In Phase 11, several fallow deer antlers were recovered from Plot 57. In three cases the antler was shed, indicating collection rather than hunting. However, a particularly magnificent pair of antlers from SG5027 were still attached to the top of the cranium, neatly severed, and were apparently retained as a hunting trophy (Figure 64).

Figure 64 The animal bone: antler hunting trophy from SG5027, Phase 11

Hare and Rabbit

Neither hare nor rabbit were common at Freeschool Lane and evidently never formed a significant part of the diet. Isolated elements of hare were recovered from Phase 7 (Plot 57 G5030 and G0384), Phase 8 (floor layers FL1012 Area 4 and Plot 56 context 7651) and Phase 10 (W3139 Area 10).

Rabbit was not identified in deposits earlier than Phase 10 (1400-1500). Rabbits were probably introduced to England at the beginning of the 12th century and became more established in the next century (Rackham 1986, 47). Bones from the vertebra and limbs were recovered from a pit on plot 56 SG5080 (Phase 10), one of which was butchered. A single rabbit bone was also recovered from Area 10, (P3080). It is evident that rabbits were not a large constituent of the diet and Rackham makes the point that they were expensive and difficult to keep in the medieval period, very different to the tough survivor of modern times (1986, 48).

Small mammals

Bones from Red Squirrel were identified in Phase 8, SG0224 (plot 57 frontage hearth) and Phase 11 G2004 (pit group) in Area 7. The bones were a humerus and a tibia respectively and butchery marks were not observed on either bone. Red squirrels are associated with coniferous woodland and are shy creatures (Lawrence and Brown 1973, 110) therefore it seems unlikely that the animal found its own way into the

town. Squirrel fur was prized in the medieval period and was most often used at court (Serjeantson 1989, 131).

Hedgehog was represented in Phase 9, plot 56 (SG5871 context 6122) and Phase 10, plot 57 (PR5953 rear frontage privy context 5979 and 5870). These features each contained three bones: tibia, ulna and mandible, and, skull, mandible and scapula fragments. Hedgehogs require some cover and are most commonly found at the edge of woodland or within meadows with hedgerows (Corbet and Harris 1991, 40). Hartley records that hedgehogs were cooked and eaten by gypsies; coated in clay and baked in a fire, after which cracking of the casing would remove the prickles along with the skin (1954, 178), however, there is no evidence that the Freeschool Lane examples were consumed.

Rat bones were rather more numerous but occurred in specific features, one belonging to Phase 9 (PR6384) and two in Phase 10 (PR5953 and P1111). Two of these features were privies and are therefore likely to have contained the sort of refuse that would have attracted rats. In no case did the remains represent more than a single animal.

Mice bones were recovered from PR5953 (context 5979) and PR6384. Isolated fragments were also retrieved from P1111, G5702 phase 7.03 (plot 56 pit) and context 6062. The vast majority of these remains were tentatively identified as house mouse rather than wood mouse.

Human

Human bones occurred very sporadically and were presumably residual in all cases. Part of an ulna shaft was recovered from the dark earth soils in Phase 5.01 (SG5028), several skull fragments were identified in SG0471 in Phase 8.01, a tooth from SG5728 and two fragments were also present in Phase 9 deposits (WC3272 and X56_9, context 6291).

Birds

Domestic fowl, geese and ducks

There was an appreciable rise in the numbers of bird bones from Phase 8. Domestic fowl outnumbered geese in all phases, except 8 and 11. Although the meat of a single goose would be about three times as much as a domestic fowl, geese were also kept for their feathers, which were a valuable commodity. 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 concentration of carpometacarpi and associated phalanges were recovered from a pit dating to the late 15th century, during previous archaeological work in Leicester (Gidney 1992), which was interpreted as craft waste from making quill pens or arrow fights. No distinctive groups of bones were recovered from Freeschool Lane, where most parts of the body were represented. Only Phase 10 contains evidence for juvenile geese (which may be partially a consequence of the larger sample size) and these do not appear to be from goslings but from birds approaching adult size. The goose bones frequently resembled the Graylag but they could have been domestic birds and interbreeding probably occurred between the domestic and wild populations.

Chickens and geese are likely to have dwelt in the backyards of the houses, with chickens in particular kept for their eggs as well as their meat, since they had an

extended laying season (Serjeantson 2009, 281). Medullary bone, indicating birds in egg-laying condition, was observed in domestic fowl femori from Phase 7.03, G5010 and Phase 9 PR6384 (two examples) and in context 6113 in Phase 10. Eggshell was recovered only from a Phase 10 pit in Area 4 (A. Radini *pers. comm.*). The prevalence is difficult to verify since bones were not broken to systematically look for medullary bone during this study; only shafts that were already fractured were checked. Domestic fowl bones with juvenile epiphysial ends contributed significantly to the assemblages in Phase 7, 8, 9 and 10 (ranging from 31% - 47%) (Figure 65), suggesting that there was a ready supply of young chickens for the table. Bones belonging to young chicks were specifically found in the Phase 10 privy PR5953 on Plot 57. In most phases no spurred tarsometatarsi, indicating adult cockerels, were observed; there was one example from Phase 8 (compared with 9 bones without spurs). Phase 10 indicated a different pattern, where 5 out of 27 (19%) of tarsometatarsi were spurred. Examples were noted on all three plots in Area 1. This evidence corresponds well with the presence of the young chicks, providing further indication of the breeding of domestic fowl on site.

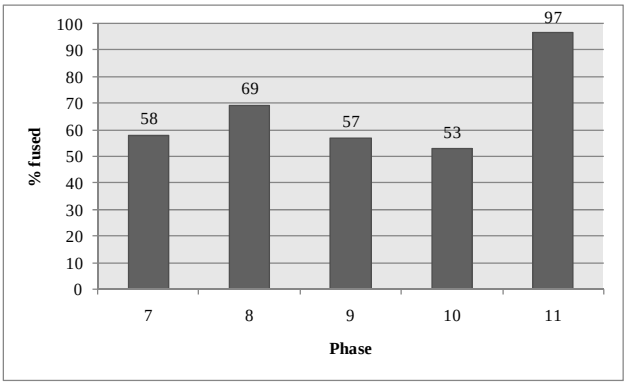

Figure 65 The animal bone: proportion of fused domestic fowl bones in each phase

Due to the small carcass size, domestic fowl remains are likely to be deposited together rather than to have been distributed in portions. This certainly seems to have been borne out by evidence at Freeschool Lane, where deposits often contain most elements of the carcass. Analysis of the concentration of domestic fowl bones in Plot 57 in Phase 10 showed that all parts of the bird were present, including skull, ribs, vertebrae and phalanges (although these are rather under-represented, probably due to their small size). Plot 56 exhibited a less complete distribution with a slight emphasis on the wing bones, humerus, ulna and scapula, but also substantial numbers of tarsometatarsi and a particular abundance of tibiotarsii. The tarsometatarsus was the most common element on Plot 58. High values for humerus and ulna may be a sign of high residuality as the wings carry little meat and may have been removed before presentation (Coy 1989, 32). The femur is a good meat bone and the tibiotarsus makes a useful handle for a drumstick while the tarsometatarsus may often be removed before cooking (Coy 1989, 32).

Duck bones compared in size with both with mallard and domestic duck. They were considerably less common that either domestic fowl or goose, indicating that they were not a dietary staple. A small number of duck bones, resembling mallard in size and morphology, were identified in the dark earth soils of Phase 5.01 (G5028).

Isolated duck bones were also recovered from Phases 8 and 9 but the majority of specimens occurred in Phase 10. None of these was recorded as mallard and, where it was possible to differentiate, resembled the larger domestic duck (Serjeantson 2009, 301). A particular concentration, representing at least two birds, was present within the fill of SG5080, a pit towards the rear of Plot 56.

Wild birds

Wild bird bones are never abundant on the site but there is an increase in both number and variety in Phase 10.

Food species

As previously discussed, the vast majority of avian bones were domestic fowl and goose, with ducks considerably less frequent. Other birds, many of which were probably used for culinary purposes, were present in small numbers.

A damaged bone, tentatively but not definitively, identified as coot (*Fulica atra*) represented the only evidence for wild birds in the Roman phases.

Wood pigeon (*Columba palumbus*) was numerically the most common of the pigeon species, occurring in Phase 8 context 5796, and in Phase 10, sub-groups PR5953 and SG5574. Rock dove (*Columba livia*) was recovered from contexts in Phase 8 (5796) in plot 56 and Phase 9 (P1114). The domesticated blue rock pigeon (*Columba livia*) were used to stock dovecotes (Rixson 2000, 99) and was considered a good source of fresh meat during the winter months. However, rock dove cannot be distinguished osteologically from domestic pigeon (Yalden and Albarella 2009, 220) and it is therefore impossible to know if these were wild birds. Pigeon bones were recovered during previous Leicester excavations at both Little Lane and St. Peter's Lane but in such small numbers as to suggest that they were only occasionally hunted along with other wild birds (Gidney 1992).

Woodcock (*Scolopax rusticola*) was recovered from Phases 7.03 (pit sub-groups G5013 and G5974) and Phase 10 (pits: SG5574, SG5080 and P3468). 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. Bones of this species have frequently been recovered in deposits of the Iron Age onwards (Yalden and Albarella 2009, 216). Most of the six elements recovered were from the wing (five carpometacarpi and one radius); the remaining bone, a tibiotarsus, was from the leg.

Isolated examples of golden pover were recovered from a pit in Phase 7.03 (sub-group G5010) and a well in Phase 10 (sub-group W3007). Three bones of lapwing were recovered from SG5574 in Phase 10. A bone from another member of the *charadriform* family, possibly lapwing (*Vanellus vanellus*), was also recovered from Phase 7.03.

The beak and dentary of shag (*cf. Phalocrocorax carbo*) was recovered from a Phase 9 deposit. Since these birds are usually found on coastal sites, this may represent a traded bird, such as that found at Stafford Castle (Yalden and Albarella 2009, 210).

Bones from the *passeriform* family were recovered from Phases 10. In Phase 10 bones from birds tentatively identified as blackbird, starling and thrush were recovered from

PR5953, P3468 and SG5574. It is probable that these birds were eaten but they may have been natural mortalities incorporated into the strata.

Raptors (hunting/scavenging)

Sparrowhawk (*Accipiter nisus*) was represented by two bones in a Phase 8 deposit (context 5767; a heavily truncated cess layer) in Plot 57. Sparrowhawks are often considered to indicate falconry rather than scavenging and a clear increase in the numbers of hawking birds has been noted in the medieval period (Yalden and Albarella 2009, 137). The sparrowhawk and goshawk were considered suitable for those with the rank of yeoman or priests (Grant 1988, 180). The bones almost certainly belong to the same bird, which compared in size to a female bird in the reference collection. Females are capable of bringing down larger prey than the male. There is no definite evidence that the Freeschool bird was used for hawking, yet the possibility should be entertained, since sparrowhawks are not well-adapted to the urban environment, which can lack the necessary cover provided by trees and shrubs (Cherryson 2002, 310).

Other types of raptor are more likely to represent scavenging than hawking and are probably an indication of the availability of refuse such as butchery waste within the town. A skull tentatively identified as white-tailed eagle (cf *Haliaeetus albicilla*) was recovered from Phase 10 pit deposit (SG 1101 in Area 4) (identification to be confirmed). This species is well-recorded throughout the country; Yalden and Albarella note 58 records (2009, 211) and has been identified on two other occasions in Roman Leicester: a white-tailed eagle skull was previously recovered during excavations at 33-47 High Street (Baxter 1993) and the talon of a large raptor believed to be the same species was recovered from excavations at 72 St. Nicholas Circle in 2005 (Browning 2006). A coracoid from a buzzard (*Buteo buteo*) was retrieved from the same sub-group. Buzzard bones are well-recorded archaeologically and are widely found on sites of the Roman period onwards (Yalden and Albarella 2009, 213). Single buzzard bones were recovered from 1980s excavations at St Peter's Lane and Little Lane (Gidney 1992). A buzzard humerus was also retrieved from a large pit (G5014) in plot 57 Phase 7.03.

Five bones from a gull were recovered from a Phase 10 privy deposit in Area 20 (PR7147). The species identification is to be confirmed. The bones were larger than the common gull (*Larus canus*) in the Leicester reference collection, which suggests that they could belong to one of several species, including herring gull (*Larus argentatus*), lesser black-backed gull (*Larus fuscus*) or great black-backed gull (*Larus marinus*). The latter species has been recorded mainly from coastal sites therefore this identification seems unlikely and it has been noted that *Larus fuscus* and *Larus argentatus* are indistinguishable skeletally (Yalden and Albarella 2009, 218).

The *Corvid* bones from Phase 7 include two bones which closely resembled rook (*cf. Corvus frugilegus*) and one bone thought to be jackdaw (*cf. Corvus monedula*). The two species are often found together, both tend to be quite social birds (Svensson *et al*

2001, 336) and are common on medieval sites (Yalden and Albarella 2009, 228). Bones of raven (*Corvus corax*) were recovered from contexts in Phases 9, 10 and 11. Small numbers of crow bones (*Corvus corone*) were identified in Phases 10 and 11.

Biometric Data

This report contains limited biometrical data Since individual sites often contain too few measurements to successfully interpret, one aim of the project was to examine the data produced by all the Highcross sites in order to increase the available data per phase therefore facilitate meaningful results. Size increases over time were to be considered for the main mammal and bird species, as well as using measurements, where possible, to chart changes in morphology,. Results are to be incorporated into the thematic volume and will be added to this report before final deposition.

Burning

Burnt bones were relatively infrequent and groups of them were only noted in a small number of features. A rare example of possible burning *in situ* occurred in P1111 (Phase 10, Area 4) but, in the main, burnt bones were probably simply incorporated with other rubbish. Further details on burnt bones, as appropriate are included in the detailed phase by phase results.

Pathologies and non-metric traits

During the study a number of pathologies were noted among the faunal remains and these were located by element and zone, described and photographed, where appropriate. Attempts to diagnose particular diseases within the animal population are problematic for two main reasons: firstly, elements are often found in isolation, therefore making an assessment of the extent of the symptoms within the skeleton impossible and, in addition, the possible responses that bone tissue can make to various types of infection are limited. Therefore conditions with widely different causes and prognoses could cause bone tissue to react in a similar way (Vann and Thomas 2006). As illustrated by

Table 141, the proportion of bones exhibiting pathological changes is low and remained relatively constant, affecting between 1 and 3% of bones in each phase.

The types of pathologies observed generally fall into four types; abnormal bone formation, abnormal bone loss, abnormal bone shape or size and congenital abnormalities. On the whole the conditions encountered at Freeschool Lane were not particularly severe. Since the majority of animals may have been brought to market on the hoof from outside the town, animals with obvious illnesses and diseases would be unlikely to have been included; a situation similar to other urban assemblages such as those from York (O'Connor 2003, 195). It is likely that the town butcher would have been supplied by small farmers or manorial estates in the surrounding countryside (Rixson 2000, 101).

Table 141: Proportion of bones with pathological changes

Phase	Number of pathological bones	% of the assemblage
4	4 (274)	1
5	2 (395)	1
7	81 (2606)	3
8	43 (1859)	2
9	46 (1535)	3
10	127 (5255)	2
11	16 (651)	2

Abnormal bone formations

A number of ribs have proliferative lesions, manifesting as a thin grey layer of periosteal new bone formation. It is difficult to identify the specific aetiology of this type of non-specific lesion when it is viewed in isolation. The presence of new woven bone on the visceral surfaces of the ribs, however, would appear to indicate an active respiratory infection, with possible agents including diseases such as tuberculosis.

Abnormal bone formation inlcuding osteophytes (osteophytosis) and exostoses around the periphery of the joint surfaces can lead to 'lipping' and extension of the articular surface. This type of pathology is suggestive of joint disease and could be trauma, age, stress or activity related. This was most commonly observed on metapodials but predominantly seen on phalanxes. These types of pathological changes, specifically in cattle, are often linked with traction causing excessive stress on the joints (Bartosiewitz *et al.* 1997). Examples were noted in all phases except Phase 8.

Eburnation, probably caused by bone on bone contact, was noted within the acetabulae of three cattle pelves (one each from Phases 7.01, 8.02 and 11. It was also observed on two phalanxes (one from Phase 4 and one from Phase 10), associated in both cases with abnormal bone formation. A cattle astragalus also bore a patch of eburnation on its lateral surface, suggesting difficult movement of the joint.

Evidence for trauma

Healed fractures were relatively uncommon and occurred most frequently on ribs. Examples were noted on bones of dog (Phase 9.02), large mammal (Phase 8) and medium mammal (Phases 7.03 and 9). A sheep/goat metatarsal (Phase 9 Context 6291) appeared to have been fractured but had healed extremely well. However, the shaft appeared slightly displastic and curved towards the lateral side. By contrast, another metatarsal from Phase 10 (SG1101) had substantial abnormal bone growth with a flowing appearance, forming a 'jacket' (envolucrum) around the fractured shaft, indicating severe infection and osteomyelitis- the hole which can be seen in the associated photograph may represent a cloaca through which pus could have drained. However, the 'jacket' of bony growth could represent ossified soft tissue or haemotoma as a result of the trauma (J. Wooding *pers. comm.*). The bone also exhibited displacement of the distal half of the shaft (Figure 66).

Figure 66 The animal bone: trauma: fractured sheep/goat metatarsal with infection (SG1101, Phase 10)

A goose humerus from Phase 8 (SG0247) had fractured leaving the proximal and distal parts disunited. Although there were large open lesions with associated exotosis and a cloaca, the broken ends were relatively smooth, suggesting that the bone had healed. With such a severe break it seems unlikely that the bird would have been able to fly but it had evidently survived the injury.

Dental pathologies

The mandibles and maxillae of a cat (W3139: Phase 10 well) exhibit considerable alveolar recession around many of the teeth, as well as ante-mortem tooth loss, confirmed by the remodelling and infilling of the sockets. This is indicative of chronic periodontal disease.

Alveolar recession, together with the formation of roughened bone with a 'honeycomb' appearance around the alveoli, occurred on cattle and sheep mandibles and maxillae and was interpreted as periodontal disease. Examples were observed on cattle in Phase 9 (n=3), 10 (n=1) and 11 (n=2), with a larger number in Phase 7, where 25% of both mandibles and maxillae were affected (n=8). A smaller proportion of sheep appeared to suffer from a similar affliction in Phases 10 and 11. Ten percent of Phases 10 mandibles were affected but 30% of maxillae (n=3 in both cases), while in Phase 11 one out of three maxillae exhibited the condition. This condition is likely to be age-related, a case which is supported by the high prevalence in Phase 7, where elderly cattle are present and the low level occurrence in Phase 10, which is dominated by young beasts. Extreme wear was noted on a lower third molar of cattle from Phase 7.01 (context 6357). The enamel had completely worn away so that it had lost its original shape.

A number of other abnormalities were noted on the teeth and jaw. Several cases of malocclusion were noted. A premolar in a pig maxilla (context 362 phase 8) was rotated in its socket, causing the root to protrude through the side of the maxillary bone. In another pig jaw (context 6291 Phase 9), a deciduous canine had not been properly shed and was rotated. A sheep mandible in the same context (6291) still retained the distal end of the deciduous 4th premolar, which had also been incompletely shed. Crowding in two sheep mandibles (SG5015 Phase 7.03) had

resulted in the deciduous 3rd and 4th premolars and the 1st molar losing their boundaries and cutting into each other, referred to as interdental attrition (Davis 1997, 38). A pig molar in Phase 8.01 (SG5508) appeared to show caries.

In Phase 7 two pig mandibles had missing teeth with a remodelled socket (G5008 and G5004). Straw-like roots (hyper cementosis) were noted on two cattle molars from Phase 10 possibly indicative of periodontal disease or a possible abscess. A dog mandible in context 6357 (Phase 7.01) had lost a tooth (3rd premolar) ante-mortem, the socket of which had begun to heal.

Calculus

The presence of calculus on teeth was ubiquitous throughout the assemblage and was not recorded as pathology unless it was considered to be particularly severe. Worthy of mention is the occurrence of dark grey calculus with a metallic sheen or glitter. It did not appear to be concentrated in any one phase but was found on cattle and sheep teeth in phases 7 through to 11. The dark, shiny 'metallic' appearance has been frequently observed in other assemblages and is particularly associated with the teeth of ruminants (Hillson 2005, 290). Interestingly, it was not identified on pig teeth in the assemblage. It has been suggested that the particular colouration may be diet related; cattle and sheep possibly being fed similar fodder; but might also be due to stains produced by plaque bacteria (Hillson 2005, 290).

Abnormal bone shape

Two limb bones of dog from Phases 4 and 5 exhibited abnormal curvature. A variety of small dog with bowed legs was introduced in the Roman period, resulting from the deliberate breeding of animals selected for the desired congenital defect. However, as the bones are isolated specimens rather than part of a skeleton, it is not possible to entirely exclude the possibility of an un-intended osteodystrophy, such as rickets (Baker and Brothwell 1980, 47).

A deer antler exhibited unusual bone formation and distortion around the coronet and burr, possibly occurring during development rather than trauma (Phase 11 SG5041).

A depression noted at the base of a sheep horncore (Phase 9 SG 5779) was possibly a result of nutritional stress (Albarella 1995, 704).

Possible evidence for disease

Two domestic fowl sterna exhibited a curve or deformity at the apex of the keel. This has previously been attributed to roosting or vitamin D deficiency (Gál 2008, 46)

Domestic fowl tibiotarsii from different phases (8 and 10) exhibit curved shafts, possibly evidence of rickets (Gál 2008, 46). This would suggest that the birds' housed allowed only limited access to sunlight. Two domestic fowl bones, both tibiotarsii, from PR5953 have thickened and lumpy shafts, which may be an example of osteopetrosis, a disease commonly known to affect birds, where new bone is deposited resulting in particularly dense and swollen long-bones (Baker and Brothwell 1980, 61). This disease is associated with overcrowding and does not appear to occur prior to the Roman period (Waldron 2009, 62). The previous conditions considered together may imply that the domestic fowl at Freeschool Lane were closely penned and allowed insufficient access to light and space.

Figure 67: The animal bone: domestic fowl sterna exhibiting deformity at the keel

Two adjacent cervical vertebrae of a cat (Phase 7.03 G0384) had almost completely fused together; one appearing to have collapsed into the other, although there was no apparent new bone formation, which might perhaps be expected if a fracture was responsible.

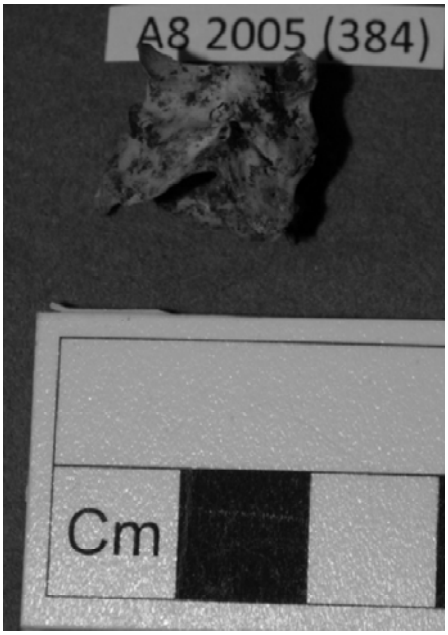

Figure 68: The animal bone: fused cat cervical vertebrae

Congenital and non-metric traits

There were a small number of congenital abnormalities resulting in absence of teeth. A Phase 7.03 cattle mandible has a missing 2nd premolar and a similar abnormality was observed on a Phase 8 pig mandible. An extra foramen was observed on the lateral side of a sheep mandible (G5030).

Occipital perforations were observed on one cattle skull (Brothwell *et al.* 1996; Llado *et al.*2008) Perforations through the body of large mammal vertebrae were noted in two examples. The cause of these abnormalities may be congenital but it is not possible to rule out infection, since the enlarged foramen appear to be smooth edged and remodelled around the edges as though something was tracking through them (J. Wooding *pers. comm.*).

Figure 69 The animal bone: perforations noted in the body of cattle vertebrae from Freeschool Lane and Vaughan Way

The animal bone by phase

The site at Freeschool Lane underwent a long period of occupation from the Late Roman to the post-medieval period. Within this report attempts have been made to examine diachronic changes in the bone assemblages between household plots. However, there are several reasons why these different phases of activity are not necessarily directly comparable. As has been noted in many other studies, phasing is essentially an artificial construct and cannot take into account the constantly evolving nature of the site: events would have taken place at irregular intervals, changes perhaps occurring at different speeds on different parts of the site and bones accumulating at different rates within individual features. The perennial problem of identifying residual material in bone assemblages was raised in the introduction and although care was taken in selecting deposits, it is still likely to be a complicating factor. The fact that many of the priority deposits were chosen because they had good bone assemblages reveals another bias; they may not be typical of activity in the plot or phase as a whole. Variation also occurred in sample sizes, for example the number of bones recovered from Phase 10 far exceeds those of other phases and the results of certain analyses, particularly age structure, are likely to be more reliable than for the smaller assemblages. However, although these issues suggest that interpretations should be advanced with a measure of caution, the phasing still provides an important framework within which to explore the meaning behind the bones deposited at the site.

Phase 2: Early Roman (mid- 1st-early 2nd century)

Phase 2 features across the site contained only 143 fragments, an insufficient quantity to enable a full analysis. Within the small assemblage, cattle bones dominated over sheep/goat and pig, while horse, deer dog and fowl bones were also present in very small numbers. Considerably fewer fragments originated from priority contexts; six cattle and large mammal and two medium mammal fragments were recovered from two deposits.

Phase 4: Late Roman (4th century)

Only one feature (SG5007: hearths cut into edge of Roman road) produced sufficient numbers of bones to permit analysis (n=266).

The majority of bones were retrieved from sub-group SG5007, particularly contexts 6542 (n= 112) and 6543 (n=91): fills from two pits cut into the Roman street. The indications are that these are good deposits and the bone is unlikely to be residual, since many specimens are fragile juvenile bones and small species, which would be unlikely to survive extensive re-working or adverse burial conditions. All the main domestic species are represented, with pig being the most common using NISP counts (Number of Identified Specimens). The majority of pig bones were juvenile but the presence of a small number of fused phalanges indicated that some animals over the age of 12 months were present. Nine neonatal elements were recovered, possibly from a single individual, which raises the possibility that pig breeding was occurring on site in this period. Domestic fowl bones were the second most common species; all but two bones were retrieved from context 6543 and a minimum of three juvenile birds

are represented. A lesser quantity of goose bones were recovered from the same context. Elements from various part of the body were present and the bones could have belonged to the same individual. Sheep/goat was rare; four of the nine specimens were loose teeth and three were radii, robust elements that could have survived re-working. The metacarpal of a juvenile goat was also identified. The cattle bones, four of which were butchered, represent a mixture of elements, including bones from the skull, limbs, spine and feet. A cattle horncore was almost complete and had a length of 187mm, placing it into the shorthorn category, as defined by Sykes and Symmons (2007, table 1). A small dog radius with a distinct curve was recovered, suggesting that it had belonged to a dwarf bow-legged animal for which there is mounting evidence in Roman Leicester (Gidney 1999, 317; Baxter 2006, 18). Partial skeletons of several small dogs, some of which had stout bandy legs, were recovered from Phase 4 deposits at Vine Street (Browning forthcoming, a).

Table 142 The animal bone: specimens recovered from SG5007 (NISP), along with number of butchered examples *= sheep included with sheep/goat bones

Species	Number	Percentage	Butchered bones (n)	Percentage butchered
Cattle	13	15%	2	15%
Sheep/Goat	9	11%	1	11%
Sheep*	1	-	0	-
Pig	31	35%	3	10%
Dog	1	1%	0	-
Horse	1	1%	0	-
Domestic Fowl	21	24%	0	-
Goose	11	12%	2	18%
Wild bird (cf coot)	1	1%	0	-
Total identified	89			
Large mammal	46		12	26%
Medium mammal	60		11	18%
Indeterminate mammal	57		0	-
indeterminate bird	14		2	14%
Total	*177*		*25*	*12%*

A total of 33 bones had butchery marks but these were uncommon on pig and domestic fowl. Butchery consisted most commonly of knife marks on large and medium mammal rib fragments (cattle and medium mammal), 29% of which were butchered (n=17). These are likely to represent filleting of meat and division of the rib slab. Vertebrae from all species were chopped medio-laterally, as though dividing the spine into sections, while marks relating to disarticulation were noted on the pelvis and femur of cattle and pig. A small proportion of the bone (n=6) showed signs of burning, charring, scorching and calcination, suggesting that bone was affected by different temperatures.

This rather well-preserved group of material appears to indicate that animal breeding as well as butchery was occurring nearby. Significantly, there was no botanical evidence suggesting domestic refuse and the sub-group contained carbonised wooden off-cuts, indicative of an activity such as carpentry, (A. Radini *pers. comm.*). The combined evidence therefore implies animal keeping and industrial activity, perhaps associated with the peripheries of occupation.

Phase 5: Early Anglo-Saxon (c. 400/50-650)

Phase 5 is divided into three sub-phases dating between 400 and 650 AD. Phase 5.01 relates to an accumulation of organic 'dark earth' soil, containing a mixture of late Roman and early Saxon material. There were no deposits suitable for the analysis of animal bone from Phase 5.02; however, Phase 5.03 deposits are associated with two SFB (Sunken Featured Building) groups, of which only G2001 yielded a decent quantity of bone. Although the assemblage from G2001 is small, the rarity of Saxon features, especially within the town walls, makes it an important deposit. There are only as handful of similar examples in Leicester, very few of which have yielded a bone assemblage. Two SFBs had been previously identified at Bonner's Lane (Finn 2004), and Oxford Street (Gossip 1999), outside the south gate. However, the Highcross excavations have revealed evidence for a further two structures at Vaughan Way (Gnanaratnam 2008), within the same Roman *insula* (XXVII) as the Freeschool Lane examples.

Table 143 The animal bone: sub-groups from Phase 5 included in the analysis

Area	Phase	Group	Sub Group	Description	Number of specimens
1	5.01	G5028	SG5028	dark earth soils	224
1	5.03	G5003	SG5003	SFB group	6
7	5.03	G2001	SFB2046	SFB group	165
					395

Group G5028, SG5028: Dark earth soils

Within SG5028, the majority of fragments were recovered from context 6450 (70%), with the remainder from context 6433. Bones from all the main domesticates were present, with cattle and sheep most common. Except for the horncore, most parts of the cattle skeleton were represented with increased proportions of limb bones and metapodials. Representation of the sheep/goat carcass follows a similar pattern but with a greater emphasis on the metapodials. The sparse numbers of pig bones include the upper parts of the carcass but bones from the hind limbs and phalanges were lacking. Part of the shaft of a human ulna was recovered from context 6450, probably incorporated through re-working of strata, since no other human bones were present. Five dog bones representing a minimum of two small animals were retrieved however it is not evident that any of these bones were articulated. An ulna from a bow-legged animal of the type previously identified in Roman deposits was retrieved (see Phase 4). A measurement produced a shoulder height of 0.27m (using the multiplication factor from Harcourt 1974), which is within the range for Romano-British dogs but

slightly below the Anglo-Saxon range quoted by Harcourt (1974). However, the curvature of the bone is likely to have affected the result of the estimated shoulder height.

The small number of identified duck bones compared well in size and morphology with mallard. These were fused and did not exhibit butchery marks. Horse was represented by two teeth, once again probably indicating reworking of deposits, since they were not still contained within the jaw.

Table 144 The animal bone: specimens recovered from SG5028 (NISP), along with butchered examples

Species	Number	Percentage	Butchered bones (n)	Percentage Butchered
Cattle	39	39%	15	38%
Sheep/Goat	38	38%	11	29%
Pig	11	11%	5	45%
Dog	5	5%	0	-
Duck	4	4%	0	-
Horse	2	2%	0	-
Human	1	1%	0	-
Total identified	100			
Large mammal	54		4	7%
Med mammal	48		6	13%
Indeterminate mammal	22		0	-
Total	*224*		*10*	*18%*

Overall 18% of the bone was butchered. Chops were more common than knife marks and a number of bones were heavily hacked. Cattle bones were affected more frequently, with dismemberment noted at the pelvis and long bones exhibiting chops and deliberate fractures. Chopping also occurred on pig humeri and sheep/goat radii and tibiae, while ribs bore cut marks, possibly from filleting and were chopped into sections. Only one bone, cattle pelvis, was burnt.

The bones from SG5028 are rather a mixed group, clearly incorporating a large proportion of butchered bones, possibly domestic refuse, with other remains re-worked from other deposits.

G2001 SFB2046

A total of 165 specimens were recovered from the fill of the Sunken-Featured Building (SFB) in Area 7. Cattle, sheep/goat and pig were all fairly equally represented, although only 21% of the bone was identified to species. With the exception of a pelvis and distal tibia, the sheep/goat bones were exclusively from the skull and metapodials, suggesting that they represent primary slaughter. A sheep mandible appears to have been disarticulated by chopping through the ascending ramus. All parts of the pig carcass are represented, except the skull, and metapodials

are particularly common. The pig bones also included a scapula from a neonatal animal. A single bone (carpometacarpus fragment) of domestic fowl was identified. The large and medium mammal fragments consisted of a large quantity of ribs, vertebra and shaft fragments. Butchery marks are particularly prevalent on ribs, which exhibit marks from both cleaver and knife. Other butchered fragments bear marks possibly associated with dismemberment and filleting and may represent food waste. The assemblage does not seem exclusively domestic in nature: part of a bone pin was identified (SF13120), in addition to at least two worked and smoothed flat, rectangular fragments of cattle-size bone.

Only six bones (sheep/goat, pig and a goose shaft fragment) were recovered from SFB subgroup SG5003, thereby providing little useful information.

Table 145 The animal bone: specimens recovered from SFB2046, along with number of butchered fragments

Species	Number	Percentage	Butchered bone (n)	Percentage butchered
Cattle	10	29%	0	-
Sheep/Goat	11	31%	1	1%
Pig	12	35%	2	17%
Domestic Fowl	1	3%	0	-
Total identified	34			
Large mammal	41		6	15%
Medium mammal	52		0	-
Indeterminate mammal	38		0	-
Total	165		9	5%

Phase 7: Saxo-Norman (c. 850-1150)

Archaeology relating to the Saxo-Norman period was present in Area 1 only. There are indications that plot divisions existed in this phase, although some evidence has been destroyed by later activity. The prioritised bones in Phase 7 were predominantly recovered from plot 57, with a smaller quantity from plot 56. However, very little of Plot 58 was excavated at this level and consequently, no bones were retrieved. Phase 7.01 dates from the late 9th and 10th centuries, while the latest contexts within Phase 7.03 are dated to the mid- 11th century. The comparatively meagre assemblage from Phase 7.02 (n=104) was not recorded in detail.

The main domesticates, cattle, sheep/goat and pig, form the greater part of the bones in both sub-phases. There is a greater dominance of cattle in Phase 7.01 but an increase in the proportions of both sheep/goat and pig relative to cattle in the later sub-phase, 7.03.

Table 146 The animal bone: species proportions in Phase 7 '*'includes both sheep and goat

Species	7.01	% identified assemblage	7.03	% identified assemblage
Cattle	273	47%	254	33%
Sheep/Goat	161	*30 %	259	*35%
Sheep	9		15	
Goat	1		0	
Pig	86	15%	160	21%
Horse	12	2%	6	<1%
Red deer	2	<1%	2	<1%
Roe deer	0		1	<1%
Dog	8	1%	5	<1%
Cat	0		20	3%
Hare	1	1%	1	<1%
House mouse	0		1	<1%
Domestic Fowl	15	3%	33	4%
Goose	6	1%	10	1%
Wild bird	1	<1%	7	<1%
Total identified	582		781	
Large mammal	331		345	
Medium mammal	141		253	
Indeterminate mammal	103		78	
Indeterminate Bird	1		3	
Total	1151		1453	

Age profiles

Data were initially separated into sub-phases for the purposes of investigating the age profiles for the main species. However, this was found to drastically reduce the dataset and importantly did not change the overall pattern, therefore Phases 7.01 and 7.03 were grouped. The raw data can be found in the Appendix and it is represented here by Figure 70.

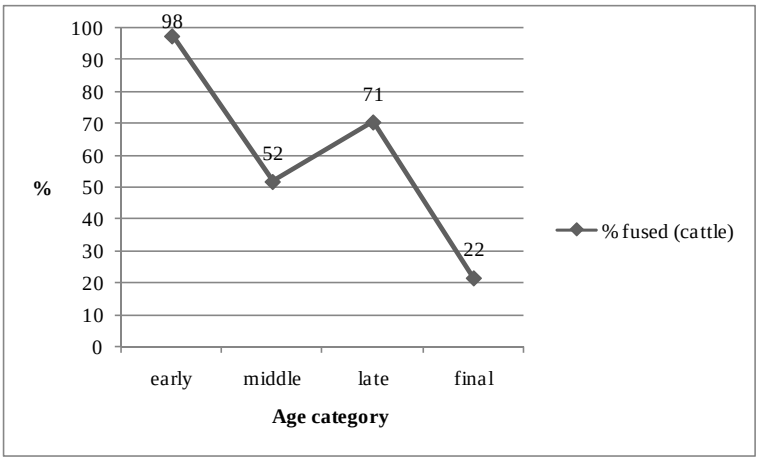

Figure 70 The animal bone: epiphysial fusion in cattle bones from Phase 7 (n=174)

Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

The shape of Figure 70 is a good example of why this type of analysis does not produce a valid mortality profile, an issue highlighted by O'Connor (2003, 166). The chart implies that there is an increase in live animals in the 'late-fusing' group compared with the 'middle-fusing' group which, if the data resulted from monitoring the age at death for a single population, would not be possible. The fact is that the bones will have come from diverse sources and therefore some individuals may be represented by one bone and others by several. The resulting analysis can only really suggest trends, which can be tested against the toothwear data, which is generally considered to be more reliable. Despite these difficulties, the evidence suggests that while there is little evidence for the slaughter of animals below the age of 18 months, the steep decline in the number of middle-fusing bones suggests that a significant proportion of animals were killed before the age of three, while vertebral fusion indicates that around 20% of bones came from animals surviving beyond 84 months.

Table 147 The animal bone: toothwear data for Phase 7 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
7	-	-	3	1	3	2	-	-	3	8	20
%	*0*	*0*	*15*	*5*	*15*	*10*	*0*	*0*	*15*	*40*	*100*

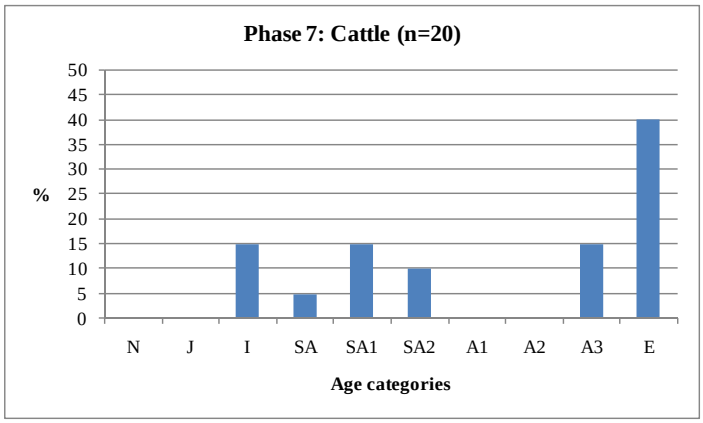

Figure 71 The animal bone: cattle toothwear stages from Phase 7 (after O'Connor 2003)

Figure 71 shows two main age groupings based on toothwear data. The first occurs in the immature, and sub-adult categories, prior to the third molar coming into wear and the second is in the adult and elderly age range, when the third molar was heavily worn. As the third molar erupts between two and a half and three years (Hillson 2005, 233), the first group may correspond with the early peak of slaughter noted among the fusion data. The toothwear diverges from the fusion evidence by indicating that half the animals survived into late adulthood. This discrepancy may indicate that the cranial and post-cranial bones are sampling different populations or may reflect a low number of vertebrae.

Sheep/goat

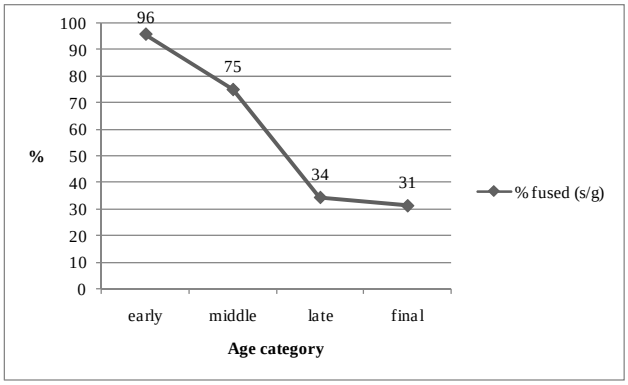

Figure 72 The animal bone: epiphysial fusion in sheep/goat bones from Phase 7 (n=188)

Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months (n=42)

Fusion for sheep/goat shows a different pattern to cattle. There is very little evidence for the slaughter of animals below the age of 30 months (middle-fusing) but a steep decline in the proportion of fused bones between the middle and late fusing categories suggesting a peak of slaughter among three year old sheep. A similar proportion of

fused vertebrae suggest that a significant number of adult animals survived beyond 48-60 months.

Table 148 The animal bone: toothwear data for Phase 7 sheep/goat

Key: J=juvenile, I=immature, SA=sub-adult, A=adult, E=elderly.

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
7	-	-	7	1	8	3	1	2	6	-	28
%	*0*	*0*	*25*	*4*	*29*	*11*	*4*	*7*	*21*	*0*	*100*

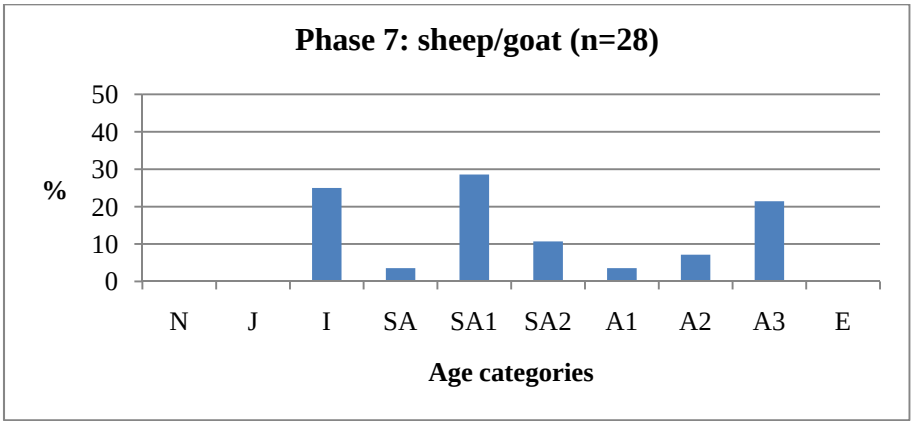

Figure 73 The animal bone: sheep/goat toothwear stages from Phase 7 (after O'Connor 2003)

The toothwear slightly disagrees with the evidence from epiphysial fusion. The lack of juveniles is confirmed but there are significant numbers of immature and sub-adults (younger than 24 months), which would broadly correspond to the middle-fusing category. There are fewer animals than expected in the early adult (third molar worn lightly or moderately) age category, but an increase amongst animals in the older adult category (A3). There may be taphonomic reasons for some of these differences.

Pigs

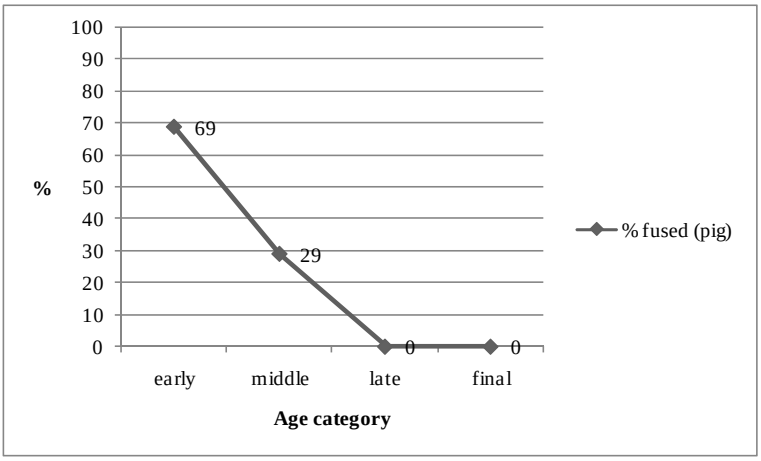

Figure 74 The animal bone: epiphysial fusion in pig bones from Phase 7 (n=58)

Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Figure 74 suggests that 30% of pigs did not survive their first year and there is a further decline in the following two years, presenting no evidence for animals over 27 months. Once again the toothwear results present a different picture, although actual mandible numbers are small. The dental evidence confirms the presence of neonatal animals and there is a small cluster of mandibles from immature animals, killed around the time of eruption of the second molar, which takes place between 7 and 14 months (Hillson 2005, 234). Animals in the Sub-adult 2 category, defined by the eruption of the third molar at just below 2 years of age, are also present. Animals over the age of two years are present in the Adult categories (extending from two years to five or six (O'Connor 2003, 161)); this discrepancy suggesting that the heads and post-cranial bones did not belong to the same animals. This, coupled with the higher proportion of skull elements recovered (Figure 80) could suggest that additional pig heads were being brought into the plot or that post-cranial bones were removed from the plots, possibly as joints of meat. However, a taphonomic explanation for the differential survival of different bones, especially the more robust cranial elements, cannot be ruled out (Albarella 2006, 84).

Table 149 The animal bone: toothwear data for Phase 7 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
7	1	-	-	2	1	2	-	2	-	3	1	-	12
7%	*8*	*0*	*0*	*17*	*8*	*17*	*0*	*17*	*0*	*25*	*8*	*0*	*100*

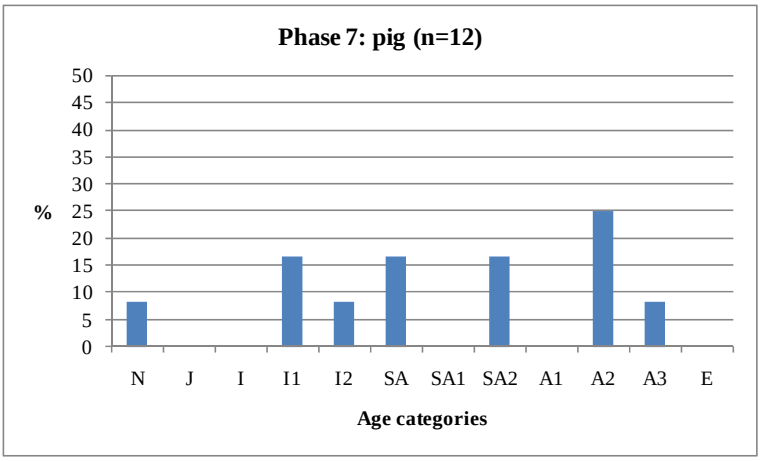

Figure 75 The animal bone: pig toothwear stages from Phase 7 (after O'Connor 2003)

Carcass components

Cattle

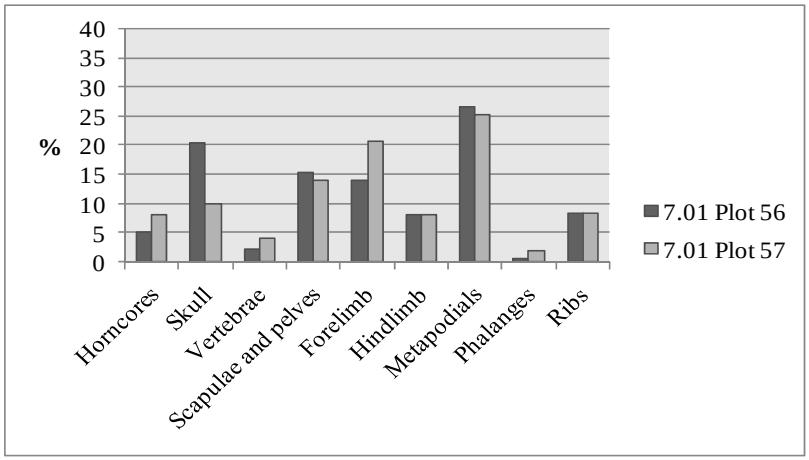

Figure 76 The animal bone: cattle carcass components in Phase 7.01 (plot 56 n=95; plot 57 n=192)

(each category would be 11.1% if all parts of the carcass were equally represented)

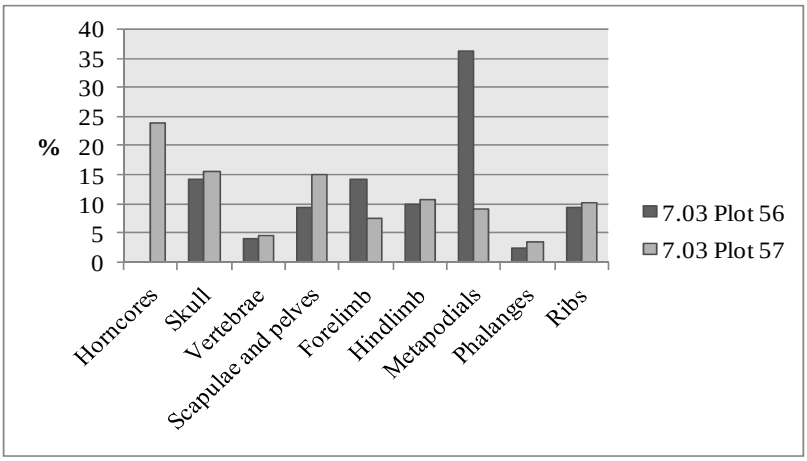

Figure 77 The animal bone: cattle carcass components in Phase 7.03 (plot 56 n=175; plot 57 n=83)

(each category would be 11.1% if all parts of the carcass were equally represented)

In both sub-phases all parts of the carcass were represented. Plots 56 and 57 had similar patterns of carcass disposal in Phase 7.01 among post cranial bones (although elements from the forelimb were more common in Plot 57 and the skull was more frequent in plot 56). In Phase 7.03, plot 56 was dominated by metapodials, which account for 36% of cattle bones. The post-cranial carcass was more evenly distributed in Plot 57, although there were inflated numbers of skull elements and horn cores. Phalanges and vertebrae were quite poorly represented while quantities of ribs were fairly similar across both plots and phases.

Sheep/goat

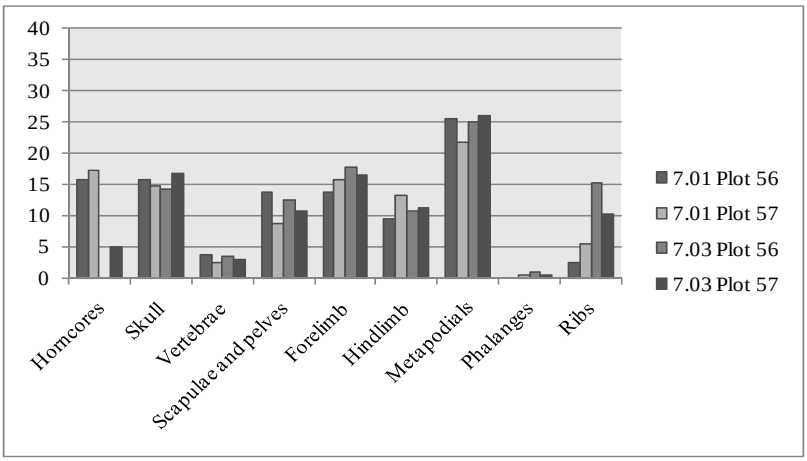

Figure 78 The animal bone: sheep/goat carcass components in Phase 7 (7.01 plot 56 n=51; 7.01 plot 57 n=157; 7.03 plot 56 n=140; 7.03 plot 57 n=199)

(each category would be 11.1% if all parts of the carcass were equally represented)

The representation of sheep/goat elements is reasonably consistent on both plots and within both sub-phases. All parts of the skeleton were present but the relative abundance of metapodials is especially pronounced. Scapulae and pelves and limb bones are fairly evenly distributed, while phalanges and vertebrae are considerably under-represented. The correlation between frequencies of carcass components suggests that sheep carcasses were treated in a similar manner in both sub-phases and plots.

Pig

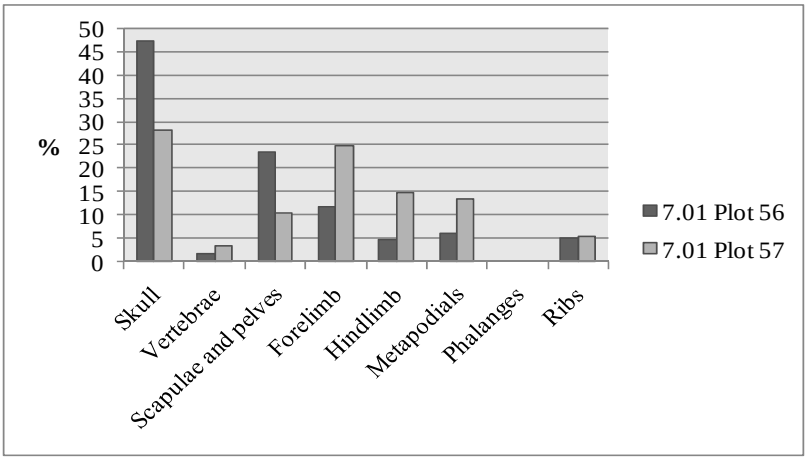

Figure 79 The animal bone: pig carcass components for Phase 7.01 (plot 56 n=20; plot 57 n=66)

(each category would be 12.5% if all parts of the carcass were equally represented)

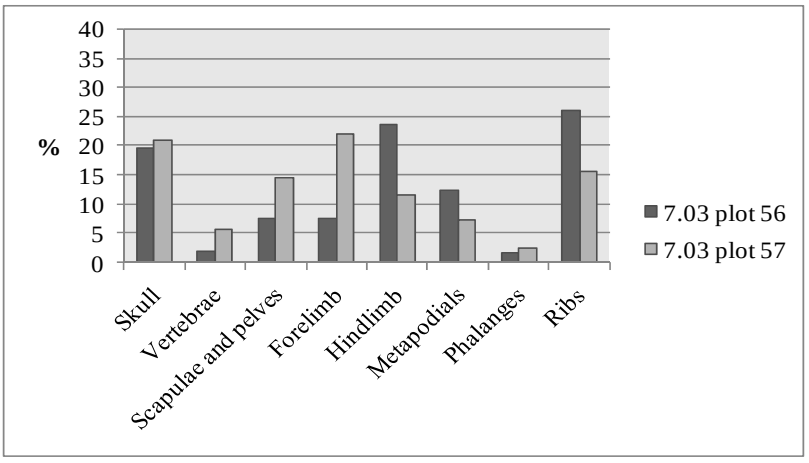

Figure 80 The animal bone: Pig carcass components for Phase 7.03 (plot 56 n=77; plot 57 n=46) (each category would be 12.5% if all parts of the carcass were equally represented)

Analysis of the carcass components for pig shows a much more mixed picture than for sheep/goat. Skulls were consistently well-represented, particularly in 7.01, plot 56, while phalanges are very rare. Ribs were more common in Phase 7.03. Nevertheless,

it is evident that all parts of the carcass were finding their way into Phase 7 deposits, suggesting that the animals were brought onto site whole. The comparatively low numbers of bones on which the graphs are based may have introduced a random element to the patterning and it might be unwise to give too much emphasis to the results from the individual plots in this case.

The Sub-groups

Phase 7.01

Bones from three subgroups in Plot 56 (*n*=389) and four in plot 57 (*n*=862) were included in the analysis (Table 150).

Table 150 The animal bone: sub-groups from Phase 7.01 included in the analysis

Area	Plot	Phase	Group	Sub Group	Description	Number
1	Plot 56	7.01		SG6441	rear frontage. Plausible demolition layer over building G5002.	36
1	Plot 56	7.01		X56_701	Ungrouped contexts in plot 56 –context 6357	235
1	Plot 56	7.01	G5002	G6462	rear frontage SN building hearth	18
1	Plot 57	7.01		G5008	frontage soils immediately on top of macellum wall	593
1	Plot 57	7.01		G5030	frontage SFB fills	197
1	Plot 57	7.01	G5034	G5185	frontage Stone hearth and surrounding burnt sand layer	8
1	Plot 57	7.01	G5034	G5207	frontage pit	64
						1151

(i) Plot 56

Excepting context 6357, the sub-group assemblages from Plot 56 were rather small. Cattle bones were most frequent, followed by sheep/goat and pig.

Species	G6462	SG6441	X56_701 C6357	Total
Cattle	1	4	83	88
Sheep/Goat	3	5	27	39
Sheep		1	3	*
Pig	2	5	13	20
Horse			3	3
Dog			4	4
Red deer			1	1
Domestic fowl			1	1
Goose			1	1
Total identified	6	15	136	157
Large mammal	10	14	62	86
Medium mammal	2	7	25	34
Indeterminate mammal			12	12
Total	18	36	235	289

Table 151 The animal bone: sub-groups in plot 56, Phase 7.01

An ungrouped context (6357), described as a charcoal-rich build-up layer on the frontage, contained the largest number of bones from Plot 56. Cattle bones dominated the assemblage, contributing 61% of the identified fragments. Mandibles and metapodials were particularly frequent among the cattle and sheep bones. A quarter of the bone was butchered, mostly cattle and large mammal fragments. A very large and heavy antler fragment, presumably from a well-grown stag, was recovered from the context. The antler had been shed and was heavily worked, possibly indicating object manufacture.

Sub-group SG6441 was a demolition layer and a significant proportion of the bone (64%) was not identified to species.

Sub-group G6462 (building 03; G5002 hearth) contained 18 bones, including cattle, sheep/goat and pig. Many of the bones were fragments from the ribs and vertebrae. A small number of elements were butchered, yet the lack of burned bones suggests that the group is likely to have accumulated in the feature after it fell out of use.

(ii) Plot 57

A larger quantity of bone was recovered from Plot 57, once again dominated by cattle, which contributed 45% of the identified fragments compared with 31% for sheep/goat and 16% for pig.

Table 152 The animal bone: sub-groups in plot 57, Phase 7.01

Species	G5008	G5030	G5185	G5207	Total
Cattle	139	37	1	11	188
Sheep/Goat	87	28	2	9	126
Goat	1				1
Sheep	5				5
Pig	55	9	1	1	66
Horse	7			2	9
Dog		4			4
Red deer	1				1
Hare		1			1
Domestic Fowl	2	11		1	14
Goose	2	3			5
Corvid (cf jackdaw)		1			1
Total	299	94	4	24	421
Large mammal	170	55	2	18	245
Medium mammal	71	28	2	6	107
Indeterminate mammal	53	19		15	87
Indeterminate bird		1			1
Total	593	197	8	64	861

Subgroup G5008 (soils on top of the collapsed macellum wall), produced the largest assemblage, numbering nearly 600 fragments. Cattle and cattle-size bones predominated. The horncore of a goat, large and with a straight scimitar shape, was recovered from context 5280 (subgroup G5008); this, however, was the only identified element of goat and a far larger number of skull and horncore fragments identified as sheep were present in Phase 7 deposits. A fragment of red deer antler was also recovered. The feature contained a small concentration of burnt bones (n=25 4%), which were mostly charred rather than calcined, suggesting that they were not exposed to the hottest part of the fire. G5008 also contained a significant proportion of gnawed bones (n=62 10%), indicating that the bones were accessible to dogs. This characteristic of the assemblage is consistent with the accumulation of dumps of material rather than rapid burial in a discrete feature.

G5030 (SFB fills) was not considered to be as well-dated as many of the other features. Neither of the other sub-groups (G5185 and G5207) was considered to be of sufficient size or interest to merit individual comment.

Phase 7.03

A greater number of pits, layers and postholes signalled increased occupation activity in Phase 7.03. A number of subgroups produced moderately large assemblages, particularly G5702, G5004, G5010, G5014 and SG5015. The numbers of bones from plots 56 and 57 are fairly equal (respectively n=569 and n=655) and several

ungrouped contexts from the boundary between the two plots also contributed a moderate quantity of bone (n=226). These were interpreted as a series of refuse, consolidation and build-up layers.

Table 153 the animal bone: sub-groups from Phase 7.03 included in the analysis

Plot	Sub Group	Description	Number
Plot 56	G5702	plot 56 rear front. Pit	129
Plot 56	G5974	plot 56 rear frontage. Heavily truncated pit 5964.	28
plot 56	X56_703	Ungrouped contexts in plot 56	182
Plot 56	G5004	Plot 56 rear front SN building later phase	125
Plot 56	G5010	Plot 56 rear frontage. Deposits relating to structures subsequent to the beamslot building	222
Plot 56/57	X56_57_703	Ungrouped contexts on plot boundary Contexts: 5536, 303, 301, 294, 292, 289, 297, 266, 233.	226
Plot 57	G0254	plot 57 frontage ph cut. Cuts earlier feature G0261	3
Plot 57	G0277	plot 57 frontage shallow ?pit cut	55
Plot 57	G0401	plot 57 frontage occupation layer.	57
Plot 57	G5014	plot 57 rear frontage. Large pit cut 5551 and early SN fills.	104
Plot 57	G6405	Plot 57 rear frontage circular pit cut by phase 8 pit 6406	15
Plot 57	SG0229	plot 57 frontage floor.	34
Plot 57	SG5015	plot 57 rear frontage. Later fills of large pit cut 5551	157
Plot 57	X57_703	Ungrouped contexts in plot 57	6
Plot 57	G0285	plot 57 frontage large posthole	7
Plot 57	G0383	plot 57/58 boundary pit/ph cut.	5
Plot 57	G0384	plot 57 frontage silt clay	40
Plot 57	G0387	plot 57 frontage north . Cut of pit. Heavily truncated at North.	1
Plot 57	G5005	Plot 57 frontage. big posthole with pad	21
Plot 57	G5013	plot 57 frontage. Large pit/ph,	23
Plot 57	G5018	plot 57 frontage rectilinear Ph	3
Plot 57	G5037	plot 57 frontage. Group of layers	7
Plot 57/58	G0333	plot 57 /58 frontage linear pit	5
			1455

(i) Plot 56

Table 154 The animal bone: sub-groups in plot 56, phase 7.03

Species	G5004	G5010	G5702	G5974	X56_703	Total
Cattle	39	46	12	7	44	148
Sheep/Goat	12	39	7	8	24	90
Sheep	1			1	1	3
Pig	6	8	82		7	103
Dog	3	1				4
Horse	1		1			2
Red deer		1				1
Domestic Fowl	1	2		1	2	6
Goose			1			1
Woodcock				1		1
Golden plover		1				1
House mouse			1			1
Total identified	63	98	104	18	78	361
Large mammal	41	51	13	7	65	177
Medium mammal	19	46	10	3	33	111
Indeterminate mammal	1	27	2		6	36
Total	124	222	129	28	182	685

Subgroups SG5004 (later phase of rear front building) and SG5010 (relating to structures subsequent to the beamslot building) contained a greater proportion of gnawed bones than many other features (SG5004: n=10, 8% and SG5010: n=17, 8%). This may reflect a greater degree of residuality or suggest that burial was not so rapid and bones were accessible to dogs. A horse metatarsal which had been shaped into a bone skate (SF1305) was recovered from SG5004.

Pig bones dominated G5702 (a pit on the rear frontage) and the majority of bones were neonatal. Ribs constituted a large proportion of the pig bones however limb bones indicate that a minimum of two young pigs were represented. However a mandible containing the third molar is also indicative of adult animals. Although the cattle bones from the feature are not numerous, the recorded elements are mainly from the skull and lower legs, suggesting that they could have been brought in as part of a hide.

(ii) Plot 57

Table 155 the animal bone: larger sub-group assemblages in plot 57, Phase 7.03

SG5015 was the sub-group with the largest assemblage, which was dominated by sheep/goat. G5014 contained a bone identified as belonging to a buzzard.

A concentration of cat bones was found in subgroup G0384 (group G5035), which has a mid-11th-century date. The bones are all from the skull, mandible, neck and feet and represent a minimum of two animals. Both animals had adult dentition but some of the bones are unfused: a calcaneum from an animal below 30 weeks and a phalanx, which would fuse *c.*24 weeks (after Smith 1969). A cat metapodial from subgroup G5013 had a fine cut mark indicative of skinning.

Species	G0277	G0384	G0401	G5014	SG5015	Total
Cattle	8	1	4	17	23	53
Sheep/Goat	9	5	19	25	47	105
Sheep	2		1	2	2	7
Pig	8		3	12	12	35
Cat		15				15
Horse				1		1
Hare		1				1
Domestic fowl	1	1	4	1	12	19
Goose					6	6
Buzzard				1		1
Corvid cf rook		2				
Total identified	28	26	31	59	102	245
Large mammal	11	2	12	17	25	67
Medium mammal	11	5	12	18	29	75
Indeterminate mammal	3	7	2	10	1	21
Indeterminate bird	1					1
	54	40	57	104	157	412

A third of the bones in G0277, a shallow pit on the frontage (n=18, 33%) were burnt, mostly scorched and charred as though they had been exposed to a fire. Cattle, sheep/goat and pig bones were all affected. Burnt bones occur sporadically in other contexts.

A bone skate, made from a horse metatarsal (SF1310), was recovered from subgroup G0229 (frontage floor) (not shown in table above).

Phase 8: Earlier medieval (c. 1100-1250)

Evidence for occupation on the frontage of Area 1 in Phase 8 is more extensive than in Phase 7 and there was a fairly complete building in plot 57. Although plot 56 lacks such definite structural activity, features associated with occupation are still present on the frontage. Plot 56 yielded almost twice as many bones (n=927) as plot 57 (n=446). Little of plot 58 was recovered at this level and consequently no bone groups were . The phase subdivisions do not cross boundaries; phase 8.01 relates only to activity on the frontage of plot 56, while activity on the rear of this plot may be phase 8 or phase 8.01. Some subgroups from areas 4 and 10 have been included in the overall phase analysis.

Age profiles

Ageing of the main domesticates in Phase 8 proceeded with some caution because it is based on a relatively small dataset. On the whole post-cranial bones are more numerous than mandibles, especially for cattle and sheep. Epiphysial fusion for cattle and sheep followed a similar pattern, suggesting that the majority of animals survived into their second year. The subsequent decline in fused bones is steeper for cattle than for sheep, indicating that there was a peak of slaughter for cattle between the ages of 18 months and three years (Figure 81). Sheep were apparently slaughtered at a slightly steadier rate from their second years onwards (Figure 82). However, a slightly greater number of cattle appeared to survive to maturity. Dental evidence indicated a spread of ages for sheep, ranging from juvenile, peaking in the sub-adult categories but also strongly represented amongst the Adult 3 category (Figure 83). Juvenile, immature and adult cattle are represented and pig mandibles indicated predominantly immature and sub-adult animals, with one older adult in evidence (

Table 156 and Table 158). The fusion pattern for pigs suggests that 42% of animals in the assemblage were killed below the age of one year and that none survived beyond two years (Figure 84).

In addition, a number of bones (n=13) noted as neonate and juvenile lambs were recovered from a variety of contexts, floor layers, occupation deposits and pits in Plot 56. There were more humeri than other elements (MNI=3) but all the main limb bones and the skull were represented. In plot 57, four neonatal lamb bones were recovered (SG5016 and SG6270). A fragment from a neonatal calf skull was recovered from SG5728 in Plot 57. Twenty-four neonatal pig bones were recovered from the phase, all but one recovered from context 6062, a wall in plot 57.

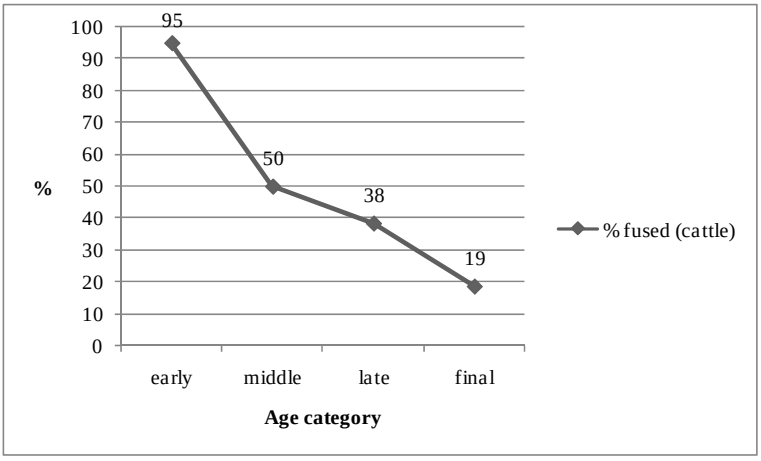

Figure 81 The animal bone: epiphysial fusion in cattle bones from Phase 8 (n=66)
Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Table 156 the animal bone: toothwear data for Phase 8 cattle

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
8	-	1	-	-	1	-	-	-	1	-	3
%	*0*	*33*	*0*	*0*	*33*	*0*	*0*	*0*	*33*	*0*	*100*

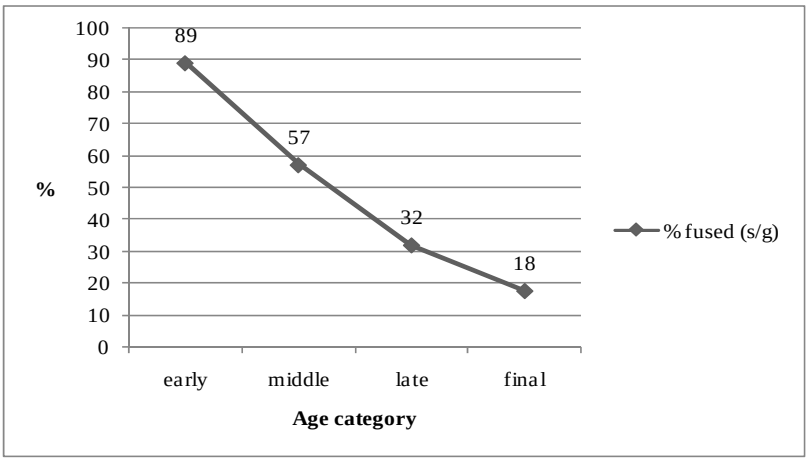

Figure 82: The animal bone: Epiphysial fusion in sheep/goat bones from Phase 8 (n=133)

Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

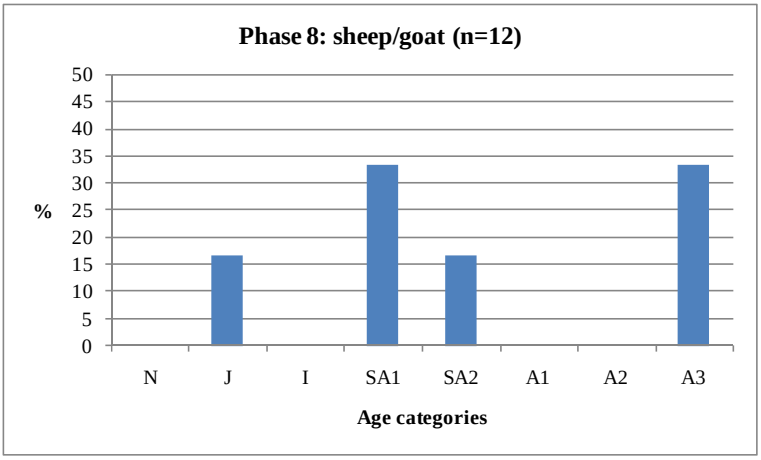

Figure 83 The animal bone: sheep/goat toothwear stages in Phase 8 (after O'Connor 2003)

Table 157 the animal bone: toothwear data for Phase 8 sheep/goat

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
8	-	2	-	-	4	2	-	-	4	-	12
%	*0*	*17*	*0*	*0*	*33*	*17*	*0*	*0*	*33*	*0*	*100*

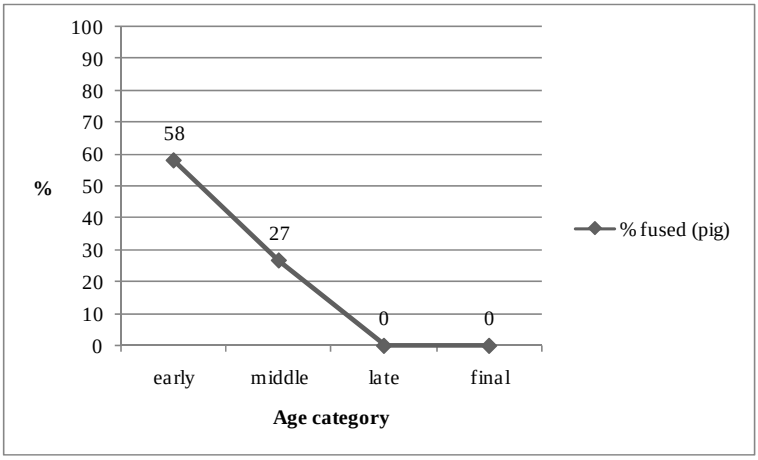

Figure 84 The animal bone: epiphysial fusion in pig bones from Phase 8 (n=47) Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Table 158 The animal bone: toothwear data for Phase 8 pigs

Phase	N	J	I	I1	I2	SA	SA1	SA2	A1	A2	A3	E	Total
8	-	-	1	1	-	-	1	1	1	-	-	-	5
8%	*0*	*0*	*20*	*20*	*0*	*0*	*20*	*20*	*20*	*0*	*0*	*0*	*100*

Carcass components

The distribution of skeletal parts was examined for the three main species, cattle, sheep/goat and pig.

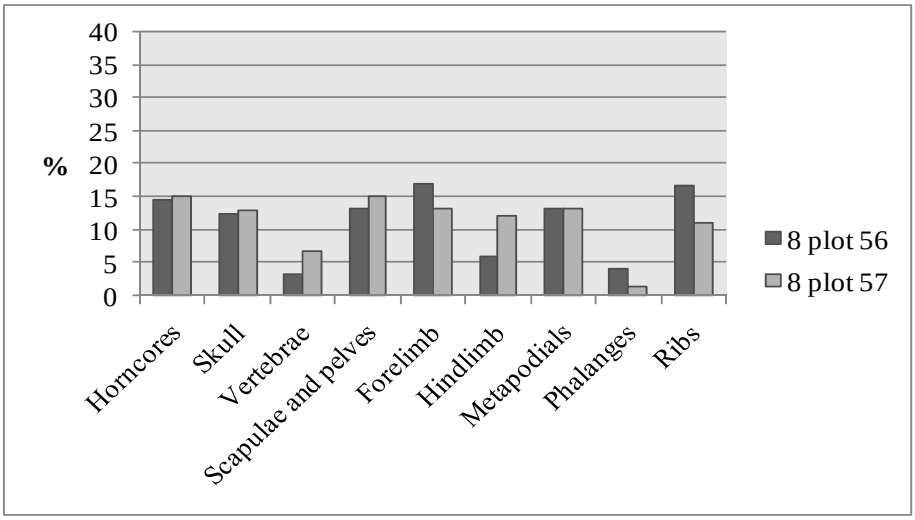

Figure 85 The animal bone: cattle carcass components for Phase 8

(plot 56 n=119; plot 57 n=72)

Although there were small variations in the proportions of cattle carcass units on plot 57, all parts of the animals were represented and differences were not significant. Horncores and skulls are well-represented on both plots. Plot 56 showed more variation: scapulae and pelves, forelimb and ribs were well-represented, suggesting a possible emphasis on joints of meat. The hind limb was under-represented, as are vertebrae and phalanges on both plots.

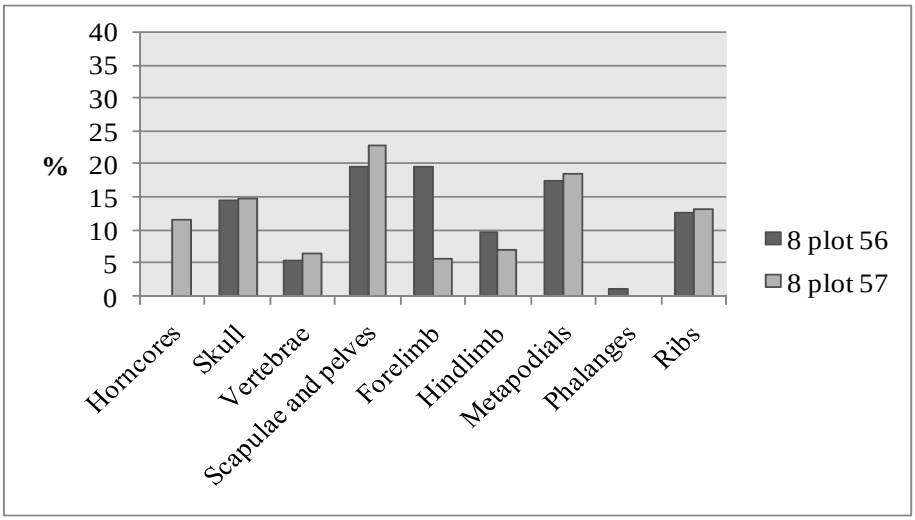

Figure 86 The animal bone: sheep/goat carcass components for Phase 8

(plot 56 n=213; plot 57 n=89)

The distribution of sheep bones indicates a difference between the types of waste deposited on each plot. Scapulae and pelves are well- represented on both plots but on plot 56, this was accompanied by a relative abundance of forelimbs, metapodials and ribs, while the horncore is scarce. Limbs were scarce on Plot 57, where there was an emphasis on scapulae and pelves, metapodials and cranial elements. This hints more at processing waste such as hides, accompanied by selected joints of meat.

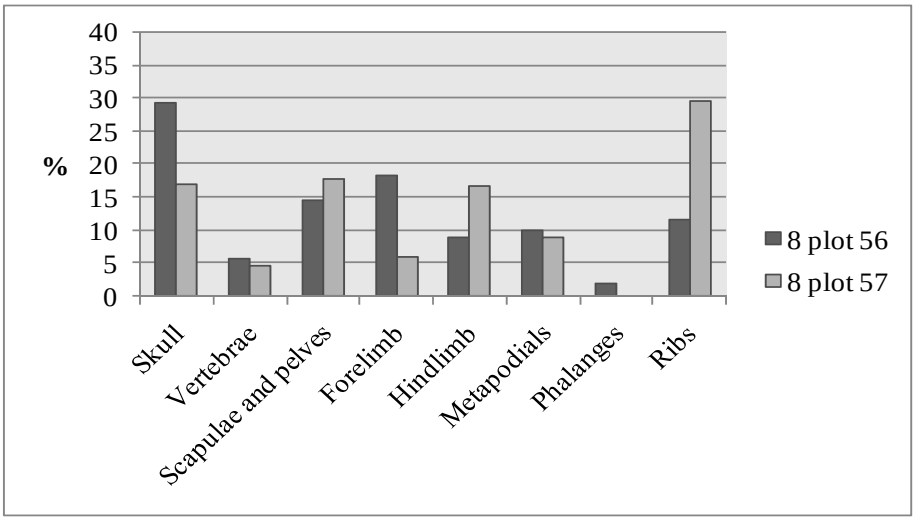

Figure 87 The animal bone: pig carcass components for Phase 8

(plot 56 n=86; plot 57 n=67)

The distribution of carcass elements for pig was calculated from a fairly small dataset. The skull, forelimbs and scapulae and pelves are more numerous than other parts of the body in plot 56, while ribs are particularly common on plot 57.

The Sub-Groups

The plots contained a number of subgroups with moderate assemblages including from plot 56 SG5508 and SG6235 and from plot 57, SG5016 and SG5728. These contain a typical range of species and a mixture of elements but are difficult to interpret individually. Only SG0469 is significantly larger and therefore merits individual comment.

Burnt bones occur sporadically among bones of the phase but a concentration was observed only in SG0418, a post-hole beneath a floor in plot 56, where a mixture of charred, scorched and calcined bones account for almost half the assemblage (n=9 47%).

Table 159 the animal bone: sub-groups included in the analysis from Phase 8, plot 56 and 57

Area	Phase	Sub Group	Description	Number	Plot
1	8	SG0363	plot 56 frontage Compact floor surface assoc with hearth 0364	37	Plot 56
1	8	SG0418	plot 56 rear frontage Ph underneath floor 0416	19	Plot 56
1	8	SG5514	plot 56 rear Big pit	27	Plot 56
1	8	SG5564	Plot 56 front Trunked pit	56	Plot 56
1	8	SG5795	Plot 56 rear frontage E-W beamslot/gulley	27	Plot 56
1	8	SG5938	plot 56 rear frontage pit	15	Plot 56
1	8	X57_8	Catch-all ungrouped cns in plot 57 phase 8	126	Plot 56
1	8.01	SG5508	plot 56 frontage. Widespread occ deposit?	99	Plot 56
1	8.01	SG6235	plot 56 frontage E-W beam slot	82	Plot 56
1	8.01	SG0471	Plot 56 frontage. Pivotal context in that it is the latest to be cut by big square pit 0365	57	Plot 56
1	8.02	SG0469	Plot 56 frontage Group of lower layers which either are contained within cut 0365 or are slumping into it	382	Plot 56
1	8	SG0224	plot 57 frontage hearth	1	Plot 57
1	8	SG5016	Plot 57 rear front pit 160, east of pit 5551	127	Plot 57
1	8	SG5728	plot 57 rear front disposal pit	120	Plot 57
1	8	SG6270	plot 57 rear isolated post hole	35	Plot 57
1	8	SG6406	plot 57 rear frontage. Probable well predating large stone privvy	36	Plot 57
1	8	SG6438	plot 57 frontage, up against E-W boundary wall and early med N-S wall 5200	14	Plot 57
1	8	X57_8	Catch-all ungrouped cns in plot 57 phase 8	113	plot 57
1	8	SG0247	plot 56/57 frontage. Trunked sliver of pit	23	plot 56/57
1	8	SG0264	plot 56/57 boundary. Heavily trunked pit.	25	Plot 56/57

(i) Plot 56

Table 160: Larger sub-group assemblages from plot 56, Phase 8

Species	SG0363	SG0469	SG0471	SG5508	SG5564	SG6235	X56_8	X57_8	Total
Cattle	4	52	6	8	7	7		13	97
Sheep/Goat	6	63	8	17	4	12		20	130
Sheep		1		1		1			3
Pig	4	25	6	12	2	2		8	59
Cat	3	1			2				6
Dog									0
Horse		1				3			4
Human			7						7
Red deer		1							1
Hare								1	1
Domestic Fowl	2	24	2	1	1	3	1	7	41
Goose	3	24		4	3			6	40
Duck	1								1
Pigeon							2		2
Total identified	23	192	29	43	19	28	3	55	392
Large mammal	10	70	10	36	18	22		32	
Medium mammal	4	78	14	18	14	22		29	
Indeterminate mammal		35	3	2	5	10		10	
Indeterminate Bird		6	1						
Total	37	381	57	99	56	82	3	126	841

Sub-group SG0469, assigned to Phase 8.02 was described as deposits slumped/contained within pit 0365. These layers contained a significant quantity of bone. Fifty percent was identifiable to species with sheep/goat was most common and cattle were also well-represented. A significant proportion (26%) belonged to domestic fowl and geese. Twenty percent of the material from the layers was butchered, mostly affecting limbs, vertebrae and ribs of cattle and sheep/goat and suggesting reduction of the carcass into smaller portions. Cattle skull fragments and phalanges displayed skinning marks and a horncore exhibited heavy chopping at its base, suggesting that the feature contained a mixture of domestic and primary butchery waste.

(ii) Plot 57

Table 161 The animal bone: sub-group assemblages in plot 57, Phase 8

Phase	Species	SG0224	SG5016	SG5728	SG6270	SG6406	SG6438	X57_8	Total
8	Cattle		20	13	2	5	4	11	55
8	Sheep/Goat		23	12	12	7	2	6	62
8	Sheep		1						1
8	Pig		9	7	3	5	2	50	76
8	Horse		2	1			1		4
8	Fallow deer			1					1
8	Human			1					1
8	Mouse							1	1
	Hare							1	1
8	Red Squirrel	1							1
8	Domestic fowl		2	9					11
8	Goose			4	2		1		7
8	Sparrowhawk							2	2
8	Amphibian					8		2	10
	Total identified	1	57	48	19	25	10	73	233
8	Large mammal		37	24	4	10	3	14	
8	Medium mammal		36	21	12	1	1	13	
8	Indeterminate mammal			23				16	
8	Indeterminate bird			3					
	Total	1	130	119	35	36	14	116	451

Only two sizeable bone groups, SG5016 and SG5728, were recovered from Plot 57. Both have similar proportions of cattle and sheep/goat but G5728 contains a greater diversity of species, including bird remains. The bones appear to predominantly represent domestic waste, although in SG5016 both cattle and sheep horncores show signs of butchery, possibly indicating separation for craftwork. Thirty-four percent of bones from SG5016 and 19% from SG5728 were butchered.

Two bones identified as sparrowhawk were recovered from X57_8 (context 5767). Red squirrel was represented by a single humerus in SG0224 (Plot 57 frontage hearth), evidently deposited during disuse of the feature.

(ii) Area 10 and Area 4

Table 162: Sub-groups included in the analysis from Areas 4 and 10, Phase 8

Area	Phase	Group	Sub Group	Description	Number
10	8	G3045	W3593	well	263
4	8	G1009	FL1012	Floor make-up layers	26
4	8	G1011	FL1300	floor surfaces	13
4	8	G1020	SG3150	Demolition and yard layers	126
					428

Table 163: Larger sub-group assemblages from Area 10 and Area 4, Phase 8

		Area 4				Area 10
Phase	Species	FL1012	FL1300	SG3150	Total	W3593
8	Cattle	2	1	21	24	23
8	Sheep/Goat	1	2	23	26	20
8	Sheep					1
8	Pig	6	1	23	31	20
8	Cat					5
8	Horse			1	1	
8	Hare	2			2	
8	Domestic Fowl	1		3	4	24
8	Goose					40
	Total identified	12	4	71	86	133
8	Large mammal	5	2	29		68
8	Medium mammal	7	5	23		22
8	Indeterminate mammal	1		3		31
8	Indeterminate bird	1	2			9
	Total	26	13	126	165	263

Well W3593 in Area 10 contained a relatively high proportion of identifiable fragments (51%). The most common species by fragment number was goose, followed by domestic fowl and the main domesticates. The goose bones represent a minimum of two birds and two butchery marks were recorded. There was no evidence for juveniles. A mixture of juvenile and mature domestic fowl bones were present, similarly representing a minimum of two birds. The cattle bones were a mixed group, from the skull, shoulder, limbs and ankle, many of which were butchered. These bones clearly derive from several animals. The sheep/goat and pig bones also represent various parts of the skeleton, although there were slightly more cranial than post-cranial elements in the pig assemblage, possibly due to better survival of the more durable elements. A small number of cat bones were also present.

The sub-groups chosen in Area 4 are associated with the building. With the exception of robber trenches, few other features dated from this phase. Unsurprisingly the floor surfaces FL1012 and FL1300, yielded few bones. These were mostly domestic

species but two hare radii fragments were recovered from FL1012, neither butchered. The demolition and yard layers SG3150 contained equal numbers of cattle, sheep and pig bones. A single bone from a neonatal piglet was recovered, although many of the other pig bones were unfused. The sheep/goat bones predominantly represent the meatier parts of the body and several are butchered, suggesting waste from preparation and consumption of food.

Phase 9: Medieval (c1250-1400)

Phase 9 activity in Area 1 is characterised by industrial activities, including the brewing of ale. The industrial nature of the archaeology made it difficult to identify potentially informative bone groups and it has therefore been sampled less extensively than some of the other phases. In plot 56 the walls established in the preceeding phase were still extant and the archaeology was dominated by activities occurring around a large pit [0365], which had been partially backfilled in phase 8. There were a series of hearths, footing and post holes on the frontage and to the rear of the plot was a stone-built privy (PR5125). No significant deposits definitely dating to Phase 9 were present on the frontage of plot 57, however, a rectangular earth-bonded granite privy, PR6384, was present on the plot 56/57 boundary wall opposite the privy in plot 56.

In this phase, much of the Area 10 archaeology also represents industrial processes.

Age profiles

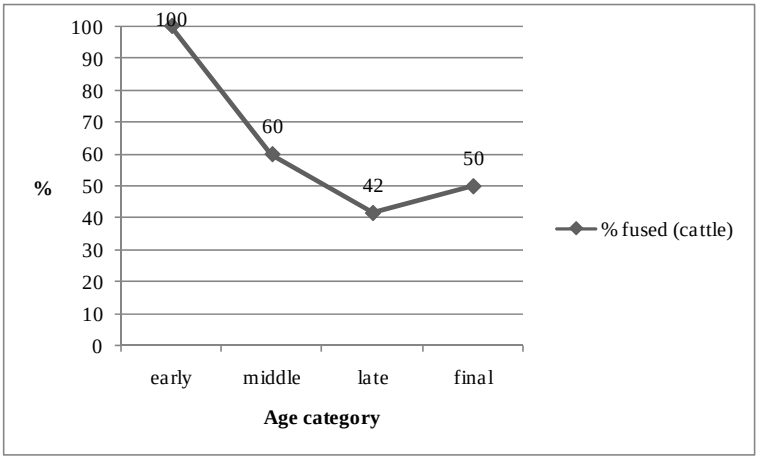

Figure 88 The animal bone: cattle epiphysial fusion from Phase 9 (n=80)

Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Table 164 The animal bone: cattle toothwear data from Phase 9

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
9	-	1	-	-	-	1	-	-	-	3	5
%	*0*	*20*	*0*	*0*	*0*	*20*	*0*	*0*	*0*	*60*	*100*

The evidence from epiphysial fusion suggests that slaughter of cattle peaked between the ages of 18 and 36 months, which would represent prime beef. The proportion of late and final fusing bones suggests that approximately half the cattle survived at least to full skeletal maturity at 7 years. Toothwear evidence supports this pattern (Table 164): of the five age-able cattle mandibles recovered, one was juvenile, one sub-adult, while three were from elderly cattle, with the third molar worn beyond stage 'j', which may indicate that these animals were utilised for ploughing before finally entering the food chain.

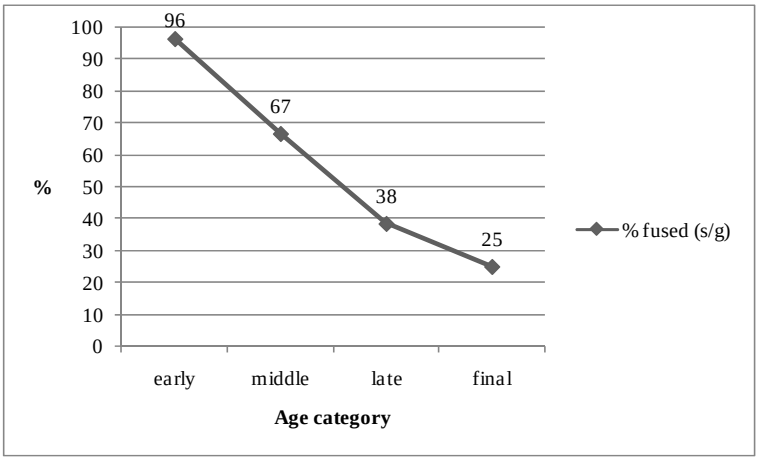

Figure 89 The animal bone: sheep/goat epiphysial fusion from Phase 9 (n=71): Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

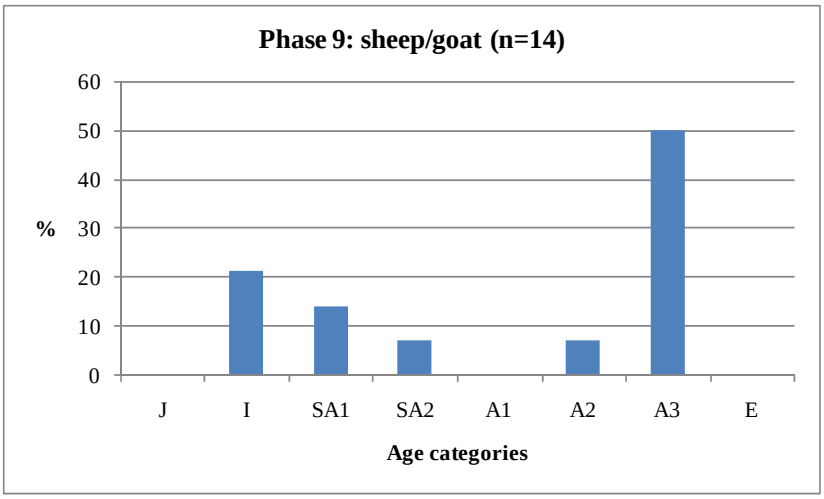

Figure 90 The animal bone: sheep/goat toothwear stages from Phase 9 (after O'Connor 2003)

Table 165 The animal bone: sheep/goat toothwear data from Phase 9

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
9	-	-	3	-	2	1	-	1	7	-	14
%	*0*	*0*	*21*	*0*	*14*	*7*	*0*	*7*	*50*	*0*	*100*

For sheep, epiphysial fusion suggests a steady rate of slaughter from 16 through to 42 months. The evidence from toothwear is broadly consensual in the early stages (Figure 90) showing a small cluster in the immature and sub-adult age categories. A large mortality peak, representing half the sampled sheep population, was evident in the Adult 3 category, which may represent sheep aged around 4-5 years (O'Connor 2003, 162, table 33). This is disproportionate to the animals represented by the late and final fusing categories, suggesting either different sources or differential survival of the cranial and post-cranial bones. The late slaughter of sheep may be explained by the emergence of the burgeoning wool industry, which necessitated the keeping of sheep to an older age to maximise fleece production.

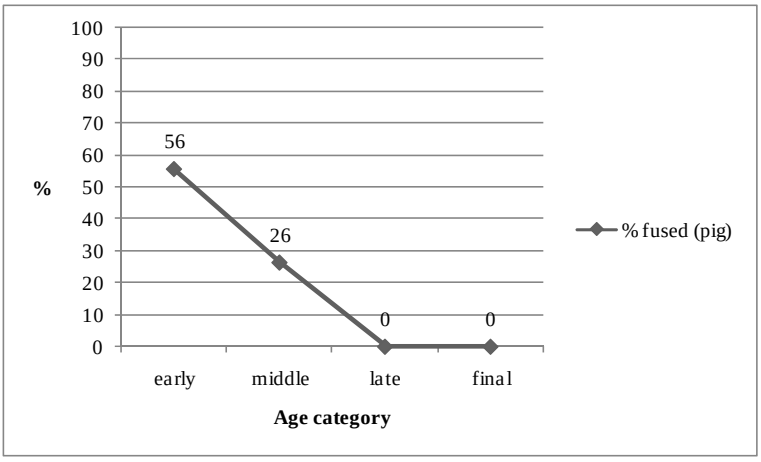

Figure 91 The animal bone: pig epiphysial fusion from Phase 9 (n=41): Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Table 166: Pig toothwear data from Phase 9

Phase	N	J	I	I1	I2	SA	SA1	SA2	A1	A2	A3	E	Total
9	-	1	-	1	1	-	-	-	1	1	-	-	5
9%	*0*	*20*	*0*	*20*	*20*	*0*	*0*	*0*	*20*	*20*	*0*	*0*	*100*

Pigs were evidently killed at a young age; epiphysial fusion indicates that only 50% survived their first year and provides no evidence for animals older than 36 months. Although the number of pig mandibles was low, examples were recorded in age categories juvenile, immature, Adult 1 and Adult 2 (Table 166), which broadly corroborates evidence for fusion.

Carcass Components

The representation of the cattle carcass is represented differently on the three plots, however plots 57 and 58 produced too few cattle bones to permit reliable analysis. Metapodials are particularly abundant in plot 56, with other parts represented fairly

equally. The most common elements for plot 57 and 58 are scapulae and pelves and ribs. Vertebrae and phalanges are rare on all plots.

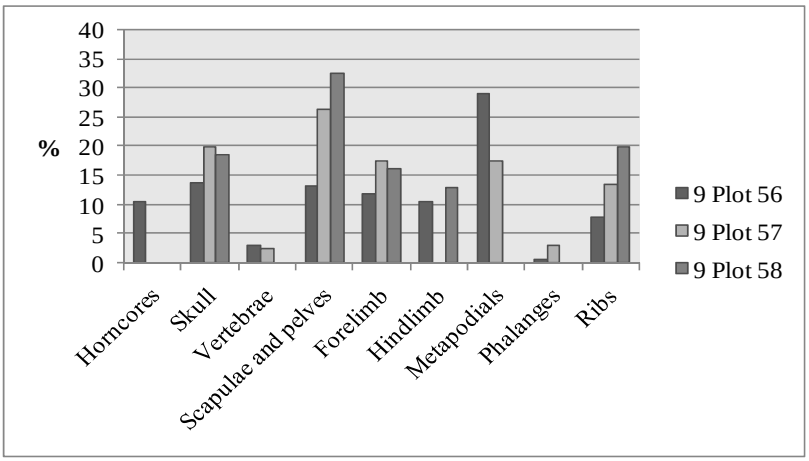

Figure 92 The animal bone: cattle carcass components for Phase 9 (plot 56 n=90; plot 57 n=16; plot 58 n=9)

As with cattle, only plot 56 produced a sufficiently large number of bones to permit analysis. However, plots 56 and 57 both contained a high proportion of sheep/goat skulls and a low ratio of other axial components. Horncores were also well-represented on plot 56, while elements from the post-cranial skeleton are less evident, except for metapodials, suggesting that meat was not the most important product. Plot 57 had a greater number of forelimb and particularly metapodials, probably relecting taphonomic factors. On plot 58, there were a relative abundance of scapulae and pelves and a greater than average percentage of forelimb, hind limb and metapodial elements, while the skull is not present; however, there are too few bones for reliable interpretation.

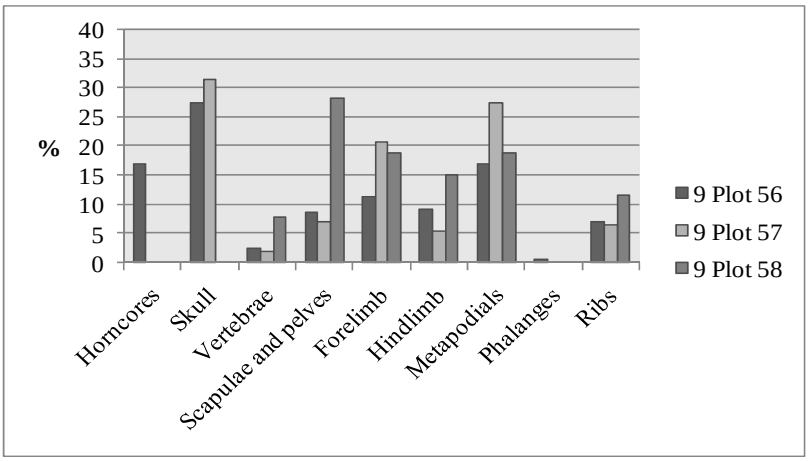

Figure 93 The animal bone: Sheep/goat carcass components for Phase 9 (plot 56 n=75; plot 57 n=17; plot 58 n=15)

Pig bones show a very mixed picture, almost certainly shaped by taphonomic factors since there are too few bones to allow interpretation. The following observations are

presented with considerable caution. Hind limbs are common on plot 57, while scapulae and pelves and forelimbs are most common on plot 56. Greater abundance of forelimbs and ribs in plot 58 may indicate table waste and joints of meat.

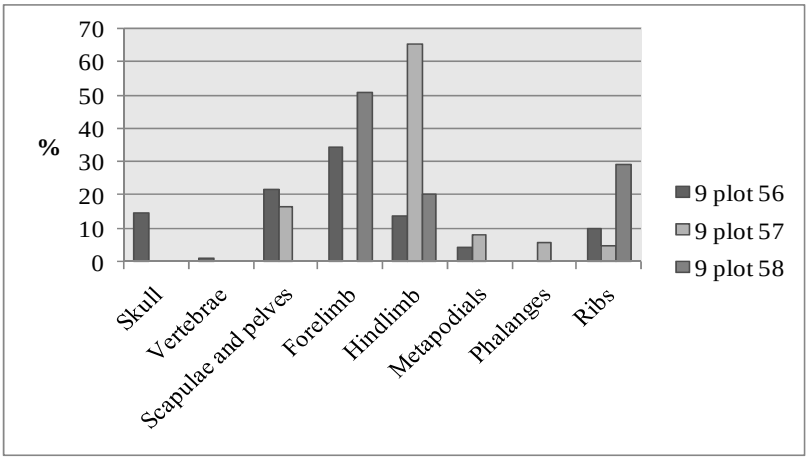

Figure 94 The animal bone: pig carcass components for Phase 9 (plot 56 n=31; plot 57 n=9; plot 58 n=7)

In Area 10, metapodials were evidently most common for cattle, but the sheep and pig carcass was more evenly represented. The skull, scapulae and pelves, hindlimb and ribs were especially well-represented for pig.

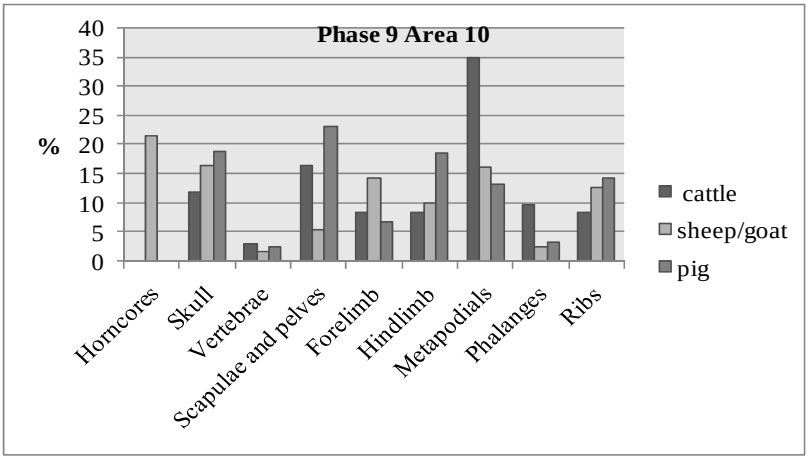

Figure 95 The animal bone: carcass components for the main species in Area 10, Phase 9 (cattle n=71; sheep/goat n=71; pig n=50)

In Area 4, numbers of elements are low, especially for cattle and pig. A cautious interpretation suggests an emphasis on components which would yield the largest quantities of meat, including limb bones, scapulae and pelvis and particularly ribs, for all three species. Sheep horncores are also relatively prominent.

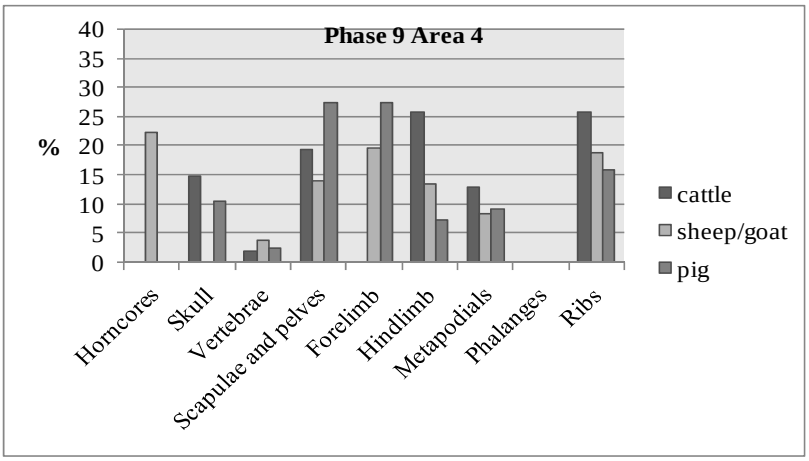

Figure 96 The animal bone: carcass components for the main species in Area 4, Phase 9 (cattle n=26; sheep/goat n=50; pig n=17)

The Sub-Groups

Table 167 The animal bone: sub-groups from Phase 9 included in the analysis

Area	Phase	Group	Sub Group	Description	Plot	Number
1	9		X56_9	Catch-all ungrouped cns in plot 56 phase 9	Plot 56	206
1	9		SG6390	plot 56 rear frontage, pit beneath east cellar	Plot 56	27
1	9		SG5871		Plot 56	6
1	9		SG5779	Plot 56 rear frontage pit	plot 56	45
1	9		SG5400	plot 56 rear big pit	Plot 56	66
1	9		SG5245	plot 56 rear front stone privy. All fills	Plot 56	94
1	9	PR5980	SG5982	Plot 57 rear. Early phase of stone privy at the back of the plot.	Plot 57	18
1	9		PR6384	plot 57 rear frontage stone lined privy Lower contexts. below PR5953	Plot 57	103
1	9.01	G5905	SG5931	Plot 57 rear irregular pit	Plot 57	34
1	9.02	G5042	SG6064	plot 57 rear Contexts ass with use of malting kiln	Plot 57	67
1	9	G5107	SG5829	Plot 58 rear. Deliberate backfill of ?malt kiln	plot 58	46
						712

The largest proportion of the assemblage (62%, n=444) was recovered from features in plot 56. Plot 57 provided a smaller share of the bones (31%, n=222), while only a small number were recovered from plot 58 (6% n=46). Burnt bones occur only sporadically among the bone of this phase.

Some of the privies produced smaller bone assemblages than might be expected; for example, only 13 fragments were retrieved from a single context in PR5125 (Plot 56). The assemblage from the triple privy group G5105 (plot 57) was similarly paltry: sub-group SG5465 produced 18 fragments from 5465 and four from 5335. If they were not truncated, this may suggest that these features had been cleaned out and not re-used.

(i) Plot 56

Table 168 The animal bone: sub-group assemblages from plot 56, Phase 9

Sub-group X56_9 included contexts 6291 (n=192); 5007 (n=12); 5196 (n=1) and 497 (n=1).

Species	SG5245	SG5400	SG5779	SG5871	SG6390	X56_9	Total
Cattle	3	8	16		5	37	69
Sheep/Goat		14	7		2	26	49
Sheep			1			2	3
Goat						2	2
Pig		4	2		2	17	25
Cat	4	1					5
Horse					8	4	12
Red deer			1				1
Human						1	1
Hedgehog				4			4
Domestic fowl	58	3		2		4	67
Goose		4	1			19	24
Total identified	65	34	28	6	17	112	262
Large mammal		11	15		10	60	
Medium mammal	3	20	2			25	
Indeterminate mammal	26	1				5	
Indeterminate bird						4	
Total	94	66	45	6	27	206	444

Privy SG5245 produced the largest feature assemblage on plot 56. The group was dominated by domestic fowl, representing a minimum of three birds, based on numbers of the most common bone (distal humerus). All parts of the body, except the skull, were represented and some examples of paired bones were noted, suggesting that the bones were partially articulated when deposited. Two thirds of the bones were fused; however the juvenile and the adult bones belong to at least two different birds each, suggesting that portions from at least four birds are present. No butchery marks were observed. Two of the cat bones were unfused, the distal humerus and proximal femur, which normally fuse by 4 months and 9 months respectively (Smith 1969, 525-526) therefore these remains probably belonged to a kitten. In contrast, a fused fibula probably belonged to a different cat, aged over 17 months (Smith 1969, 526). The cattle bones consisted of two horncore fragments and part of a radius with a very weathered appearance, possibly suggesting that it was re-deposited.

Two pits in plot 56 (SG5400 and SG5779) both contained relatively small assemblages, probably representing domestic rubbish. In SG5400 sheep/goat bones were more common but SG5779 contained more cattle. Butchered bones were relatively common in both pits (SG5400 n=18 27%; SG5779 n=13 29%).

(ii) Plot 57

Table 169 The animal bone: sub-group assemblages in plot 57, Phase 9

Species	PR6384	SG5931	SG5982	SG6064	Total
Cattle	12	2			14
Sheep/Goat	8	4		1	13
Pig	7	2	1		10
Dog	1			56	56
Cat	1		2		3
Rat	2				2
Mouse	1				1
Domestic Fowl	32		9		41
Goose	1		1		2
Total identified	65	8	13	57	142
Large mammal	10	17			
Medium mammal	4	7			
Indeterminate mammal	8	2	4	10	
Indeterminate bird	14		1		
Total	101	34	18	67	220

PR6384 was located on the plot 56/57 boundary wall opposite the privy in plot 56. The privy was assigned to Phase 9 on the basis of four sherds of pottery from the walls; the lowest fill (6024), has pottery dating to 1300-1400 but the later fills are Phase 10. A mixture of cattle elements were recovered, several of which were butchered. An unfused cat scapula represented an animal of less than 16 weeks (Smith 1969, 525). Domestic fowl were the most common species with both juvenile and mature specimens identified. Goose was represented by a carpometacarpus with butchery marks. The pig remains belonged to juvenile and neonatal animals. The majority of the sheep/goat bones were mandibles, maxillae and metapodials; although a partial tibia and scapula were also recovered. Two elements from rat (consistent with black rat, *Rattus rattus*) and a single fragment from mouse (*Mus* sp.) were also identified. Butchery marks were comparatively rare, affecting bones of cattle goose and pig.

A partial dog skeleton was recovered from context 6565 SG5884 (formerly SG6064, G5042: contexts associated with the malting kiln). Both forelegs, right hindleg, ribs and thoracic and lumbar vertebrae were present but the skull, cervical vertebrae, scapulae, left hindleg and phalanges were not represented. All the bones were fused and their slightly roughened appearance together with the presence of osteophytes on the spine, suggests that the animal was likely to be advanced in age. The dog was male as indicated by the presence of the baculum, stood 0.49m at the shoulder and had healed fractures on two adjacent ribs, possibly suggesting maltreatment at some point in its life. The skeleton was recovered within a deposit at the entrance to the malting kiln and must therefore relate to a period of disuse or abandonment. The

forelimbs and thoracic portion of the animal appeared to be positioned in their correct anatomical place however the lower body is out of position, lying at right angles to the upper part, suggesting that the skeleton had been disturbed.

Figure 97 The animal bone: dog in SG5884

(iii) Area 10

Table 170: Sub-groups from Phase 9, Area 10 included in the analysis

Area	Phase	Group	Sub Group	Description	Number
10	9	G3012	L3802	layers	205
10	9	G3013	BS3162	beam slot…	73
10	9	G3013	BS3529	Beam slot for industrial feature	37
10	9	G3013	L3822	layers within 'industrial feature'	1
10	9	G3015	FL3598	floor layer	2
10	9	G3025	WC3272	wall cut, part of building 5.	82
10	9	G3025	WC3462	wall cut, part of building 5.	207
10	9	G3025	WC3574	wall in grid 09/195 N-S, part of building 5.	1
10	9	G3026	FL3249	floor layer	3
					611

Table 171: Sub-group assemblages from Phase 9 Area 10

	G3012	G3013			G3013	G3025			G3025	*Area 10 total*
Species	**L3802**	**L3822**	**BS3162**	**BS3529**	**Total**	**WC3272**	**WC3462**	**WC3574**	**Total**	
Cattle	37		5	4	*9*	16	40		*56*	***102***
Sheep/Goat	28		2	3	*5*	8	21		*29*	***62***
Pig	16	1	9	4	*14*	6	12	1	*19*	***49***
Dog	1		1		*1*	1			*1*	***3***
Cat						1	1		*2*	***2***
Roe deer			1		*1*					***2***
Human						1			*1*	***1***
Domestic Fowl	3						3		*3*	***6***
Goose	6		2	1	*3*	3	3		*6*	***15***
Duck				1	*1*					***2***
Total identified	91	1	20	13	*34*	36	80	1	*117*	***244***
Large mammal	54		16	20	*36*	12	34		*46*	***136***
Medium mammal	47		27	4	*31*	27	38		*65*	***143***
Indeterminate mammal	11		8		*8*	5	55		*60*	***79***
Indeterminate bird	2		2		*2*					***4***
	205	1	73	37	*111*	80	207	1	*288*	***606***

In G3012 (L3802), the highest number of identified bones belonged to cattle but sheep/goat was also well-represented while pig bones were only half as common. The distribution of butchery marks indicates concentration on the dismemberment of the carcass, with marks on sheep/goat bones in particular suggesting the chopping of the limb bones to reduce the carcass to joints of meat. There appears to be greater emphasis on the phalanges and metapodials of the cattle carcass, perhaps indicative of slaughter waste, although ribs were affected most by butchery. A small number of bones from juvenile and neonatal calves were identified.

The majority of identified fragments from G3025 (WC3272 and WC3574) were cattle bones. Butchery marks were most commonly noted on cattle metapodials, some of which appeared to have been quite heavily processed.

Of the relatively small number of identified bones in G3013 (L3822; BS3162; BS3529), pig was the most common species with mandible, maxilla, limb bones and metapodials represented.

(iv) Area 4

Table 172 The animal bone: sub-group assemblage from Phase 9, Area 4

Species	G1023
Cattle	20
Sheep/Goat	21
Sheep	1
Pig	15
Horse	2
Fallow deer	1
Cat	1
Domestic Fowl	8
Goose	14
Pigeon	3
Raven	1
Large mammal	50
Medium mammal	38
Indeterminate mammal	19
Indeterminate bird	3
	197

The only prioritised Phase 9 feature from Area 4 is G1023, from which 197 fragments were recovered. This group encompassed a number of different pits and layers and contained a typical assemblage, comprising the usual range of domestic mammals. The only unusual features were a small number of pigeon and raven bones.

Phase 10: Late medieval (c. 1400-1500)

The late medieval deposits produced the largest quantity of stratified bones with a particular emphasis on material from the pits in plots 56 and 57. In Area 1, the frontage onto Highcross Street, a total of 1489 bones from Plot 56, 1774 from plot 57 and 557 from plot 58 were prioritised and examined. Of these, 540 (36%), 856 (48%) and 224 (40%) were identified to species.

Age profiles

The available sample from Phase 10 is considerably larger than for the other phases and therefore the fusion data is presented with greater confidence.

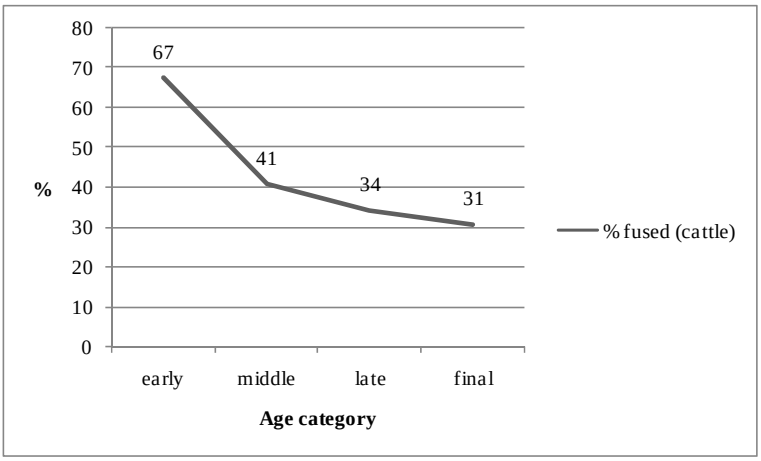

Figure 98 The animal bone: epiphysial fusion in cattle bones in Phase 10 (n=188): Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Table 173 The animal bone: cattle toothwear data from Phase 10

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
10	-	6	-	-	-	-	1	-	1	-	8
%	*0*	*75*	*0*	*0*	*0*	*0*	*13*	*0*	*13*	*0*	*100*

Over 70% of the mandibles in the dataset derive from juvenile cattle, which represent animals between 6 months and one year of age (Hillson 2005, 233). Animals in the adult categories A1 and A3 are present in small numbers only. By contrast, epiphysial fusion suggests that 67% of animals survived to 18 months, dropping to 41% by around two-three years (middle-fusing). The proportion of fused and unfused bones then remains relatively steady. The lack of correspondence between the two datasets suggests that there is differential deposition of juvenile cattle crania or possibly better survival of skulls compared to post-cranial bones. Analysis of carcass components indicates an abundance of skull elements in Plot 57.

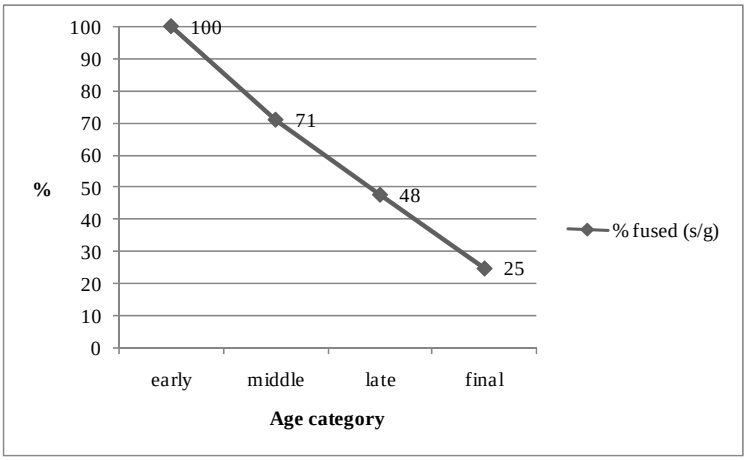

Figure 99 The animal bone: epiphysial fusion in sheep/goat bones in Phase 10 (n=214) Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

Table 174 The animal bone: sheep/goat toothwear data from Phase 10

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
10	-	2	-	-	1	-	-	4	16	1	24
%	*0*	*8*	*0*	*0*	*4*	*0*	*0*	*17*	*67*	*4*	*100*

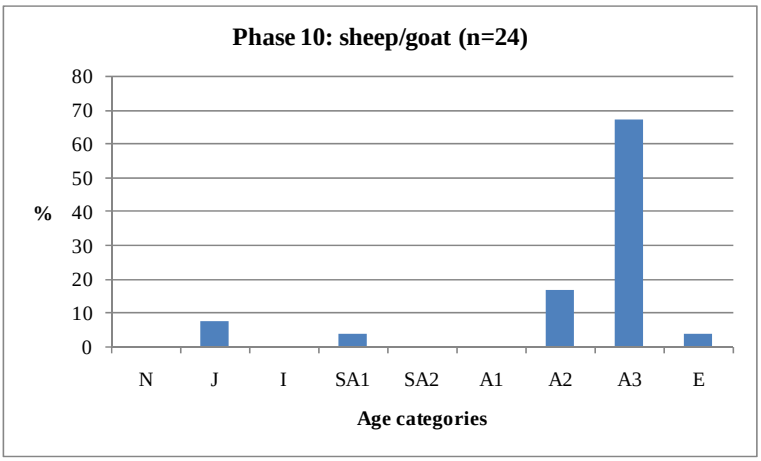

Figure 100 The animal bone: toothwear stages in sheep/goat (Age categories after O'Connor 2003)

Sheep were evidently subject to a different husbandry regime to cattle in this phase. There were only a small number of juvenile mandibles, representing animals aged less than 4 months (Hillson 2005, 231) and only one sub-adult mandible was present. The remainder of the animals are adult, with a strong peak in the Adult 3 category, representing 67% of mandibles with the third molar in wear across all three columns, which may indicate animals aged 4-5 years (O' Connor 2003, 162, table 33). Evidence from epiphysial fusion suggested a steadier rate of slaughter from about 16 months onwards.

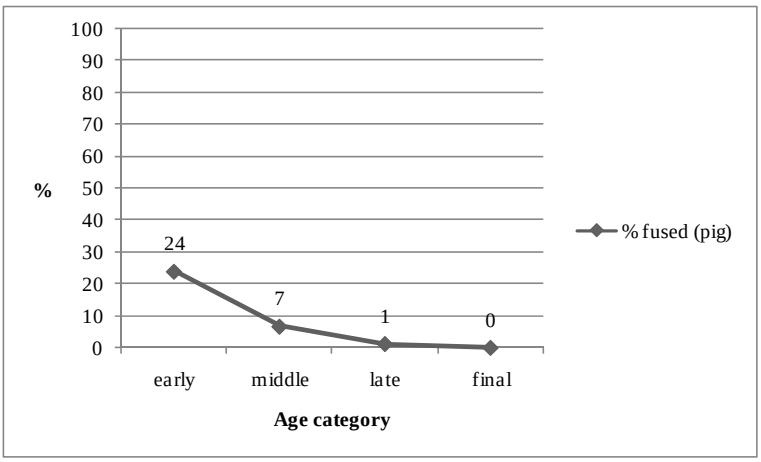

Figure 101 The animal bone: epiphysial fusion in Phase 10 pig bones (n=207) Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Table 175 The animal bone: pig toothwear data from Phase 10

Phase	N	J	I	I1	I2	SA	SA1	SA2	A1	A2	A3	E	Total
10	6	7	2	-	-	-	-	-	-	-	-	-	15
10%	*40*	*47*	*13*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*100*

The fusion data for pig clearly emphasises very young animals. Figure 101 indicates that over 76% of pigs did not survive their first year of life. This observation is confirmed by mandibles in the neonatal and juvenile categories (Table 175), representing animals only a few months old. A quantity of very small bones from neonatal piglets were recovered (n=101), predominantly from PR5953; only six bones were from other features. The early-fusing epiphyses from neonatal animals account for 39% of all early-fusing epiphyses, which correlates very closely with the proportion of neonatal mandibles. There is further correlation between the middle-fusing bone group and the immature mandibles, representing animals in their second year. This apparent agreement between the two types of data implies that the mandibles and post-cranial bones belong to the same animals and suggests better preservation.

Species proportions

Comparing overall proportions of taxa, it is apparent that species proportions differed significantly between the plots. To check that these results do not simply reflect the particular features selected for analysis but are actually a feature of the plot assemblages, the species proportions from this detailed analysis were compared with the assessment data (Figure 102). The results were broadly similar for all species, excepting that the proportion of pig in the targeted features was slightly increased. This is almost certainly the result of incorporating material from the sieved samples, which were not all available at the time of the assessment. The results suggest genuine differences in patterns of rubbish disposal on the plots, at least on a feature by feature basis. The results for plots 56 and 57 are heavily biased by the particularly large bone groups from sub-groups SG5575 (rear chainmail pit) and PR5953 (rear frontage privy) respectively, therefore these groups have also been considered separately to try to assess their impact on the plot as a whole.

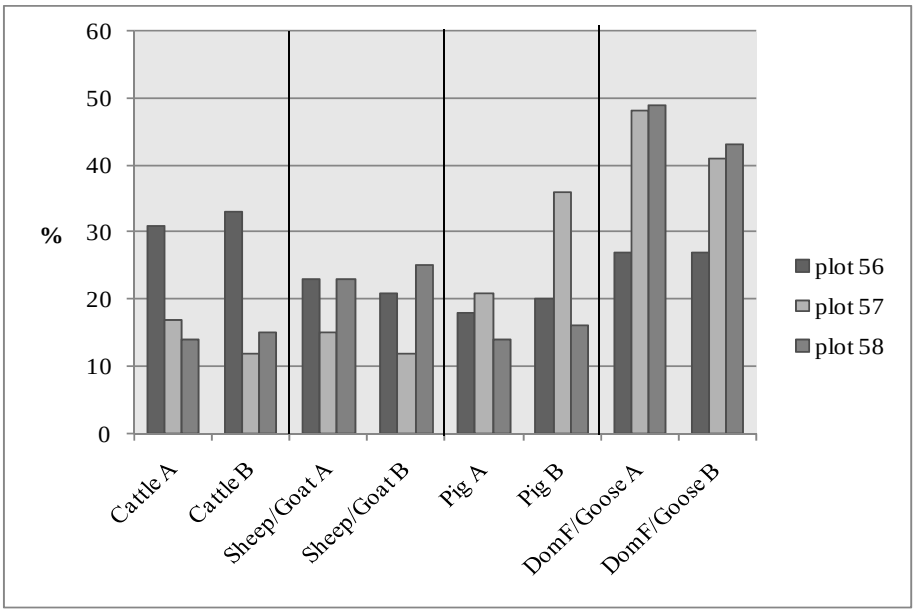

Figure 102 The animal bone: comparison of species proportions recorded during the assessment (A) and detailed analysis (B) for cattle, sheep/goat, pig and domestic fowl/goose

Figure 103 shows that cattle, sheep/goat, pig, domestic fowl and goose are well-represented in all plots, but variability of species proportions is also evident. Cattle are the dominant species in plot 56, but there are also higher numbers of deer, goose, duck and wild birds. Pig and domestic fowl are particularly common in plot 57, while in plot 58 cattle and pig bones are relatively scarce compared with sheep, domestic fowl and cat. Goose occurs frequently in plots 56 and 58 but only in small numbers in plot 57.

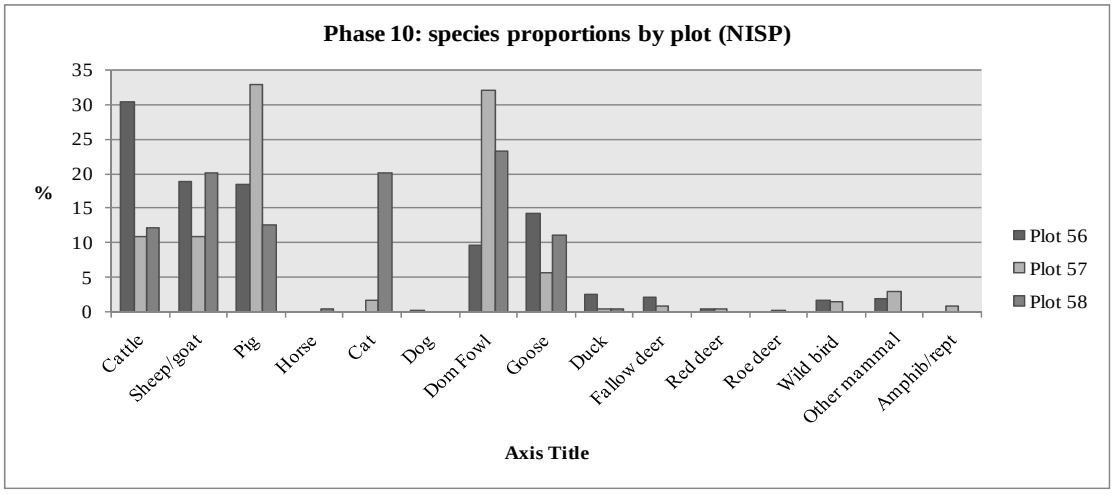

Figure 103 The animal bone: species variability within the plots on Area 1 (NISP) (plot 56 n=540; plot 57 n=856; plot 58 n=224)

Carcass Components

The distribution of the carcass was assessed by plot for each of the main species.

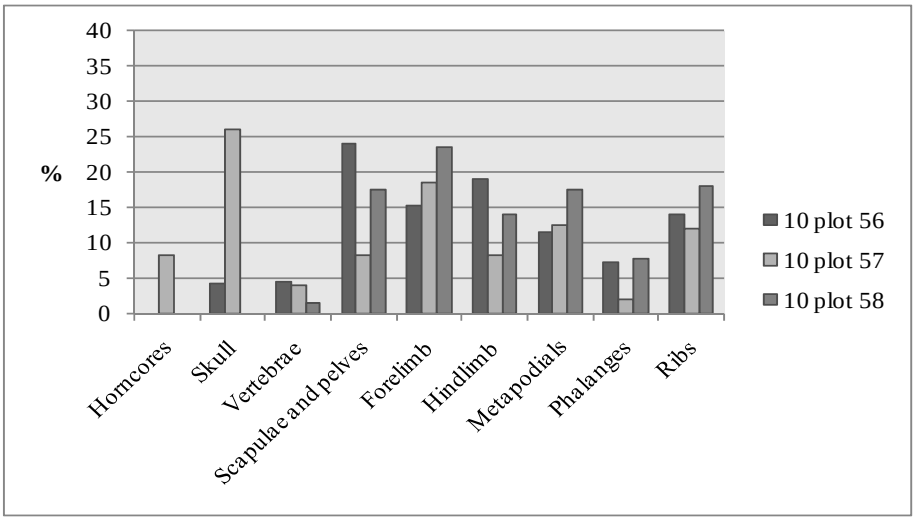

Figure 104 The animal bone: cattle carcass components by plot in phase 10 (plot 56 n=170; plot 57 n=65; plot 58 n=28)

Analysis for plot 56 is based on a much larger dataset than that of the other plots. The cattle skeleton was represented in its entirety on all plots, although horn cores only occurred on plot 57, where skulls were particularly well-represented. Phalanges and vertebrae were generally under-represented but particularly on plot 57. The majority of elements in Plot 56 derive from the scapulae and pelves, limbs and metapodials. Plot 58 produced the greatest proportion of metapodials, but this is not accompanied by elements from the skull or foot as might have been expected if the bones were being brought in as hides. Forelimbs were most frequently represented. As plot 58 also contains the least number of bones (carcass elements n=28), it is possible that the survival of the most robust bones may be a factor.

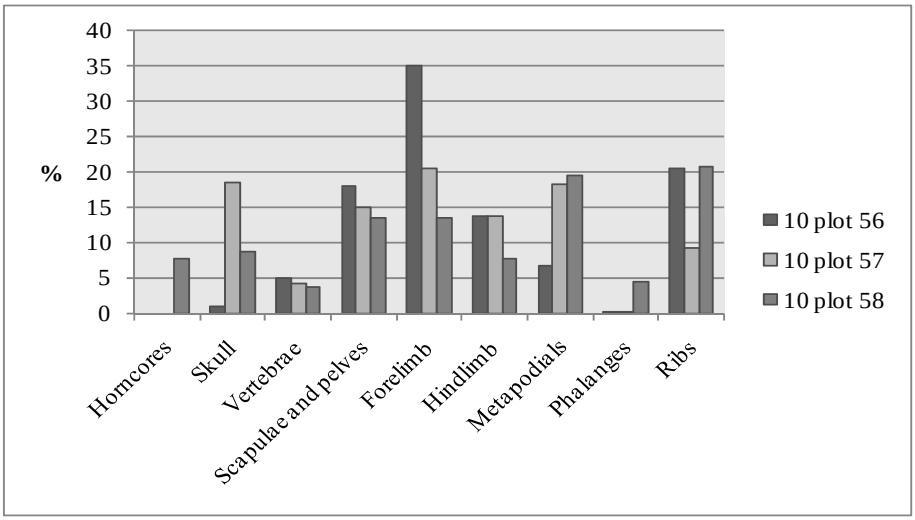

Figure 105 The animal bone: sheep/goat carcass components by plot in phase 10 (plot 56 n=204; plot 57 n=119; plot 58 n=83)

All three plots all produced sufficient numbers of bones to justify analysis. Plot 56 produced a significantly large proportion of forelimb elements and scapulae and pelvis were also slightly over-represented, indicative of joints of meat. By contrast, skull and phalanges, which might have been removed at an earlier stage of butchery, were rare. Plot 57 and plot 58 share a fairly similar element distribution, with metapodials well-represented. Cranial elements were common and ribs were under-represented on plot 57, possibly suggesting more emphasis on butchery waste. Phalanges are rare on all plots, possibly due to lack of recovery due to their small size.

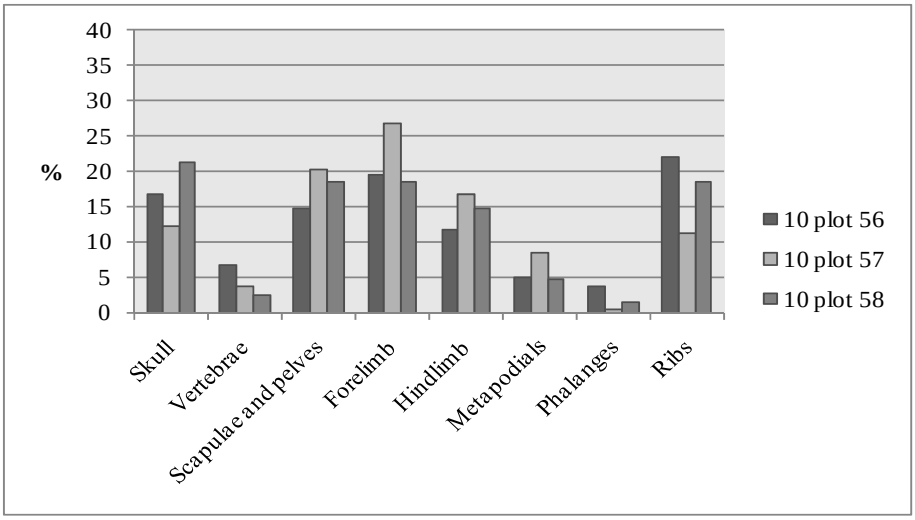

Figure 106 The animal bone: pig carcass components in each plot in phase 10 (plot 56 n=115; plot 57 n=284; plot 58 n=35)

Compared with the cattle and sheep, the pig carcass is more evenly represented on all three plots but is particularly similar on plots 56 and 58, despite the disparity in sample size. Ribs are noticeably more common on these two plots compared with plot 57 and this may provide further evidence for the prevalence of 'meaty' portions noted on plot 56. There are lower than expected numbers of phalanx and vertebrae on all plots but this may reflect poor recovery rate. Among the bones of plot 57, the proportion of cranial elements is small compared with limbs.

The Sub-groups

Table 176 The animal bone: sub-groups from Phase 10 Area 1 included in the analysis

Area	Phase	Sub Group	Description	Plot	Number
1	10	SG5574	rear chainmail pit	56	1098
1	10	SG5307	Sub-circular pit. Apparently filled deliberately and at one event. Cuts (5314).	56	31
1	10	SG5080	plot 56 rear Elongated, sub-circular pit.	56	238
1	10	SG0389	plot 56 frontage pit	56	122
1	10	X57_10	Catch-all ungrouped cns in plot 57 phase 10	57	60
1	10	SG5821	plot 57 rear. Decent ph/pit. Med pot in 6040 underneath	57	5
1	10	SG5558	Plot 57 rear w'spread soil layer which pushes all above it into phase 10.	57	2
1	10	SG5034	Plot 57 rear cess?Pit phase 10. Lots of ridge tile scattered around in here	57	356
1	10	PR5953	Plot 57 rear frontage privy. Later fills P10. above PR6384	57	1351
1	10	X58_10	Catch-all ungrouped cns in plot 58 phase 10	58	313
1	10	SG6140	plot 58 rear pit in pile box	58	64
1	10	SG5916	plot 58 rear stone lined pit	58	72
1	10	SG5892	plot 58 rear. nondescript pit	58	108
					3820

(i) Plot 56

Subgroup SG5574 contained the second largest assemblage of any feature on the site, numbering nearly 1100 bones and exceeded only by PR5953 on plot 57. Most of the bones were recovered from the upper fill; the lower fill (5601), which reportedly contained more cess, contained only 9 fragments. Seventy-four percent of the identified assemblage was cattle, sheep/goat or pig, with proportions of cattle and pig higher than plot 56 as a whole (Figure 107). Unfortunately, the feature was not sampled, so it has not been possible to check the recovery rates of the smaller elements, such as sheep/goat phalanges. Almost half the fragments from the pit consisted of cattle-size and sheep-size rib and vertebrae fragments. Thirty-four of the 120 cattle bones (28%) were from calves; elements included limb bones, metapodials and a skull fragment. Small numbers of neonatal pig bones (n=2) and the mandible of a lamb were also recovered.

Examination of carcass components suggests that the head and foot elements of sheep/goat were absent (with the exception of a single sheep horncore). Cattle skull elements are also rare, although a number of phalanges are present. This raises the possibility that cattle and sheep may have been brought in as dressed carcasses with the heads at least removed.

Table 177 The animal bone: sub-group assemblages in plot 56, Phase 10

Species	SG0389	SG5080	SG5307	SG5574	Total
Cattle	23	21		120	164
Sheep/Goat	27	20		54	101
Sheep				1	1
Pig	9	14		76	99
Dog				1	1
Red deer			2	1	3
Fallow deer		3		8	11
Rabbit		7		1	8
Domestic fowl	4	16	2	30	52
Goose	2	15	21	39	77
Duck	1	10	1	1	13
Woodcock		1		2	3
Wood pigeon				1	1
Lapwing				3	3
Thrush sp.				1	1
Jackdaw	1				1
Total identified	66	107	26	339	539
Large mammal	28	45		182	
Medium mammal	20	46		177	
Indeterminate mammal	7	24		331	
Indeterminate bird		16	5	68	
Total	121	238	31	1096	1486

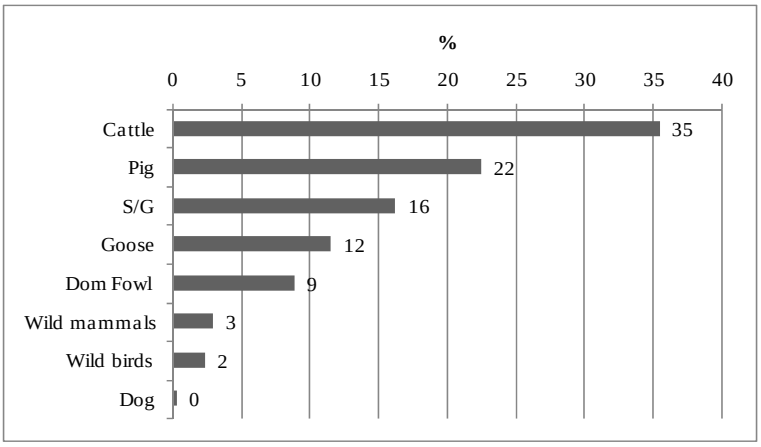

Figure 107 The animal bone: species proportions in SG5574 (rank order)

Table 178 The animal bone: proportion of butchered bone in SG5574

Species	Butchered bones (n)	Percentage of bones butchered
Duck	1	100%
Large mammal	129	71%
Lapwing	1	67%
Medium mammal	113	64%
Cattle	70	58%
Sheep/Goat	32	58%
Pig	15	20%
Fallow deer	1	13%
Goose	5	13%
Domestic Fowl	2	7%
Dog	0	0
Rabbit	0	0
Woodcock	0	0
Wood pigeon	0	0
Thrush sp.	0	0
Indeterminate mammal	0	0

Goose was more common than domestic fowl and the carpometacarpus was the most frequent goose bone, providing an MNI of five (based on the number of left examples). Mandibles representing three birds were also recovered. The bones were predominantly those of the head, wings and lower legs, while bones such as the humerus and femur were absent. This distribution implies that the birds were prepared for consumption with removal of the less meaty parts. A goose skull was split diagonally, two radii were chopped through the distal part of the bone, and a furcula bore cut marks, perhaps from filleting. Two domestic fowl bones, both tibiotarsii, were butchered (one chop and one cut). Humerus, tibiotarsus and tarsometatarsus were most common domestic fowl bones indicating that a minimum of four birds are represented. Most bones of the body were present, with the exception of the skull.

Butchered bone was very common and was most frequently chopped with a cleaver or similar. There were 369 butchered bones from the pit and virtually all the species identified were affected. A fragment of deer antler represented an off-cut from working and a bone pin (SF1309) and sheep skull, with cuts around the horncore, also suggest craft activity. Cattle and sheep carcasses were butchered in a similar manner to each other. Cattle-size and sheep-size vertebrae were systematically chopped through the body, suggesting that routine splitting of the carcass was taking place. Other vertebrae were also chopped transversely, suggesting that the spine was divided into sections, with some chopped more extensively at different angles. Ribs of both cattle–size and sheep-size animals were divided into sections, frequently disarticulated from the spine by chopping just beyond the head and tubercle while the rest of the rib slab was divided into sections of varying lengths. Many ribs also carried cut marks, which may have occurred during filleting. Chopped shaft fragments of cattle and sheep/goat bones (n=54), some of which had been hollowed out, may suggest that marrow was exploited. More than half of the butchery (n=186) appeared to result from dismemberment of the carcass. Femur and humerus were chopped through or just below the proximal articulation and in some cases also chopped through the distal articulation. Tibiae were frequently chopped mid-shaft. Most of the calf bones (n=16) were also butchered, indicating the consumption of veal. The pig carcass was less extensively butchered and had been chopped only on the axis, ribs, pelvis and tibia. Knife marks were observed on the axis, humerus, scapula and ribs.

The large quantity of bone from this feature and the frequency of butchery marks suggest that the pit contains waste from the processing of animal carcasses.

SG5080 (a sub-circular pit) produced a mixed assemblage with a significant proportion of juveniles. Seven of the cattle bones were from calves, including a mandible, skull, metatarsi, radii and ulna. The sheep/goat bones were mostly from the limbs and pelvis and there were no cranial fragments. Neonatal sheep/goat and pig metapodials were also present and the fallow deer bones were all neonatal/juvenile metapodials. The domestic fowl bones were predominantly juvenile although, in contrast, no juvenile goose bones were observed. Duck bones were more common in this feature and most parts of the carcass were represented. A single juvenile duck bone was present.

Bones from the vertebral column and part of the hind limb of a rabbit were also recovered. The animal appeared to have been eaten since the proximal shaft of the femur had a fine cut mark, possibly a result of filleting.

Several calf bones were recovered from a pit on the frontage, SG0389, which also contained juvenile pig bones. By contrast, most of the sheep/goat bones were from adult animals and were extensively butchered.

(ii) Plot 57

The species proportions in PR5953 (a privy in the rear frontage) differed considerably from most features on the site. Cattle and sheep/goat were rare but their bones were also most likely to exhibit butchery marks. Pig provided the largest contribution to the assemblage, closely followed by domestic fowl (Figure 108). A large proportion of the pig bones were neonatal and many others were classed as juvenile; there were no fused pig bones. Neonatal elements were recovered from a number of different contexts within the feature (5953, 5054, 5079, 6059, 6060, 6085, 6112, 6089, 6061, 6087 and 6088). All parts of the body, including limb bones, skull, ribs and vertebrae were present but there were differences in elements proportions. Phalanges, carpals and tarsals, metapodials, atlas and axis were particularly under-represented but the fact that these bones were mostly hand-recovered, rather than through sampling, may account for some discrepancies. The bones represented a minimum number of four piglets based on right humeri. Two lamb/kid neonatal bones were also recovered.

A mixture of juvenile and adult elements was noted among the domestic fowl and all parts of the carcass were represented. However, there was a particular abundance of tibiotarsii, which is not matched by any other element. Goose was represented by a smaller number of elements, predominantly from the wings and legs. All the goose bones were from adult birds; juvenile geese were not in evidence. A small number of duck and wild bird bones were present, all of which could have been consumed.

Thirteen cat bones were recovered, representing a minimum of two animals. Most were unfused and a mandible, in which the first molar had yet to erupt, suggests that at least one animal was aged less than 5-6 months (Silver 1969, table I). Small numbers of rat, mouse and hedgehog bones were also recovered, presumably unintentionally incorporated. PR5953 produced a small number of burnt bones, mostly charred or scorched rather than calcined (n=18). Burned bone still only accounted for 1% of the total assemblage from the feature. It is interesting that this feature contained the largest bone assemblage yet had the smallest proportion of gnawed bones, which perhaps confirms that debris was deposited quickly and was not

easily accessible to scavengers. The privy was likely to have been backfilled with rubblish from activities taking place on the plot, which appear to have included the rearing of pigs and domestic fowl.

Table 179 The animal bone: sub-group assemblages in plot 57, Phase 10

Species	PR5953	SG5034	SG5053	SG5558	SG5821	X57_10	Total
Cattle	23	67			2		92
Sheep/Goat	19	72					91
Sheep		2					2
Pig	268	11		1	1		281
Red deer	1	1					2
Roe deer		1					1
Fallow deer	2	4					6
Cat	13						13
Hedgehog	3						3
Rat	14						14
Mouse	8						8
Domestic fowl	214	35				26	275
Duck	3					2	5
Goose	14	33					47
Crow		1					1
Raven			1				1
Columba cf Wood pigeon	5						5
Passeriform cf starling	6						6
Frog	5						5
Toad	1						1
Total identified	598	227	1	1	3	28	859
Large mammal	43	49		1	2		
Medium mammal	100	27					
Indeterminate mammal	153	31					
Indeterminate bird	452	20				31	
Total	1347	354	1	2	5	59	1768

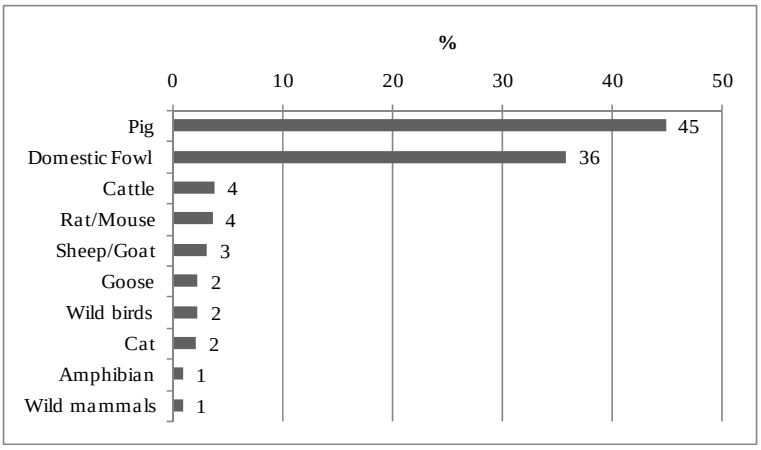

Figure 108 The animal bone: species proportions in PR5953 (rank order)

Table 180 The animal bone: domestic fowl and goose elements recovered

Carcass component	Bone	Domestic Fowl	Goose
Head	Skull	2	
	Skull (frg)	1	
	Dentary	1	
Vertebrae	V Lumbar	1	
Ribs	Rib (articular end only)	7	
Sternum, Scapula and Pelvis	Furcula	8	1
	Sternum	17	
	Coracoid	16	
	Scapula	12	1
	Pelvis	8	
	synsacrum	2	
Wing	Humerus	10	1
	Radius	14	
	Ulna	13	
	Carpometacarpus	10	1
	Wing digit	2	1
Leg	Femur	17	2
	Tibiotarsus	26	4
	Tarsometatarsus	12	1
Foot	Phalanx 1	3	
	Phalanx 3	1	

SG5034 (a cess pit to the rear of the plot) contained more typical species proportions than PR5953, containing a higher proportion of cattle and sheep bones than any other species. Nine calf bones, from neonatal animals, were recovered from several different contexts (5066, 5070, 5071, 5073 and 5109). Four of these were cranial fragments but a mandible, scapula, phalanx, pelvis and metapodial were also present. Two of the skull fragments are butchered, one of which exhibits fine cut marks on the anterior side of the horncore bud, while a second fragment has widely spaced cut marks traversing the frontal. It is quite conceivable that these marks occurred during skinning. A single neonatal sheep/goat bone was present. A very large horncore from

a bull was recovered from this feature, measuring 450mm in length and with a basal circumference of 254mm.

The feature also contained an intact crow skull, complete with lower bill. Although the rest of the skeleton was not recovered, the excellent preservation of the head may suggest that this animal represents a pet, as opposed to a scavenger.

(iii) Plot 58

Table 181 The animal bone: sub-group assemblages in plot 58, Phase 10

Phase	Species	SG5892	SG5916	SG6140	X58_10 C6113	Total
10	Cattle	5	7	5	10	27
10	Sheep/Goat	9	7	1	28	45
10	Pig	1	9	7	11	28
10	Horse	1				1
10	Cat		4		41	44
10	Domestic Fowl	13	5	6	28	52
10	Goose	4	3		18	25
10	Duck	1				1
	Total identified	34	35	19	136	223
10	Large mammal	13	9	6	25	
10	Medium mammal	10	10	14	71	
10	Indeterminate mammal	37	7	19	54	
10	Indeterminate bird	14	11	6	27	
	Total	108	72	64	313	557

SG5892 (rear pit) and SG5916: SG5892 contained a relatively small quantity of bone and very little was identifiable to species. Domestic fowl was the most common species.

Neonatal elements of both cattle and sheep/goat were present in SG5916.

In X58_10: context 6113, 43% of the bone (n=136) was identifiable to species. Cat bones were most common, all of which were metapodials, many with fine cut marks, suggesting small-scale working of skins. The domestic fowl bones represent a minimum of two birds and most elements were present, including part of the skull, which was absent from many deposits on the site. A domestic fowl femur was found to contain medullary bone and butchery was observed on a tarsometatarsus.

(iv) Area 10

Activity in Phase 10 was divided into sub-phases 10.1 and 10.2 in this area. Phase 10.1 represents continuing activity within Building 1; the ‘industrial’ feature (G3004) was still in use and there was pitting and soil dumps to the rear of the buildings. In

Phase 10.2, Buildings 1, 2, and 5 were falling into disuse and decay, with the collapse of the rear wall of Building 5. Four wells (G3035) appear to have been backfilled and there was further pitting and accumulation of soils.

Table 182 the animal bone: sub-groups from Phase 10 Area 10, included in the analysis

Area	Phase	Group	Sub Group	Description	Number
10	10.01	G3004	L3628	layers within 'industrial feature'	46
10	10.01	G3004	P3836	pit cut within 'industrial feature'	24
10	10.01	G3017	WC3637		1
10	10.01	G3018	L3407	layers	31
10	10.01	G3018	L3419	layers	126
10	10.01	G3018	L3486	layers	38
10	10.01	G3018	P3304	pit	2
10	10.01	G3018	P3468	pit	103
10	10.01	G3033	SG3104	layers within building 04	43
10	10.02	G3032	P3216	pit	1
10	10.02	G3035	W3007	well	103
10	10.02	G3035	W3139	well	301
					819

Table 183 the animal bone: sub-group assemblages in Area 10, Phase 10.01

Phase	Species	P3468	P3836	SG3104	WC3637	Total
10.01	Cattle	18	11	3		32
10.01	Sheep/Goat	13	2	3		18
10.01	Sheep			1		1
10.01	Pig	1	2	1		4
10.01	Horse					0
10.01	Cat					0
10.01	Red deer	1				1
10.01	Rabbit				1	1
10.01	Domestic fowl	3				3
10.01	Goose	2				2
10.01	Wild bird	2				2
10.01	Fish			1		1
	Total identified	40	15	9	1	65
10.01	Large mammal	7	4	28		
10.01	Medium mammal	41	1	5		
10.01	Indeterminate mammal	13	3			
10.01	Indeterminate bird	2	1	1		
	Total	103	24	43	1	171

G3004 was an ‘industrial feature’ possibly an oven or kiln that had been created in Phase 9 but continued to be used into Phase 10. The sub-groups from this feature,

P3428 and P3836, produced a small assemblage of bone, much of which appeared to be quite fragmented. Cattle and sheep/goat were most common but the usual range of domestic species was also present.

Phase 10.1: Group 3018 (privy or outhouse to the back of building 01)

Table 184 The animal bone: species proportions of subgroups within G3018

Phase	Species	L3407	L3419	L3486	P3304	P3468	Total
10	Cattle	3	18	4	1	18	44
10	Sheep/Goat	1	6	4	1	13	25
10	Pig		7	2		1	10
10	Horse	1					1
10	Cat		2	1			3
10	Red deer		1	1		1	3
10	Domestic fowl	3	13	2		3	21
10	Goose		2			2	4
10	Wild bird					2	2
	Total identified	8	49	14	2	40	113
10	Large mammal	2	17	2		7	
10	Medium mammal	7	30	14		41	
10	Indeterminate mammal		20	8		9	
10	Indeterminate bird		7			2	
		17	74	24	2	59	176

Cattle were the most frequent and the most widely distributed of the bones. Sheep/ goat bones were present in each feature but in lower numbers, while pig was neither abundant nor widespread. Neonatal calf bones were recovered from L3407 and L3419; these were a scapula and a second phalanx.

Phase 10.2: G3035 wells

Group G3035 contained four wells, the assemblages of two of which have been prioritised. The backfilling of these wells appears to signal disuse and is likely to be contemporary with the abandonment of the building. Well W3007 was located between Buildings 02 and 05 and contained a smaller assemblage consisting predominantly of bones from the main domesticates, particularly cattle. A single golden plover bone was also recovered.

Well W3139 was at the far east-end of the trench, to the rear of Building 05 and was not fully excavated due to its depth. Cattle and sheep were fairly equally represented within the fill. Among the cattle bones there was an emphasis on bones from the foot and, to a lesser extent, mandibles. A humerus from a neonatal calf was present and the pig remains included a neonatal pig bone.

Table 185 the animal bone: species proportions of sub-groups in G3035

Species	W3007	W3139	Total
Cattle	24	43	67
Sheep/Goat	8	46	54
Sheep		7	7
Pig	6	15	21
Horse	1	1	2
Cat		10	10
Dog		2	2
Fallow deer		1	1
Hare		1	1
Domestic fowl	7	7	14
Goose	5	5	10
Golden plover	1		1
Total identified	52	138	190
Large mammal	21	54	
Medium mammal	19	64	
Indeterminate mammal	8	41	
Indeterminate bird	3	4	
	103	301	404

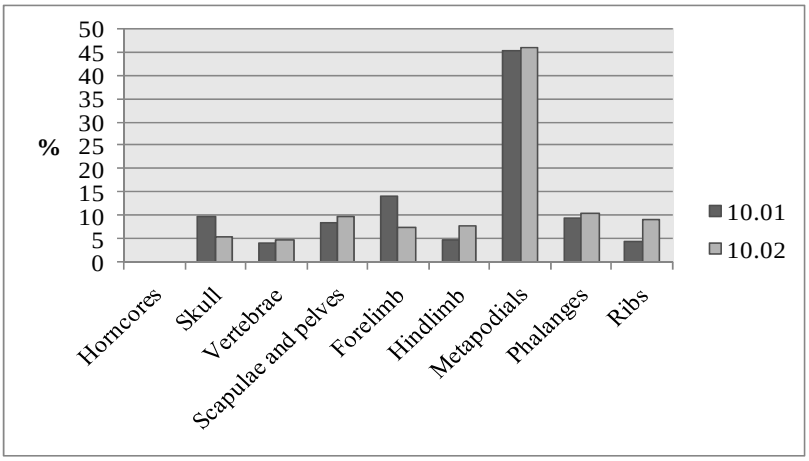

Figure 109 The animal bone: cattle carcass components, Area 10 (Phase 10.01 n=49; Phase 10.02 n=64)

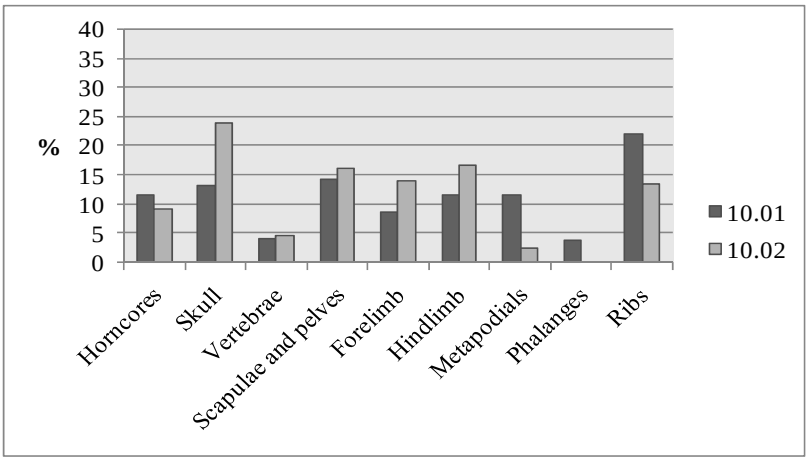

Figure 110 The animal bone: sheep/goat carcass components Area 10 (Phase 10.01 n=60; Phase 10.02 n=66)

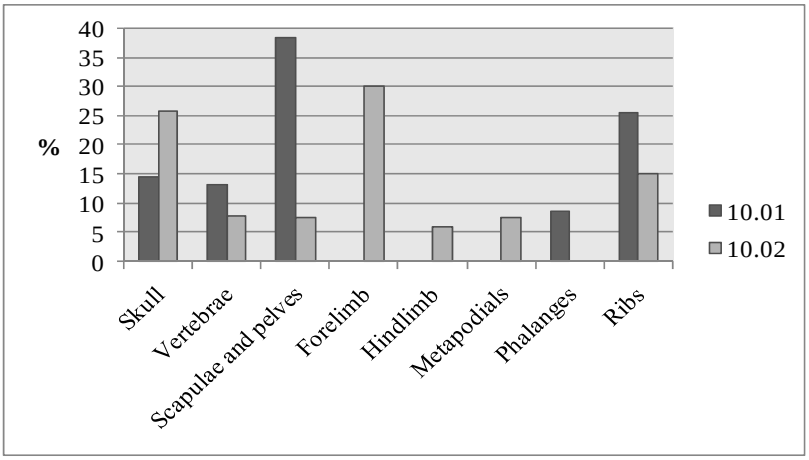

Figure 111 The animal bone: pig carcass components Area 10 (Phase 10.01 n=17; Phase 10.02 n=22)

A comparison of the distribution of elements across Area 10 was attempted but the small sample size necessitates cautious interpretations. Metapodials greatly exceeded other recovered cattle elements in both sub-phases. This may be a genuine trend but the durability of the metapodials compared to other elements must be considered. The sheep/goat carcass was fairly evenly represented, except for low number of phalanges and vertebrae. There were a relatively large proportion of ribs in Phase 10.01, which is consistent with the consumption waste expected of an occupied site. For pig, skulls are most common and elements of the shoulder and pelvis were also well represented. No limb-bones or metapodials were noted in sub-phase 10.02 but this is attributed to the very small sample size.

(v) Area 4

Table 186 The animal bone: species proportions in P1111 (NISP) * partial skeleton counted as '1'

Species	P1111	%
Cattle	52	32
Sheep/Goat (incl. 5 positively identified sheep bones)	55	33
Pig	32	19
Horse	1	<1
Cat	2	1
Cf House mouse	1	<1
Black rat	1* (42)	<1
Red deer	1	<1
Fallow deer	4	2
Domestic fowl	11	7
Goose	4	2
Crow	1	<1
Total	165	
Large mammal	43	
Medium mammal	90	
Indeterminate mammal	18	
Indeterminate bird	10	
	329	

The only Phase 10 feature in Area 4 which was prioritised for analysis was a narrow oval-shaped pit, believed to have had an industrial purpose, P1111. The pit contained the usual range of domestic species as well as a number of wild animals. Evidence from the sieved samples indicates that during its period of use the function of the feature may have changed from industrial to domestic (A. Radini *pers. comm*.): iron residue and leather waste was recovered from the lowest fills. Comparing the upper and lower fills suggests that this change may be mirrored in the faunal remains. In total, bone was absent from only five out of 17 deposits. The majority of bones were recovered from context 1146 (n=95) and context 1120 (n=105), which were located in the centre of the feature. Bone fragments were considerably fewer among the lower deposits; contexts 1149, 1223, 1224 and 1225 produced only 37 fragments between them, which suggested that the original purpose of the feature did not involve rubbish disposal.

Fifty percent of the bone was identifiable to species (n=165), with cattle and sheep both contributing a third and pig contributing a fifth. Most of the bones must have been deposited through human action but some may have been incorporated accidentally (for example, house mouse and crow). The rat bones were recovered from a layer close to the top of the feature (1117) and represent the head, torso and

forelimbs. They could easily have derived from the same skeleton. However, two elements of cat (contexts 1117 and 1146) were unlikely to have belonged to the same individual, as the mandible was from a kitten of less than 6 months (Silver 1969, 300 table I), while the ulna had a fused proximal epiphysis, which would have fused between 8 ½ and 12 months (Smith 1969, 525). These must, therefore, have been originally interred elsewhere and have become incorporated into the feature through re-working of deposits.

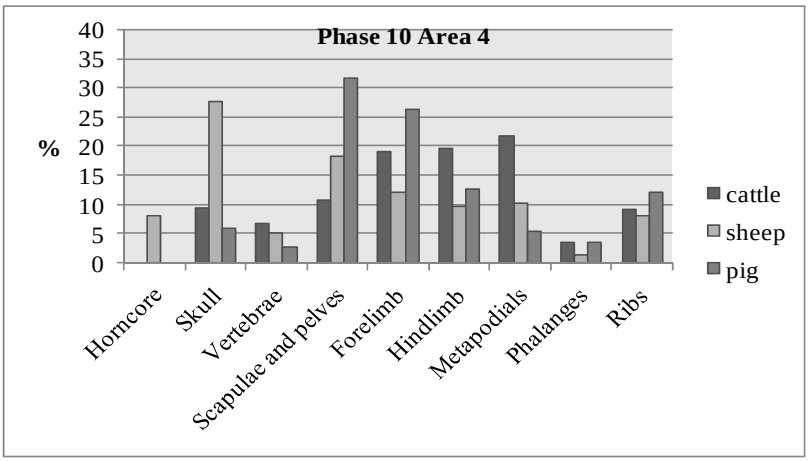

Figure 112 The animal bone: carcass components for the main species (Area 4, phase 10) (cattle n=55; sheep/goat n=58; pig n=29)

The Minimum Number of Individuals (MNI) for sheep is three, based on mandibles, skulls and scapula, while cattle MNI is two based on proximal radius. The pig bones included five neonatal specimens, which could conceivably have belonged to the same individual. Figure 112 suggests that elements from the skull of sheep are most common and there were additionally several skull fragments that would not have been included in the chart, as only certain parts of the skull were zoned (to ensure consistency). Metapodials are proportionally the most frequent element for cattle by quite a large margin, which may suggest that the remains include bones that came in with the skins; possibly waste from leather working. Most of the skull fragments and metapodials were recovered from the top half of the feature.The scapulae and pelves are the most frequent part of the pig carcass, perhaps suggesting more of an emphasis on meat.

Butchery marks were recorded on 24% of the bones, suggesting that they may represent carcass processing or domestic waste. Burnt bones, (predominantly calcined but some charred) were recovered from several contexts (1115; 1118; 1146; 1149; 1224; 1225), accounting for 4% of the assemblage. Sheep/goat, cattle, domestic fowl, cattle-size and sheep-size bones were affected with no bias towards particular body parts. It is not clear whether these suggest burning *in situ*.

It was observed during excavation that the bones were frequently lying flat at the interface between different fills. It was not clear whether this was deliberate or simply how the bones had come to rest within the substrate. The feature was curiously deep and narrow and since the shape does not suggest it to have been a rubbish pit, the fact that it contained so much bone is surprising, however, it does appear to contain bones associated with leather working, as well as food waste and bones from scavengers.

Phase 11: Early Post-medieval (1500-1650 AD)

A relatively small assemblage was recovered from Phase 11 features. In Area 1 the bulk of the assemblage derived from plot 57, along with a small quantity from plot 56. No bone from plot 58 was examined. There were not enough bones to allow meaningful examination of carcass components for Area 1.

Age profiles and carcass components

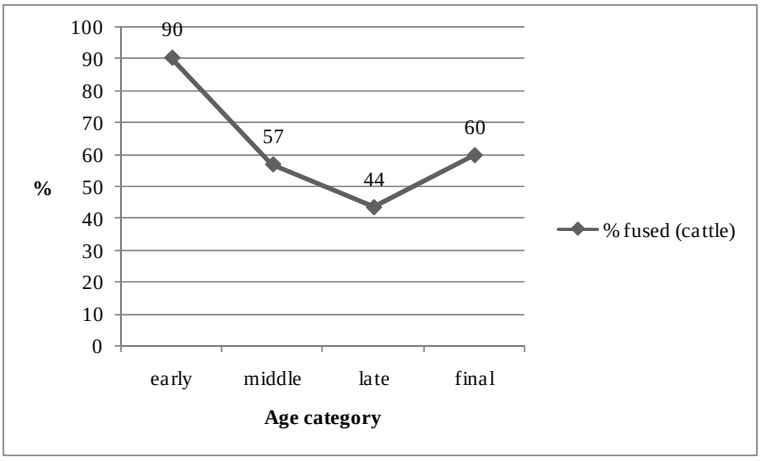

Figure 113 The animal bone: cattle epiphysial fusion from Phase 11 (n=56): Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

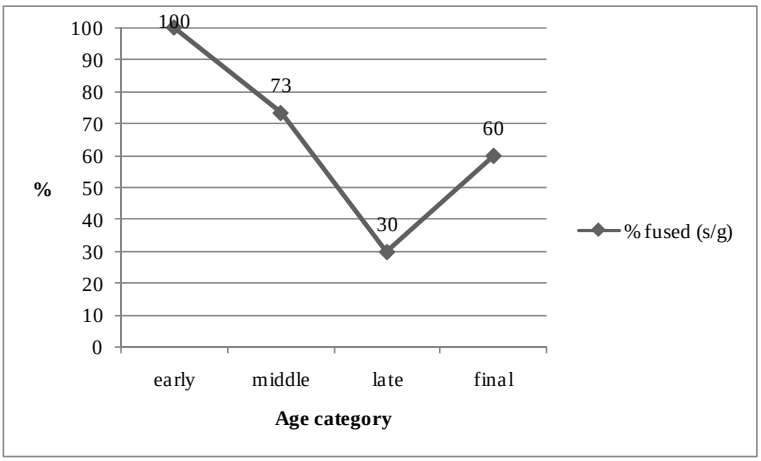

Figure 114 The animal bone: sheep/goat epiphysial fusion from Phase 11(n=49): Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

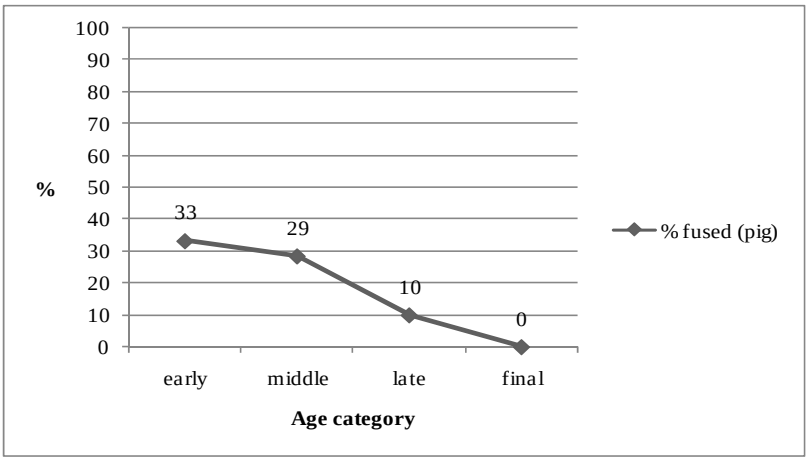

Figure 115 The animal bone: epiphysial fusion in pig bones from Phase 11 (n=21): Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Table 187 the animal bone: toothwear data for Phase 11 cattle

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
11	-	4	-	-	-	-	-	-	1	-	5
%	0	80	0	0	0	0	0	0	20	0	100

Table 188 the animal bone: toothwear data for Phase 11 sheep/goat

Phase	N	J	I	SA	SA1	SA2	A1	A2	A3	E	Total
11	-	-	-	-	-	-	-	-	2	-	2
%	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*100*	*0*	*100*

Table 189 The animal bone: toothwear data for Phase 11 pigs

Phase	N	J	I	I1	I2	SA	SA1	SA2	A1	A2	A3	E	Total
11	-	1	-	1	1	1	-	-	-	-	-	-	4
%	0	25	0	25	25	25	0	0	0	0	0	0	100

A relatively small number of epiphyses were recovered from Phase 11 deposits. Although two thirds of cattle bones were fused, a small number of immature early fusing bones were present. Twenty-five neonatal and juvenile bones were noted during recording (including a mandible with m1 not yet erupted) which suggested that the proportion of calves present was higher than indicated by the fusion data. This is confirmed by examination of toothwear; four of the five mandibles present belonged to juvenile animals.

Few fused pig bones were recovered and it is significant that two thirds of the early fusing bones had yet to unite, confirming that pigs were generally slaughtered as juveniles. In confirmation, only juvenile, immature and sub-adult mandibles were recovered.

It is likely that sheep/goat were slaughtered at a slightly more mature age than the other main species; the steepest decline in numbers of fused bones occurred between

30 and 42 months. No juvenile or immature mandibles were recorded but two mandibles were attributed to age category A3. However, once again data was recorded that is not reflected in the fusion tables, as two neonatal femora were recovered from P3082.

Metapodials were the most abundant elements for cattle in plot 57, while for sheep there was an equally high proportion of metapodials and forelimbs. Elements from pig were too few to permit even a tentative analysis.

The Sub-groups

(i) Area 1

Pit SG5041 contained more than twice the quantity of bone as pit SG5327. Although cattle and sheep dominate, the features contain a variety of species. Several fallow deer antlers were recovered from SG5041 and SG5327. In three cases the antler was shed; two of these were well-grown stags but another was presumably from a young animal as it carried only the first head with no branching. SG5027 also produced a magnificent pair of antlers, from an individual of a few years. The skull had been chopped through the top of the cranium removing the antlers and a small disc of skull and strongly resembling a hunting trophy (see Figure 64). The distal part of a butchered fallow deer metatarsal was also recovered. Two thoracic vertebrae thought to be deer were also recovered but their identification was not confirmed as either fallow or red deer.

Pit SG5327 also contained two complete tibiae and two ulnae fragments of dog. Measurements and side indicate that they are conceivably from the same animal, even though they occurred in different contexts. Greatest length measurements on both tibiae provided an estimated shoulder height of 0.73m (using calculation factors from Harcourt 1974) suggesting that this was a large animal.

Table 190 The animal bone: sub-groups from Phase 11, Area 1, included in the analysis

Area	Phase	Sub Group	Description	Number	Plot
1	11	SG5041	plot 57 rear. Later fills of pit 5034	153	Plot 57
1	11	SG5327	plot57 rear . Ambiguous pit , prob cutting south side of pit 5034. Could be southern half re-cut, not well recorded.	64	Plot 57
1	11	SG5334	Plot 57 rear, phase 11(?) structure and deposits in triple privy	1	Plot 57
1	11	X56_11	Catch-all ungrouped cns in plot 56 phase 11	52	Plot 56
				270	

Table 191 The animal bone: sub-group assemblages in pits of plot 57 and contexts of plot 56

	Plot 57			Plot 56
Species	**SG5041**	**SG5327**	**Total**	**X56_11**
Cattle	26	12	38	5
Sheep/Goat	24	9	43	4
Sheep	1	1	2	
Pig	1	1	2	9
Cat	1		1	
Dog		4	4	
Red deer	2		2	
Fallow deer	2	3	5	
Domestic fowl			0	20
Goose	4	1	5	
Raven	1		1	
Crow	4		4	
Fish	6	14	20	
Total identified	72	45	117	38
Large mammal	40	4		1
Medium mammal	14	13		1
Indeterminate mammal	25	2		3
Indeterminate bird	2			9
	153	64	217	52

(ii) Area 10

Table 192 The animal bone: sub-groups from Phase 11, Area 10, included in the analysis

Area	Phase	Group	Sub Group	Description	Number
10	11	G3029	P3080	pit	46
10	11	G3034	P3238	pit	38
10	11	G3034	P3391	pit	186
10	11	G3037	P3011	pit	169
10	11	G3037	P3017	pit	30
10	11	G3037	P3082	pit	180
				Total	649

Table 193 The animal bone: species proportions in Area 10 sub-groups

Group	G3037			G3029	G3034		Total
Sub-group	P3011	P3017	P3082	P3080	P3238	P3391	
Cattle	8	11	56	4	8	54	141
Sheep/Goat	13		28	5	7	20	73
Sheep			3				3
Pig	7	1	8	2	3	19	40
Horse	1	1	1			1	4
Cat			1		1		2
Fallow deer						1	1
Roe deer				1			1
Rabbit				1			1
Domestic Fowl	2	1	2	3		3	11
Goose	18	3	7		1	5	34
Total identified	49	17	106	16	20	103	299
Large mammal	24	10	43	16	11	41	
Medium mammal	28	1	9	13	3	24	
Indeterminate mammal	40	2	19		3	15	
Indeterminate bird	28		3	1	1	3	
Total	169	30	150	46	38	186	619

All of the material from Area 10 was from pit groups and the majority of the bone was retrieved from Group 3037, a series of pits between buildings 2 and 5. The final robbing of the walls of Building 5 took place in this period and the area may have been in use as a yard. A small number of scorched bones (n=4, 2%) were recovered from P3011.

The assemblage from P3391 (context 3351) was the largest single pit group and included three neonatal calf bones, a radius, ulna and metacarpal. Cattle were considerably better represented amongst all the pits than sheep/goat, the next most common species.

An examination of carcass distribution suggests that metapodials were especially common for sheep/goat, while skull and hind limbs were emphasised amongst the pig bones. However, low numbers of pig bones means that the results are not necessarily reliable and may be a product of taphonomic factors.Scapulae and pelves are well-represented among cattle bones. There was more even distribution of elements from the hind limb and metapodials among cattle bones.

Acknowledgements

I would like to thank my many colleagues at ULAS, who excavated and processed the bone and provided information and helpful discussion about the site and without whom this report could not have been completed. I am also grateful to Dr. Richard Thomas for his advice and useful comments on a previous draft and to Jen Wooding for all her assistance during the project and particularly her help with the pathological bones.

Table 194 The animal bone: species proportions in group G3037

Species	P3011	P3017	P3082	Total
Cattle	8	11	56	75
Sheep/Goat	13		28	41
Sheep			3	3
Pig	7	1	8	16
Horse	1	1	1	3
Cat			1	1
Domestic fowl	2	1	2	5
Goose	18	3	7	28
Total identified	49	17	76	142
Large mammal	24	10	43	77
Medium mammal	28	1	9	38
Indeterminate mammal	40	2	19	61
Indeterminate bird	28		3	31
Total	169	30	150	349

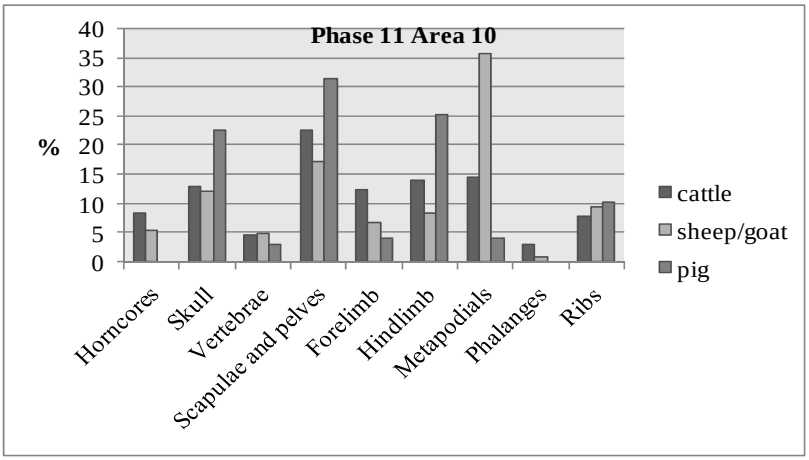

Figure 116 The animal bone: carcass components for the main species in Phase 11, Area 10 (cattle n=128; sheep/goat n=95; pig n=36)

Appendix: Animal Bone Data

The animal bone: full species list by area and sub-phase (Number of Identified Specimens)

Area	Common name	*Species*	2	4	5.01	5.03	7.01	7.03	8	8.01	8.02	9	9.01	9.02	10	11
1	Cattle	*Bos taurus*	4	14	39	10	276	254	101	21	52	86	2		283	44
1	Sheep/Goat	*Ovis/capra*		9	38	13	161	259	121	37	63	65	4	1	237	37
1	Sheep	*Ovis aries*					9	15	1	2	1	3			3	2
1	Goat	*Capra Hircus*		1			1					2				
1	Pig	*Sus scrofa*		31	11	13	86	160	106	20	25	40	2		408	11
1	Horse	*Equus caballus*	1	1	2		12	6	5	3	1	12			1	
1	Dog	*Canis familiaris*		1	5		8	5	1			1		56	1	4
1	Cat	*Felis domesticus*						20	5		1	8			58	1
1	Red deer	*Cervus elaphus*					2	2			1	2			4	2
1	Roe deer	*Capreolus capreolus*						1							1	
1	Fallow deer	*Dama dama*							1						17	5
1	Deer sp	*Cervidae*													1	
1	Human	*Homo sapiens*			1				1	7		1				
1	Hare	*Lepus europaeus*					1	1	1							
1	Rabbit	*Oryctolagus cuniculus*													8	
1	Red squirrel	*Sciurus vulgaris*							1							
1	Hedgehog	*Erinaceus eurapaeus*										4			3	
1	Rat	*Rattus rattus*										2			14	
1	House mouse	*Mus musculus*						1							8	
1	Mouse sp.	*Muridae*							1			1				
1	Domestic Fowl	*Gallus sp.*		21		1	15	33	23	6	24	111			379	20
1	Goose	*Anser sp.*		11		1	6	10	24	4	24	29			149	5
1	Duck	*Anas sp.*			4				1						19	
1	Wood pigeon	*Columba palumbus*							1						6	
1	Rock dove	*Columba livia*							1							
1	Woodcock	*Scolopax rusticola*						2							3	
1	Lapwing	*Vanellus vanellus*													3	

Area	Common name	*Species*	2	4	5.01	5.03	7.01	7.03	8	8.01	8.02	9	9.01	9.02	10	11
1	Golden Plover	*Pluvialis apricaria*						1								
1	Unident. Wader	*Charadriform*		1				1							1	
1	Buzzard	*Buteo buteo*						1								
1	Sparrowhawk	*Accipiter nisus*							2							
1	Raven	*Corvus corax*													1	1
1	Crow	*Corvus corone*													1	4
1	Corvid cf rook	*cf Corvus frugilegus*						2								
1	Corvid cf jackdaw	*cf Corvus monedula*					1								1	
1	Passeriform (thrush family)	*Passeriform (Sturnidae/Turdidae)*													6	
1	Frog sp.	*Rana sp.*							7						3	
1	Toad sp.	*Bufo sp.*													1	
1	Frog/toad	*Rana/bufo*							3						2	
	Total identified:		**5**	**90**	**100**	**38**	**578**	**774**	**407**	**100**	**192**	**367**	**8**	**57**	**1622**	**136**
1	Large mammal		1	50	54	41	331	345	193	68	70	115	17		403	45
1	Medium mammal		2	61	48	54	141	253	147	54	78	64	7		475	28
1	Indeterminate mammal			57	22	38	96	74	58	15	34	44	2	10	663	30
1	Indeterminate bird			14			1	3	3	1	6	19			650	11
	Grand total		**8**	**272**	**224**	**171**	**1147**	**1449**	**808**	**238**	**380**	**609**	**34**	**67**	**3813**	**250**
10	Cattle	*Bos taurus*							23			105			192	75
10	Sheep/Goat	*Ovis/capra*							20			65			119	41
10	Sheep	*Ovis aries*							1			1			7	3
10	Pig	*Sus scrofa*							20			50			59	16
10	Horse	*Equus caballus*													4	3
10	Dog	*Canis familiaris*										3			2	
10	Cat	*Felis domesticus*							5			3			14	1
10	Red deer	*Cervus elaphus*													3	
10	Roe deer	*Capreolus capreolus*										1			1	
10	Fallow deer	*Dama dama*													2	
10	Human	*Homo sapiens*										1				
10	Hare	*Lepus europaeus*													1	

Area	Common name	*Species*	2	4	5.01	5.03	7.01	7.03	8	8.01	8.02	9	9.01	9.02	10	11
10	Rabbit	*Oryctolagus cuniculus*													2	
10	Dom Fowl	*Gallus sp.*							24			7			47	5
10	Goose	*Anser sp.*							40			15			21	28
10	Duck	*Anas sp.*										1				
10	Golden plover	*Pluvialis apricaria*													1	
10	Unidentified wader sp	*Charadriiform*													1	
10	Passeriform (cf starling)	*Passeriform (cf Sturnus vulgaris)*													1	
	Total identified								**133**			**252**			**477**	**172**
10	Large mammal								68			164			186	77
10	Medium mammal								22			148			226	38
10	Indeterminate mammal								31			79			116	61
10	Indeterminate bird								9			5			22	31
	Grand total								**263**			**648**			**1027**	**379**
20	Domestic Fowl	*Gallus sp.*													1	
20	Gull sp.	*Laridae*													6	
20	Shag	*Phalacrocorax aristotelis*										3				
	Total identified											**3**			**7**	
4	Cattle	*Bos taurus*							24			21			52	
4	Sheep/Goat	*Ovis/capra*							26			26			50	
4	Sheep	*Ovis aries*										2			5	
4	Pig	*Sus scrofa*							30			20			32	
4	Horse	*Equus caballus*							1			2			1	
4	Cat	*Felis domesticus*							2			1			3	
4	Red deer	*Cervus elaphus*													1	
4	Fallow deer	*Dama dama*										1			4	
4	Hare	*Lepus europaeus*							2							
4	Rat	*Rattus rattus*													42	
4	House mouse	*Mus musculus*													1	

Area	Common name	*Species*	2	4	5.01	5.03	7.01	7.03	8	8.01	8.02	9	9.01	9.02	10	11
4	Dom Fowl	*Gallus sp.*							5			10			12	
4	Goose	*Anser sp.*										15			4	
4	Rock dove	*Columba livia*										3				
4	Eagle	*cf Haliaeetus albicilla*													1	
4	Buzzard	*Buteo buteo*													1	
4	Raven	*Corvus corax*										1			3	
4	Crow	*Corvus corone*													1	
	Total identified								**90**			**102**			**213**	
4	Large mammal								4			21			18	
4	Medium mammal								37			54			43	
4	Indeterminate mammal								36			54			91	
4	Indeterminate bird								3			3			11	
	Grand total								**170**			**234**			**376**	
7	Cattle	*Bos taurus*				10										
7	Sheep/Goat	*Ovis/Capra*				11										
7	Pig	*Sus scrofa*				12										
7	Cat	*Felis domesticus*														1
7	Red squirrel	*Sciurus vulgaris*														1
7	Domestic Fowl	*Gallus sp.*				1										
	Total identified					**34**										**2**
7	Large mammal					41										
7	Medium mammal					52										
7	Indeterminate mammal					38										
	Grand total					**165**										**2**

Bones with zones by phase

Phase	2	4	5_01	5_03	7_01	7_03	8	8_01	8_02	9	9_01	9_02	10	11
Cattle	2	8	27	7	226	223	110	19	41	142	2		377	86
Sheep/Goat		5	23	10	136	220	139	33	51	120	3	1	330	51
Sheep					6	13	2		1	6			11	5
Goat		1			1					2				
Pig		23	9	9	56	88	99	11	23	79	1		374	15
Dog		1	4		7	4	1			4		30	3	4
Cat						18	11		1	11			72	3
Red deer									1	1				2
Fallow deer							1			1			15	2
Roe deer						1				1			2	
Horse					8	6	5			4			2	2
Hare					1	1	1						1	
Rabbit						1							5	
Red squirrel							1							
Hedgehog										3			2	
Rat										2			18	
Mouse						1							7	1
Dom Fowl		16		1	15	31	44	6	20	92			313	19
Goose		7			6	6	35	1	15	41			114	22
Duck			4							1			15	
Wild bird		1			1	7	4			3			32	5
Amphibian													1	
Total	**2**	**62**	**67**	**27**	**463**	**620**	**453**	**70**	**153**	**513**	**6**	**31**	**1694**	**217**
Large mammal		7	7	4	68	84	53	10	5	34	3		148	34
Medium mammal		17	13	11	34	117	71	19	47	71			252	26
Indeterminate mammal							1						5	1
Indeterminate bird						1				6			317	1
Grand total	**2**	**86**	**87**	**42**	**566**	**825**	**578**	**99**	**205**	**625**	**9**	**31**	**2417**	**279**

Epiphysial Fusion

Epiphyses recorded as 'fusing' (fusion line still clearly visible) are included with the 'fused' total in the tables below.

Cattle		**Phase**	**7**		**8**		**9**		**10**		**11**	
Bone		**Age (mo)**	**F**	**U**	**F**	**U**	**F**	**U**	**F**	**U**	**F**	**U**
Pelvis (acet)	Early	7-10	24	1	11	0	8	0	8	2	4	0
Scapula D		7-8	13	0	7	0	4	0	7	2	2	1
1st Phal P		13-15	17	0	8	2	7	0	15	8	7	0
Humerus D		15-18	11	1	3	0	1	0	6	6	2	0
Radius P		15-18	11	0	7	0	6	0	7	3	2	1
2nd Phal P		18	4	0	1	0	4	0	15	7	2	0
MetaC D	Middle	24-36	11	6	1	2	9	3	7	7	2	1
Tibia D		24-30	10	3	3	1	4	3	5	2	1	2
Metat D		27-36	6	11	3	2	5	4	3	8	5	3
Calc P		36-42	0	5	0	2	0	2	3	9	0	0
Femur P	Late	42	2	2	2	2	0	3	2	4	1	4
Radius D		42-48	6	1	1	5	1	2	2	4	3	2
Ulna P		42-48	1	2	0	0	1	1	2	2	0	0
Humerus P		42-48	1	0	0	1	2	0	2	4	0	0
Femur D		42-48	1	0	1	0	0	1	4	3	1	1
Tibia P		42-48	1	0	1	0	1	0	1	8	2	2
vertebral centrum	Final	84-108	5	18	0	0	4	4	4	9	3	2
Total			124	50	49	17	57	23	91	88	37	19

Sheep/goat			**7**		**8**		**9**		**10**		**11**	
Bone		**Age (mo)**	**F**	**U**	**F**	**U**	**F**	**U**	**F**	**U**	**F**	**U**
Pelv (acet)	Early	6-10	13	0	17	0	7	*0*	19	0	6	*0*
Scapula D		6-8	15	1	6	1	4	*0*	19	0	6	*0*
Humerus D		10	11	1	6	2	7	*1*	14	0	4	*0*
Radius P		10	23	0	5	1	5	*0*	25	0	1	*0*
1st Phal P		13-16	7	1	7	1	4	*0*	11	0	2	*0*
2nd Phal P		13-16	0	0	0	0	0	*0*	2	0	0	*0*
Metac D	Middle	18-24	6	3	5	6	4	*5*	8	3	5	*2*
Tibia D		18-24	20	1	7	1	6	*0*	12	2	1	*0*
Metat D		20-28	10	5	3	1	1	*1*	6	3	4	*0*
Ulna P		30	3	4	1	4	1	*0*	1	3	1	*2*
Femur P	Late	30-36	0	4	2	1	0	*0*	1	5	0	*3*
Calc P		30-36	3	3	3	3	1	*1*	3	0	1	*0*
Radius D		36	3	6	3	7	1	*3*	10	6	1	*0*
Humerus P		36-42	0	1	0	4	1	*2*	0	2	0	*1*
Femur D		36-42	3	3	0	2	0	*1*	4	6	0	*3*
Tibia P		36-42	2	4	0	0	2	*1*	4	5	1	*0*
Vertebral centrum	Final	48-60	10	22	6	28	3	9	10	30	3	2
			129	59	71	62	47	24	149	65	36	13

Pig			7		8		9		10		11	
Bone		Age (mo)	F	U	F	U	F	U	F	U	F	U
Scapula D	Early	12	3	1	1	2	0	1	5	8	0	0
Humerus D		12	1	2	5	2	1	3	4	13	0	0
Radius P		12	5	0	4	1	3	0	3	11	0	1
Pelvis (acet)		12	2	2	1	2	0	0	2	19	1	1
2nd Phal P		12	0	0	1	1	1	0	3	3	0	0
Metac D	Middle	24	3	7	0	1	2	3	1	8	0	1
Tibia D		24	4	4	0	0	1	3	1	13	0	1
1st Phal P		24	2	2	2	3	1	2	1	6	1	0
Calc P		24-30	0	6	0	2	0	3	0	4	0	1
Metat D		27	0	3	2	5	1	3	0	11	1	2
Ulna P	Late	36-42	0	8	0	5	0	2	0	13	0	2
Humerus P		42	0	1	0	1	0	1	0	13	0	0
Radius D		42	0	0	0	1	0	1	0	14	0	1
Femur P		42	0	0	0	2	0	2	0	13	1	2
Femur D		42	0	0	0	1	0	1	0	14	0	3
Tibia P		42	0	0	0	2	0	5	0	14	0	1
Vertebral centrum	Final	48-84	0	2	0	0	0	1	0	10	0	1
			20	38	16	31	10	31	20	187	4	17

Toothwear data

Toothwear scores after Grant (1982), age stages after O'Connor (2003)

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age stage
2	Cattle	Mandible (+ 1 tth)		f	k	k	g	42	A3
5.01	Cattle	Mandible (+ 1 tth)			j	g	d	35	A2
5.03	Cattle	Mandible (+ 1 tth)	j		f	E			I
7.01	Cattle	Mandible (+ 1 tth)			k	g	g	39	A3
7.01	Cattle	Mandible (+ 1 tth)				f	V		SA1
7.01	Cattle	Ldp4	k						
7.01	Cattle	Lm3					g		
7.01	Cattle	Mandible (+ 1 tth)			j				
7.01	Cattle	Lm3					k		E
7.01	Cattle	Mandible (+ 1 tth)	k		g	b			SA
7.01	Cattle	Mandible (+ 1 tth)					k		E
7.01	Cattle	Mandible (+ 1 tth)			k				
7.01	Cattle	Mandible (+ 1 tth)			k	k	g	42	A3
7.01	Cattle	Mandible (+ 1 tth)			g	c	C	21	SA1
7.01	Cattle	Mandible (+ 1 tth)	j						
7.01	Cattle	Mandible (+ 1 tth)		f	l	k	k	46	E
7.01	Cattle	Mandible (+ 1 tth)	m		g	f	0.5	27	SA2
7.01	Cattle	Mandible (+ 1 tth)			n	m	m	53	E
7.01	Cattle	Mandible (+ 1 tth)	k		g	f			
7.01	Cattle	Mandible (+ 1 tth)		f	l	k	j	45	E
7.03	Cattle	Mandible (+ 1 tth)	k		g	d	E	25	SA2
7.03	Cattle	Mandible (+ 1 tth)			m	l	k	48	E
7.03	Cattle	Mandible (+ 1 tth)		c	k	g			
7.03	Cattle	Mandible (+ 1 tth)		h	m	l	l	49	E

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age stage
7.03	Cattle	Mandible (+ 1 tth)	k		g	g			
7.03	Cattle	Mandible (+ 1 tth)	j		g	a			I
7.03	Cattle	Mandible (+ 1 tth)		c	k				
7.03	Cattle	Mandible (+ 1 tth)			f	0.5			I
7.03	Cattle	Mandible (+ 1 tth)				E			I
7.03	Cattle	Mandible (+ 1 tth)	j		g		V		SA1
7.03	Cattle	Mandible (+ 1 tth)			m	k	j	47	E
7.03	Cattle	Mandible (+ 1 tth)		e	l	k	g	43	A3
8	Cattle	Mandible (+ 1 tth)	b						J
8	Cattle	Mandible (+ 1 tth)	K		g	b	C	20	SA1
8.02	Cattle	Lm3					g		A3
9	Cattle	Mandible (+ 1 tth)		f	l	k	j	45	E
9	Cattle	Mandible (+ 1 tth)		h	n	m	l	51	E
9	Cattle	Mandible (+ 1 tth)		h	n	m	l	51	E
9	Cattle	Mandible (+ 1 tth)			m	l			
9	Cattle	Mandible (+ 1 tth)	k		g	d	E	25	SA2
9	Cattle	Ldp4	d						
9	Cattle	Mandible (+ 1 tth)	d		E				J
10	Cattle	Mandible (+ 1 tth)	b						J
10	Cattle	Mandible (+ 1 tth)			k	j			
10	Cattle	Ldp4	b						
10	Cattle	Mandible (+ 1 tth)	d		E				J
10	Cattle	Mandible (+ 1 tth)	b		V				J
10	Cattle	Mandible (+ 1 tth)	c		E				J
10	Cattle	Lm3					g		A3
10.01	Cattle	Mandible (+ 1 tth)	c						
10.01	Cattle	Mandible (+ 1 tth)	c		E				J
10.02	Cattle	Mandible (+ 1 tth)	c		E				J
10.02	Cattle	Mandible (+ 1 tth)			l	k			
10.02	Cattle	Lm3					b		A1
11	Cattle	Mandible (+ 1 tth)				g	f/g		A3
11	Cattle	Mandible (+ 1 tth)			k	j			
11	Cattle	Mandible (+ 1 tth)	b		E				J
11	Cattle	Mandible (+ 1 tth)			E				J
11	Cattle	Mandible (+ 1 tth)		g	l	k			
11	Cattle	Mandible (+ 1 tth)			k				
11	Cattle	Mandible (+ 1 tth)	b						J
11	Cattle	Mandible (+ 1 tth)	c		V				J

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age Stage
5.01	S/G	Lm3					f		A3
5.01	S/G	Mandible (+ 1 tth)			g	d	V	23	SA1
7.01	S/G	Mandible (+ 1 tth)	g						
7.01	S/G	Mandible (+ 1 tth)			g	f			
7.01	S/G	Ldp4	f						
7.01	S/G	Mandible (+ 1 tth)			g	f			
7.01	S/G	Mandible (+ 1 tth)				g	b		A1

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age Stage
7.01	S/G	Mandible (+ 1 tth)		f	g	f	c	31	A2
7.01	S/G	Mandible (+ 1 tth)		g	k	g	g	39	A3
7.01	S/G	Mandible (+ 1 tth)			f	0.5			I
7.01	S/G	Mandible (+ 1 tth)	g		c				I
7.01	S/G	Mandible (+ 1 tth)	g		d	C			I
7.01	S/G	Mandible (+ 1 tth)	g		e	c			I
7.01	S/G	Mandible (+ 1 tth)			h	d			SA
7.01	S/G	Mandible (+ 1 tth)			h	f	C	25	SA1
7.01	S/G	Mandible (+ 1 tth)				e	C		SA1
7.03	S/G	Mandible (+ 1 tth)			g				
7.03	S/G	Mandible (+ 1 tth)		0.5	h	g			
7.03	S/G	Mandible (+ 1 tth)	g		c				
7.03	S/G	Mandible (+ 1 tth)		g	g	g			
7.03	S/G	Mandible (+ 1 tth)			g	c			
7.03	S/G	Ldp4	g						
7.03	S/G	Mandible (+ 1 tth)			g	f			
7.03	S/G	Ldp4	f						
7.03	S/G	Mandible (+ 1 tth)		e	g				
7.03	S/G	Mandible (+ 1 tth)	c						
7.03	S/G	Mandible (+ 1 tth)	m		f	d			
7.03	S/G	Mandible (+ 1 tth)	n		g	d			
7.03	S/G	Mandible (+ 1 tth)	m						
7.03	S/G	Mandible (+ 1 tth)		j	k	f	d	35	A2
7.03	S/G	Mandible (+ 1 tth)		k	m	h	g	42	A3
7.03	S/G	Mandible (+ 1 tth)			h	g	e	35	A3
7.03	S/G	Lm3					f		A3
7.03	S/G	Mandible (+ 1 tth)	g		g	g	f	35	A3
7.03	S/G	Mandible (+ 1 tth)		g	h	h	e	36	A3
7.03	S/G	Mandible (+ 1 tth)	h		f	V			I
7.03	S/G	Mandible (+ 1 tth)	g		d	C			I
7.03	S/G	Mandible (+ 1 tth)	g		d	C			I
7.03	S/G	Mandible (+ 1 tth)		C	g	e	V	24	SA1
7.03	S/G	Mandible (+ 1 tth)				d	C		SA1
7.03	S/G	Mandible (+ 1 tth)	n		g	d	C	22	SA1
7.03	S/G	Mandible (+ 1 tth)			g	e	C	23	SA1
7.03	S/G	Mandible (+ 1 tth)			g	f	V	25	SA1
7.03	S/G	Mandible (+ 1 tth)			g	c	C	21	SA1
7.03	S/G	Mandible (+ 1 tth)	k		g	d	E	24	SA2
7.03	S/G	Mandible (+ 1 tth)	n		h	f	E	27	SA2
7.03	S/G	Mandible (+ 1 tth)					E		SA2
8	S/G	Mandible (+ 1 tth)	j		g				
8	S/G	Mandible (+ 1 tth)	n		g	d			
8	S/G	Mandible (+ 1 tth)		j	m		g		A3
8	S/G	Mandible (+ 1 tth)		h	m	g	g	41	A3
8	S/G	Mandible (+ 1 tth)					g		A3
8	S/G	Mandible (+ 1 tth)	b		C				J
8	S/G	Mandible (+ 1 tth)			g	d	V	23	SA1
8	S/G	Mandible (+ 1 tth)		V	g	f	V	25	SA1

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age Stage
8	S/G	Mandible (+ 1 tth)			g	d	C	22	SA1
8	S/G	Mandible (+ 1 tth)				e	E		SA2
8	S/G	Mandible (+ 1 tth)				f	0.5		SA2
8.01	S/G	Mandible (+ 1 tth)		k	m	k			
8.01	S/G	Mandible (+ 1 tth)		g	h	g	g	37	A3
8.01	S/G	Mandible (+ 1 tth)	d		C				J
8.01	S/G	Mandible (+ 1 tth)		E	g	f	V	25	SA1
8.02	S/G	Mandible (+ 1 tth)					g		A3
8.02	S/G	Mandible (+ 1 tth)			g	d	V	23	SA1
9	S/G	Mandible (+ 1 tth)		E	g	f			
9	S/G	Mandible (+ 1 tth)	n						
9	S/G	Mandible (+ 1 tth)			g	g	d	33	A2
9	S/G	Mandible (+ 1 tth)			h	g	g	37	A3
9	S/G	Mandible (+ 1 tth)					g		A3
9	S/G	Mandible (+ 1 tth)					g		A3
9	S/G	Mandible (+ 1 tth)		h	m	g	g	41	A3
9	S/G	L molar					h		A3
9	S/G	Mandible (+ 1 tth)		h	k	g	g	39	A3
9	S/G	Mandible (+ 1 tth)			m		g		A3
9	S/G	Mandible (+ 1 tth)	f		d				I
9	S/G	Mandible (+ 1 tth)	j		f	E			I
9	S/G	Mandible (+ 1 tth)	n		g	e	V	24	SA1
9	S/G	Mandible (+ 1 tth)			g	e	C	23	SA1
9	S/G	Mandible (+ 1 tth)			g	f	E	26	SA2
9.01	S/G	Mandible (+ 1 tth)	g		c				I
10	S/G	Mandible (+ 1 tth)					c		A2
10	S/G	Mandible (+ 1 tth)			g	f	c	31	A2
10	S/G	Mandible (+ 1 tth)			g	g	c	32	A2
10	S/G	Lm3					g		A3
10	S/G	Mandible (+ 1 tth)				g	f		A3
10	S/G	Mandible (+ 1 tth)		g	j	g	g	38	A3
10	S/G	Mandible (+ 1 tth)	g		j	g	f	37	A3
10	S/G	Mandible (+ 1 tth)		g	l	g	g	40	A3
10	S/G	Mandible (+ 1 tth)			k	h	h	41	A3
10	S/G	Lm3					g		A3
10	S/G	Mandible (+ 1 tth)				j	g		A3
10	S/G	Mandible (+ 1 tth)	j		k	g	g	39	A3
10	S/G	Lm3					f		A3
10	S/G	Mandible (+ 1 tth)			l	g	g	40	A3
10	S/G	Mandible (+ 1 tth)				h	g		A3
10	S/G	Lm3					f		A3
10	S/G	Mandible (+ 1 tth)			k	g	g	39	A3
10	S/G	Mandible (+ 1 tth)			m	m	k	49	E
10	S/G	Mandible (+ 1 tth)	f		E				J
10	S/G	Mandible (+ 1 tth)	l		g	c	C	21	SA1
10.01	S/G	Mandible (+ 1 tth)	c		E				J
10.02	S/G	Mandible (+ 1 tth)		g	g	g	c	32	A2
10.02	S/G	Mandible (+ 1 tth)					h		A3

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age Stage
10.02	S/G	Mandible (+ 1 tth)					g		A3
11	S/G	Mandible (+ 1 tth)		j	k	g			
11	S/G	Mandible (+ 1 tth)		h	h				
11	S/G	Mandible (+ 1 tth)				h	g		A3
11	S/G	Mandible (+ 1 tth)		g		g	f		A3

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age category
4	Pig	Mandible (+ 1 tth)	c		V				J
7.01	Pig	Mandible (+ 1 tth)			g				
7.01	Pig	Mandible (+ 1 tth)				f	c		A2
7.01	Pig	Mandible (+ 1 tth)					e		A3
7.01	Pig	Mandible (+ 1 tth)				e	E		SA2
7.03	Pig	Mandible (+ 1 tth)			k	h	c	36	A2
7.03	Pig	Mandible (+ 1 tth)					b		A2
7.03	Pig	Mandible (+ 1 tth)			a	C			I1
7.03	Pig	Mandible (+ 1 tth)	k		b	C			I1
7.03	Pig	Mandible (+ 1 tth)	g		d	a			I2
7.03	Pig	Ldp4	a						N
7.03	Pig	Mandible (+ 1 tth)		a	f	c			SA
7.03	Pig	Mandible (+ 1 tth)			g	b			SA
7.03	Pig	Mandible (+ 1 tth)			g	c	U	25	SA2
8	Pig	Mandible (+ 1 tth)		a	f				
8	Pig	Mandible (+ 1 tth)			b	V			I1
8.01	Pig	Mandible (+ 1 tth)		a		c	C		SA1
8.02	Pig	Mandible (+ 1 tth)				k	b		A1
8.02	Pig	Mandible (+ 1 tth)	j		c				I
8.02	Pig	Mandible (+ 1 tth)				d	E		SA2
9	Pig	Mandible (+ 1 tth)		c	h	e	a	29	A1
9	Pig	Mandible (+ 1 tth)					d		A2
9	Pig	Mandible (+ 1 tth)	f		a	V			I1
9	Pig	Mandible (+ 1 tth)			e	a			I2
9	Pig	Mandible (+ 1 tth)	e		0.5				J
10	Pig	Mandible (+ 1 tth)			c				I
10	Pig	Mandible (+ 1 tth)	f		b				I
10	Pig	Mandible (+ 1 tth)	a		C				J
10	Pig	Mandible (+ 1 tth)	d		a				J
10	Pig	Mandible (+ 1 tth)	a		C				J
10	Pig	Mandible (+ 1 tth)	a		V				J
10	Pig	Mandible (+ 1 tth)	a		C				J
10	Pig	Mandible (+ 1 tth)	b		C				J
10	Pig	Mandible (+ 1 tth)	b		C				J
10	Pig	Mandible (+ 1 tth)	E						N
10	Pig	Mandible (+ 1 tth)	U						N
10	Pig	Mandible (+ 1 tth)	U						N
10	Pig	Mandible (+ 1 tth)	E						N
10	Pig	Mandible (+ 1 tth)	E						N
10	Pig	Mandible (+ 1 tth)	a						N

Phase	Species	Bone	Dp4	p4	m1	m2	m3	MWS	Age category
11	Pig	Mandible (+ 1 tth)	f						
11	Pig	Mandible (+ 1 tth)	g		b	V			I1
11	Pig	Mandible (+ 1 tth)			c	0.5			I2
11	Pig	Mandible (+ 1 tth)	c		C				J
11	Pig	Mandible (+ 1 tth)		E	e	b			SA
13	Pig	Mandible (+ 1 tth)		a	g	b	E	22	SA2

Butchery Tables for cattle, sheep/goat and pig

Key: Bt= butchered

Phase 7	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	12	3	25		2		1		3
	skull	28	9	32		7	6			13
	maxilla	9	1	11		1				1
	mandible	67	27	40	1	20	8			29
	atlas	12	5	42		4	1			5
Vertebrae	axis	2	1	50		1	1			2
	cervical vertebrae	23	9	39		8			1	9
	thoracic vertebrae	60	20	33		21	4			25
	lumbar vertebrae	21	9	43		10	1			11
	sacrum	1	1	100		1				1
Scap/pelv	scapula	35	23	66	2	24	3			29
	pelvis	36	19	53		18	10			28
Forelimb	humerus	31	20	65	11	12	4			27
	ulna	23	7	30		5	3			8
	radius	36	21	58	11	8	1		2	22
Hindlimb	femur	15	9	60	4	7	2			13
	tibia	28	19	68	9	12	1			22
	astragalus	11	1	9			1			1
	calcaneum	12	0	0						0
Metap	metacarpal	33	9	27	3	5	2			10
	metatarsal	41	14	34	2	13				15
Phalanges	phalanx 1	21	1	5		1				1
	phalanx 2	4	0	0						0
	phalanx 3	4	0	0						0
Ribs	proximal ribs	65	38	58		38	13			51
Total		***630***	***266***	***42***	***43***	***218***	***61***	***1***	***3***	***326***
%					13	67	19	0	1	

Phase 8	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	6	3	50		3				3
	skull	17	3	18			3			3
	maxilla	1	0	0						0
	mandible	12	5	42		4	1			5
	atlas	6	5	83		5				5
Vertebrae	axis	1	1	100		1				1
	cervical vertebrae	16	11	69		11				11

Phase 8	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
	thoracic vertebrae	22	12	55		13				13
	lumbar vertebrae	11	5	45		7				7
	sacrum	4	2	50		2	1			3
Scap/pelv	scapula	18	12	67		14	1			15
	pelvis	16	8	50		7	5			12
Forelimb	humerus	14	10	71	5	5	1			11
	ulna	5	3	60		3				3
	radius	17	9	53	6	3				9
Hindlimb	femur	14	8	57	2	6			1	9
	tibia	15	12	80		6	5		2	13
	astragalus	2	1	50		1	1			2
	calcaneum	6	0	0						0
Metap	metacarpal	7	3	43		2	2			4
	metatarsal	10	6	60		3	2			5
Phalanges	phalanx 1	12	1	8			1			1
	phalanx 2	13	0	0						0
	phalanx 3	3	0	0						0
Ribs	proximal ribs	32	15	47		14	9			23
Total		***280***	***135***	***48***	***13***	***110***	***32***	***0***	***3***	***158***
%					8	70	20	0	2	100

Phase 9	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	5	1	20			1			1
	skull	8	4	50		3	2			5
	maxilla	3	0	0						0
	mandible	15	3	20	1	3				4
	atlas	2	1	50		1				1
Vertebrae	axis	3	2	67		2				2
	cervical vertebrae	10	5	50		5				5
	thoracic vertebrae	9	6	67		7				7
	lumbar vertebrae	4	2	50		3				3
	sacrum	0	0	0						0
Scap/pelv	scapula	10	5	50		5				5
	pelvis	13	5	38		4	1			5
Forelimb	humerus	6	3	50	1	2			1	4
	ulna	5	1	20			1			1
	radius	12	8	67	4	6				10
Hindlimb	femur	11	7	64	2	5			1	8
	tibia	10	8	80		9	1			10
	astragalus	1	0	0						0
	calcaneum	5	1	20		1				1
Metap	metacarpal	22	13	59	5	7	2	1		15
	metatarsal	16	3	19		2		1		3
Phalanges	phalanx 1	8	0	0						0
	phalanx 2	4	0	0						0
	phalanx 3	5	0	0						0
Ribs	proximal ribs	18	11	61		14	2			16

Total		***205***	***89***	***43***	***13***	***79***	***10***	***2***	***2***	***106***
%					12	75	9	2	2	100

Phase 10	**Cattle**	**NISP**	**N Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	horncore	2	1	50		1	2			3
	skull	25	6	24		5	2			7
	maxilla	5	3	60		1	2			3
	mandible	24	9	38		11	4			15
	atlas	5	4	80		3	2			5
Vertebrae	axis	3	3	100		4				4
	cervical vertebrae	16	10	63		11	1			12
	thoracic vertebrae	33	16	48		15	3			18
	lumbar vertebrae	32	20	63		19	1		2	22
	sacrum	13	10	77		11				11
Scap/pelv	scapula	25	12	48	2	11	2			15
	pelvis	21	9	43		9	4			13
Forelimb	humerus	28	16	57	1	16	9		1	27
	ulna	16	6	38		6	2			8
	radius	27	12	44	5	10	1			16
Hindlimb	femur	22	18	82	3	21	1			25
	tibia	29	20	69	4	16	2			22
	astragalus	5	4	80		5				5
	calcaneum	17	11	65	1	7	5			13
Metap	metacarpal	28	15	54	7	7	2			16
	metatarsal	28	17	61	3	11	4		1	19
Phalanges	phalanx 1	25	1	4		1				1
	phalanx 2	23	0	0						0
	phalanx 3	20	1	5						0
Ribs	proximal ribs	60	27	45	2	18	14			34
Total		***532***	***251***	***47***	*28*	*219*	*63*	*0*	*4*	***314***
%					9	70	20	0	1	100

Phase 11	**Cattle**	**NISP**	**N Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	horncore	2	1	50					1	1
	skull	28	3	11		2			1	3
	maxilla	4	1	25			1			1
	mandible	21	5	24		6	1			7
	atlas	3	3	100		3	2			5
Vertebrae	axis	1	1	100		1				1
	cervical vertebrae	10	4	40		4				4
	thoracic vertebrae	13	7	54		9				9
	lumbar vertebrae	5	2	40		2				2
	sacrum	0	0	0						0
Scap/pelv	scapula	9	1	11		2	1			3
	pelvis	5	2	40		3	1			4
Forelimb	humerus	5	3	60		5	1		1	7
	ulna	5	1	20		1				1
	radius	9	7	78		9	1		1	11

Phase 11	Cattle	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Hindlimb	femur	17	13	76		18	2			20
	tibia	10	4	40		3			1	4
	astragalus	2	1	50		2				2
	calcaneum	1	0	0						0
Metap	metacarpal	12	8	67	1	7				8
	metatarsal	11	5	45	1	3				4
Phalanges	phalanx 1	8	0	0						0
	phalanx 2	2	0	0						0
	phalanx 3	0	0	0			1			1
Ribs	proximal ribs	24	9	38		9	1			10
Total		***207***	***81***	***39***	***2***	***89***	***12***	***0***	***5***	***108***
%					2	82	11	0	5	100

Phase 7	Sheep/goat	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	22	10	***45***		8	2	1		11
	skull	17	12	***71***		12				12
	maxillae	12	2	***17***		2				2
	mandible	58	12	***21***		7	5			12
	atlas	4	4	***100***		4	1			5
Vertebrae	axis	6	4	***67***		4				4
	cervical vertebrae	14	3	***21***		3				3
	thoracic vertebrae	32	9	***28***		10				10
	lumbar vertebrae	17	4	***24***		3	1			4
	sacrum	0	0	***0***						0
Scap/pel	scapula	26	13	***50***		10	5			15
	pelvis	21	9	***43***	1	8	3		1	13
Forelimb	humerus	18	10	***56***	5	7	1			13
	ulna	11	1	***9***		1				1
	radius	42	13	***31***	4	9	1			14
Hindlimb	femur	20	9	***45***	2	6	6			14
	tibia	40	12	***30***	9	3	1			13
	astragalus	3	0	***0***						0
	calcaneum	7	1	***14***			1			1
Metap	Metacarpal	30	5	***17***	5					5
	Metatarsal	42	3	***7***	1	1	1			3
Phalanges	phalanx 1	10	0	***0***						0
	phalanx 2	0	0	***0***						0
	phalanx 3	0	0	***0***						0
Ribs	proximal ribs	83	58	***70***		52	24			76
Total		***535***	***194***	***36***	***27***	***150***	***52***	***1***	***1***	***231***
%					12	65	23	0	0	100

Phase 8	Sheep/goat	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	horncore	4	3	75		2		1		3
	skull	13	1	8	1					1
	maxillae	7	0	0						0
	mandible	23	1	4			1			1

	atlas	3	3	100		4	2			6
Vertebrae	axis	9	7	78		8				8
	cervical vertebrae	12	6	50		6				6
	thoracic vertebrae	31	3	10		2	1			3
	lumbar vertebrae	11	8	73		8				8
	sacrum	1	0	0						0
Scap/pel	scapula	19	7	37		5	2			7
	pelvis	27	15	56		12	6			18
Forelimb	humerus	22	12	55	4	5	3			12
	ulna	9	0	0						0
	radius	18	3	17	2	1				3
Hindlimb	femur	17	10	59	5	4	2			11
	tibia	20	9	45	5	4	1			10
	astragalus	5	1	20			1			1
	calcaneum	6	0	0						0
Metap	Metacarpal	22	6	27	5	1	1			7
	Metatarsal	13	4	31	3	1				4
Phalanges	phalanx 1	8	0	0						0
	phalanx 2	0	0	0						0
	phalanx 3	0	0	0						0
Ribs	proximal ribs	86	34	40		35	6			41
Total		***386***	***133***	***34***	***25***	***98***	***26***	***1***	***0***	***150***
					17	65	17	1	0	100

Phase 9	**Sheep/goat**	**NISP**	**N Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	horncore	5	3	60		2		1		3
	skull	9	3	33		3	1			4
	maxillae	6	0	0						0
	mandible	19	3	16		2	1			3
	atlas	2	1	50		1	1			2
Vertebrae	axis	3	3	100		3				3
	cervical vertebrae	3	2	67		2				2
	thoracic vertebrae	10	5	50		5				5
	lumbar vertebrae	12	5	42		8	1			9
	sacrum	2	2	100		2				2
Scap/pel	scapula	6	1	17		1				1
	pelvis	10	5	50		7				7
Forelimb	humerus	12	5	42	1	2	1			4
	ulna	3	1	33		1				1
	radius	13	7	54	3	4				7
Hindlimb	femur	11	1	9		1				1
	tibia	14	4	29	1	1	2			4
	astragalus	1	0	0						0
	calcaneum	3	1	33		1				1
Metap	Metacarpal	15	4	27	1	2			2	5
	Metatarsal	8	4	50	1	1	2	1		5
Phalanges	phalanx 1	5	0	0						0
	phalanx 2	0	0	0						0

	phalanx 3	0	0	0						0
Ribs	proximal ribs	42	24	57		28	3		1	32
Total		***214***	***84***	***39***	***7***	***77***	***12***	***2***	***3***	***101***
					7	76	12	2	3	100

Phase 10	**Sheep/goat**	**NISP**	**N Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	horncore	4	2	50		1		1		2
	skull	49	18	37		18	14		1	33
	maxillae	10	0	0						0
	mandible	31	9	29	1	6	3			10
	atlas	4	3	75		4	1			5
Vertebrae	axis	5	4	80		4	1			5
	cervical vertebrae	35	22	63		24	1			25
	thoracic vertebrae	47	28	60		28				28
	lumbar vertebrae	28	19	68		22	3			25
	sacrum	4	4	100		4				4
Scap/pel	scapula	30	2	7			1		1	2
	pelvis	29	10	34		9	3			12
Forelimb	humerus	17	8	47	4	1	2			7
	ulna	16	0	0						0
	radius	35	11	31	2	4	3		4	13
Hindlimb	femur	24	16	67	4	12	5			21
	tibia	38	28	74	8	18	3		2	31
	astragalus	1	0	0						0
	calcaneum	4	1	25			1			1
Metap	Metacarpal	19	3	16	1	1	1			3
	Metatarsal	17	5	29		4	1			5
Phalanges	phalanx 1	12	0	0						0
	phalanx 2	2	0	0						0
	phalanx 3	1	0	0						0
Ribs	proximal ribs	134	80	60		72	26		8	106
Total		***596***	***273***	***46***	***20***	***232***	***69***	***1***	***16***	***338***
					6	69	20	0	5	100

Phase 11	**Sheep/goat**	**NISP**	**N Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	horncore	8	2	25		2				2
	skull	16	4	25		3	2			5
	maxillae	3	0	0						0
	mandible	5	2	40		2				2
	atlas	2	1	50		1	1			2
Vertebrae	axis	7	1	14		1				1
	cervical vertebrae	3	3	100		3				3
	thoracic vertebrae	4	0	0						0
	lumbar vertebrae	5	5	100		5	2			7
	sacrum	2	2	100		2				2
Scap/pel	scapula	10	1	10					1	1
	pelvis	7	4	57		3	2			5
Forelimb	humerus	4	2	50	1	1				2

Phase 11	Sheep/goat	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
	ulna	3	0	0						0
	radius	4	2	50	2		1			3
Hindlimb	femur	6	2	33		2				2
	tibia	6	2	33		2				2
	astragalus	1	0	0						0
	calcaneum	1	0	0						0
Metap	Metacarpal	12	1	8	1	1				2
	Metatarsal	10	2	20		1	1			2
Phalanges	phalanx 1	2	1	50					1	1
	phalanx 2	0	0	0						0
	phalanx 3	0	0	0						0
Ribs	proximal ribs	25	13	52		14	5			19
Total		***146***	***50***	***34***	***4***	***43***	***14***	***0***	***2***	***63***
					6	68	22	0	3	100

Phase 7	Pig	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	skull	7		0						0
	maxillae	16	1	6			1			1
	mandible	22	9	41		8	2			10
	atlas	2		0						0
	axis	0		0						0
Vertebrae	cervical vertebrae	1	1	100			1			1
	thoracic vertebrae	2	2	100		2				2
	lumbar vertebrae	1	1	100		3	1			4
	sacrum	0		0						0
Scap/pel	scapula	7	4	57	1	2	3		1	7
	pelvis	8	2	25		2				2
Forelimb	humerus	8	3	38	1	3				4
	Ulna	14	3	21		2	1			3
	Radius	6	2	33	2					2
Hindlimb	femur	3	2	67	1	1				2
	tibia	12	7	58	5	1				6
	astragalus	4		0						0
	calcaneum	6		0						0
Metap	metacarpal	14	1	7			1			1
	metatarsal	4		0						0
Phalanges	phalanx 1	4		0						0
	phalanx 2	0		0						0
	phalanx 3	0		0						0
Ribs	proximal ribs	19	2	11		2				2
Total		***160***	***40***	***25***	***10***	***26***	***10***	***0***	***1***	***47***
%					21	55	21	0	2	100
Phase 8	**Pig**	**NISP**	**n Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	skull	10	1	10		1				1
	maxillae	13	4	31		4				4
	mandible	9	1	11		1				1

	atlas	3	1	33		1				1
	axis	2		0						0
Vertebrae	cervical vertebrae	1		0						0
	thoracic vertebrae	6		0						0
	lumbar vertebrae	1		0						0
	sacrum	0		0						0
Scap/pel	scapula	9	5	56		4	1			5
	pelvis	10	4	40		2	2			4
Forelimb	humerus	9	4	44	2	2	1			5
	Ulna	8		0						0
	Radius	6	1	17		1				1
Hindlimb	femur	9	3	33			2		1	3
	tibia	11	4	36		4				4
	astragalus	2		0						0
	calcaneum	3		0						0
Metap	metacarpal	9		0						0
	metatarsal	9		0						0
Phalanges	phalanx 1	5		0						0
	phalanx 2	2		0						0
	phalanx 3	0		0						0
Ribs	proximal ribs	20		0						0
Total		157	28	18	2	20	6	0	1	29
%					7	69	21	0	3	100

Phase 9	**Pig**	**NISP**	**N Bt**	**%Bt**	**Shatter**	**Chop**	**Cut**	**Saw**	**Other**	**Total**
Head	skull	10	2	20		2				2
	maxillae	3		0						0
	mandible	8	3	38		3				3
	atlas	0		0						0
	axis	1	1	100		1				1
Vertebrae	cervical vertebrae	0		0						0
	thoracic vertebrae	1		0						0
	lumbar vertebrae	0		0						0
	sacrum	0		0						0
Scap/pel	scapula	4	2	50		1	1			2
	pelvis	5		0						0
Forelimb	humerus	9	4	44	1	3				4
	Ulna	2		0						0
	Radius	4	1	25		1				1
Hindlimb	femur	3	3	100		2	2			4
	tibia	11	3	27		2	1			3
	astragalus	0		0						0
	calcaneum	4		0						0
Metap	metacarpal	5	1	20					1	1
	metatarsal	5	1	20					1	1
Phalanges	phalanx 1	3		0						0
	phalanx 2	1		0						0
	phalanx 3	0		0						0

Phase 9	Pig	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Ribs	proximal ribs	8	1	13		1				1
Total		***87***	***22***	***25***	1	16	4	0	2	23
%					4	70	17	0	9	100

Phase 10	Pig	NISP	N Bt	%Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	skull	39	1	3		1	1			2
	maxillae	12	0	0						0
	mandible	18	1	6	1					1
	atlas	5	0	0						0
	axis	2	1	50		1	1			2
Vertebrae	cervical vertebrae	6	1	17		2				2
	thoracic vertebrae	23	1	4		1				1
	lumbar vertebrae	8	0	0						0
	sacrum	0	0	0						0
Scap/pel	scapula	18	4	22		2	2			4
	pelvis	30	5	17		5	1			6
Forelimb	humerus	35	5	14	1	3	2		1	7
	Ulna	23	2	9		3				3
	Radius	19	1	5		1				1
Hindlimb	femur	21	2	10		1	1			2
	tibia	21	1	5		1				1
	astragalus	4	0	0						0
	calcaneum	5	1	20		1	2			3
Metap	metacarpal	9	0	0						0
	metatarsal	12	0	0						0
Phalanges	phalanx 1	9	0	0						0
	phalanx 2	6	0	0						0
	phalanx 3	2	0	0						0
Ribs	proximal ribs	68	9	13		9	8			17
Total		***395***	***35***	***9***	2	31	18	0	1	52
					4	60	35	0	2	100

Phase 11	Pig	NISP	N Bt	% Bt	Shatter	Chop	Cut	Saw	Other	Total
Head	skull	2		0						0
	maxillae	3		0						0
	mandible	6	1	17		1				1
	atlas	0		0						0
	axis	0		0						
Vertebrae	cervical vertebrae	0		0						0
	thoracic vertebrae	0		0						0
	lumbar vertebrae	1		0						0
	sacrum	0		0						0
Scap/pel	scapula	2	1	50		1				1
	pelvis	2	2	100		2	1			3
Forelimb	humerus	0		0						0
	Ulna	4		0						0

Phase 11	Pig	NISP	N Bt	% Bt	Shatter	Chop	Cut	Saw	Other	Total
	Radius	2		0						0
Hindlimb	femur	8	5	63	1	4	1			6
	tibia	2		0						0
	astragalus	0		0						0
	calcaneum	1		0						0
Metap	metacarpal	1		0						0
	metatarsal	3	1	33			1			1
Phalanges	phalanx 1	1		0						0
	phalanx 2	0		0						0
	phalanx 3	0		0						0
Ribs	proximal ribs	1	1	100			1			1
Total		***39***	***11***	***28***	1	8	4	0	0	13
%					8	62	31	0	0	100

Bone representation tables for cattle, sheep/goat and pig

Key: P=proximal; D=distal; UO= upper orbit; LO=lower orbit; OC=occipital condyle;

The numbers shown below are the basis for the carcass representation analysis in the main text and are Minimum Numbers of Elements (MNE), based on most frequently-occurring zone, not fragment counts. When creating the carcass representation tables, the skull total includes only the most frequent value for the skull zones, rather than adding them together; for example, where Skull (UO)= 1, Skull (LO)=2 and Skull (OC)=1, the skull total would be 2 (in this case the LO value) rather than 4, since the UO and OC could conceivably belong to the same skulls.

Vertebrae and rib totals also include specimens assigned to large and medium mammals and were arrived at using the following methods: Ribs = MNE of zoned ribs plus 1/3 of rib fragments (medium mammal fragments used for both sheep/goat and pig); Cattle and sheep/goat vertebrae: MNE of zoned vertebrae; Pig vertebrae: MNE of zoned vertebrae plus 1/3 medium mammal vertebrae.

Cattle	5.01	5.03	7.01	7.01	7.03	7.03	8	8	8.01	8.02	All 8	8
			Pl. 56	Pl. 57	Pl. 56	Pl. 57	Ar. 10	Pl. 56	Pl. 56	Pl. 56	Pl. 56	Pl. 57
Horncore	0	0	1	3	0	4	4	1	0	2	3	2
Skull UO	0	0	1	0	3	2	3	0	1	1	2	1
Skull LO	0	1	2	2	4	1	0	1	0	0	1	0
Skull OC	0	0	0	1	1	0	2	0	0	1	1	1
Maxilla	0	0	2	3	0	2	0	1	0	0	1	0
Mandible	2	1	9	6	10	4	4	2	0	0	2	4
Atlas	1	1	1	2	2	1	3	1	2	0	3	1
Axis	0	0	1	1	0	0	1	0	1	0	1	0
Scapula D	1	2	6	9	4	3	9	1	1	1	3	4
Humerus P	0	0	2	3	2	0	2	0	1	1	2	0
Humerus D	0	0	6	6	6	1	6	0	1	1	2	4
Ulna P	3	1	2	7	5	2	2	1	0	1	2	1
Radius P	2	1	0	11	5	2	4	2	2	2	6	0
Radius D	1	0	3	7	2	0	6	0	1	3	4	2
Metacarpal P	1	0	6	10	10	0	4	0	1	2	3	2
Metacarpal D	1	0	5	6	8	2	3	0	0	0	0	2
Pelvis	3	0	4	8	4	5	6	1	1	2	4	3
Femur P	2	0	0	1	2	2	3	2	2	0	2	1
Femur D	1	0	1	2	1	2	2	0	0	1	1	1
Tibia P	2	0	0	4	3	1	2	1	0	1	2	1
Tibia D	0	0	3	6	3	2	4	0	1	1	2	5

Cattle	**5.01**	**5.03**	**7.01**	**7.01**	**7.03**	**7.03**	**8**	**8**	**8.01**	**8.02**	**All 8**	**8**
			Pl. 56	**Pl. 57**	**Pl. 56**	**Pl. 57**	**Ar. 10**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 57**
Astragalus	0	0	2	3	3	1	0	0	0	0	0	0
Calcaneum	2	0	2	0	6	3	1	1	0	0	1	1
Metatarsal P	0	0	5	12	15	2	3	1	0	2	3	1
Metatarsal D	0	0	5	10	13	2	6	1	1	3	5	2
Phalanx 1	2	0	0	7	6	7	8	0	1	5	6	2
Phalanx 2	0	0	1	1	0	0	1	0	0	1	1	0
Phalanx 3	1	0	0	1	3	0	2	1	0	2	3	0
Ribs	8	7	21	40	39	22	8	18	17	10	45	19
Vertebrae	2	0	5	21	19	11	5	6	2	2	10	13
	35	*14*	*96*	*193*	*179*	*84*	*104*	*42*	*36*	*45*	*121*	*73*

Cattle	**9**	**9**	**9**	**9**	**9**	**10.01**	**10.02**	**10**	**10**	**10**	**10**	**11**	**11**
	Ar. 10	**Ar. 4**	**Pl. 56**	**Pl. 57**	**Pl.58**	**Ar. 10**	**Ar. 10**	**Ar. 4**	**Pl. 56**	**Pl. 57**	**Pl. 58**	**Ar. 10**	**Pl. 57**
Horncore	0	0	2	0	0	0	0	0	0	1	0	2	0
Skull UO	1	0	1	0	0	0	0	0	1	3	0	0	2
Skull LO	0	0	0	1	0	0	0	0	0	2	0	1	2
Skull OC	0	0	0	0	0	0	0	0	0	2	0	1	0
Maxilla	2	0	1	0	0	1	0	0	0	3	0	2	2
Mandible	1	2	6	1	1	2	2	2	2	4	0	7	3
Atlas	1	0	1	0	0	0	0	1	1	1	0	1	2
Axis	1	1	1	0	0	0	0	1	1	2	0	1	0
Scapula D	2	1	2	1	1	2	1	0	11	2	1	5	1
Humerus P	0	1	2	1	0	0	0	1	5	1	0	1	0
Humerus D	0	0	2	0	0	1	1	1	5	5	1	1	0
Ulna P	2	0	1	1	0	1	1	1	5	2	2	3	1
Radius P	1	0	3	1	1	2	1	4	2	1	0	4	0
Radius D	1	0	3	0	0	1	0	1	4	1	1	4	0
Metacarpal P	5	1	6	0	0	1	5	1	3	2	2	7	2
Metacarpal D	6	1	5	2	0	4	5	2	3	2	0	3	0
Pelvis	3	1	5	0	1	1	1	2	4	1	1	6	1
Femur P	3	0	1	1	0	0	2	1	5	0	1	10	0
Femur D	1	2	3	0	0	0	2	1	4	1	1	10	1
Tibia P	0	0	4	0	0	0	0	3	8	1	2	3	0
Tibia D	2	2	3	0	0	2	0	1	4	2	0	2	0
Astragalus	0	0	0	0	0	0	0	2	1	1	0	2	0
Calcaneum	2	1	0	0	1	0	2	2	8	0	0	0	1
Metatarsal P	2	0	5	0	0	6	6	2	2	1	1	1	2
Metatarsal D	4	0	6	0	0	5	3	3	4	1	0	3	6
Phalanx 1	7	0	0	1	0	1	5	2	12	2	0	7	1
Phalanx 2	4	0	0	0	0	5	7	1	7	1	2	2	0
Phalanx 3	3	0	1	0	0	4	1	1	4	0	2	0	0
Ribs	13	13	19	5	4	5	12	11	48	19	10	25	10
Vertebrae	4	0	7	1	0	5	7	8	16	5	1	16	4
	71	*26*	*90*	*16*	*9*	*49*	*64*	*55*	*170*	*69*	*28*	*130*	*41*

Sheep/goat	**5.01**	**5.03**	**7.01**		**7.03**		**8**	**8**	**8.01**	**8.02**	**All 8**	**8**
			Pl. 56	**Pl. 57**	**Pl. 56**	**Pl. 57**	**Ar.10**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 57**
Horncore	0	0	2	6	0	2	0	0	0	0	0	2
Skull UO	1	0	2	1	1	5	1	0	1	2	3	1
Skull LO	0	0	0	2	0	0	0	0	0	0	0	0
Skull OC	0	0	0	2	0	0	0	0	0	0	0	2
Maxilla	0	1	0	4	0	3	1	1	1	2	4	2
Mandible	2	1	4	11	11	14	1	2	5	2	9	5
Atlas	0	0	1	1	0	1	0	1	0	2	3	0
Axis	0	0	1	0	1	3	1	2	1	0	3	0
Scapula D	1	0	3	5	6	4	1	4	1	4	9	7
Humerus P	0	0	1	1	0	2	0	3	0	1	4	1
Humerus D	0	0	0	4	3	6	2	7	2	1	10	2
Ulna P	2	0	1	2	1	5	1	1	2	1	4	2
Radius P	3	0	3	8	9	9	0	4	1	2	7	0
Radius D	1	0	3	8	4	6	0	3	2	3	8	0
Metacarpal P	1	3	1	3	5	8	1	3	1	4	8	6
Metacarpal D	1	1	2	5	4	9	0	4	2	6	12	5
Pelvis	2	0	2	5	2	7	1	3	5	5	13	6
Femur P	0	0	1	1	4	4	0	1	1	1	3	2
Femur D	1	0	0	5	2	3	1	0	1	2	3	2
Tibia P	2	1	3	5	3	8	1	2	1	1	4	2
Tibia D	3	2	2	8	4	11	1	3	2	2	7	1
Astragalus	0	0	0	3	0	0	1	0	0	1	1	0
Calcaneum	2	0	1	2	4	0	0	0	3	0	3	1
Metatarsal P	2	2	5	12	8	12	1	1	0	2	3	2
Metatarsal D	2	1	5	10	7	12	2	2	0	1	3	0
Phalanx 1	0	0	0	0	3	2	1	2	1	2	5	0
Phalanx 2	0	0	0	2	0	0	0	0	0	0	0	0
Phalanx 3	0	0	0	0	0	0	0	0	0	0	0	0
Ribs	10	16	4	25	48	52	9	20	15	26	61	30
Vertebrae	7	1	4	19	10	11	5	2	6	15	23	9
	43	*29*	*51*	*160*	*140*	*199*	*32*	*71*	*54*	*88*	*213*	*90*

Sheep/goat	**9**	**9**	**9**	**9**	**9**	**10.01**	**10.02**	**10**	**10**	**10**	**10**	**11**	**11**
	Ar.10	**Ar. 4**	**Pl. 56**	**Pl. 57**	**Pl. 58**	**Ar.10**	**Ar. 10**	**Ar.4**	**Pl. 56**	**Pl. 57**	**Pl. 58**	**Ar. 10**	**Pl. 57**
Horncore	3	2	3	0	0	1	1	1	0	0	1	1	2
Skull UO	0	0	4	0	0	0	2	0	0	2	0	2	2
Skull LO	1	0	1	0	0	0	4	0	0	4	0	1	0
Skull OC	3	0	3	0	0	0	3	6	0	1	0	0	0
Maxilla	1	0	4	0	0	2	2	0	0	3	2	1	2
Mandible	3	0	8	4	0	1	3	5	1	8	2	4	1
Atlas	1	0	1	0	0	1	0	1	0	0	0	1	0
Axis	0	1	0	0	0	0	1	0	0	0	2	1	0
Scapula D	1	2	0	1	2	1	3	4	4	7	4	7	2
Humerus P	2	0	1	0	0	0	2	0	3	2	1	1	0
Humerus D	2	0	4	0	1	0	2	0	8	3	2	2	2
Ulna P	1	0	1	0	1	2	0	2	6	3	1	2	0

Sheep/goat	**9**	**9**	**9**	**9**	**9**	**10.01**	**10.02**	**10**	**10**	**10**	**10**	**11**	**11**
	Ar.10	**Ar. 4**	**Pl. 56**	**Pl. 57**	**Pl. 58**	**Ar.10**	**Ar. 10**	**Ar.4**	**Pl. 56**	**Pl. 57**	**Pl. 58**	**Ar. 10**	**Pl. 57**
Radius P	4	5	1	1	0	0	2	2	15	7	1	0	2
Radius D	1	2	2	2	0	1	2	2	12	6	3	1	3
Metacarpal P	3	0	6	1	0	1	0	1	4	5	1	7	2
Metacarpal D	3	1	4	1	0	1	1	1	1	6	2	9	2
Pelvis	0	3	5	0	1	2	2	3	10	2	2	2	4
Femur P	0	0	0	0	0	2	0	2	4	3	0	3	0
Femur D	1	0	1	0	0	1	3	3	2	4	1	4	1
Tibia P	2	3	2	1	1	3	2	1	11	5	2	2	4
Tibia D	1	2	4	0	1	1	3	2	4	5	1	0	1
Astragalus	1	0	1	0	0	0	1	0	2	0	0	1	0
Calcaneum	2	1	0	0	0	0	0	0	1	2	1	1	0
Metatarsal P	2	1	1	1	2	1	0	1	2	3	3	5	1
Metatarsal D	1	1	1	1	0	1	0	2	1	3	4	6	2
Phalanx 1	4	0	1	0	0	2	0	2	1	1	6	2	0
Phalanx 2	0	0	0	0	0	1	0	0	0	0	1	0	0
Phalanx 3	0	0	0	0	0	1	0	0	0	0	0	0	0
Ribs	23	22	4	1	2	25	19	13	78	28	35	23	8
Vertebrae	6	4	16	3	4	9	13	4	34	9	5	7	4
	72	*50*	*79*	*17*	*15*	*60*	*71*	*58*	*204*	*122*	*83*	*96*	*45*

Pig	**5.01**	**5.03**	**7.01**		**7.03**		**8**	**8**	**8.01**	**8.02**	**All 8**	**8**
			Pl. 56	**Pl. 57**	**Pl. 56**	**Pl. 57**	**Ar.10**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 57**
Skull UO	0	0	1	0	2	0	1	0	0	2	2	1
Skull LO	0	0	0	1	0	0	0	0	0	0	0	1
Skull OC	0	0	0	0	1	0	0	0	0	0	0	2
Maxilla	1	0	4	5	0	2	3	2	2	1	5	2
Mandible	0	0	2	4	5	3	0	1	1	3	5	1
Atlas	0	0	0	2	0	0	0	1	0	1	2	0
Axis	0	0	0	0	0	0	0	0	1	0	1	0
Scapula D	0	1	1	3	0	2	2	2	1	0	3	1
Humerus P	2	0	3	0	0	1	0	1	0	0	1	0
Humerus D	2	1	0	1	0	3	0	2	0	1	3	0
Ulna P	1	1	0	7	3	3	1	1	0	2	3	2
Radius P	0	0	1	3	0	0	0	0	1	2	3	0
Radius D	0	0	1	1	0	0	0	0	0	1	1	0
Metacarpal P	1	2	2	6	3	1	0	0	1	1	2	1
Metacarpal D	1	2	0	5	3	1	0	0	0	1	1	1
Pelvis	2	0	0	2	3	1	1	1	0	2	3	4
Femur P	0	0	0	0	0	0	0	0	1	0	1	1
Femur D	0	1	1	0	0	2	2	0	1	0	1	1
Tibia P	0	0	0	3	2	1	2	0	0	0	0	2
Tibia D	0	0	0	4	3	0	1	0	0	0	0	3
Astragalus	0	0	0	0	3	1	0	1	1	0	2	1
Calcaneum	0	0	0	2	4	0	0	2	0	1	3	0
Metatarsal P	1	0	0	2	2	1	1	2	1	1	4	2
Metatarsal D	1	0	0	0	2	1	0	2	1	1	4	2

Pig	**5.01**	**5.03**	**7.01**		**7.03**		**8**	**8**	**8.01**	**8.02**	**All 8**	**8**
			Pl. 56	**Pl. 57**	**Pl. 56**	**Pl. 57**	**Ar.10**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 56**	**Pl. 57**
Phalanx 1	0	1	0	0	2	2	0	0	2	1	3	0
Phalanx 2	0	0	0	0	0	0	0	0	0	0	0	0
Phalanx 3	0	0	0	0	0	0	0	0	0	0	0	0
Ribs	1	7	3	9	37	15	3	9	5	8	22	35
Vertebrae	2	1	1	6	3	6	3	0	2	9	11	6
	15	*17*	*20*	*66*	*78*	*46*	*20*	*27*	*21*	*38*	*86*	*69*

Pig	**9**	**9**	**9**	**9**	**9**	**10.01**	**10.02**	**10**	**10**	**10**	**10**	**11**
	Pl.57	**Pl. 58**	**Ar.10**	**Ar. 4**	**Pl. 56**	**Ar.10**	**Ar.10**	**Ar. 4**	**Pl. 56**	**Pl. 57**	**Pl. 58**	**Ar. 10**
Skull UO	0	0	2	1	0	0	0	0	2	3	1	1
Skull LO	0	0	2	0	0	0	1	0	0	4	0	0
Skull OC	0	0	1	1	0	0	0	0	0	1	0	0
Maxilla	0	0	2	0	0	1	2	0	1	4	3	1
Mandible	0	0	1	0	3	0	0	1	4	10	0	3
Atlas	0	0	0	0	0	0	0	0	2	2	0	0
Axis	0	0	1	0	0	0	0	0	1	1	0	0
Scapula D	0	0	1	2	1	1	1	1	2	8	1	1
Humerus P	0	0	3	0	2	1	0	3	3	11	0	0
Humerus D	0	2	1	2	2	0	1	2	8	14	1	0
Ulna P	0	0	1	0	1	0	2	1	1	13	3	1
Radius P	0	0	0	1	3	0	0	1	0	12	0	0
Radius D	0	0	0	0	2	0	1	1	3	11	0	0
Metacarpal P	0	0	1	0	1	0	0	1	0	8	0	0
Metacarpal D	0	0	1	0	1	0	0	1	0	8	0	0
Pelvis	1	0	2	0	1	1	0	1	4	7	0	2
Femur P	0	0	1	1	1	0	0	1	0	12	3	5
Femur D	0	0	0	0	1	0	0	1	2	13	2	5
Tibia P	2	1	4	0	1	0	1	1	3	10	0	1
Tibia D	1	0	2	0	2	0	0	1	3	10	0	1
Astragalus	0	0	0	0	0	0	0	0	0	3	1	0
Calcaneum	2	0	1	1	0	0	0	0	1	3	1	1
Metatarsal P	0	0	3	1	0	0	1	0	3	8	0	1
Metatarsal D	1	0	3	1	0	0	1	0	3	8	2	1
Phalanx 1	1	0	0	0	0	0	0	0	4	1	1	0
Phalanx 2	0	0	2	0	0	1	0	1	3	1	0	0
Phalanx 3	0	0	1	0	0	1	0	1	0	1	0	0
Ribs	1	4	15	6	8	7	7	8	47	74	14	9
Vertebrae	0	0	2	1	1	4	4	2	15	27	2	3
	9	*7*	*53*	*18*	*31*	*17*	*22*	*29*	*115*	*288*	*35*	*36*

THE FISH REMAINS *Rebecca A. Nicholson*

Introduction

Three, relatively small assemblages of fish remains were recovered from Freeschool Lane, Vine Street and St Margarets Baths from 95 of the sieved soil samples (1-11L) and by hand collection. 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 St. Margarets 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.

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 195. Identifications are to species where possible but otherwise to genus or family. Bones which were not identified but which were considered potentially identifiable (ie 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

Although the site was free-draining, bone preservation was generally good. Unusually, the assemblage was dominated from small and tiny bones and scales, from freshwater and euryhaline fish and a very limited range of marine taxa. Numbers of bones were relatively low, but to a large extent this is a function of the small volumes of soil sieved per sample. Flots and residues were sorted down to 0.3mm and 1mm respectively, which has resulted in the recovery of tiny bones and scale fragments.

Roman

Only three bones and five scales were recovered from the sieved samples, all from burnt pit fill sub-group 5007. Only perch (*Perca fluviatilis*) and eel *(Anguilla anguilla*) were identified, both probably caught in nearby rivers or streams. The small assemblage was unburnt, despite the context, and therefore may be non-contemporaneous.

Saxo-Norman

Eighty two bones and three scales were identified, from ashy deposits in phase 7.01 and from cessy fills and well fill 5106 in phase 7.03. Again, none of the bones from the ashy fills was burnt, but several of those recovered from deposits described as cess pit fills appeared to have been chewed. The species identified included herring (*Clupea harengus*), eel (*Anguilla anguilla*), perch (*Perca fluviatilis*), indeterminate cyprinid(s) (Cyprinidae), pike (*Esox lucius*) as well as three-spined stickleback (*Gasterosteus aculeatus*). All the remains were from small and tiny fish and the distorted appearance and cessy concretions on many bones suggested that at least a proportion of those recovered from the cessy fills had been chewed and possibly had actually been eaten.

Early Medieval (c. 1100-1250)

The twenty seven bones and two scales came from well/pit fill sub-group 1248, charcoal layer sub-group 1100 and well fill sub-group 6406. Eel, perch and a cyprinid were probably caught locally, while herring, a cod (*Gadus morhua*) of over 600mm and horse mackerel

(*Trachurus trachurus*) must have been imported from the coast, possibly as preserved fish. Another member of the cod family, ling (*Molva cf. molva*) was identified from a hand-collected cleithrum fragment and may also have been preserved (see below).

Medieval (c.1250-1400)

From an assemblage of only 79 bones and 8 scales, eel, perch, a tiny trout (*Salmo trutta*) and cyprinid(s), the latter probably including roach (*Rutilus rutilus*) were identified and represent fish caught in freshwater. Herring was the only sea fish present. Although the archaeological remains include large numbers of cess pits and wells dating to the 11th-13th centuries (unpublished site information), remarkably few fish remains were recovered from this type of feature, with most bones coming from a miscellaneous layer, subgroup 3945 and a charcoal deposit within privy fill PR3204. Large (0.6-1.0m) and extra large (over 1.0m) cod and ling were represented by caudal vertebrae and cleithra hand collected on site. These skeletal elements are typically those left in stockfish, a hard, wind-dried product traded across Europe in the medieval period. A caudal vertebra from an extremely large halibut (*Hippoglossus hippoglossus*) of well over 1.0m is likely also to have come from a preserved fish. A ray or small shark (Elasmobranchii) vertebra was also recovered by hand collection.

Late Medieval (c. 1400-1500)

While the population density within the north-east quarter of Leicester seems to have been slight during the later medieval centuries, the fish assemblage from this period is slightly larger than that from the preceding ones. Pit fills within sub-group 1111 produced 40 fish bones and scales, while oven fill L3628 contained a few unburnt bones and a sample from privy fill 5953 included over 50 bones and scales, some of which appeared to have been chewed.

Euryhaline and freshwater fish again included eels, stickleback, perch and small cyprinid(s), while a greater range of marine fish were identified in addition to the ubiquitous herring, including haddock (*Melanogrammus aeglefinus*), small ray (Rajidae) or dogfish (Scyliorhinidae) and flatfish, including plaice (*Pleuronectes platessa*).

Bone recovered by hand was largely from large gadids (cod, ling and haddock) together with a single bone from plaice and thirteen almost certainly articulated vertebrae from a small shark (Pleurotremata) found in pit fill 5374. Five probably articulating vertebrae from a smaller individual from the same species were recovered from layer 6113. With the exception of a precaudal (abdominal) vertebra from ling, the large cod and ling bones were again those which would be found in a preserved fish – posterior caudal vertebrae and cleithra together with a basipterygium. By contrast, both precaudal and caudal haddock vertebrae and a dentary (jaw element) from whiting (*Merlangius merlangus*) suggest that these may have been sold as fresh fish. Two head bones from herring and a single eel vertebra were also identified

Post medieval and early modern (1500-1900)

Only five bones were recovered from the sieved soil samples, from a medium-sized (40-50cm) cod, a ray or dogfish, and unidentified flatfish and tiny perch.

All thirty hand recovered bones from phase 11 were typical of skeletal elements retained within preserved stockfish. Large cod and ling were identified, while a collection of thirteen fin rays were almost certainly from a large gadid. An oblique chop to the anterior facet of on of a pair of articulating precaudal (abdominal) ling vertebrae is consistent with beheading.

Discussion

Bounded by the medieval street of St. Peters Lane to the north and the Shires development to the east, the site of Freeschool Lane is directly adjacent to previous excavations in Leicester city centre. Consequently, the findings of this report can be directly compared with those published previously (Nicholson 1993a). As has been observed before (*ibid*.), the range of taxa present at all periods is relatively limited, not only when compared with coastal settlements but also when compared with assemblages from towns further away from the sea such as York (several assemblages summarized by Enghoff 2000), Oxford (Nicholson 2007) and Winchester (Nicholson 2008). To an extent this characteristic may be the product of the small soil volumes processed per sample; however, when all samples are considered together the same pattern remains true – variability in species composition between samples of similar date is fairly restricted, particularly for sea fish, many of which are likely to have been imported pickled, salted or dried. While the proportion of freshwater and migratory fish generally decreased in assemblages from Britain dating to the centuries before and after the turn of the first millennium (Barrett *et al*. 2004) these fish remain important in medieval Leicester as in Lincoln (Dobney *et al*. 1996), presumably a consequence of the cost of transporting fresh fish the considerable distance from the coast in these areas.

Apart from herring, which occurs in all periods, other sea fish are much more common in the medieval and post medieval centuries, although this increase is only apparent when the hand-collected assemblage is considered together with the sieved remains. An increase in marine taxa is consistent with the pattern described at The Shires and Causeway Lane (Nicholson 1993a; Nicholson 1999) and with the trend summarized by Barrett *et al*. (2004) and reflects the commercialization of fishing and concomitant expansion in fish trade in the centuries after 1000AD. Together with herrings, salt or dried fish of the cod family (stockfish, klipfisk or hardfish) formed standard poor-man's fare (Bond 1988, 73) but were also supplied to wealthy households.

While the frequency of saltwater fish increases through time, the usual pattern is for the exploitation of freshwater fish to decrease (see above). At Freeschool Lane, freshwater fish continue to be significant throughout the medieval period and rather surprisingly many of the bones come from tiny fish of less than 15cm. Even stickleback are present, their bones being relatively frequent in Saxo-Norman cess pit fill 6025 (sample 230) but also present in a fill of late medieval pit 3127. While sticklebacks seem an unlikely food, and may have derived from the guts of larger carnivorous fish (pike, for example) the occurrence of sticklebacks in cess pit deposits from a range of sites including Abingdon Cinema (Nicholson 2006) and possibly at Causeway Lane, Leicester (Nicholson 1999) suggests that these fish together with other tiny freshwater fish were not just caught by accident, but that they formed a significant food. In many cases these bones were encrusted with cess and occasionally appeared crushed in a manner consistent with chewing (see for example illustrations in Jones 1984). While seemingly a poor cousin to marine fish in the Roman period, larger freshwater fish commanded a high price in the medieval period, and was therefore the food of wealthy householders (Dyer 1988, 30). However, written accounts show that small and even tiny freshwater fish including minnows were eaten (Cutting 1955, 27; 1962) and these were within the reach of the less well-off. Dyer (1988, 31) cites the following prices based on 1461

records from south Staffordshire: pike 12d., tench 6d., chub 4 1/2d., perch 2d., small roach and dace 1/4d., eel 1 1/2d, saltfish 8d., stockfish 3d., plaice/flounder 1/2d., and herring 1/4d.

Table 195 The fish remains: numbers of fish bones and scales (in brackets) from soil samples taken at Freeschool Lane.

SPECIES	Roman	Saxo-Norman	Early Medieval	Medieval	Late Medieval	Early Post-medieval	Grand Total
Elasmobranchii-elasmobranchs					1	1	2
Clupea harengus – herring		20	7	11	10		48
Clupeidae- herring fam.		(1sc)			5		5
Salmo trutta - trout				1			1
Anguilla anguilla- eel	1	7	14	2	20		44
Cyprinidae – carp fam.		3	(1 sc)	7 (4sc)	1 (3sc)		20
*Rutilus/Leuciscu*s sp. – roach/dace/chub					1		1
Rutilus rutilus- roach				1			1
cf. *Rutilus rutilus*				1			1
Esox lucius- pike		(2 sc)					2
Gadus morhua – cod			2			1	3
Melanogrammus aeglefinus - haddock					1		1
Perca fluviatilis - perch	1 (5sc)	7	1 (1sc)	2 (1sc)	(1sc)	1	20
Percidae – perch/ruffe		1		2 (1sc)			4
Gasterosteus aculeatus- 3 spined stickleback		5			1		6
Trachurus trachurus -scad			1				1
Flatfish					1	1	2
Pleuronectes platessa- plaice					1		1
Indeterminate	1 (2sc)	34	2	50	55		144
Unidentified		5		2 (2sc)	6	1	15
Grand Total	3 (7sc)	82 (3sc)	27 (2sc)	79 (8sc)	103 (4sc)	5	322

Table 196 the fish remains: numbers of fish bones hand collected at Freeschool Lane

SPECIES	Saxo-Norman	Early Medieval	Medieval	Late Medieval	Early Post-medieval	Grand Total
Elasmobranchii- elasmobranchs				18		18
Rajidae – rays			1	1		2
Clupea harengus- herring				3		3
Anguilla anguilla –eel				1		1
Gadidae – cod family		6	2	5	9	22
Gadus morhua-cod			2	28	1	31
Melanogrammus aeglefinus-haddock				5		5
Merlangius merlangus- whiting				1		1
Molva cf. molva – ling			1	1	2	4
Hippoglossus hippoglossus- halibut			1			1
Pleuronectidae- Right eyed flatfish				2		2
Indeterminate	1		4	46	18	69
Unidentified				1		1
Grand Total	1	6	11	112	30	160

THE PLANT REMAINS *Anita Radini*

With a contribution from Angela Monckton

Introduction

During the excavation, environmental samples were taken in order to enable the recovery of both plant and animal remains which would provide evidence of domestic and other activities on the site, as well as evidence of food and trade. Such information would not only aid the interpretation of features on the site itself but build on the existing town-wide knowledge base provided by the analysis of samples from previous excavations such as The Shires (Moffett 1994), Causeway Lane (Monckton 1999) and Bonners Lane (Monckton 2004). The Freeschool Lane site is particularly important because, unlike many other sites across the town, the medieval street frontages and floors were preserved in association with their back yards. It has therefore been possible to investigate both the diet and status of the inhabitants from the remains in cesspits and rubbish pits as well as trade activities such as brewing, which have not been previously studied in the town.

Methods

Two hundred samples were selected for the analysis of plant remains, processed in a sieving tank with 0.5mm mesh and flotation into a 0.3mm mesh sieve. Residues were all air dried and separated on a 4mm mesh riddle; the coarse fractions (CF), over 4mm were sorted for all environmental remains and other finds whilst the fine fractions (FF), below 4mm, were reserved for sorting during the analysis stage if required. The flotation fractions (flots) were transferred from the sieve into plastic boxes and air dried. This work was carried out by Alex Beacock and Anita Radini at ULAS. A total volume of 970 litres was sieved (1.10 tonnes).

All flots from the samples were scanned noting the species present and giving an indication of abundance of each category on a scale from 1 to 3: +, present in low numbers; ++, in moderate amounts, and +++, very abundant. The 122 most interesting samples are represented in an overall table held in archive, the volume of soil processed for these selected samples is given by phase in Table 197. The site was divided into five main areas comprising different types of archaeological features such as floors, ovens, malting kilns, cess pits and layers, all with varying potential for analysis. The most representative 40 samples were then fully quantified and tabulated (tables Table 198, Table 199, , Table 201). The most significant of the rest of the samples are mentioned in the text as scanned samples.

Table 197 The plant remains: volume of soil by phase of selected samples.

Phase	Volume (litres)
Roman	57.2
Saxon	64.8
Saxon-Norman	98.9
Early Medieval	71
Medieval	173.3
Late Medieval	246
Total	711.2

Criteria for analysis

Due to the large number of samples and the richness of plant remains found in over half of them, the following criteria were used to select the samples to represent the site:

To investigate variation across both space and time
All Roman and Saxon samples were analysed because of the paucity of the former from this site, and the national rarity of the latter from urban contexts.
Priority was given to those samples demonstrating the continuity of human occupation on the site from Roman to late Medieval
Malting kilns and ovens were also chosen because of the large assemblages found in them and the need to elucidate the function of the structures and the trades to which they related.
Cesspits were also targeted for the information they provide about diet and living conditions.

Identification and nomenclature

The identification was carried out using the ULAS reference collection consisting of both modern and archaeological plant material. In the case of charred grains and chaff, artificially charred modern remains were particularly useful. Cereal grains too damaged to identify further were classed as indeterminate cereal. The reliability of the identification to the Family level is high. Following common practice the word *cf.* has been put before the species, when the comparison with the taxa could not be carried out or was not sufficiently clear because of poor preservation and because some groups of seeds, particularly the small leguminous seeds and Brassicaceae, are difficult to distinguish when charred. Moreover, the word *type* means that the material has been described only on the basis of morphology, and the identification presented is an indication but cannot be considered certain. The identification described as *cf.*, has a higher level of confidence than the identification described with *type*.

Preservation

The most common form of preservation found was by charring, with charred plant remains being found in almost all samples examined. The second largest group of remains found were those preserved by mineralisation, mainly from samples from cesspit contexts. These plant remains belonged mainly to food plants and some were exceptionally well-preserved. In addition, some uncharred remains that were not mineralized or waterlogged were recovered. These were mainly represented by elder (*Sambucus nigra)* and blackberry (*Rubus* spp.) pips; both of which are often found uncharred on archaeological sites. Whilst there is some debate over how long different uncharred seeds can survive in the soil, previous work in Leicester, at The Shires, has demonstrated that elder seeds from archaeological contexts were medieval (Moffett 1994). Seeds of Cyperaceae and Asteraceae were also found uncharred in a few samples; in all cases the internal part of the seeds was absent and only the outer coat, for some reason, survived.

Presentation of Results

The results of the analysis will be discussed in period order, from Roman to Late Medieval. In each period the results will be described according to phase and by Area within the phases. Because many contained abundant plant remains, more than 90 samples will be discussed in detail in the following part of the report. The ecological significance and the possible uses of these plants are discussed in Phase 7 and additional plants are referred to where they occur.

Table 198 The plant remains: phases 2-7

A8.2005 Table 198											
Sample	**172**	**169**	**7**	**17**	**18**	**308**	**306**	**215**	**219**	**303**	
context	1445	1442	2037	2051	2051	6357	6353	5436	5445	6304	
Area	4	4	7	7	7	1	1	1	1	1	
Phase	2	2	5.03	5.03	5.03	7.01	7.01	7.01	7.01	7.01	
Sub-group	L132 3	L132 3	SFB 2046	SFB 2046	SFB 2046	-	G50 09	G50 08	G50 08	G50 30	
Feature type	Brnt soil	Brnt soil	SFB	SFB	SFB	L.	Hth. Fill	over mac	over mac	org. layer	
Cereal chaff											**Cereal chaff**
Triticum aestivum L. rachis								5			Bread wheat
Triticum free-threshing rachis								7			Free-threshing wheat
Hordeum vulgare L. rachis								8			Barley
Cereal grains											**Cereal grains**
Triticum spelta L.	4										Spelt
Triticum cf *aestivum*			20	8	12					99	Bread wheat ty.
Triticum sp. grain	1	2	3			6		15		12	Wheat
Triticum sp. sprouting grain?					1						Wheat
cf. *Secale cereale* L.					2						Rye
Hordeum vulgare L. hulled	1			4	3	2	3	1	6	8	Hulled barley
Hordeum vulgare L. hulled sprouted					1						Hulled barley
Avena sativa culitivated type							7		32	7	Oat, cultivated type
Avena sativa culitivated sprouted									13		Oat, cultivated type
Avena sp.						2	3		11		Oats
Cereal/Poaceae	6	2		12	1						Cereal/Grasses
Cereal embryos									x		Cereal embryos
Cereal sprouts, charred						x			x		Cereal sprouts
Cultivated, Collected											**Food plants**
Olea europea L.		3									Olive
Corylus avellana L. nutshell frags	1	56		1					4		Hazel nutshell frags
Rubus fruticosus L. Agg (m)									6	11	Bramble
Prunus spinosa L.									1		Sloe
Vitis vinifera L. charred	2										Grape pips
Arable/Disturbed Ground											**Weeds**
Crepis sp.								1			Hawk's beard
Daucus carota L.								5			Wild carrot
cf. *Daucus carota* L.								1			Wild carrot
Fallopia convolvulus (L.) A.Love									1		Black bindweed
Thlapsi arvense L.									1		Field pennycress
Chenopodium sp.	3					1	1			1	Goosefoots
Chenopodium album type									2		Fat-hen
Agrostemma githago L.								3	1		Corn Cockle
Galium aparine L.						1					Cleavers
Rumex sp.									1		Docks
Rumex cf *acetosella* L.								1			Sheep's Sorrel
Stellaria sp.	1										Chickweed type
Chenopodium spp.								3			Goosefoots
Vicia sp.					1						Vetches
Grassland											**Grassland**
Plantago lanceolata L.								1			Ribwort Plantain
Hedge or Woodland											**Woody**
Sambucus nigra L. seeds (un)	3	6		1						19	Elder uncharred seeds
Sambucus nigra L. seeds (ch)	1										Elder charred sees
Unclassified											**Unclassified**
Silene sp.	1								2		Campion type
Atriplex type									1		Orches
Brassicaceae						3	2				Cabbage Family
Asteraceae								1			Daisy Family
Cyperaceae	1					2	2				Sedge Family

Carex spp. (2-sided)	2										Sedges
Carex spp. (3-sided)	1									2	Sedges
Carex/Rumex									3		Sedges/Docks
Eleocharis sp.	1										Sedges
Poaceae (small)		2						12			Small Grasses
Poaceae (small) m	1										Small Grasses
Poacea (large)						6	4	33			Large Grasses
Indeterminate seeds (fragments)	3		2		1			11	3	4	Indet. seed frags
Indeterminate seeds (m)											Indet. seeds (m)
Culm node small	x							x	x	x	Grass stem
Fragments	x		x	x		x			x		Fragments
total	33	71	25	26	22	23	22	108	88	163	***total***
Sample	**172**	**169**	**7**	**17**	**18**	**308**	**306**	**215**	**219.1**	**303.1**	**Sample**
flot volume ml	15	75	25	65	50	100	125	50	500	60	(mls)
flot volume analysed %	100	100	100	100	100	100	100	50	10	30	% analysed
Sample Volume L	5.0	3.0	4.0	4.0	10.0	5.2	6.8	5.0	6.0	6.5	(litres)
Density: items/L of soil	6	23	6	6	2	4	3	43	146	86	items/L

Table 199 The plant remains: phases 7-8

A8.2005 Table 199											
Sample	**187**	**189**	**317**	**318**	**309**	**84**	**262**	**238**	**307**	**141**	
Context	5164	5191	6441	6447	6379	279	**6025**	**5634**	6373	1264	
Area	1	1	1	1	1	1	1	1	1	4	
Phase	7.01	7.01	7.01	7.01	7.03	7.03	7.03	7.03	8	8	
Sub-group	G51 85	G51 85	G64 73	G64 62	G51 06	na	G57 02	G50 14	SG6 406	P124 8	
Feature type	ash L.	soil	soil	Hth.	well fill	L.	cess	pit cess	well fill	org. L.	
Cereal grains											**Cereal grains**
Triticum cf. *aestivum*			3	4			20	52	26	13	Bread wheat type
Triticum free-threshing grain	8	5	7		6	4	34	38		6	Free-threshing wheat
Secale cereale L.								8			Rye
cf. *Secale cereale* L.							4				Rye
Hordeum vulgare L. hulled	5		5	3		3	3		9	3	Hulled barley
Hordeum vulgare L. hulled sprouted				9							Hulled barley
Avena sativa L. culitivated type						6					Oat, cultivated type
Avena sp.	13			6		29		24			Oat (wild?)
Cereal/Poaceae								36		15	Oat/Grass
Cultivated, collected											**Food plants**
Ficus carica L. (m)										1	Fig
Corylus avellana L.						2					Hazel nutshell frags.
Prunus spinosa L.							3				Sloe
Arable/Disturbed Ground											**Weeds**
Cerastium arvense L. (un)								1			Field mouse-ear
Cerastium fontaneum Baumg.								1			Common Mouse-ear
Papaver dubium L.								1			Long-headed Poppy
Chenopodium sp.									1		Goosefoots
Agrostemma githago L.								2			Corncockle
Galium aparine L.							1		1		Cleavers
*Polygonum periscaria/lapathifolium*L.						2					Persicaria
Rumex sp.										1	Docks
Rumex cf. *acetosella* L.								1			Sheep's Sorrel
Brassica/Sinapis								5		1	Cabbages/ Mustard
Chenopodium spp.										2	Goosefoots
Anthemis cotula L.								3			Stinking chamomile
Hedge or Woodland											**Woody**
Sambucus nigra L. (u)					2		xxx	xx	11		Elder
Unclassified											**Unclassified**
Mentha sp.(m)								1			Mint
Brassicaceae							1	1		1	Cabbage family
Medicago/Meliolotus/ Trifolium								1			Clover type
Medicago/Meliolotus/ Trifolium (m)							3	1			Clover type (m)
Asteraceae							2	1			Daisy Family
Cyperaceae		1					6				Sedge family
Carex spp (3-sided)					1		1	8		2 (m)	Sedges
Carex/Rumex								12			Sedges/Sorrels
Juncus sp.							1	8			Sedges
Eleocharis sp.										1	Sedges
Poaceae (small)				1			11	4		1	Grasses (small)
Poaceae (small) (m)										1	Grasses (small)
Poacea (large)		13	8	15	3		13	21		4	Grasses (Large)
Indeterminate seeds (frags)		4	1	2		1		8	3	2	Indet.seeds (frags)
Other											**Other**
Culm node small								x	x		Grass stem
Fragments			x			7	x				Fragments
total	26	23	24	40	12	54	103	238	51	52	***total***

Sample	**187**	**189**	**317**	**318**	**309**	**84**	**262.2**	**238**	**307**	**141**	**Sample**
flot volume ml	75	50	60	250	25	100	250	125	50	75	(mls)
flot, part analyzed %	100	100	100	100	100	100	80	100	100	100	% analyzed
Sample Volume L	4.0	8.0	7.0	6.0	8.0	3.0	8.6	6.8	7.0	8.0	(litres)
items per litre of soil	6	2	3	7	1	18	129	35	7	6	items/L

Table 200 The plant remains: phase 9

A8.2005 Table 200											
Sample	**290**	**293**	**274**	**282**	**211**	**209**	**207**	**208**	**266**	**289**	
Context	7003	7020	6093	6134	5413	5398	5364	5383	6064	6218	
Area	20	20	1	1	1	1	1	1	1	1	
Phase	9	9	9	9	9.2	9.2	9.2	9.2	9.02	9.02	
Group or sub-group	L7003	L7003	IF5987	IF5987	IF5406	If5406	If5359	If5359	SG6064	SG5838	
Feature type	Ov.L.	L.	Ov.fill	Ov.fill	FL. Ov. area	FL. Ov. area	FL. Ov. area	FL. Ov. area	corn drier fill	(Ov.)	
Cereal chaff											**Chaff**
Triticum spelta L. glume base			1								Spelt
Triticum aestivum L. rachis	2				1						Bread wheat
Secale cereale L. rachis			1								Rye
Hordeum vulgare L. rachis			3								Barley
Avena sp. wild					2						Oats
Cereal grains											**Grains**
Triticum free-threshing grain	123	35		14	1	6					Bread wheat type
Triticum cf. free-threshing grain sprouted			62								Bread wheat type
Triticum sp.	44										Wheat
Secale cereale L.			12	2		3					Rye
cf. *Secale cereale* L.				13							Rye
Hordeum vulgare L. hulled	4	9		25					15		Barley
Hordeum vulgare L. hulled sprouted			172						25		Barley, germinated
Avena sativa culitivated type spikelet	6	23			6	3		12	36	12	Oats
Avena sativa culitivated type sprouted			238	45					62		Oats
Avena sp.	2		75	16	2			6			Oats
Cereal/Poaceae			82								Cereal/Grass
Cereal indet.		32	65	52					87	xxx	Cereal indet.
Embryos, detatched			xx	xx							embryos
Cereal sprouts, charred			xxx	xx							sprouts
Legumes											**Legumes**
Vicia faba v. sativa L.		8			12					4	Beans
*Vicia faba v. minuta*L.					45			32		14	Field bean
cf. Vicia faba v. minuta L.					65						Field bean
Pisum sativum L.					35						Peas
cf. Pisum sativum					43			20		17	Peas
Vicia/Pisum					70	12		60		30	Beans/Peas
Arable/Disturbed Ground											**Weeds**
Chenopodium sp.			23		1						Goosefoots
Galium aparine					3	1		4			Cleavers
Persicaria maculosa/lapthifolia					3						Persicaria
Polygonum aviculare L.					1						Knotgrass
Rumex sp.				12	56	17		12			Docks
Rumex cf. acetosella L.			12		45						Sheep's-sorrel

Brassica/Sinapis					23						Cabbage/ Mustard
Chenopodium spp.			12	5			1			3	Goosefoots
Chrysanthemum segetum			2								Corn Marigold
Tripleurospermum sp.			14								Scentless Mayweed
Brassica/Sinapis			32	6		2				13	Cabbage/ Mustard
Vicia sp.			23	3			3	32	11		Vetches
Lithospermum arvense			4								Corn Gromwell
Anthemis cotula L.			31				2	12	12	2	Stinking Mayweed
Grassland											**Grassland**
Plantago lanceolata L.					4			2			Ribwort Plantain
Hedge or Woodland											**Woody**
Sambucus nigra L. (u)							2		12	2	Elder
Unclassified											**Unclassified**
Stachys cf.sylvatica					1						Woundwort
Reseda luteola					1						Weld
Polygonum sp.					15						Knotweed
Brassicaceae		5	11		3	17	3	5	3		Cabbage family
Medicago/Meliolotus/Trifolium			11	2	4	6		3	12		Clover type
Asteraceae			3								Daisy Family
Carex spp (3-sided)			3	4							Sedges
Poaceae (small) m			12			1	2	3			Grasses
Poaceae (large)			15							35	Grasses
Indeterminate seeds		5	42	3	4	5	5	7	3	12	Indet.
Other											
Fragments	x				x						Fragments
total	181	117	961	202	446	73	18	210	278	144	Total
Sample	**290**	**293**	**274**	**282**	**211**	**209**	**207**	**208**	**266**	**289**	Sample No.
Flot volume ml	25	225	80	30	125	20	60	45	45	200	(mls)
Flot, part analyzed	100	50	20	10	50	100	100	100	100	40%	Sorted %
Sample Volume L	4.0	7.4	2.0	2.0	2.0	2.0	2.5	2.0	6.0	2.0	(litres)
items per litre of soil	45	31	601	1010	446	36	7	105	46	72	Items/litre

Table 201 The plant remains: phases 9-10

A8.2005 Table 201												
Sample	**234**	**218**	**212**	**260**	**49**	**56**	**82**	**259**	**257**	**258**	**300**	**Sample**
context	5622	5452	5287	6024	1118	1119	3170	5992	5970	5979	6112	context
Area	1	1	1	1	4	4	10	1	1	1	1	Area
Phase	9.02	9.02	9.03	9	10	10	10	10	10	10	10	Phase
Group or sub-group	IF5664	IF5503	SG5441	PR6384	P1111	P1111	L3628	PR5953	PR5953	PR5953	PR5953	Group or sub-group
Feature type	Brnt soil	FL. Ov.	pit fill	privy	pit fill	pit fil	L.	privy	privy	privy	privy	feature type
Cereal grains												**Cereal grains**
Triticum free-threshing grain	4	15	17		15	17	32			6	4	Wheat
Secale cereale L.				1				1				Rye
Hordeum vulgare L. hulled		4			1					4	2	Barley
Avena sativa culitivated type spikelet m								1				Oat, cultivated type
Avena sp.		4										Oats
Cereal/Poaceae			13		1							Cereal/Grass
Legumes												**Legumes**
Vicia cf. *faba* L.		12	23		20	12				2		Beans
Vicia/Pisum						168						Bean/Peas
Pisum sativum L. (m)						53				1		Peas
cf. Pisum Sativum					15	12						Peas
Cultivated, Collected												**Fruits, Nuts**
Ficus carica L. (m)				13				16		15		Fig
Corylus avellana L.			1					1				Hazel nutshell
Rubus fruticosus L. agg (m)				6				2				Brambles
Prunus spinosa L.								22		10		Sloe
Prunus sp. small				11				4	3			Plums, small
Prunus sp. kernels cultivated type												Plums, large cultivated
Malus sp. (cultivated?)				16				1	8	7		Apple
Prunus sp. cherry								1				Cherry
Vitis vinifera L. m										1		Grape pips
Arable/Disturbed Ground												**Weeds**
Galium aparine L.		4										Cleavers
Rumex sp.	3					32						Docks
Chenopodium spp.	1	2	1			2						Goosefoots
Brassica/Sinapis		13										Cabbage/ mustards
Vicia sp.		12										Vetches
Lithospermum arvense L.		2										Corn Gromwell
Anthemis cotula L.	1											Stinking Mayweed
Grassland												**Grassland**
Plantago lanceolata L.											3	Ribwort Plantain
Hedge or Woodland												**Woody**
Sambucus nigra L. (u)											3	Elder
Unclassified												**Unclassified**
Brassicaceae	2					4						Cabbage family
Medicago/Meliolotus/Trifolium	3									1		Clover type
Medicago/Meliolotus/Trifolium (m)								2				Clover type
Asteraceae (m)										1		Daisy family
Cyperaceae								1				Sedge family
Carex spp (3-sided)								2		3		Sedges

Poaceae (small) m	3	1					1			1		Grasses, small
Indeterminate seeds (fragments)	11	3					3	4		5		Indeterminate seeds
Indeterminate seeds (m)						1		4				Indeterminate seeds (m)
Other												**Other**
Fragments					x			x				Charred frags
total	28	72	55	47	52	301	36	62	11	57	12	***total***
Sample	**234**	**218**	**212**	**260**	**49.1**	**56**	**82**	**259**	**257**	**258**	**300**	**Sample**
Flot volume ml	75	100	10	250	300	500	500	350	75	90	50	(mls)
Flot part analyzed %	100	50	100	100	25	15	50	100	100	50	100	% analyzed
Sample Volume litres	2.0	2.0	6.0	4.0	4.2	2.5	4.0	8.0	2.6	7.0	6.4	(litres)
items per litre of soil	14	72	9	12	41	775	18	8	4	16	2	items/litre

Key to Tables 201-204: ch = charred, m = mineralized, un = uncharred, L. = layer, Hth. = hearth, Ov. = oven, FL = floor, mac. = macellum, frags = fragments, x = present, xx = common, xxx = abundant.

The Roman Period (Phases 2- 4: mid- 1st to 4th century)

Ten samples were recovered from Roman contexts; two from early Roman burnt soils in Area 4, and eight, very rich in charcoal, from late Roman contexts in Area 1. A summary of the evidence for the main categories of plants; cereals, cultivated and collected and other plants below across the period is followed by more detailed sample information by phase.

Cereals

The cereal remains found in Roman contexts were identified as spelt (*Triticum spelta*), and hulled barley (*Hordeum vulgare*), together with a few examples of unidentified and badly preserved grains which could either be examples of the above species or large seeds of grasses (Poaceae).

Some grains identified as *Triticum* sp. free-threshing wheat were also found, and are probably bread wheat, the only free-threshing wheat known in Roman Britain, occasional grains of which occurred at Causeway Lane, Leicester (Monckton 1999). The few samples were not rich in cereal remains; a single grain of barley and a few grains of spelt wheat only, were found in Area 4, and are not representative of the period.

Cultivated and collected

Two rare imports of cultivated plants were found in Area 4; two charred pips of grape (*Vitis vinifera*, Fig. 33) and three fragments of the stone of olive (*Olea europea*, Fig.34), the latter being the first record in Leicester and Leicestershire. A large number of fragments of hazelnut (*Corylus avellana*) were also recovered. Charred and uncharred seeds of elder (*Sambucus nigra*) were also recorded in Area 4 and Area 1. Elder is a hedgerow plant, common on waste ground but also edible.

Other plant remains

A few charred grains of large grasses (Pocaeae) were found in two samples in Area 4. All the other weeds were found in Area 4 in the sample containing spelt wheat grains. The weeds comprised a few seeds of goosefoot (*Chenopodium* sp.), a spring-germinating weed of crops and disturbed ground, a seed of chickweed type (*Stellaria* sp.) and one of campion (*Silene* sp.), the last two were too damaged to identify further. Both species occur as annuals or as short-lived perennial weeds of arable land. A few seeds belonging to plants associated with damp ground such as sedges (*Carex* sp.) and spike-rush (*Eleocharis* sp.) were also recovered. These plants could have been brought to the site with the crops, because they can grow in ditches at the field margins as well as in areas of damp ground in the fields themselves. They could also have been brought to the site as roofing and flooring material.

Phase 2 Early Roman

Two Early Roman samples were analysed from this period, from Area 4 Sub-Group G1017 sample **172** (1445) and sample **169** (1442). Despite the low number of items found in the samples, significant remains of imported fruits was found and for this reason the results were tabulated (table 201)

Sub-Group L1323 Sample 172 (1445)

This is the only Roman sample with remains of cereal and weeds, and therefore is the only one from this site that can give information about cereal crops. Spelt wheat is typical of Roman times (Greig 1991); free-threshing wheat, probably bread wheat and a grain of barley were the cereals present here. The absence of chaff material points to a clean crop. The weeds associated with the crops and disturbed ground can give information about the condition of growth. The presence of a spring-germinating weed such as goosefoot could have been associated with a spring-sown crop such as barley. Remains of spelt wheat, an autumn-sown crop was also present, although only four grains were found and both could be part of a scatter of waste. The presence of plants such as sedges and spike-rush suggests that there were probably areas of damp soils in the fields, or ditches around them. Two charred grape pips were found in this sample, suggesting the presence of food waste as evidence of domestic activity.

Figure 117 The plant remains: charred grape pips from sample 172

Sub-Group L1323 Sample 169 (1442)

This sample was extremely interesting for the presence of the first archaeobotanical evidence of olive in Leicester, three fragments of charred olive stones were found, with a high number of fragments of hazelnut shell. The remains represent food waste from either a domestic or trade environment. A few grains of grasses were also found and they could have arrived on site with other crops, or be from plants growing around the area.

Figure 118 The plant remains: charred olive pips from sample 169

Phase 4 Late Roman,

Area 1

Additional samples were scanned from Area 1

SG5007: samples **322** (6484), **325** (6542), **326** (6552) and **328** (6442). Seeds of charred elder were found in sample **322** (6484) and **324** (6530), a few fragments of indeterminate cereal grains were found in sample **322** (6484) and a few fragments of seeds in sample **325** (6542).

In addition, large charred wood fragments were found in three samples: poplar, oak, ash, maple and blackthorn were found in sample **323** (6487), large fragments of maple, oak and hazel were recovered from sample **326** (65252), with oak, ash and poplar charred wood fragments in sample **328** (6542) (see Morgan below). Many of the wood fragments were cut on an angle and were likely to be charred wood waste from carpentry (G. Morgan pers. comm.), which may suggest trade or craft activity in this area.

SG5028 320 (6482) and **P6536 324** (6530) **329** (6556) all these samples consisted mainly of large pieces of round-wood charcoal, probably specially produced and representing charred remains of carpentry work.

Charcoal from Roman Phases *by Graham Morgan*

Table 202 The plant remains: charcoal identification

[Sample](context)	part	diam	rings	age	species	
[93](1170)	1					leather off cuts
		60	12	40	elm	
		30	40	40	oak	very slow grown.
		50	20	20	poplar	
[93] (1170)	2					leather off cuts only
[93] (1170)	2					leather and unidentified bark
[273] (6061)		40	18	18	poplar	
[323] (6487)		30	12	12	poplar	
		20	8	8	poplar	
		20	6	6	oak	
		15	3	3	oak	
		40	11	15	ash	
		20	8	8	ash	
		20	12	12	maple	
		20	15	15	blackthorn	
[328] (6542)	2	80+	6	30+	oak	
		60	22	25	oak	
		30	7	8	oak	
		20	7	7	oak	
		40	10	12	ash	
		20	4	8	poplar	
[326] (6552)	3	40	14	20	maple	
		60	12	15	oak	
		30	15	20	oak	
		20	8	8	maple	
		20	7	10	hazel	

Species present:

Ash	*Fraxinus excelsior*
Blackthorn	*Prunus spinosa*
Oak	*Quercus* spp.
Elm	*Ulmus* sp.
Poplar	*Populus* or *Salix* spp.
Field Maple	*Acer campestre*.
Hazel	*Corylus avellana* or *Alnus* sp.

Discussion of the Roman phases

The small quantity of plant remains gives very little evidence about the crops but the absence of chaff suggest that cereal processing was carried out elsewhere. The evidence suggests only the consumption of cereal and the imports of items such as grapes and olives from abroad.

When looking at the distribution of the remains on the site, four main points can be made:

There is a very clear difference in the land use between the Area 4 and Area 1. In fact the samples analysed in Area 1 mainly consisted of charcoal, in large rounded pieces, possibly specially prepared for industrial use. The samples found on Area 4 consisted of domestic waste.
The samples in Area 4 are also very different from each other regarding the amount of cereal crops: sample **172** (1445) consists of a crop and its associated weeds, while sample **169** (1442) has no remains of cereal grain but does contain olive stones and fragments of nutshell of hazelnut representing food waste.
The presence in Area 4 of olive stones and charred grape pips, both possibly expensive imports, suggests high-status occupation.
The difference in plant material between Area 4 and Area 1 can be explained in two ways. Either that Area 4 and Area 1 had two different functions, Area 1 more industrial and Area 4 a more domestic environment. The second possibility is a shift over time to a more industrial function.

Conclusions

Although only a few samples were considered for this period they provided some information about the nature of the occupation during Roman times on this site, especially considering the remarkable find of olive stones. However, considering the small amount of plant remains recovered it is only possible to suggest domestic activity on Area 4 of the site. While on Area 1 more industrial activity is suggested by the type of charcoal recovered. The remains also offer comparative material for the Saxon period.

The Anglo-Saxon Period: Phase 5 (AD 400/50-650) and Phase 6 (AD 650-850)

Only three samples (see Table 198) were available from the Early Saxon (Phase 5) occupation on site, these samples were all from Area 7. All of them are from the fills of the sunken-featured building Sub Group SFB 2046. No contexts of Phase 6 were identified on the site.

Sample **7** (2037), sample **17** (2051) and sample **18** (2051), from the east side of the Saxon building.

The first two samples were not particularly rich in plant remains, mainly consisting of cereal grains. The most common cereal in the samples is free-threshing wheat, probably bread wheat, found in the highest numbers in all samples of this phase. Sample **7** (2037), contained only remains of this type of wheat, while samples **17** (2051) and **18** (2051), also contained a few grains of barley, possibly two-row hulled barley, and several seeds of indeterminate cereal grains. Only one grain of rye and one seed of vetch were found in Sample **18** (2051). Vetches are used as fodder for animals and sometimes for human food (Moffett, 2006) as the flour and grains can be added to wheat flour to make bread. Weed seeds were absent from these samples which accords with the interpretation of the feature as an Early Saxon building because these remains are consistent with domestic refuse.

Comments on the Early Saxon phase

From the low number of samples and remains found in them, the most important information that can be gained from is that there are no remains of spelt wheat, grains or chaff, in any of the samples, showing that free-threshing wheat was used instead.

The Saxo-Norman Period: Phase 7 (AD 850 - 1150)

Seventeen samples were scanned and analysed for the Saxon-Norman period in Area 1, Plot 56 and 57. The results were tabulated (Table 198, Table 199) and they are discussed here by sub-phase and by Area. An overall view of the crops and weeds, with possible uses is described below.

Cereals

A few chaff fragments were recovered including rachis fragments belonging to *Triticum aestivum* (bread wheat), *Triticum* sp. (free-threshing wheat) and *Hordeum vulgare* (barley) were found in sample 215 (5436), Phase 7.01, Area 1.

Cereal grains found Saxon-Norman contexts are free-threshing wheat, probably bread wheat (*Triticum aestivum*) but identified as *Triticum* sp. free-threshing wheat, hulled barley *(Hordeum vulgare*), rye (*Secale cereale*), with only a few grains found in the whole period, and oats (*Avena sativa*) and few remains of unidentified and badly preserved small grains which could be any of the above species or large seeds of grasses (Cereal/Poaceae). As chaff remains belonging to *Triticum aestivum*, bread wheat, were found all the wheat grains are likely to belong to bread wheat. A few grains of rye were also recovered. A few grains of cereals too charred to be indentified were found and classified as Cereal/Poaceae as they are very similar in shape and size to cereal crops but the embryos or part of the grain were lost during the charring process.

In terms of quantity, the most common cereal found was bread wheat as found in a few other Saxon samples from Leicester (Monckton, 1999), followed by a smaller quantities of barley and oats. The remains of rye were sporadic and they seem to increase in the last phase of the Saxon-Norman period (phase 7.03). No remains of spelt wheat were recovered, suggesting a change in the type of wheat consumed.

Evidence of germination

Evidence of germination was found in two samples from Phase 7.01, Area 1. A few detached cereal sprouts and cereal embryos, and several sprouting oat and barley grains, and one grain of sprouted wheat. The possibility of this evidence to be consistent with malting activity on site will be discussed below.

Cultivated and collected

Remains of fruits or nuts were very few for the Saxon and Saxo-Norman period. A few of fragments of hazel nutshell were recovered. Hazel trees are one of the most common trees in local woodland and they could have grown close to town. Charred and uncharred seeds of elder were found. Mineralized pips of blackberry and mineralized kernel of sloe (*Prunus spinosa*) were recovered but in small numbers. All these trees and shrubs can grow near to towns even today and could represent gathered seasonal foods in the past.

Arable/disturbed ground and grassland

Apart from a seed single seed belonging to a vetch (*Vicia* sp.), weeds were absent from samples of phase 5.03. As these samples come from a sunken feature, representing an early Saxon building, this indicates spillage from a cleaned crop as domestic refuse. The vetches include weeds as well as food and fodder plants but the seed is incomplete and cannot be identified further.

Weeds are present in samples of phase 7.01 and 7.03 with a large number of species but usually in single numbers of each species.

In terms of quality of the soil the weeds in Phase 7.01 belong to the following groups (according to Hanf 1983, Wilson and King 2003):

Damp and Nitrogen rich soil; fat-hen (*Chenopodium album*), and field pennycress (*Thlaspi arvense* L.).
Loam and sandy soil; field pennycress, goosefoots (*Chenopodium* sp.) and docks (*Rumex* sp.) Several species of the latter two plants have edible leaves or stalks and are also used as fodder for pigs and other farm animals
Wasteland; some species of docks.

In terms of spring sowing versus winter sowing of crops:

Spring sowing of crops; black bindweed *(Fallopia convolvulus*), this weed has very restricted window for germination and is strictly a spring germinating weed. Goosefoots including fat-hen are characteristic of spring sowing.

Other plants found in arable land and disturbed ground in phase 7.01 are

Hawk's beards *(Crepis* spp.), are annual or biennial plants and are also found in waste land, field, pasture and meadows
Wild carrots (*Daucus carota*), common in sunny spots of disturbed ground. The seeds can be used for flavouring meals and the roots are edible and rich in nutrients
Ribwort plantain (*Plantago lanceolata*), a plant common in grassland

Weeds found in phase 7.03, are the following groups (Hanf 1983, Wilson and King 2003):

Seeds of long headed poppy (*Papaver dubium*), field mouse-ear (*Cerastium arvense*), and redshank (*Persicaria maculosa*) (Stace 1991), are weeds of arable fields and wasteland
Brassica/Sinapis, both have species that are weeds of arable fields as well as species that are edible including cabbages and mustards, in this case the seeds are very small and the surfaces of the seeds did not survive well so further identification is difficult.
Sheep's sorrel (*Rumex acetosella*), and common mouse-ear (*Cersatium fontaneum*), are found in grassland and cultivated areas.

In addition to the species listed above, a few seeds of two common Saxo-Norman and medieval weeds were recovered from phase 7.01 and 7.03; corn cockle (*Agrostemma githago*) and cleavers (*Galium aparine*). Corn cockle, was a very serious problem in Saxon crops because it is the same size of many cereal grains and is poisonous, moreover the seeds are very gritty and can cause problems to the teeth (Banham 2004).

Other plant remains

A few charred grains of large grasses (Poaceae) were found in several samples. A few seeds of other possible weeds were unclassified because they do not have specific ecological requirements or because they could not be identified to a species level:

A few seeds belonging to the Asteraceae (Daisy family) which includes species commonly found in fields, meadows, and some species with edible leaves and roots while some also have very aromatic seeds used to flavour food.

Seeds of the Brassicaceae, (Cabbage family), were common, although in small numbers, in both phases, the family has many edible species and vegetables, fodder plants, and some are used as green manure
A few small leguminous seeds, (*Medicago/Meliolotus/Trifolium*), charred and mineralized, were recovered from samples of phase 7.01. These plants again can be used as fodder or green manure in crop rotation systems.
A seed of chickweed type (*Stellaria* sp.) and one of campion (*Silene* sp.), were too damaged to be identified to the species level, both plants have species of annual or short lived perennial weeds of arable land.
A few seeds belonging to plants associated to wet land such as sedges (Cyperaceae, *Carex* sp.) and spike-rush (*Eleocharis* sp.).
Seeds of grasses, (Poaceae) both large and small types, were recovered from several samples of all the phases of the Saxon-Norman period. Grasses are commonly found as weeds in the fields, and they can be hard to separate from the crop. Therefore they could have arrived on site with the crops transported to town and be part of the waste from the last cleaning of the crop before use. They also grow in disturbed ground and could have easily grown on site.

The contents of the samples are described below.

Phase 7.01

Area 1, Plot 56

Sample **308** (6357), sub-group not available.

This is a small sample from a layer of soil, with sand and very abundant charcoal. Only a few grains of free threshing wheat and hulled barley were found. Interestingly, two types of oat grains were found; a larger one of cultivated type, and a smaller type probably the common crop weed, or possibly small grains from the crop (tail grains). Weeds were represented by autumn germinating species such as cleavers, possibly associated with the wheat, while goosefoots are spring germinating possibly associated with the barley. Brassicaceae, sedges and grasses were also found in small numbers could have been associated with the crops as weeds, or have been growing on site, or have been residual material from flooring and roofing. In addition a few charred cereal sprouts were recovered from this sample, these are insufficient to support evidence of malting because the cereal grains found do not have any signs of germination. Therefore is possible that some grains were disposed of in the fire as refuse because they were spoiled by damp, and possibly only the sprouts survived.

Sub-group **G5002** rear frontage of plot 56, Saxon Norman building early phase.

Two samples: **317** (6441), probable post-use of the building, and **318** (6462), deposit representing use of building, were sampled from an Early Saxon building in Plot 56. Both samples have remains of cereal grains of bread wheat and hulled barley in small numbers. Sample **318** contained a oat grains, again both types cultivated and wild. Weeds were represented by large and small seeds of grasses. Two seeds of uncharred elder were found too. Despite the low number of remains it is interesting that the crops were mainly clean, and this accords with the interpretation of the layer being inside a building.

For Plot 56 it is interesting to note that the remains of cereals found in the samples are relatively free of weeds, and the most common seeds are of the large grasses which were found in all samples from this phase of the plot, suggesting the area was mainly domestic or at least an area of food consumption. The large seeds of grasses could have stayed with the crop during all the processing stages as they are about the same size as the cereal grains and were removed during final cleaning for food preparation.

Area 1, Plot 57

The samples analysed from this plot almost come from charcoal rich soil deposits just above the collapsed Roman Macellum wall.

Sub group G5009, ash and soot hearth fill.

Sample **306** (6353), this sample from the fill of a hearth is very similar in composition to sample **308** found in plot 56. Cereal remains including hulled barley and possibly cultivated oats, were associated with spring germinating weeds, such as goosefoots and plants indicating damp areas in or around the field including sedges. Large grasses and a few seeds of Brassicaceae were also found (Table 201). The sample can be interpreted as a clean crop. Grasses and sedges in this context could also represent roofing or flooring material.

Sub group G5008, which represents the occupation soils immediately above the collapsed Macellum wall

Two samples were analysed: **215** (5436), **219** (5445) and both were rich in plant material.

Sample **215** (5436**):** The most significant aspect of this sample, (Table 198), is the amount of chaff and weed seeds associated with the cereal crop and the lower amount of cereal grains compared to sample **219**. Chaff remains of bread wheat, free-threshing wheat, and hulled barley were found. This differs from the Roman samples where the only cereal chaff found was of spelt wheat. Cereal chaff which was not very well preserved was identified as free-threshing wheat, but this is likely to also be bread wheat as it was similar in form. Among the wild weeds are a few charred wild carrot seeds, which could be a weed of the crops or a possible herb used for cooking as well as for his root rich in nutrients. Grassland and waste land species such as hawk's beards and ribwort plantain were also found in the sample. A few seeds of spring germinating weeds, such as goosefoots or orache, and plants indicating damp areas in or around the field such as sedges were also present. High numbers of large grass seeds were recovered from the samples, which were very similar in length to the cereal grains. The most common cereal grains found in the sample were of free-threshing wheat, probably bread wheat, followed in by a few grains of cultivated type of oat and just one grain of barley.

Sample **219 (5445)**: this sample had the highest number of items per litre of soil from the period/phase and was very rich in cereal remains; cultivated type of oat was the most common, with a few grains of barley. A third of the oat grains were clearly sprouted (germinated), and a few detached embryos and cereal sprouts were also recovered from the sample. The high proportion of germinated grains points to possible malting activity on site. Oat was one of the grains used for brewing during the early medieval period (Unger 2004). No wheat grains were found in the sample. Among the evidence for food plants were hazelnut shell, a few mineralized seeds of blackberry, and mineralized kernel of sloe were recovered. All these foods items were probably collected locally. Among the weeds were black bindweed, indicating a spring germinating crop, and oats are usually spring sown. Docks, fat-hen, field pennycress and corn cockle were also present but in very low numbers. Two seeds of campion type, one of orche and two of sedges were also in this rich and varied group of weeds. This sample represents evidence of brewing using oats.

Sub group G5030, frontage of plot 57, top of sunken feature, associated with soil above the Macellum wall.

Sample **303** (6304), build up layer with mineralized seeds, just above context (5445) possibly the top.

This is the sample with the highest number of cereal grains found in Saxo-Norman period, mainly grains of bread wheat and free-threshing wheat, with several grains of hulled barley and cultivated oat. Eleven mineralized seeds of bramble and nineteen of elder were recovered from the samples. Both are edible and were probably present as food remains. Elder trees could have grown nearby. Two seeds of sedges were found, possibly from damp areas of the fields, or collected as roofing or flooring material.

Sub group G5185, frontage of plot 57, stone hearth and pit below.

Sample **187** (5164) and **189** (5191), both within cut of sub rectangular pit 5207, both burnt sandy layers. The first sample, 187 (5164), has a higher number of cereal remains with oats most common, the grains were not preserved well enough to establish if they could have been cultivated or wild oats. Free-threshing wheat grains were also recovered, a few grains of barley, possibly two row hulled barley. The second sample, **189** (5191), had few charred grains of bread wheat (Table 202).

Comments

Plot 57 has samples rich in plant remains consisting not only of cereal grains but chaff and weeds suggesting that it was an area of food processing where uncleaned crops were brought to the town.

Discussion

The two plots can be compared although there were more samples from plot 57 than plot 56. If we considered similar feature such as hearth fills then some similarities can be seen as both plots have clean crops associated with these features. It is also apparent that remains from the layer of soil above the Roman Macellum were representative of a commercial type of activity, and suggest that crops were probably processed and cleaned in the area. It is interesting to see the high numbers of large seeds of grasses associated with the crops and the presence of species indicating damp areas in or around the fields. This is a very similar situation to that found for Roman samples in Leicester (Moffett 1994)

Phase 7.03

Area 1, Plot 56

Sub-group **G5106**, cess pit at the rear frontage of plot 57.

Sample **309** (6379) fill of well: The samples had only few grains of free-threshing wheat, mineralized elder seeds, a seed of sedge, with a few grains of large seeds of grasses. The feature could have been either a well or a cesspit, and the material could be redeposited. It is noteworthy that the finds of free-threshing wheat support the conclusion that this was the main crop brought to the site, also sedges and large grasses seem almost ubiquitous.

Sub-Group **G5702**, rear front of plot 56, probable cesspit.

Sample **262** (6025): This sample from a cesspit provides an idea of the diet of the people at the time. The charred plant remains are very similar to the samples discussed before; the most common cereal grain was free-threshing wheat and bread wheat, a few grains of rye, and barley. No oat grains were found here. However, mineralized remains were found preserved by the minerals present in sewage dumped in the pit. These fruit remains included three kernels of sloe, showing this was a seasonal fruit eaten during Saxon period. One seed of cleavers was also found, a common weed of arable land. The most common find consisted of the mineralized seeds of elder, possibly also eaten. Mineralized seeds of clover type were also present, these are not normally eaten by humans but could have grown nearby and fallen into the pit. A few seeds of the daisy and cabbage families were found, too damaged to be identified but it is likely they were from edible species although this cannot be confirmed. Large seeds of grasses and sedges were also recovered. Those could easily have been used as flooring and roofing material or be from cleaning of the cereal crops.

Area 1, Plot 57

Sub-group **SG280**

Sample **84** (279), SG280: The sample was rich in charred cereal grains, mainly oat grains. A few of them were very large and are likely to be the cultivated type, but the majority of them were too damaged to identify further. A few grains of hulled barley and free-threshing wheat were also recovered. Only two seeds of periscaria were associated with this crop. This is likely to represent domestic refuse.

Sub-group **G5014**, rear frontage of plot 57 pit

Sample **238** (5634), pit fill within cut 5551: A high number of cereal grains were recovered from this cesspit/pit context, mainly charred remains of free-threshing wheat. Some grains of rye and a high number of oat grains, possibly both cultivated and wild types, with some very damaged by the charring process. Several species of weeds were found with a low number of seeds for each species. These were mainly seeds common in arable and waste land. The most interesting find was a seed of mint, possibly used as stewing herb. Larger numbers of seeds of docks or sorrel were found; these were possibly from plants fed to animals. Again high numbers of seeds of sedges and grasses were found which could have been from plants used as flooring or roofing.

Sub Group **G5037**, frontage of plot 57, burnt patch layer

Sample **177** (5023) which is a layer below sample **173** (5009) phase 7.03 (not tabulated)

These samples were recorded for comparison to show the low number of items found in them. Only a few grains of possibly cereals or grasses were recovered. The samples mainly consisted of large pieces of charcoal, suggesting a more industrial type of activity compared to the other samples.

Summary and Discussion of Saxo-Norman period

The main findings for this period are as follows:

Bread wheat type grains represent the most common cereal in the samples
Oats appear in this phase, while not found in the Roman and Saxon samples
Oat is the second most common crop for the period
Barley is present but in a smaller quantities
Apart from the samples 215 and 219, which represents contexts above the collapsed Roman Macellum wall, the other samples consist of clean crops with a few large seeds of grasses and other weeds, normally removed from the crop in final cleaning, probably in the household
The collected food plants could all be grown locally and there is no evidence of any imports.
The large amount of chaff compared to the cereal grains found in sample 215, suggests that crops that needed to be cleaned were transported onto the site, also confirmed by the presence of weeds found in sample 219. As both of the samples come from layer above the collapsed Macellum wall it is possible that the processing of the crop took place in this part of site.
For further comments and comparison see the general discussion of the medieval samples below.

The samples from the layers above the collapsed macellum wall show a more commercial type of activity in terms of food processing with some crop cleaning taking place. From these layers large quantities of oat grains were recovered. The presence of sprouting grains of oats, suggest the presence of malting activity. The presence of seeds of grasses and seeds of wild oats among the crops even in those samples that consist mainly of domestic refuse suggest a possible tolerance to these "crop impurities", while it is possible the corn cockle was less tolerated and removed before use, this plant is not only poisonous but is also very gritty and can damage the teeth.

The Earlier Medieval Period: Phase 8 (AD 1100-1250)

Seventeen samples were processed and scanned for the Early Medieval period, twelve samples contained plant remains, the two most representative samples were analysed (Table 199). In general the samples did not contain numerous remains, but they mainly consisted of cereal grains. Many of the plants are described in the previous period with additional evidence mentioned below.

Most of the samples were from Area 4, with a few from Area 1.

Cereals

The cereal grains found were identified as free-threshing wheat, probably bread wheat, because there was no evidence of another type of free-threshing wheat called rivet wheat which is also found in the medieval period. Other wheat grains were less well preserved and classed as *Triticum* sp., barley (*Hordeum vulgare*) was also found. Among the cereals bread wheat type was the most common. No chaff remains were found in the samples analysed to help in the identification of which species of wheat was present in the samples.

Collected and Cultivated

A single mineralized seed of fig (*Ficus carica*) was found and possibly represents an import. This is the first appearance of fig on this site. The most common remains were uncharred elder seeds.

Arable and disturbed ground

Goosefoot, cleavers and docks were the only weeds found in the samples, represented by one or two seeds only, and a seed possibly of a type of mustard, was found. The low numbers of weed seeds suggest clean crops in this phase.

Other plants

Sedges and grasses seeds were found in several samples in both mineralized and charred. These could be either roofing/flooring material or weeds of crops. A few seeds of cabbage family could come from weeds or edible species.

Area 1, Plot 57

Sub Group **SG6406,** Sample **307** (6373): Many grains of bread wheat were found in the sample, and a few of barley. One seed of goosefoots and one of cleavers also eleven uncharred elder seeds were found.

Other samples from Area 1

SG0211, **35** (214) plot 57: The sample consisted of charred grains of barley.

SG0224, **37** (233) plot 57: Only one charred grain of barley and one mineralized seeds of elder and few unidentified seeds, possibly of cabbage family were present.

Sample **296** (6249), sub group n.a.: Several charred grains of wheat and barley.

SG6297, **302** (6289), charcoal layer: The samples had only few charred grains of wheat, possibly bread wheat and barley.

Area 4

Sub-group **P1248,** Sample **141** (1264): The samples contained mainly bread wheat with a few grains of barley. The weed seeds found with the cereals included docks, typical of acid soils, goosefoots or orache possibly spring germinating species, and mustards or cabbage family seeds either edible or weed species. Sedges and spike-rush were found indicating damp areas in the field or nearby ditches; grasses possibly associated with the crops, or possibly growing on site. A mineralized seed of fig was found in this sample as evidence of imported fruit.

Other samples from Area 4

H1349, floors layers and possible hearth: Three samples were scanned from this sub group: **148** (1325), and **150 and 151** from context (1344). Those were mainly sandy and ashy layers. Sample 150 did not have any plant remains and mainly consisted of charcoal fragments. The other two samples had few cereal grains and few fragments of weeds seeds.

SG1100, **166** (1427), layer below floor and samples **160** (1366): Sample **166** had few charred cereal grains and a few weed seeds. Sample **160** did not have plant remains other than fragments of charcoal and few root fragments, possibly modern.

SG3150, **13** (1007): Cereal grains and one seed of stinking mayweed.

L1416, **159** (1393), secondary pit fill: Cereal grains and few weed seeds and mineralized seeds of sedges were present.

Discussion

Only a few samples were available for this period. The absence of chaff remains suggest that cleaner crops were brought to the site compared to the Saxon period, unless this area was domestic only and cereal cleaning was carried out elsewhere. The appearance of fig is interesting because it is absent in the cesspit of the Saxo-Norman period. Dried figs were a common import in Medieval Britain (Moffett 1994).

The Medieval Period Phase 9 and 10

Phase 9 is mainly characterized by industrial activities and almost all plant remains are from kilns and ovens which are all dated to this phase. Phase 10, in contrast, is represented by a pits, cesspits, and sewage deposits from stone lined privies.

Cereals

Fragments of chaff were recovered including a few rachis fragments of bread wheat (*Triticum aestivum*) and rye rachis (*Secale cereale*) confirming the identification of these crops because chaff is more diagnostic than grains. Also barley rachis (*Hordeum vulgare*) was recovered. In addition two rachis segments of a wild type of oat were found, but too damaged to be indentified to species level. A single glume base of *Triticum spelta* (spelt wheat) was found, this was considered to be residual from Roman occupation. The presence of identified rachis of bread wheat suggest that this was the main wheat crop for the period on this site.

Grains of free-threshing wheat were recovered, probably of bread wheat. Wheat grains were the most common cereal grains from the samples, followed by barley, hulled barley, and oats and rye. The different type of cereals were found in different proportion and it is not possible to say if any of this crop represent mixed crops grown together (Moffet, 2006). The only possible mixed crop assemblage comes from Sample **274** (6093) were almost equal parts of germinated grains barley and oat were found, suggesting malting and brewing of a mixed crop of oats and barley known as dredge in the medieval period.

Evidence of sprouting/malting and brewing

In order to interpreting the use of ovens and malting kilns the evidence of sprouting cereal grains was carefully examined. In this report evidence of sprouting grains (see Fig.35) were divided in four main categories:

Sprouting cereal grain, in which the sprout is still attached to the grain and the grain is clearly still identifiable
Detached embryo still attached to the scutellum of the grain
Cereal sprouts detached or broken

Grain with sunken or hollow impression in which the sprouting part is missing (very common in the case of wheat)

A large proportion of sprouting grains, detached embryos and sunken grains, were interpreted as strong evidence of malting. Each type of evidence of germination and the possible connection with malting and brewing activities will be detailed for each sample below.

Figure 119 The plant remains: evidence of germination (sunken and germinating grains, detached sprouting embryos) from sample **274**.

Legumes

Several samples, from both pits and ovens, contain remains of edible legumes. A single mineralized broad bean was also found. The remains were identified as edible species of broad beans (*Vicia faba* var. sativa) and field bean (*V. faba* var. *minuta*). Also remains of peas (*Pisum sativum*) were recovered. The identification was based on shape and length of the hilum in every case where the hilum was visibly preserved. Remains above 4 mm in length, where the hilum was not preserved were described as beans or peas (*Vicia/Pisum*). In the samples that were not tabulated in detail legumes belonging to these categories were described as edible legumes.

Cultivated and collected fruits and nuts

A variety of the remains of fruits and nuts was recovered from samples from the privy and cesspits. Several seeds of fig, blackberry, and kernels of sloe, and two kinds of plums including small possibly wild type and large possibly cultivated variety were also very common in cesspits. Apple (*Malus* sp.), cherry (*Prunus* sp.) and grape (*Vitis vinifera*) were the other finds from these pits. These remains are mostly found in contexts of Phase 10.

Arable and disturbed ground plants

The number of weeds increases hugely together with the increase in the density of plant remains per litre of soil processed. The other point that needs to be made is that while up to phase 8 the set of weeds were very similar in each sample analysed, in samples from Phase 9 each set of samples has its own set of weeds. All the classic weeds present in the medieval period have been found here; cleavers, goosefoots, stinking mayweed (*Anthemis cotula*), and corn gromwell (*Lithospermum arvense*). For the ecological requirements and possible uses of the weeds see discussion in Saxon and Saxo-Norman period above.

Phase 9: malting kilns and ovens, from plot 57, 58 and 56 of Area 1 and area 20

Area 20

G7003 290 (7003), oven layer, base:

This is a burnt ashy deposit found on the stone base of the oven. The sample was very rich in remains of free-threshing wheat grains, including bread wheat (*Triticum aestivum*) identified from two rachis segments (Table 208).). Many grains of wheat presented a sunken 'impression' were the embryo should be, this can be either the results of charring or could be because the grains were sprouted and lost the germinating embryo during the charring. A few grains of hulled barley, one of them possibly sprouted but very damaged by charring, and few grains of oat of cultivated and possibly wild type were also present. It is interesting to note the complete absence of weeds from the samples, suggesting a very clean crop of cereals, probably a clean crop of wheat with few grains residual from processing. It is possible that the oven was used as malting kiln.

L7003 293 (7020), layer fill:

This context represents a waste deposit from the oven. The samples are very similar to 290, as it consists of an extremely clean cereal crop (

Table 200). Free-threshing wheat, possibly bread wheat and oats of a cultivated type were present at a moderate density. A few grains of hulled barley were also found. Several indeterminate cereal grains were present.

A few large beans identified as broad beans were found. The cabbage family was also represented by five seeds possibly of edible plants or fodder for animals.

The nature of the remains, clean cereal and beans suggested that the oven may have been used to dry crops for better preservation.

Area 1

During all of Phase 9 and 9.02 industrial activity consisting of an oven and malting kiln was found in plots 57 and 58

Malting Kiln **IF 5987**: two samples were analysed **274** (6093) and **282** (6134) from Plot 58. Phase 9. Both samples came from the mouth of the flue. It is also possible that this kiln belongs to Phase 8, and represents an early medieval kiln.

An extremely interesting deposit consisting mainly of sprouted hulled barley and sprouted oat grains was seen. Also what possibly seems to be a mat of rye straw was also recovered from sample **282 (Fig.116)**.

Figure 120 The plant remains: sample **274**.

274 (6093): The sample had a very high number of seeds per litre (601/L), and the highest proportion of germinated grains of oat and barley (Fig. 36), almost in almost equal proportion (but slightly higher content of oats) suggesting possible brewing of a mixed crop known as dredge. The samples also contained a large amount of detached sprouted embryos and cereal

sprouts. As almost all the remains of cereal grains were germinated, this suggests that the oven was used as a malting kiln. Among the cereal grains, sunken grains of wheat (bread wheat) were also recovered. Because the embryos were missing and the grains were very deformed it is possible that the sunken and deformed grains of wheat were the result of the charring of sprouting grains. This hypothesis is supported by the large number of detached cereal sprouts recovered from the sample. A few remains of cereal rachis (chaff) were present in the sample, identified as hulled barley and rye, with a fragment of spelt wheat which is likely to be residual. Among the weeds, seeds of goosefoots and sheep's sorrel were recovered in high numbers, together with vetches and cabbage/mustard seeds (Table 208). All these plants are weeds of crops although some could also have been used as fodder or salad leaves. Stinking mayweed was the most common weed in the samples indicating heavy soils, which are common in Leicestershire, suggesting the crops were cultivated locally. Seeds of scentless mayweed (*Tripleurospermum* sp.) and corn gromwell (*Lithospermum arvense* L.) and two seeds of corn marigold (*Chrisanthemum segetum* L.) were recovered from the sample. The weeds found in the samples represent both autumn and spring sowing of crops, they also have different ecological requirements.

282 (6134): The sample is very similar in content to sample 274, but with a lower seed count for both cereal and weeds (Table 208). The most interesting find in this sample was of charred fragments of compacted material which appears to be straw matting (see Fig. 116). This consists of grass stems and ash, very compacted with no orientation in the fibres. Trapped inside this matting are a few rye and oat grains visibly preserved. Also where the seeds are not present, a cavity or impression is clearly present. It is possible this represents the matting on which the germinated grains were put to roast in the kiln.

Figure 121 The plant remains: evidence of straw matting found in sample **282**, note the sprouting grain.

PR6384 sample **260** (6024), Privy sample: Only one charred grain of rye was recovered. All the other remains from this cess pit context are mineralized seeds and kernels of fruit. Figs

represent the only imported items. Seeds of brambles, kernels of wild and cultivated type of plums and apple pips were found (Table 201). All these fruit trees were, likely to be present in the proximity of town and brambles could easily have been growing nearby the site.

Phase 9.02

IF5406 samples: **209** (5398), **211** (5413) and **213** (5411)

All the samples come from a feature associated with an oven, and despite only top layer 5398 being associated with the feature, all the samples are likely to represent the waste from the cleaning of an oven, or trapped somehow in the bedding layer of the floor probably in the space between cobbles. The sample richest in plant remains is 211 (5413), while samples 209 and 213 had a lower content of plant remains, but very similar in composition to 211. Only sample 211 and 209 were tabulated (Table 208) while sample 213 is only mentioned here. Regarding sample 211, rachis of a wild type of oat was found, and a rachis of bread wheat was identified, suggesting that the major wheat crop was bread wheat. Only a few charred grains of free-threshing wheat and oats (wild and cultivated type) were found. The highest number of remains belongs to the category of edible legumes, broad beans, field beans and peas (see Fig 38). Field beans were likely to be used as fodder in addition to human food. It is a very interesting find as Medieval assemblages rich in edible legumes are rare, and it has been suggested that they were less likely to come into contact with fire in their processing (Moffett, 2006). The large number of edible legumes found charred in this feature is likely to represent a single event of drying the legume crop possibly gone wrong, hence processing of legumes by heating is suggested at this site. While few classic weeds of crops were present in low numbers including goosefoots, cabbage/mustard seeds, the samples belonging to this group had a high number of seeds of sheep's sorrel and docks. These remains are remarkable for their quantity, they could possibly represent a crop for animals, or possibly for salad leaves. It is also possible that these plants were growing nearby and thrown onto the fire for disposal. It is unlikely that these seeds were associated with the crop because they would have to compete for nitrogen in the soil with the legumes. Occasional seeds of woundwort, weld, and knotweeds were also present in the sample.

Figure 122 The plant remains: edible legumes from samples **211**.

IF5359 samples: **207** (5364) and **208 (**5383)

Sample **207** (5364) had a low amount of plant remains and no remains of edible legumes. Only a few seeds of weeds such as vetches and cleavers, and stinking mayweed were present. Sample **208** (5383) had a higher number of plant remains mainly represented by field beans and peas. It is interesting to note again that the legumes are associated with seeds of docks and vetches. Seeds or ribwort plantain were also found. This sub-group was very similar to sub group **IF5406.**

Group 5042 malting kiln/oven: sub group SG6064 and SG5838

SG6064 sample **266** (6064)

The sample consists of a very clean crop of hulled barley, possibly two-row barley, oats of cultivated type, including numerous sprouted grains. In addition there was a large quantity of cereal remains that due to charring, and possibly due to the fact that they were germinated, were too damaged to be identified. Several seeds of vetches were also recovered. Among the weeds stinking mayweed (*Anthemis cotula*) was very common as a weed of the crops, also seeds of the cabbage family, possibly used as food or fodder. Uncharred remains of elder were recovered which could have been used as food or have been growing on the site. Many seeds of clover type were also recovered from the sample either as crop weeds or from plants growing nearby.

Oven **SG5838**, sample **289** (6218)

Cereals grains of a cultivated type of oat and a high number of indeterminate cereal grains were recovered with a large number of beans and peas. Several seeds of the cabbage family, possibly of edible species were found. A few seeds of weeds of arable land were recovered including goosefoot, stinking mayweed and large seeds of grasses. Two elder seeds uncharred were also found. The context is likely to represent waste from an oven.

The presence of different type of remains, germinating grains suggesting brewing, unsprouted cereal grains and edible beans suggest the feature had multiple uses.

IF 5664, 234 (5622)

Rake out debris from the oven: A different type of sample with scarce cereal remains mainly consisting of a few damaged grains of free-threshing wheat. The sample had several types of weeds; docks, goosefoots, and stinking mayweed. A few unclassified plants were also recovered; seeds from the cabbage family, clover type seeds and small grasses. The size of the weed seeds was quite small suggesting that a final crop cleaning by fine sieving was taking place possibly immediately before the crop was dried, and the seeds were then burnt as waste in the fire and raked away during cleaning of the oven.

IF 5503, 218 (5452)

One sample was scanned for this feature, consisting of organic residue over a possible floor surface associated with an oven base, used for heating during brewing. The samples contained a high number of edible legumes, vetches/peas type, and few cereal grains. This

suggests that some of the rake-out from the oven was possibly used as fuel. No germinated grains were found in the sample to associate it with malting.

Phase 9.03

SG5441 sample **212** (5287): The sample had the same quantity of free-threshing wheat and beans, possibly broad beans and only one seed of goosefoots. It is likely to represent debris from an oven used for drying crops as no germination was detected in the seeds.

IF 5503 sample **218** (5452): The sample is very similar to sample 289 (6218), in fact has both cereal remains and legumes; grains of free-threshing wheat, probably bread wheat, a few grains of rye and oat, and also edible legumes such as beans and peas. Weeds associated with arable crops were found, such as corn gromwell, vetches, cabbage/mustards, and several seeds of the weed cleavers.

Comments on Phase 9

Phase 9 is characterized by industrial activities, consisting of ovens, mainly used to dry crops and malting kilns used to roast sprouting grains especially oats. Consumption and use of oat seems very popular in this phase. Also the practice of drying crops, including beans and possibly vetches were quite carried out here in the medieval period.

Phase 10

The samples from phase 10 were from pits and cesspits often intercutting each other. They were mainly from Area 1 and 4.

Area 4

Industrial feature **P (1111)**

The feature is represented by a series of pits intercutting each other suggesting a long term use of the feature thoroughout the phase. A total of 27 samples were processed and scanned in order to better understand its use (details in archive) and the results are described here

Some of the samples had moderate amount of charred remains of cereal grains of free-threshing wheat, large amounts of charred beans and peas, and weed seeds such as cleavers, and docks or knotweed. Fish bones and scales, insect remains and small mammal bones were also found.

Of the samples processed, samples **49** (1118) and **56** (1119) were tabulated (Table 204) and discussed to represent the remains found.

Sample **49** (1118) contained charred cereal grains, mainly free threshing wheat, only one grain of hulled barley and one of oat of a wild type. The highest numbers of remains were of edible legumes, beans and peas, which are very common in almost all the samples sorted from this feature.

Sample **56** (1119) had a very high concentration of charred beans and peas, associated with them was a high number of seeds of docks, with a few seeds belonging to the cabbage family.

Of the scanned samples, sample **92** was rich in metal fragments (possibly iron) as possible industrial evidence. Another very interesting sample was sample **93** (1170) which consisted

mainly of leather off cuts, and large fragments of bark, identified by G. Morgan as elm, oak (very slow growth) and poplar. Sample **123** (1225), at the bottom of the industrial feature had a large number of egg shell fragments.

Considering all the samples from this feature it is possible to see that cereal remains are common in the samples and are mainly of wheat and barley. Edible legumes are also very common in the samples. Legumes are sometimes associated with pig keeping as suggested at Bonners Lane where articulated pig skeletons were found (Baxter 2004), and where abundant charred legumes were also found (Monckton 2004). Here this evidence is also supported by animal bones (Browning, this vol.). In the lowest part of the pit the material seems similar to a cesspit fill because more mineralized remains have been recovered, suggesting a shift of use from a cesspit to a possible rubbish pit with some "industrial" waste in addition.

Area 10

L3628 sample **82** (3170): This sample consisted of several grains of bread wheat with seeds of small grasses. These remains are consentient with a clean crop and could represent domestic refuse.

Area 1

PR5953 samples: **259** (5992), **258** (5979), **257** (5970) and **300** (6112).

Superimposed fills from a stone-lined privy are described here including the samples with the highest number of items, but including a sample which had the lowest quantity of seeds. The samples are described here in stratigraphic order from the top to the bottom/earliest:

257 (5970): This sample had a few small, possibly wild varieties of plum kernels and apple seeds. It is possible that the material is residual.

258 (5979), charred grains of bread wheat, and barley were present. One mineralized pea was recovered. Two broad beans, and other charred legumes were recovered from the samples. Fig seeds and one grape pip were the imports found in the cess pit. While sloe kernels and apple seeds were probably from trees growing near the town.

259 (5992), single charred grains of barley and oat were recovered; fig seeds, charred hazelnut shell, brambles in low quantities, a high number of sloe kernels, plums, apple, and cherries were also found. Sedges and grasses were present, possibly representing flooring or roofing. From sample **259** many fragments of textile were recovered, from both CF sample residue and the flot. In addition the residue of this sample **259**, is very rich in small bones, and mineralized fruit stones together with some small fish bones and mineralized fly puparia.

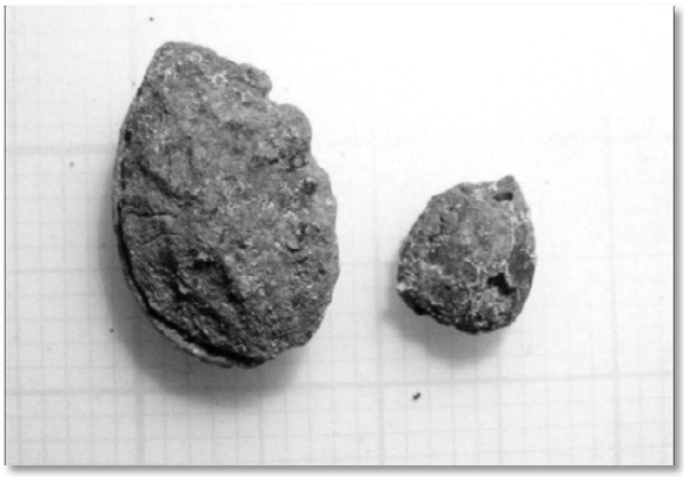

Figure 123 The plant remains: mineralized plum and sloe stones from sample **259**.

300 (6112): Among the samples analysed from this sub group this is the one with the lowest number of plant remains, consisting of bread wheat and barley grains in small numbers, and ribwort plantain seeds, which is likely to have grown nearby, and two uncharred seeds of elder.

Comments

The main aspect of phase 10 is the high number of cesspit deposits found, which contain mainly mineralised fruit stones and pips, together with charred remains of cereals and beans. It is very important to point out the decrease in the amount of oats in the phase. Bread wheat seems to be the main, and the most important, cereal for the period.

The Post-Medieval Period Phases 11-12 (1500-1750)

Only six samples from post medieval contexts were found to have plant remains, and in very low numbers. The three most productive samples are described below.

Phase 11

Sample **105** (3246), had a few badly preserved cereal grains, possibly wheat and large quantity of charcoal fragments.

Phase 12

Sample **204** (5357), had a large number of elder seeds (uncharred), possibly of modern origins and fragments of charcoal.

Sample **205** (5358), contained one fragment of hazel nutshell and few badly preserved cereal grains, possibly wheat.

It is not possible to use these samples to gain any information on post-medieval food consumption on site.

Overall Discussion

As shown in Fig. 119, the proportions of the different types of remains, varies a great deal on the site according to the different phases and this is mainly due to the type of deposit from which the samples were taken. This probably reflects the different activities on the site at different times. The types of plant remains have been grouped so that they can be compared to each other: the first group consists of cereals, a staple human food of all periods. A second group consists of the other plants that are edible consisting of the cultivated or collected plants, such as fruits and nuts, but also peas and beans. The last category of plant remains is represented by the seeds of weeds and wild plants that were not consumed as food by humans. As shown in Figure 124, content of different type of remains varies greatly on site according to different phases and this can be related to the type of deposit. The high proportion of food items in Roman times is due to the domestic nature of the deposits analysed, and to the large number of hazel nutshell fragments found in one sample. It is evident from Early Saxon to Medieval Phase 9, that cereal grains were the most common and important plant resource, both in domestic contexts, such as those found in the Saxon building in phase 5, and the oven and kilns found in phase 9. Food plant remains are very abundant in Phase 9 and very high in phase 10. In the first case as the category includes peas and beans, and large deposits of those were found in contexts more or less directly associated with the ovens and kilns. In the second case the remains include a high number of mineralized fruit stones from deposits in cesspits. There is a shift in the use of the site from phase 9 to 10, with more pitting activities during phase 10. Weeds and seeds of wild plants have been found in smaller amounts but are constantly present. These could have arrived with the crops and some may have been growing on site. A more detailed picture of different food plants by phase is given in Table 211.

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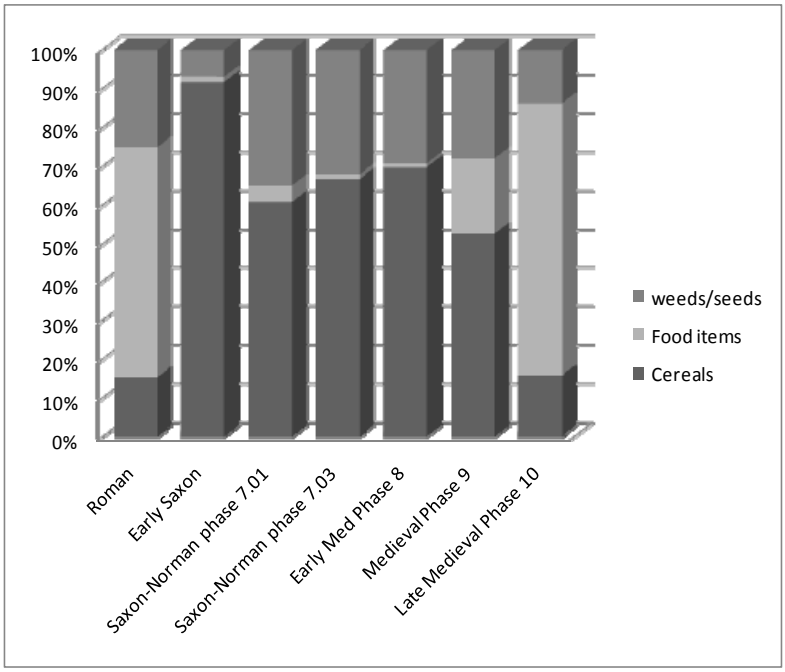

Figure 124 The plant remains: proportions of different plant remains by periods.

Cereals

Cereal grains were recovered from 73% of the samples. The most common cereal on site is wheat (see Figure 125) found in 47% of the samples: possibly bread wheat as the samples were carefully screened for rivet wheat which has not been found on site, suggesting that bread wheat was the most common type of wheat at the time on this site. Spelt wheat is only found here in Roman phases, while free-threshing wheat, probably bread wheat is found in all the other phases. There is an increase of number of grains, particularly in phase 9. Barley is the second most common cereal, found in 45% of the samples. Barley is also present from Roman to Medieval times increasing in quantity towards the medieval phase. Oat first appears in Saxo-Norman period and it becomes very common in Phase 9, 13% of the samples have remains of cultivated type of oat. It is important to note that these two cereals seem to have played a very important role in malting and brewing activity in both Saxon and Medieval times. Oat seems almost absent in Late Medieval period suggesting its use was less common as human food by that phase. Rye has not been found in large quantities, it is present in 18% of the samples, and occurs from Saxon, Saxo-Norman to Late medieval. In addition to this 28% of the samples have very damaged grains and it was not possible to establish which type of cereal they were.

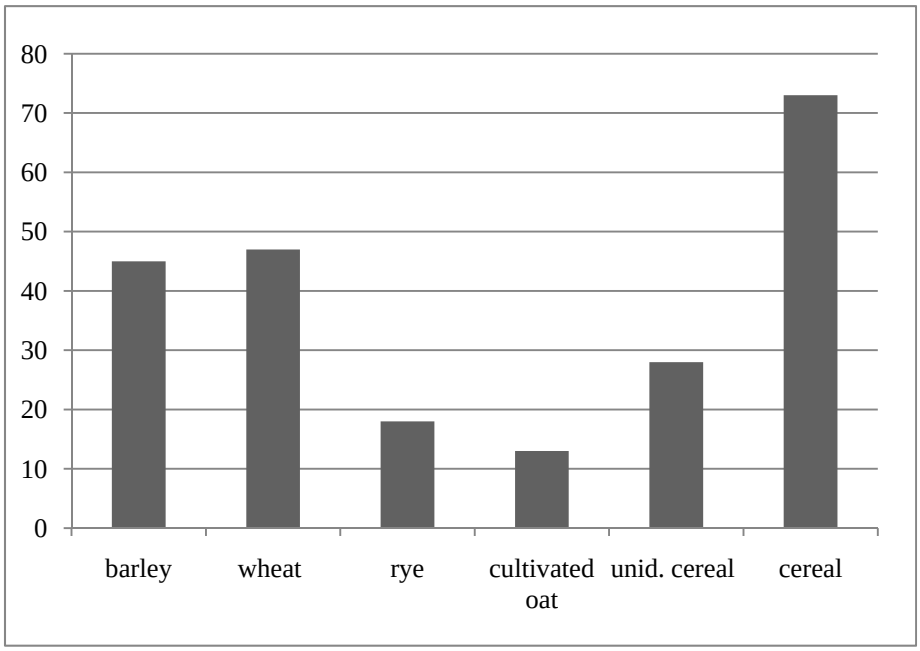

Figure 125 The plant remains: proportion (% of total) of different types of cereals found on the site

Edible legumes

Large deposits of edible legumes were found in phase 9, consisting of peas and broad beans and several seeds of vetches in ovens suggest that drying these crops was a common procedure. High numbers of edible legumes were still present in privies in phase 10 suggesting that their consumption was fairly common during medieval period, and perhaps supporting the evidence of pig keeping on site found in phase 10 (Browning, this vol.). These are absent in the earlier phases of occupation (Roman and Medieval), it is not possible to say if this is because they were not preserved as result of less deposits dated to the earlier phases, or because of less use of this crop.

Fruit and Nuts

Mineralized remains are more common in medieval times as a result of the pitting activities (in particular cesspits and privies) which characterize phase 9 and 10. As a consequence almost all remains of edible fruits, consisting of fig, apples, plums (cultivated and wild) and cherries, are restricted to Medieval and Late Medieval periods, with the exception of sloe found also in Saxon period, and a high number of charred hazel nutshell fragments found in the Roman samples (Table 211). When considering charred remains olive and grape pips found in Area 4 and belonging to the Roman period are the only other imports (with fig) available on site.

Table 203 The plant remains: food plant remains by phase.

	Roman	Early Saxon	Saxo-Norman	Early Med.	Med.	Late Med.	
Cereal grains							**Cereal grains**
Triticum spelta L.	x						Spelt wheat
Triticum aestivum/turgidum		x	x	x	x	x	Bread wheat
Secale cereale L.		x	x	x	x	x	Rye
Hordeum vulgare L. hulled	x	x	x		x	x	Hulled barley
Avena sativa L. culitivated type			x		x	x	Oat, cultivated type
Legumes							**Legumes**
Vicia faba v. *sativa* L.					x	x	Beans
Vicia faba v. *minuta* L.					x		Field beans
Vicia cf. *faba L.*						x	Beans
Vicia/Pisum					x	x	Bean/Peas
Pisum sativum L. (m)					x	x	Pisum sativum L. (m)
Vicia sp.					x	x	Vetches
Cultivated, Collected							**Cultivated, Collected**
Olea Europea L.	x						Olive
Ficus carica L. (m)					x	x	Fig
Corylus avellana L.	x	x	x	x	x	x	Hazel nutshell
Rubus fruticosus L. agg (m)					x	x	Bramble
Prunus spinosa L.		x	x		x	x	Blackthorn
Prunus sp. small					x	x	Plums,small
Prunus sp. kernels cultivated type					x	x	Plums, kernels cultivated type
Malus sp. (cultivated?)					x	x	Apple (cultivated?)
Prunus sp. cherry						x	Cherry
Vitis vinifera L.	x					x	Grape

Other edible plant remains

A number of plant remains normally considered weeds of crops have parts edible for both people and animals. Examples of this are the sorrels and goosefoots, including fat-hen, which have edible leaves. Poppy seeds, mint, and also wild carrot were likely to have been used as flavouring.

Possible fodder plants

Possible fodder plants are the Brassicas and Vetches found in the samples, and large grasses and sorrels could have been used as fodder too. It is likely that domestic refuse and brewing waste was also feed to pigs (Browning this vol.)

Weeds and other plants

Almost all the weeds found belong to those that normally grow on arable land. A large number of species found tolerate a wide range of soils, from light to very heavy (as many weeds do), and from alkaline to acid. Species associated with autumn sowing and with spring sowing of crops were also recovered suggesting that some weeds were associated with barley and some others were likely to be associated to wheat. The very interesting aspect of the weed/wild plants found on site is the split between those associated with cereal and those associated with legumes. This is the case that appears in Phase 9 very clearly, a large number of seeds of sorrel *Rumex acetosella* and docks *Rumex* sp. were found associated with legumes, while the highest diversity of weeds in low numbers was found associated with cereals. This could be interpreted in different ways and it is possible the major ecological difference lies in the content of nitrogen in soils and could be interpreted as a possible indication of crop rotation. As said before the sorrel and docks may have been fodder or grown near the ovens, and the regular cleaning of the area could have brought these plants in contact with fire.

The Evidence for Brewing *Angela Monckton*

The site at Freeschool Lane is the first in Leicester with substantial evidence for malting and brewing from the presence of charred cereal remains in kilns of the medieval period. There is also some earlier evidence of malted grain from the Saxo-Norman period from contexts in group G5008, which was probably carried out on a domestic scale because the evidence is limited and ale could be brewed in any kitchen. In contrast the medieval evidence is extensive from both purpose-built kilns IF5987 and SG6004, so must have been carried out on a commercial scale.

The process of brewing starts with preparing malt from germinated grain and the conditions required are determined by the nature of cereal grains. The grains require moisture, air and warmth to germinate or sprout, and during germination enzymes in the grain break down the starch to form sugars to be used in the growth of the plant. In order to make use of these sugars, the germination is stopped by heating the grain in a kiln, and then the sugars are extracted to use in brewing. The process of sprouting the grain begins by soaking the grain, draining off the water, then piling the grain on a floor in a warm place. This is best carried out in a building, perhaps the upper floor of the brew house, because it takes several days and the grain must be turned to keep the germination even. When the cereal sprout is about the same length as the grain, the grain is heated to stop germination, the grains are heated in a kiln to parch or lightly roast them and then the grains are roughly ground and the malt sugars

extracted in hot water. The kilning is sometimes done at a lower temperature so that the enzymes remain active and more starch can be added to strengthen the brew. In brewing from oats this was the process used; a smaller amount of wheat or barley was malted and then the oats added to the mash vessel to provide starch which was converted to sugars in the liquid at a low temperature (Amsterdam Museum 1994, 63). The liquid was then filtered off through straw, or bailed out, and used to brew the ale.

The kilns found here were incomplete, having lost their upper structures which would have supported the grains during heating, however, it is known from documentary records that the grain was placed on matting of straw or horse hair over the heat. The use of horse hair matting nailed to a wooden frame is known from Holland (Amsterdam Museum 1994, 62). Fragments of burnt straw matting were found here in IF5987 which probably held the grain, presumably the matting was supported on beams or slats over the heat. The kilns found here consisted of a funnel-shaped pit lined with stone which was dug into the floor of the malting shed as described in documents (C. Dyer pers. comm.), hence the slats supporting the matting for the grain would have been at floor level allowing access to work. Leading into the kiln chamber was an elongated flue where the fire was set, presumable outside the building. It must have been difficult to regulate the heat and fires were a common occurrence. Even during successful runs of the kiln some grains would fall into the fire, or be included with waste burnt with the fuel, and so may be preserved by charring. The remains in the kilns are likely to be from their final use, other features on the site contain dumps of charred remains which also provide evidence of these activities and the cereals used.

Extraction of malt from the grain was carried out in hot water and it is known that large cisterns, probably made from lead, were installed over a hearth to heat the water (C. Dyer pers comm.). On the Continent, large pots up to 150 litres in capacity were used on clay hearths until around AD 1300, then larger copper kettles and wooden vats were introduced (Amsterdam Museum 1994, 16). Only the remains of the hearths were found here. After the malted grain in the water in the cistern had been left to extract, the liquid was tapped off or bailed out. A second extraction was usually carried out to produce a 'small beer' which was weaker for women and children. The liquid was then fermented with yeast in a vat, barrel or trough; the liquid with the yeast added was known as the wort. Once the yeast was established it would be saved for future use. Yeast was also used by bakers so the two trades were often connected. When fermentation had used up the sugars to produce the alcohol, the yeast settled out and the beer could be tapped off into barrels and sold.

The drink produced here, as elsewhere in medieval England at this time, would have been ale rather than beer, the latter being flavoured with hops, no evidence of which was found on the site. Hops were in common use on the Continent in the medieval period, whereas in England they were not regularly used until Late Medieval times. Herbs could be used to flavour the ale; they were added to the mash, and plants such as sweet gale were used on the Continent (Unger 2004). Other herbs used to flavour ale include some members of the daisy family, sloe, elder, blackberry and mint (Behre 1999). Unfortunately, it cannot be shown from the evidence here that they were actually used, although these plants are represented on the site.

The cereals used here were mixed, but contained a large proportion of oats. Oats were the main cereal used for brewing in the medieval period on the continent, mixed with about 25% wheat, and/or barley (Amsterdam Museum 1914, 63). This could be the case here where oats are the most abundant cereal. Documentary records show that oats formed 66% of grain used for brewing in London in 1286 (Unger 2004, 160), and were commonly used in the other regions of England (Dyer 2002). Germinated oats were also found as probable brewing waste in early medieval deposits found on Leicester sites at Vaughan Way and St Nicholas

Circle (Monckton unpublished). Barley became popular for brewing in the late medieval period particularly when hopped beers were produced, and barley is most commonly used today.

Other food evidence from the features associated with brewing included abundant charred legumes, peas, beans and vetches, from the hearths, probably for the brewing vessels. These features IF5406, IF5359 and SG5838, may include legumes incidentally as waste burnt with the fuel, but even so the presence of so many is noteworthy and suggests that legumes were being consumed or processed on the site. It is possible that this is waste from drying legumes for storage using the same kilns as for malting, or it is possible that they represent food or fodder waste. Animals would have been needed as transport for moving supplies and barrels, also waste from the brewing process was usually fed to animals such as pigs. However, some of the food remains on the site could be domestic kitchen waste from the trades-people who worked on the site. There is little evidence here for the details of the supply and sale of beer but the number of purpose built kilns and heaths, and the abundant evidence from cereals suggest that this was an organised trade activity on the site. Quantities of cereals were brought to the site and there was probable secondary use of the waste products to feed animals. Wood and charcoal would have been needed as fuel for the kilns, however, water would have been needed in quantity and the source here is uncertain. Ale was the main drink for many people in the medieval period and large quantities would have been needed; this was certainly one source of supply for the town.

A wider view and conclusions

The plant remains from this site can contribute to a better understanding of the archaeobotanical information for Leicester contributing to the following aspects of the research agenda for the East Midlands (Monckton, 2006):

New insight about the nature/status of the Roman occupation in Leicester have been suggested by the high status imports found in Area 4, in a very early phase of the Roman period.

The change from spelt wheat to bread wheat (free-threshing wheat) seems clearly to be the Saxon period, when bread wheat appears in a very early phase (phase5).

Bread wheat is the main wheat crop found at this site and there is no rivet wheat found on this site. This may help to establish the different uses for these cereals.

Exploitation of low woodland seems fairly common but needs more study of the charcoal to assess the species of plant used for wood.

Evidence of brewing oats for the Saxo-Norman phase is a new interesting datum for the period.

Evidence of crop rotation is suggested in phase 9 and 10 but needs more investigation.

Evidence of brewing of barley, oat and wheat and the use of rye as matting provides new information on the production of beer/ale in the city.

When all these points are considered, it is clear the plant remains from the site have added new data to expand the knowledge of the food consumption and trade in the city and new information about the location of different activities in the town.

Acknowledgements

AR is grateful to Angela Monckton for help with the identification of some of the plant remains and for the discussion of the evidence for brewing on the site, and to Jon Coward and Gavin Speed for information about the site, and to Alex Beacock for processing some of the samples. The charcoal identifications were carried out by Graham Morgan.

AM is grateful to Paul Courtney for discussion and reference from Amsterdam Museum, also to Richard Buckley for more discussion and a bottle of 'Isle of Skye, Porridge Oat Ale' (containing malted barley and oats), which was excellent. AM

THE FLY PUPAE *David Smith*

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 Freeschool Lane, 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 1. The taxonomy used for the Diptera is that of Smith 1989.

Table 204 Fly pupae: the fly fauna recovered from various features at the Freeschool Lane site, Leicester.

Site	Freeschool Lane			
Sample no.	262	291	258	259
Context no.	6025	7090	5979	5992
Description	Cess pit	layer	Privy fill	Privy fill
Phase	7	8	10	10
DIPTERA				
Syrphidae				
Eristalis ?tenax (L.)				
Sphaeroceridae				
Thoracochaeta zosterae (Hal.)	+++		++++++	++++++
Drosophilidae				
Drosophilia sp.				++++
Fanniinae				
Fannia scalaris (F.)		+	++	++++++

Key: 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.

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.

In addition to containing some numbers of *F. scalaris* the various medieval pits from Freeschool Lane are dominated by considerable numbers of the small fly *Thoracochaeta zosterae* which occurred in almost all the samples examined often in large numbers. This is a species that Skidmore (1999) suggests is typical of archaeological cesspits. Today it is only found in accumulations of seaweed at the high water mark on the shore (Belshaw 1989; Skidmore 1999; Smith, K.G.V. 1989; Webb *et al.* 1998). Belshaw (1989) holds that its presence suggests that archaeological cesspits often contained water and other substances with a highly 'saline' nature and that this probably resulted from the inclusion of both faecal material and stale urine. Webb *et al.* 1998 are less clear but suggest a similar environment.

The fly pupae identified from these deposits are typical of the insect life that develops in archaeological cess pits and, often today in septic tanks (Skidmore 1999; Robinson 2005). All the species recovered are described as being '*resistant to adverse environmental conditions'* (Robinson 2005).

Conclusions

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 in both periods may have taken periodic remedial measures to lessen this problem. Many of the fly pupae recovered the Phase 10 Privy (PR5953) 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* were 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).

The fly faunas seen here are also typical of medieval cess pits where preservation is by waterlogging rather mineral replacement and are directly comparable with those from 12th- to 14th-century London (Smith 1997; 2002; 2006; Smith and Morris 2008).

THE PARASITE EGGS *J. Carrott*

Summary

A total of 17 small sediment subsamples and spot samples of coprolites/cess from deposits encountered during excavations at Freeschool Lane, Leicester, were submitted for an investigation of their content of the eggs of intestinal parasites. Features and deposits reflecting several periods of activity at the site were encountered, including the remains of Roman structures and hearths, a post-Roman/early to middle Saxon sunken featured building, two Saxo-Norman buildings and associated cut features (including a large pit), medieval floor surfaces and five kilns of this date, and remnants from post-medieval and modern buildings which included the north bay, or Headmaster's House, of the former Free Grammar School (1573 to *c.* 1880).

Remains of the eggs of intestinal parasitic nematodes were positively identified from just one of the deposits, a late post-medieval fill from one of three joined stone-lined cess pits, though remains that were more tentatively identified as such were also noted in seven others. These were a Saxo-Norman cess pit fill, a late medieval fill of a stone-lined triple pit, and five other late medieval fills of the same stone built privy.

Preservation of the remains was extremely poor, hence the difficulty in making a more positive determination in most cases, and although measurements were taken these were mostly of little value for comparison with modern data. In most cases, it was not possible to determine definitively the source of the faecal content but the recorded remains generally suggested human and/or pig faeces; two coprolite samples contained large bone fragments and were most likely from dogs. Given the archaeological contexts, the deposits probably contained human waste but there is certainly the possibility that the deposits also contained pig faeces.

Introduction

An archaeological excavation was carried out by University of Leicester Archaeological Services (ULAS) at Freeschool Lane, Leicester (centred on NGR SK 583 046). The works were undertaken during 2005 and 2006 in advance of the Highcross Leicester retail development.

Features and deposits reflecting several periods of activity at the site were encountered, including the remains of Roman structures and hearths, a post-Roman/early to middle Saxon sunken featured building, two Saxo-Norman buildings and associated cut features (including a large pit), medieval floor surfaces and five kilns of this date, and remnants from post-medieval and modern buildings which included the north bay, or Headmaster's House, of the former Free Grammar School (1573 to *c.* 1880).

A total of 17 small sediment subsamples and spot samples of coprolites/cess from Saxo-Norman, medieval and post-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 and area. 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 7.3 – Saxo-Norman (850 to1150 AD) – Area 1

Context 6025 [fill of cess pit 5702; plot 56]

Sample 262.2

The 'squash' was mostly inorganic but with a significant component of organic detritus (perhaps 25%). No eggs of intestinal parasites were recorded but there were a few diatoms (all those seen were of one form), some plant tissue and phytolith fragments, and a few pieces of ?micro-invertebrate cuticle present.

There were also two separately submitted spot samples of 'cess' and a coprolite from this deposit. Examination of the first of these using a low power (x7 to x45) binocular microscope revealed that some pieces were primarily of concreted sediment which could well be mineralised cess, whereas others were clearly bone fragments with a coating of adhering sediment – the latter including a fragment of sheep/goat mandible (to 19 mm). A 'squash' subsample from the concretion was rather uninformative – it consisted mostly of 'inorganic' material though much of this could, in fact, have been mineralised organic detritus as a few fragments were identifiable as mineralised plant tissue. No eggs of intestinal parasites or other interpretatively valuable microfossils were recorded, however.

The coprolite spot sample appeared largely inorganic when examined using a low-power binocular microscope and included areas of grey sediment. However, there were some embedded fragments of very decayed plant material occasionally visible on the surface (or, perhaps, just the impressions of such material left on the surface?). The 'squash' sample was essentially inorganic, though as noted above for the 'cess' spot sample, much of this could be derived from fragments of mineralised organic detritus as there were a few mineralised pieces of plant tissue present and numerous phytolith fragments. There were also two structures tentatively determined as, decorticated (i.e. lacking an outer mammillated layer), and mineralised ascarid eggs, all of which appeared to be fertilised (based on their rather rounded shape and overall size). The measurements for the ?eggs were 63.52 by 49.26 and 70.00 by 46.67 microns.

Phase 8 – earlier medieval (1100 to 1250 AD) – Area 1

Context 6373 [fill of well 6406 cut by cess pit 6188; plot 57]

Sample 307

The 'squash' was mostly inorganic but with a significant component of organic detritus (up to 25%). No eggs of intestinal parasites were recorded but there were some diatoms (of at least two different forms), many phytolith fragments and a few fungal spores present.

There was also a separately submitted coprolite spot sample from this deposit. Examination of this using a low power binocular microscope suggested that it was a largely mineral concretion; no organic remains or residual traces of such material were noted. The 'squash' subsample was almost entirely inorganic (comprising mineral grains), with a trace of mineralised organic detritus, a few phytolith fragments and diatoms (only one form was recognised) and some fungal hyphae.

Phase 8 – earlier medieval (1100 to 1250 AD) – Area 4

Context 1264 ['cessy' fill of well/pit within subgroup P1248 of intercutting pits; no plot number]

Sample 141

The 'squash' was mostly inorganic and/or mineralised organic detritus, with a few ?phytolith fragments and many pieces of plant tissue (most of these also appeared mineralised). No eggs of intestinal parasites were recorded. Some bone was present in the subsample and this included some goose tracheal rings.

Phase 10 – late medieval (1400 to 1500 AD) – Area 1

Context 5465 [fill of stone-lined triple pit; plot 57]

Sample 221

The 'squash' was approximately equal parts inorganic and organic detritus, with a few ?pollen grains/spores and a single possible decorticated, mineralised, and probably fertilised, ascarid egg (measurements were 68.70 by 49.26 microns).

Context 5979 [fill of privy 5953; plot 57]

Sample 258.2

The 'squash' was mostly inorganic, with a little organic detritus, a few fragments of plant tissue and some ?micro-invertebrate cuticle. A single microfossil was tentatively identified as the mineralised inner part of a trichurid egg (giving a measurement of 44.07 microns long by 20.74 microns wide).

Context 5992 [fill of privy 5953; plot 57]

Sample 259

The 'squash' was approximately equal parts inorganic and organic detritus, with a few fragments of some ?micro-invertebrate cuticle and some fungal spores. Two microfossils were tentatively identified as the mineralised inner parts of trichurid eggs (with measurements of 44.07 microns long by 23.33 microns wide and 38.89 by 22.03 microns).

Context 6085 [fill of privy 5953; plot 57]

Sample 272

The 'squash' was mostly inorganic but with a fairly high (perhaps 25%) proportion of organic detritus. A few plant tissue fragments and some pollen grains/spores and fungal hyphae were noted. Two items were tentatively recorded as decorticated, mineralised (and probably fertilised) ascarid eggs, with measurements of 60.93 by 47.96 microns and 64.81 by 44.07 microns.

Context 6112 [fill of privy 5953; plot 57]

Sample 279

The 'squash' was mostly organic detritus, with a fairly high proportion of inorganic material (as much as 25%), some plant tissue fragments and a few pollen grains/spores. There were also five, rather tentatively determined, decorticated and mineralised ascarid eggs, all of which appeared to be fertilised. The measurements for the ?eggs were 68.70 by 44.07, 59.63 by 33.70, 67.41 by 46.67, 64.81 by 45.37 and 59.63 by 47.96 microns.

Context 6122 [fill of privy 5953; plot 57]

Sample 278

The 'squash' was mostly organic detritus, though much of this was mineralised, with some inorganic material also present. There were many pollen grains/spores noted and also some plant tissue fragments (some of which were mineralised). Twelve structures were noted that

appeared to represent the mineralised remains of the inner parts of trichurid eggs (all measurements for these remains were, within the precision of the measuring instrument, the same at 44.07 by 20.74 microns) and there were also 11 possible ascarid eggs. All of the latter were decorticated and mineralised, and also probably fertilised eggs. Five could not be measured because of being partially obscured on the slide but were of similar size to the six which could be; these giving measurements of 55.74 by 44.07, 62.22 by 46.67, 70.00 by 41.48, 63.52 by 37.59, 62.22 by 41.48 and 59.63 by 46.67 microns).

Phase 10 – late medieval (1400 to 1500 AD) – Area 4

Context 1222 [primary fill of industrial feature P1111]

Sample 121

The 'squash' was mostly inorganic, with a little organic material that appeared mineralised. No intestinal parasite eggs or other identifiable microfossils were seen.

Phase 10 – late medieval (1400 to 1500 AD) – Area 7

Context 2026 [coprolite spot find from layer 2026]

Coprolite spot sample (no sample number)

Examination of this spot sample using a low power binocular microscope revealed that it consisted largely of 'concreted' bone fragments some of which were fairly large (to 8 mm, perhaps more). Given this composition and the size of the included bone fragments, it seems most likely that this was a dog coprolite.

The 'squash' appeared mostly inorganic, with some remains identifiable as mineralised organic detritus – though it may be that much of the finer 'mineral' content was in fact also mineral-replaced organic material. No eggs of intestinal parasites or other identifiable microfossil remains were noted.

Phase 10 – late medieval (1400 to 1500 AD) – Area 10

Context 3444 [fill within industrial feature G3004]

Sample 77

The 'squash' was mostly inorganic, with a little organic detritus. No intestinal parasite eggs or other identifiable microfossils were seen.

Phase 11 – early post-medieval (1500 to 1650 AD) – Area 1

Context 5357 [fill of stone-lined triple pit – same feature as earlier, Phase 10, deposit Context 5465 (see above); plot 57]

Sample 204

The 'squash' was approximately equal parts inorganic and organic detritus, with some plant tissue fragments and a few diatoms (only one form seen). Three rather poorly preserved *Trichuris* eggs were also recorded, none retained either of their polar plugs but the lengths without polar plugs and widths could be measured for two of them (the third was partially

obscured on the slide). The measurements obtained were 46.67 by 23.33 and 44.07 by 23.98 microns (see Figure 126)

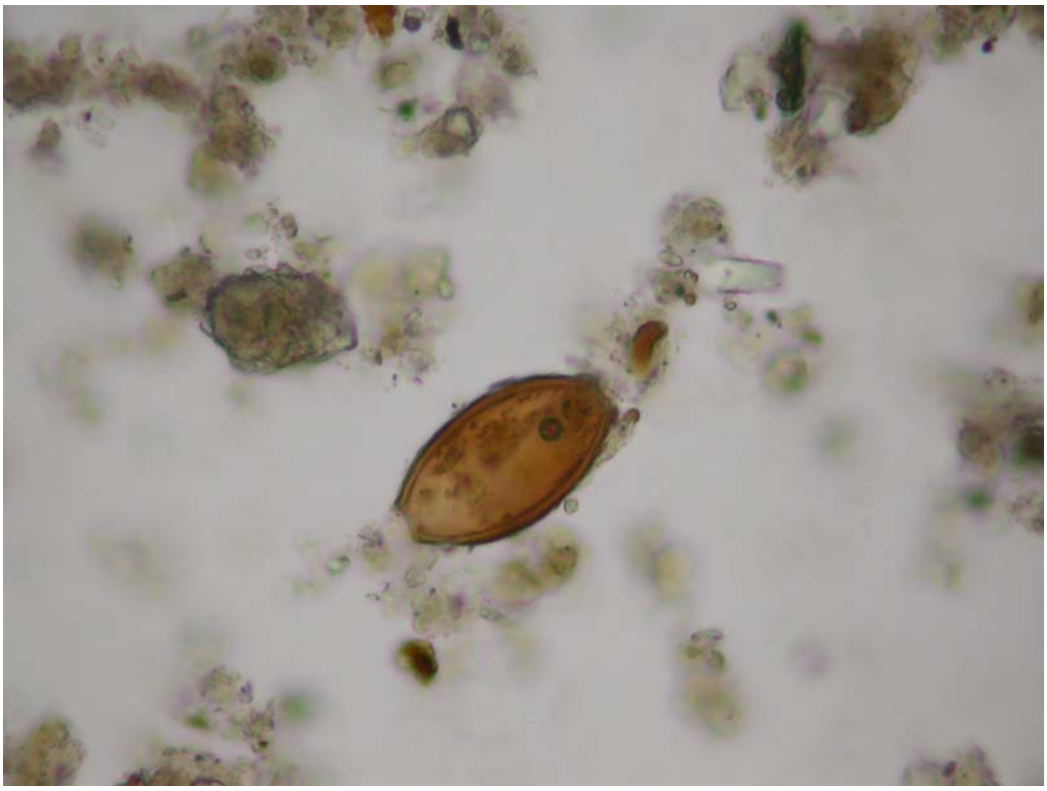

Figure 126: Trichuris Egg from context 5357, sample 204

As measurable (at least to some degree) trichurid eggs had been detected in the initial 'squash', this sample was investigated further. Additional slides were prepared and examined for parasite eggs. However, another six slides revealed only one additional *Trichuris* egg – this also lacked both polar plugs but was otherwise measurable giving measurements of 48.07 by 24.04 microns – and the attempt to obtain a minimal statistically viable set of 30 measurements was abandoned.

Phase 11 – early post-medieval (1500 to 1650 AD) – Area 10

Context 3421 [coprolite spot find from layer 3421ber]

Coprolite spot sample (no sample number)

Examination of this spot sample using a low power binocular microscope revealed it to be of very similar composition to that from Context 2026, again consisting largely of 'concreted' bone fragments some of which were fairly large (to 7 mm, perhaps more). This sample also seems most likely to be a dog coprolite.

The 'squash' appeared mostly inorganic, with traces of remains which were probably mineralised organic detritus – though, as previously noted for the spot sample from Context 2026, it may be that much of the finer 'mineral' content was in fact also mineral-replaced organic material. No eggs of intestinal parasites or other interpretatively valuable microfossils were seen; though a few fragments of ?fungal hyphae were noted.

Discussion

Remains of the eggs of intestinal parasitic nematodes were positively identified from just one of the deposits (Context 5357 – a late post-medieval fill from one of three joined stone-lined cess pits), though remains that were more tentatively identified as such were also noted in seven others Context 6025 (Saxo-Norman fill of cess pit 5702), Context 5465 (late medieval fill of stone-lined triple pit) and Contexts 5979, 5992, 6085, 6112 and 6122 (all late medieval fills of the same stone built privy). Preservation of the remains was extremely poor, hence the difficulty in making a more positive determination in most cases, and although measurements were taken these were mostly of little value for comparison with modern data.

The majority of the records were only tentative. Those for trichurid eggs (other than the small number of *Trichuris* from Context 5357 – see below) 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 (Figure 1). In the case of the remains from this site 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 *T. trichiura* is a wholly contained subset of that for *T. suis* and not possible for these minimal and only tentatively identified remains.

The three trichurid eggs from Context 5357 were somewhat better preserved, retaining the outer egg layer (and hence their characteristic shape), but none of them retained either of their polar plugs. However, for two of these eggs a total length without polar plugs measurement was possible and, by comparison with data from medieval deposits at another archaeological site (Brayford North, Lincoln – Carrott 2002) where eggs both with and without polar plugs were present, it was possible to extrapolate an approximation of the total length of the complete eggs. At Brayford, it was calculated that, on average, the total length with polar plugs was 12.6% greater that that without polar plugs. Clearly, this must be viewed with some caution given that taphonomic differences may be reflected in (to the author's knowledge) unresearched changes in egg morphology. Figure 1 shows the two measurements (with extrapolated plug to plug values used for maximum length), 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 2 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, both of the measurements fall within the range for modern *T. trichiura* but, therefore, also within the range for *T. suis*; hence showing no real indication in favour of one over the other – though the archaeological context from which they were recovered would suggest the former.

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, 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 probably all fertilised) *Ascaris* eggs seen in these samples (Contexts 5465, 6025, 6085, 6112, 6122) 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 cautious 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 five coprolite/cess spot samples submitted, from Context 2026 (a late medieval layer in Area 7) and Context 3421 (an early post-medieval layer in Area 10) contained large fragments of bone and were almost certainly formed from dog faeces. Examination of the three other spot samples was inconclusive, although one, the coprolite from Context 6025 (Saxo-Norman fill of cess pit 5702 in Area 1, plot 56), did contain two possible mineralised (and probably fertilised) ascarid eggs.

In summary, some of the samples from privy/cesspit 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 remains suggest human and/or pig faeces. Given the archaeological contexts, the deposits probably contained human waste but there is certainly 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). The vertebrate remains from Freeschool Lane are currently undergoing analysis but there is certainly evidence of pigs from Roman and medieval/post-medieval deposits at 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 Freeschool Lane, it seems quite likely that both human and pig faeces could be present within deposits with a faecal content, even perhaps within a feature as nominally specialised as a privy.

Archive

All of the remaining material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here, but due to be returned to the excavator within a few weeks of completion of this report.

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THE SOIL MICROMORPHOLOGY, CHEMISTRY, AND MAGNETIC SUSCEPTIBILITY *R.Macphail and John Crowther*

Introduction

Roman and medieval sites at Freeschool Lane and Roman sites at Vine St, Leicester, respectively, were visited (21-02-2006) and discussed with Angela Monckton, Alex Beacock, Jen Browning, John Coward [site director, Freeschool lane] (University of Leicester Archaeological Services) and samples were also taken from Vine Street. 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 St, Leicester: soil evaluation", report to University of Leicester Archaeology Service, 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 (Freeschool Lane Areas 1, 4 and 10; Vine St Areas A, B and D). This produced 7 thin sections from Freeschool Lane and 5 thin sections from Vine St., 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, 15 from Freeschool Lane and 17 from Vine St (see below; see Table 208 and Table 209). Two sub-units within Context 5067 (MVS1A) were also the focus of a microprobe investigation. 13 bulk analyses (see below) were also carried out on 13 contexts.

Chemistry and magnetic susceptibility

Each sample was 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.

Chemistry and magnetic susceptibility

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^{o}C for 16 hours (Ball, 1964).

Soil micromorphology

The 12 monolith subsamples (MFS 2, 4, 5, 8, 9, 11A and 11B – from Freeschool Lane; MVS 1A, 1B, 2, 3A, 3B, 4 and 7 – from Vine St) 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 (Figs 2-4) were 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 208, Table 209), 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). 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 Table 206 (LOI, pH, carbonate, phosphate-P, magnetic susceptibility, Pb, Zn and Cu) and Table 207 (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 206 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 206 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 Table 206 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 206. Under UK conditions, χ_{conv} values of $\geq$ 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 medieval garden 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 in Table 206). 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 208 and Table 209. As noted above, 32 layers within the contexts were counted and described, 15 from Freeschool Lane and 17 from Vine St. These findings are presented by Area, with each sub-unit/context being described and interpreted, and then discussed in its local and sometimes wider context.

Area 1

Phase 5, Lower 'dark earth' below collapsed Roman wall; Context 6450 (samples MFS11A and 11B; Tables 4 and 6)

Two thin sections (M11A and M11B) were employed to study this 'dark earth' context 6450, below collapsed Roman wall 6449. Soil micromorphology identified 3 sub-units (0-80mm: 6450a; 80-140mm: 6450b; 140-160mm: 6450c) below the wall collapse:

6450c: This is an open structured dark earth soil, which is strongly bioworked, probably by earthworms, and smaller invertebrate mesofauna of 'near' surface type. It is very poorly sorted, with coarse mortar, pot and rock fragments, and has a moderately humic, ash and phytolith-rich fine fabric.

This 'early dark earth'/calcareous brown earth soil formed in building and domestic waste (ash and phytolith-rich floor sweepings?), and underwent short-lived 'surface' soil formation, indicating a short-lived period of stasis, prior to renewed dumping that formed overlying sub-units 6450b and 6450c.

6450b: This is strongly burrowed by mainly earthworms, as evidenced by the presence biogenic calcite/earthworm granules (Armour-Chelu and Andrews, 1994; Canti, 1998), but is less open compared to 6450c. It is poorly sorted and more charcoal-rich (including twigwood), compared to 6450c. It is a humic dark earth that includes fine burned daub and

fine coprolitic and burned bone, and has a similar ash and phytolith-rich fine fabric, as below. Sand-size corroding non-ferrous metal droplets embedded in ash were also noted (see below).

This sub-unit records renewed dumping of domestic waste that includes probable 'floor sweepings': ash, silt and sand, phytoliths, charred monocotyledonous plant remains (relict of cereal or other plant processing or roofing material?). This dumping appears to have been a semi-continuous process with little chance for 'surface soils' to form (cf 6540c).

6450a: This has a similar humic ash-rich fine fabric, and is very poorly sorted with mortar fragments throughout. These are concentrated at the top of the thin section MFS11A (below 6449), and also as burrowed material. Occasional coarse charcoal, and rare coprolitic bone and burned bone occur, alongside further sand-size examples of 'metal' embedded in ash (probable pure lead with corrosion haloes of lead oxide and lead carbonate; Thilo Rehren, UCL, pers comm.; employing a metallurgical microscope). Lead can be a relatively common inclusion on Roman sites (Styles *et al*., 1995), being used for constructional purposes (e.g., plumbing) when in a pure state. The amorphous organic matter that is present throughout has possible charred dung origins, because there is little evidence of surface organic matter accumulation/*in situ* soil formation (e.g., heightened bioactivity), although some input of natural soil humus cannot be ruled out. Bulk analytical data (6450 Table 206) show slight organic matter enrichment, phosphate enrichment and magnetic susceptibility enhancement all consistent with the general character of this 'dark earth' and its inclusion of burned waste, bone and coprolitic material. It is also noteworthy that the occurrences of probable lead are mirrored by a strongly enriched Pb content (2560 $\mu g\ g^{-1}$).

Sub-unit 6450a has similar formation processes as 6450b below, but with rock fragments and coarse mortar possibly being included from the weathering of wall (6449), prior to its collapse (cf soils elsewhere buried by Roman wall collapse; Roman Southwark, London figs 7c and 13; Macphail, 1994, 2003). Although ashy fine soil has been dumped, the relative paucity of phytoliths but higher amounts of organic matter (hence its darker colour) from possible dung inputs, suggests a change in material being dumped, possibly from animal stabling waste, rather than dominantly domestic floor sweepings as in 6450b and *c*. The presence of stabling waste in Roman contexts is well documented, both in 'open areas' and within once-domestic rooms/structures ((Macphail *et al*., 2004, 2007; Macphail and Linderholm, 2004; Wiltshire in Fulford and Wallace-Hadrill, 1995-6). Some ash and phytolith-rich loamy soils that form thick dark earth deposits were long thought to be dumps of floor sweepings Sheldon in (Southwark and Lambeth Archaeological Excavation Committee, 1978), and an example of this well sorted material was investigated from 28, Park St, Southwark; here sweepings produced a clay loam (silt and clay from brickearth 'clay' floors; Macphail, 2003), whereas Leicester soils are more sandy. 'Early' dark earth, i.e. dark earth soils formed *during* the Roman period have been investigated elsewhere at Colchester House and 7-11, Bishopsgate, London and record a change in land use within the 'urban' landscape of Roman settlements (Macphail and Linderholm, 2004). More commonly, dark earth is found to merge upwards into medieval contexts. At Courages Brewery, dark earth formation commenced in robbed out house plots from the 2nd century AD onwards, and long weathered 'ashy' dark earth becoming progressively decalcified. The dumping of ash residues appears to be ubiquitous in 'waste ground', and for example is recorded in City of London sites (e.g., London Guildhall), at Whitefriars, Canterbury and at Tours, France (Macphail and Crowther, Forthcoming)

Area 1, Phase 7, Saxo-Norman 'Dark Earth'; 5280 (sample M9)

5280: This is a probably once-layered richly-organic, charcoal and phytolith-rich deposit, containing some coarse aggregates of articulated phytoliths, very abundant wood and bark remains, with some of the latter showing horizontal orientation. The last can be associated with the organic excrements of Oribatids(?) that were presumably introduced with this woody material. This context contains very abundant amorphous yellow coprolitic material and staining features (some with embedded plant tissues), probably of omnivore origin that are likely *in situ*, whereas some of the staining may occur due to contamination from overlying deposits (Alex Beacock, field notes). This coprolitic/cess material rarely shows autofluorescence under blue light, and when it does, this is a low, mainly pale orange autofluorescence, suggesting that most of this input is from pigs, rather than humans. The deposit also includes much wood charcoal, coprolitic bone and burned bone, and fine burned daub and pot, and possible examples of igneous rock grindstone. It is much burrowed and bio-worked. These inputs of woody material and animal (pig?) excrement have enriched this deposit in organic matter (7.04% LOI), which along with bone and other (human and dog) coprolitic material, and likely phosphate contamination, have together produced a context very strongly enriched in phosphate-P (13.8 mg g^{-1}), the highest amount recorded at Freeschool Lane. In addition, there is also clear enrichment in Pb and Zn, and an enhanced magnetic susceptibility.

This midden occupied outside space, hence the bioworking and decalcification of most of the ash. No earthworm granules were recorded, indicating that the deposit formed rather rapidly, perhaps with an anaeorobic and acidifying micro-environment at times that was not conducive to earthworm activity. It can be suggested that the deposit received probable sweepings from timber constructed (bark and wood) domestic buildings; low status structures would have employed wood that had not been sawn/de-barked, and on drying this bark would have peeled off and fallen onto the floors (Damian Goodburn, MoLAS, pers. comm.). The floor sweepings are also rich in fine anthropogenic inclusions (fine burned daub, pot, sand and silt of local environment, and coprolitic bone and dog coprolites from scavengers, and burned bone from hearths), that also include phytoliths from cereal processing, and other plant material waste (mats, thatch). This space was also used to dispose of human waste, and also received coprolitic material of dog and omnivore (pig) origin (Courty *et al*., 1989). It seems unlikely that pigs were very active here (cf Vine St 5413), because the deposit does not appear to have been churned up, which is the normal effect of pigs (Gebhardt, 1995). The deposit therefore seems to have rapidly formed *in situ*, but was subsequently affected by additional phosphate and possible heavy metal contamination from overlying depositional activities. This is a common occurrence and produced various 'green' and 'yellow' stained dark earth deposits at Pevensey Castle (*Anderida*) and at the London Guildhall (Macphail *et al*., Forthcoming/2008; Macphail and Linderholm, 2004).

Area 1, Phase 9, Med hearths; 5322, 5329 and 5330 (sample MVS9)

5330: This lowermost context is a massive, moderately irregular layered ash and charcoal-rich (including examples of charred bark) deposit, containing very abundant phytoliths, small fragments of burned daub/hearth and an example of iron slag that shows 'rusting', i.e. localized iron staining. The context also records minor burrowing and excrements of very small mesofauna.

This layer is a trampled spread of mixed industrial(?) and domestic(?) hearth waste, the very abundant phytoliths likely coming from floor coverings and/or roofing debris. The presence of only very small mesofauna may relate to the ashy deposits being toxic to earthworms, the

rapidity of accumulation (rake outs) and also the fact that these deposits were often probably wet.

5329: This context differs from 5330 below, by being a massive and very poorly layered charcoal-poor but coarse mortar-rich layer, which shows much burrowing and excrements of very small mesofauna. It includes a scatter of coprolitic bone and mineralised cess fragments.

This layer is a dump or purposeful spread of poorly sorted building debris (including mortar) and fine burned daub/hearth, possibly to create a surface or to seal deposit 5330. It is again ash-rich, but phytoliths are not obvious (cf 5330 below). It shows *in situ* weathering and working by very small mesofauna, and was also possibly often wet (see 5322 above).

5322: This uppermost context is composed of laminated and moderately well sorted coarse charcoal and is moderately ash-rich, with occasional horizontally oriented burned eggshell, with rare bone and phytoliths. There layer has is moderately little fine fabric and low levels of bioactivity (as 5322c).

This layer is clearly waterlain, and mainly composed of domestic hearth debris, presumably debris from a kitchen. It possibly results from the regular sluicing of kitchen floors/hearth rake out. The layer was thus often wet, with water draining through into underlying deposits (see effects in 5329 and 5330).

Thin section MFS9 took a sample through three layers of a much thicker layered deposit. These layers record rapidly formed deposits from trampled (5330), dumped (5329) and waterlain (5322) spreads of mainly hearth rake out (with domestic, kitchen and 'latrine' waste); all of which are recorded by the strongly enriched organic content, enriched phosphate-P and strongly enhanced magnetic susceptibility of bulk sample 5322 (Table 206). It is evident that the different contexts show differing rake-outs and debris discard. For example, 5322 is markedly rich in eggshell from kitchen waste, whilst the inclusion of very abundant phytoliths in 5330 implies the trample of flooring and/or thatch debris (the absence of melted phytoliths indicates that cereal processing is not being recorded).

Area 4

Area 4, Phase 2 (pre Roman floor make-up)(Sample MFS2)

1323: This is a reddish brown, once-moderately humic, moderately well sorted fine silty sandy loam soil, which displays 2 wide mm channels and microaggregate (excremental) microstructure. It contains occasional charcoal and rubefied mineral material. (A bulk sample of the laterally equivalent soil, 1320, shows the very low LOI, phosphate-P content and lack of magnetic susceptibility enhancement of a natural soil unaffected by human impact.) Upwards, 1323 becomes more finely channeled and the microaggregates appear to have been humic ('organic') with the soil as a whole shows dominant burrowing by very small (acidophyle; Babel, 1975) mesofauna; this sub-unit also shows major blackening and rubefication of the once-humic topsoil. Later burrowing-in, probably by earthworms, mixed small amounts of charcoal and charcoal-rich soil, down profile.

The soil micromorphology and bulk analyses demonstrate that the lower topsoil A12h (lower 1323) and upper topsoil A1h (uppermost 1323) horizons of a probably *in situ* brown earth soil is present. This soil can therefore be identified as being related to the locally mapped Stagnogleyic argillic brown earths that are formed in drift over Permo-Triassic geology and reddish till (Dunnington Heath and Flint soil associations, respectively; Ragg. *et al*., 1983, 1984). In Area 4, these soils include small amounts of charcoal and burned mineral

inclusions, which can be typical of once-cleared/managed woodland (cf. charcoal in conifer woodland podzols at the Umea University Experimental Farm, North Sweden; Macphail, 1998) (Romans and Robertson, 1975). The humic microaggregate evidence for a 'contemporary' acidophyle mesofauna in a mull horizon possibly records soil formation under secondary scrub woodland (2 mm-size root channels). Lastly, the soil surface was affected by *in situ* burning and presumably clearance (1322)(clearance features have been reviewed in Gebhardt, 1993 and Macphail, 1992). In terms of the Roman settlement in Phase 2 this appears to be expansion onto a Greenfield site.

1322: This is a very fine and moderately coarse (2mm) wood charcoal-rich layer with patchy micritic ash, some showing yellowing from later weathering/humic staining; there are also aggregates of ash and some individual coarse wood ash crystals. The layer mainly shows evidence of contemporary burrowing by very small invertebrate mesofauna (as in the original soil); there was later broad burrowing, probably by earthworms.

This thin charcoal and ashy layer formed from probable secondary woodland/scrub clearance, and appears to have been immediately buried by occupation spreads (hence ash preservation), which affected this Greenfield site.

1321: This is a heterogenous mixture of mainly earthworm (broad burrows mamilated excrements and biogenic calcite granules; Canti, 1998) burrowed soil and deposits. This has involved the once-*in situ* natural and burned soils, and ash, wood charcoal, coarse burned subsoil clay (hearth fragment?), mortar, gravel, weathered mortar, bone, and ash aggregates. The equivalent bulk sample (1319) records slight organic matter and phosphate enrichment and very strong magnetic susceptibility enhancement.

1321 is an earthworm worked and burrowed spread/dump of hearth, domestic and building debris that includes very strongly burned material, which was moderately burrow-mixed with underlying cleared *in situ* soil. Strongly burned material, such burned daub and hearth material have been used at other Roman sites for ground-raising foundations for structures (e.g., No 1 Poultry, London; Macphail and Linderholm, In press).

Area 10

Three thin section samples were used to study the Phase 2 early Roman soil 3650 below a metalled surface (3644) – MFS5; the Phase 10 lower garden soil (3541) over metalled surface 3644 – MFS4; and the Phase 10, Medieval Garden soil (3674) – MFS8.

Phase 2, E Roman soil below metalled surface (MFS5)

3650: This is a yellowish brown sandy loam (cf MFS2) with rare charcoal, but traces of humifying amorphous organic matter concentrations throughout. There are also the remains of occasional dusty clay and matrix void coatings, within the generally strongly burrowed and biologically worked soil. Much post-depositional amorphous yellow iron phosphate occurs as infills and as impregnative staining, with some infills showing rare traces of vivianite. The amorphous yellow features are sometimes associated with yellowish red clayey infills. These phosphate features are not particularly recorded in the bulk sample (Table 206), which is apparently more representative of a soil little affected by anthropogenic inputs (cf. 1320 and 1323/MFS2) – probably because the bulk sample may have been taken lower than the phosphate-affected junction between 3650 and 3644 in thin section MFS5 (see below).

3650 is a biologically homogenized soil with the remains of textural pedofeatures (dusty and matrix coatings), humifying organic matter, and rare charcoal, all of which indicates the presence of a cultivated soil. This soil clearly differs from the uncultivated natural soil in FSM2 – 1323, in Area 4. The humifying fine amorphous organic matter may be relict of dung (cf Goldberg and Macphail, 2006, figs 12.16-17), which possibly indicates low levels of manuring. Low level manuring of Roman cultivated soils was recorded by Crowther in late 3rd century rampart-buried soils at Canterbury (in Goldberg and Macphail, 2006, table 9.1a). The soil below 3644 was affected by both clay inwash and phosphate draining from this overlying surface (and later waste disposal – 3541), a typical feature found in both Roman rural and urban settings (Macphail and Crowther, 2006a; Macphail and Linderholm, In press).

Area 10, Phase 10, Lower Garden soil (3541) over Roman metalled layer (3644) Phase 2 (MFS4)

3644: This metalling layer is composed of moderately poorly sorted silt to sand, with angular gravel and a moderately fine charcoal-rich fine fabric. It shows some rare grain coatings (textural pedofeatures), but many thin organo-mineral excrements. Coarse materials also include: phosphate-stained and silt and iron-embedded coarse charcoal, an angular dog coprolite and rock and mortar fragments. There also seems to have been burrowing, and clay and iron phosphate contamination from 3541 deposits above.

These upper metalled surface silts include coarse material from hard standing/ground raising construction, and general waste (dog coprolite and phosphate-stained charcoal). It has been biologically worked but some traces of dusty clay grain coatings may relate to some minor trafficking, but may also have originated through dumping spreads which formed 3541 (see below).

3541 lower: The lowermost 35 mm of reddish brown loam contains very abundant fine charcoal, and trace amounts of ash and phytoliths. The context also exhibits abundant fine charcoal-rich clayey inwash and associated iron phosphate staining and secondary iron-phosphate formations. The soil shows partial earthworm-working (broad burrows).

This lowermost part of the Lower Garden soil was probably composed of once-ashy, fine charcoal-rich clay (with phytoliths) and phosphate dumps, which included rare coprolitic bone. From Roman and Norman analogues elsewhere (e.g., Southwark, London) such deposits can be identified as midden dumps that included sweepings derived from the beaten floor deposits formed on 'clay' and other floors (see 6450/MFS11A and B, in Area 1). This may argue for a 'Roman' origin for this lower part of 3541, as some form of 'Roman' dark earth (Macphail, 2003; Macphail and Linderholm, 2004).

3541: The uppermost 35 mm of 3541 is blackish reddish and more stony loam, characterised by earthworm mixing and dusty and matrix void coatings. It appears to be slightly more humic and homogenized compared to lowermost 3541 which rests on 3644.

Here, the probable continued dumping of sweepings and waste is also recorded, but in this upper deposit it has been much more strongly worked by biological activity, and more strongly weathered – decalcified – as evidenced by a lack of calcitic ash. In addition, the many dusty and matrix textural pedofeatures indicate physical disturbance, such as through possible cultivation episodes (Gebhardt, 1992; Jongerius, 1970, 1983), but with further depositional activity leading to the burial of this layer.

It can be noted at Context 3541 that there is some evidence of long of weathering that led elsewhere to the formation of typical decalcified 'dark earth' between the Roman and Medieval Periods (Cammas, 2004; Macphail *et al*., 2003; Macphail and Linderholm, 2004; Sidell, 2000). Gardening, as a formation process of dark earth, has been suggested across Europe (Macphail, 1994; Macphail *et al*., 2003), and cultivation of abandoned urban space within a continuing urban environment, for example as an alternative use of disused house plots, is likely (as noted in the 'Medieval' city of Dubrovnik, Croatia; Macphail, pers. observation). Thus a cultivation episode(s) during the formation of 3541 is not unlikely.

Area 10, Phase 10, Med Garden soil (MFS8)

3690: This is a generally biologically burrowed and homogenized poorly sorted silt and sandy loam with gravel and small stones of rock fragments, burned flint and ferruginous sandstone. It contains much coprolitic bone, burned bone, probable cess nodules, dog coprolites, weathered ash clasts, and weathering biogenic calcite (earthworm granules and slug plates) are present indicating that it is at least partially earthworm worked. Some textural pedofeature infills of humic fine charcoal rich clay containing ash also occur. The fine fabric was once humic, and still retains phytoliths and articulated phytoliths, and some rare traces of ash. The micromorphology is consistent with a slightly enriched organic content and enriched phosphate-P (Table 206). The deposit, as a whole, is also enriched in Pb, which may possibly have similar origins to the Pb found as metal at Context 6450 (Area 1, MFS11A and B).

3690 is a biologically worked and weathering 'dark earth' accumulation probably from domestic waste dumping (ash, sweepings from 'clay' floors, possible burned dung and food, latrine and nightsoil waste). Unusually, there is little burned mineral material, and hence no magnetic susceptibility enhancement is recorded. It may have similar general origins to 'dark earth' Context 6650, and seems to have had a possible longish phase of weathering before renewed dumping led to the formation of overlying Context 3674.

3674: Above the diffuse Context boundary to 3690, Context 3674 is very similar to 3690 below, but has less well biologically homogenised humic, charcoal-rich and ashy infills. Upwards, bulk analyses (3674L and 3674U) show that the 'Medieval Garden' soil becomes progressively more humic, more phosphate-P and Pb enriched; 3674U also demonstartes slight Zn enrichment. They also exhibit magnetic susceptibility enhancement.

The lowermost part of Context 3674 formed through similar dumping of mainly domestic waste, with rapid accretion leading to incomplete biological working of these deposits, as for example noted in 'Roman' dark earth at Southwark; abandoned medieval house plots at Dragons Hall, Norwich were also employed as dumping areas for domestic waste (Macphail, 2005). Upwards, more burned, organic, phosphate and heavy metal enriched 3674 deposits accumulated through dumping and disposal of mainly domestic and latrine waste; such materials would develop biologically active, horticultural soils if cultivated as gardens.

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Table 205 Details of samples

Context	Area	Phase	Description
5281	1	7	Saxo-Norman dark earth
5322	1	9	Medieval hearths
6450	1	5	Lower dark earth below collapsed Roman wall
1319	4	2	Roman floors/make-up?
1320	4	2	Roman floors/make-up?
3650	10	2	Early Roman soil below metalled surface
3674(U)	10	10	Medieval garden soil (upper layer)
3674(L)	10	10	Medieval garden soil (lower layer)
3690	10	10	Medieval garden soil

Table 206: Analytical data (phosphate fractionation data presented in Table 207)

Context	LOI [a] (%)	pH (water)	CO_3 [b] (est, %)	Phosphate-P [c] (mg g^{-1})	χ (10^{-8} SI)	χ_{max} (10^{-8} SI)	χ_{conv} [d] (%)	Pb [e] (μg g^{-1})	Zn [f] (μg g^{-1})	Cu [f] (μg g^{-1})
Freeschool Lane										
1319	**2.84***	7.7	0.5	**3.82***	305	1360	**22.4*****	160	26	46
1320	1.40	7.6	0.5	1.61	33.8	1090	3.10	31	10	7
3650	1.49	7.0	0.1	2.45	29.1	934	3.12	140	14	9
3674(U)	**3.73***	7.2	0.5	**9.84****	95.3	1630	**5.85***	**1730****	**105***	27
3674(L)	**3.53***	7.0	0.5	**8.03****	131	2580	**5.08***	**1730****	69	30
3690	**2.86***	7.2	0.5	**6.82****	74.4	2570	2.89	**1210****	50	25
5281	**7.04****	7.0	0.5	**13.8*****	101	1150	**8.78***	**639***	**158***	31
5322	**15.8*****	7.8	2	**8.67****	253	1360	**18.6****	360	64	24
6450	**2.87***	7.4	**5***	**6.01****	152	2050	**7.41***	**2560*****	65	35

[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] **χ_{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 μg g^{-1}), ** = enriched (1000–1990 μg g^{-1}), *** = strongly enriched (2000–3990 μg g^{-1})

[f] **Zn** and **Cu:** * = slightly enriched (100–249 μg g^{-1}), ** = enriched (250–499 μg g^{-1}), *** = strongly enriched (500–990 μg g^{-1})

Table 207: 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 (%)
Freeschool Lane					
1319	3.61	0.209	3.82	94.5	5.5
1320	1.33	0.278	1.61	82.7	17.3
3650	2.16	0.291	2.45	88.1	11.9
3674(U)	9.36	0.477	9.84	95.2	4.8
3674(L)	7.28	0.748	8.03	90.7	9.3
3690	6.12	0.702	6.82	89.7	10.3
5281	13.1	0.677	13.8	95.1	4.9
5322	8.34	0.326	8.67	96.2	3.8
6450	5.64	0.369	6.01	93.9	6.1

Table 208: Freeschool Lane Leicester: soil micromorphology - samples and counts

* - 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%

Monolith Sample	Thin section	Rel. Depth	Context	Area	Microfacies	SMT	Voids	Laminated	Red clay loam	Burned red loam
Freeschool Lane										
FS2	MFS2	0-25mm	1321	Area 4	D1	6a, 6b (5a, 5b)	40%			aa
FS2	ditto	25-35mm	1322	Area 4	E2	6a(5a, 5b)	25%			
		35-75mm	1323	Area 4	E1	5a/5b	25(30)%			
FS4	MFS4	0-70mm	3541	Area 10	G1	7c/7b	45%			
	ditto	70-75mm	3644	Area 10	F1	7a	30%			
FS5	MFS5	100-180mm	3650	Area 10	E3	5c	30%			
FS8	MFS8	40-80mm	3674	Area 10	G2	7d	45%			
FS8	ditto	80-120mm	3690	Area 10	G2	7d	45%			
FS9	MFS9	40-120mm	5280	Area 1	H1	8a	35%	(??)		
FS10	MFS10	20-40mm	5322	Area 1	I1	9a	40%	fffff		a
		40-70mm	5329	Area 1	I2	9b	45%	f		aa
		70-95mm	5330	Area 1	I3	9c	35%	fff		aaa
FS11	MFS11A	0-80mm	6450a	Area 1	G5	7g	35%			
FS11	MFS11B	80-140mm	6450b	Area 1	G4	7f	35%		a	a
	ditto	140-160mm	6450c	Area 1	G3	7e	60%			

Table 208 ***(Freeschool Lane) cont:***

Thin section	Context	Charcoal	Articulated phytoliths	Ash	Mortar	Red plaster'	Bark? (wood)	Coprolite (human, dog)	Coprolitic bone	Bone
MFS2	1321	aaaaa		aaaa	a					a
ditto	1322	aaaaa		aaa						
	1323	aa								
MFS4	3541	a		a*					a*	
ditto	3644	a						a-1		
MFS5	3650	a								
MFS8	3674	**aa**	**a***	**aa**				**a**	**aa**	
ditto	3690	aa	a*	a				a	aa	
MFS9	5280	aaaa	aa	a*			aaaaa	aaaaa	aa	aa
MFS10	5322	aaaaa		aaaa	a				a	
	5329	aa		aaa	aaaaa		a*	a*	a	
	5330	aaaaa	a	aaaaa			a*		a*	
MFS11A	6450a	aa		aaaa	aaa				a	a
MFS11B	6450b	aaa		aaaa	a		a*		a	
ditto	6450c	aa		aaaa	aaaa					

Table 208 *(Freeschool Lane) cont:*

Thin section	Context	Cess	Pig cess?	Brick' B. daub	Oyster? shell	Burned eggshell	Iron slag	Non-ferrous metal?	Melted? quartz	Biogenic calcite
MFS2	1321									aa
ditto	1322									a*
	1323									
MFS4	3541									
ditto	3644									
MFS5	3650									
MFS8	3674	**a**								a
ditto	3690	a								a
MFS9	5280	aaaaa								
MFS10	5322			a		aa				
	5329	a*		aa				a-1		
	5330			aa			a-1			
MFS11A	6450a									a
MFS11B	6450b							a-1		a
ditto	6450c									

Table 208 *(Freeschool Lane) cont:*

Thin section	Context	Dusty clay coatings	Yellowish clay coatings	2ndary Ca-P	2ndary Fe-P	2ndary Fe	Broad Burrows	Very thin burrows	Very thin org. excremts.	Very broad excremts.
MFS2	1321						aaaaa	aaa	a	aaaaa
ditto	1322						aaa	aaa	aaaaa	(aa)
	1323							aaaa	aaaaa	
MFS4	3541	aaa	aaaa		aaaaa		aaaaa			aaa
ditto	3644	a	a		a		(aa)			(aa)
MFS5	3650	aa	a		aaaa		aaaaa	a	a	
MFS8	3674		aa	(a)			aaaaa	a	a	
ditto	3690		a	(a)			aaaaa	a	a	
MFS9	5280			a	aaaa		aaaaa	aa	a	
MFS10	5322							aa	a	
	5329							aaa	aaa	
	5330					a		aa	a	
MFS11A	6450a					a*	aaaaa	a		aaaaa
MFS11B	6450b					a*	aaaaa	a		aaaaa
ditto	6450c						aaaa	aaaa		aaaaa

* - 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 209: Freeschool Lane and Vine St, Leicester: 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**
			Freeschool Lane
MFT D1/SMT 6a, 6b (5a, 5b)	MFS2	0-25 mm 1321 SM: Heterogeneous, with dominant SMT 6b, and few 6a, 5b; *Microstructure*: massive and burrowed; 40% voids, complex packing voids and coarse (4mm) chambers; *Coarse Mineral*: C:F, 20:80 to 60:40, poorly sorted, with frequent gravel size flint and anthropogenic inclusions; *Coarse Organic and Anthropogenic*: rare examples of mortar, bone (max 2.5mm), burned ironstone, occasional charcoal; with ash aggregates, burned rubefied (red – OIL) soil (hearth?) *Fine Fabric*: SMT 6b (earthworm worked/excrement): as SMT 6a, but compact with areas of very abundant fine ash; *Pedofeatures*: *Fabric*: occasional very thin (200 µm), many thin (1mm) burrows; very abundant broad to very broad (5mm) burrow; *Excrements*: rare very thin (50-100 µm) and abundant broad (1-2) organo-mineral excrements, some mamilated. 25-35 mm -1322 SM: Heterogeneous, with dominant SMT 6a, frequent 5b: *Microstructure*: poorly developed fine subangular blocky, 25% voids, fine (0.5mm) channels and complex packing voids; *Coarse Mineral*: C:F, 70:30; as below but with poorly sorted mixed-in gravel-size flint, ironstone *Coarse Organic and Anthropogenic*: very abundant fine wood charcoal (max 2mm), occasional to abundant ash, as 50-250µm aggregates, micritic calcite ash residues and as 15-20 µm wood ash	Area 4, Phase 2, pre Roman floor make-up 1321 Heterogenous mixture of mainly broad earthworm (mamilated excrements and biogenic calcite granules) burrowed once-*in situ* natural and burned soils, ash and wood charcoal, with coarse burned subsoil clay (hearth fragment?), mortar, gravel, weathered mortar, bone, ash aggregates. *Earthworm worked and burrowed spread/dump of hearth, domestic and building debris, which was moderately burrow-mixed with underlying cleared in situ soil. (Greenfield site development)* 1322 Very fine and moderately coarse (2mm) wood charcoal-rich layer with patchy micritic ash, some showing yellowing from weathering/humic staining), ash aggregates and some individual

MFT E2/SMT 6a (5a, 5b)		crystals (with wood charcoal); examples of burned flint, ironstone and soil (SMT 5c); mixed-in earthworm granules; *Fine Fabric*: SMT 6a: grey to black (PPL), high interference colours to isotropic (microaggregate, undifferentiated and crystallitic b-fabric; black and greyish brown (OIL); very abundant charcoal, occasional to very abundant ash (micritic to 50 µm-size; some yellow staining of ash), many fine rubefied mineral; *Pedofeatures*: *Fabric*: many very thin (200 µm), many thin (1mm) burrows; many very broad (5mm) post-burial burrow; *Excrements*: many very thin (50-100 µm) organic excrements. Sharp sloping boundary with thin (0.5m) 3-4mm- deep burrowed boundary. 35-75 mm - 1323 SM: Homogeneous, but SMT 4a becoming 4b upwards (apart from wide burrow); *Microstructure*: massive, channel and microaggregate; 25% to 30% upwards, coarse (2mm) channels (scrub?), and fine (0.5mm) channels, with complex packing voids upwards; *Coarse Mineral*: C:F, (Coarse:Fine limit @ 10 µm), 70:30; moderately poorly sorted fine silt, fine sand to medium sand-size quartz, quartzite, feldspar (trace amounts of mica); very few rounded limestone and flint gravel (3mm); *Coarse Organic and Anthropogenic*: (coarsely burrowed-in charcoal and burned material from 1322-1321) occasional fine (max 750 µm); fine sand-size example of rounded ironwork(?); many to abundant amorphous organic matter and examples of sclerotia upwards; examples of rubefied sand upwards; *Fine Fabric*: SMT 5a: speckled reddish brown (PPL), isotropic (close porphyric/microaggregate, undifferentiated b-fabric, XPL), brownish orange (OIL); once-humic stained (some rubefied material) with occasional amorphous OM, occasional very fine charcoal; SMT 5b: blackish brown, dark reddish brown (PPL), isotropic (microaggregate, undifferentiated b-fabric, XPL), reddish brown (OIL); very abundant amorphous OM, rare very fine charcoal; *Pedofeatures*: *Fabric*: very abundant very thin (200 µm), many thin (1mm) burrows; example of very broad (5mm)	coarse wood ash crystals; mainly thinly burrowed (with later broad burrowing). *In situ charcoal and ashy layer from secondary woodland/scrub clearance – likely immediately buried by occupation spreads (hence ash preservation).* 1323 Reddish brown, once-moderately humic moderately well sorted fine silty sandy loam soil with 2mm channel and microaggregate structure, with occasional charcoal and rubefied mineral material, becoming upwards: more humic, finely channeled with once humic (‘organic’) microaggregates and high amounts of burrowing by very thin mesofauna; but showing blackening and rubefication and (later) burrowing-in of charcoal.

MFT E1/SMT 5a/5b		post-burial burrow; *Excrements*: many becoming very abundant very thin (50-100 µm) organic excrements. x1319 (~1321) x1320upper (~1323)	*Topsoil A12h and A1h horizons of a probably in situ brown earth soil, that shows evidence of earlier probable clearance (charcoal and burned mineral inclusions), but contemporary acidophyle mesofauna in a mull horizon possibly under secondary scrub woodland (2mm channels); affected by in situ burning.(Greenfield site)*
MFT G1/SMT 7c over 7b	MFS4	0-70 mm - 3541 SM: Homogeneous SMT 7b becoming 7c upwards; *Microstructure*: massive with weak prisms; 45% voids, fine moderately well accommodated planar voids, open vughs and coarse (3mm) chambers; *Coarse Mineral*: C:F, 60:40, moderately poorly sorted silt to fine and medium sand, with frequent coarse (max 13mm) flint and rock fragments (ironstone, siltstone and sandstone); *Coarse Organic and Anthropogenic*: rare fine coprolitic bone and charcoal; examples of coarse mineral grains embedded in Fe-P; *Fine Fabric*: SMT 7b: dotted and speckled dark reddish brown (PPL), low interference colours (close porphyric, crystallitic b-fabric, XPL), brownish orange (OIL); once-moderately humic, with very abundant very fine charcoal, occasional rubefied grains, rare traces of phytoliths, ash and spores; SMT 7c: as 7b, but blackish reddish brown, speckled b-fabric; *Pedofeatures*: *Textural*: abundant dark yellowish speckled clay void infills, some 2mm thick, associated with FeP, finely dusty and poorly birefringent, becoming less frequent upwards; upwards becoming many very dusty to matrix void and grain coatings (50-150 µm thick; *Amorphous*: very abundant yellowish to reddish brown amorphous Fe-P infills; *Fabric*: very abundant broad burrows; *Excrements*: many broad organo-mineral excrements; x3541	Area 10, Phase 10, Lower Gdn soil over Roman metalled Phase 2 3541 Uppermost 35 mm of blackish reddish and more stony loam, here characterized by earthworm mixing and dusty and matrix void coatings – probably slightly more humic and homogenized. *Probable continued dumping of sweepings and waste, but here strongly worked by biological activity, more strongly weathered (no ash) and many dusty and matrix textural pedofeatures indicate likely cultivation.* Lowermost 35 mm of reddish brown loam containing very abundant fine charcoal, and trace amounts of ash and phytoliths, with abundant fine charcoal-rich clayey inwash and associated iron phosphate staining and secondary FeP formation; all partially earthworm-worked (broad burrows). *Probably once ashy, fine charcoal-rich clay (with phytoliths) and phosphate (FeP) dumps, included rare coprolitic bone (middening/sweepings and nightsoil? waste); silt and sand and clay component from 'clay' floor origins.*

MFT F1/SMT 7a		70-75 mm 3644 SM: Homogeneous; *Microstructure*: massive, 30% voids, fine (3-400 µm) channels and complex packing voids; *Coarse Mineral*: C:F, 75:25, poorly sorted silt to coarse sand-size quartz and few gravel-size (4-5mm) angular siltstone, quartzite and anthropogenic inclusions; *Coarse Organic and Anthropogenic*: rare coarse Fe-P impregnated charcoal (4.5mm) and silt-embedded iron-stained charcoal, and 5mm size example of probable dog coprolite, and mortar; *Fine Fabric*: speckled dusty reddish brown (PPL), low interference colours (porphyric, speckled b-fabric, XPL), orange (OIL); poorly humic with many charred OM and fine charcoal; *Pedofeatures*: *Textural*: rare very thin (50 µm) dusty clay void coatings (occasional dark yellowish speckled clay void infills – from 3541); *Amorphous*: occasional yellowish to reddish brown amorphous Fe-P infills (from 3541); *Fabric*: many broad burrows; *Excrements*: many thin (50-100 µm) organo-mineral excrements;	3644 Moderately poorly sorted silt to sand, with angular gravel and moderately fine charcoal-rich fine fabric, rarely showing grain coatings, but many thin organo-mineral excrements; coarse phosphate-stained and silt and iron-embedded coarse charcoal, angular dog coprolite and rock and mortar fragments. (burrowing, clay and Fe-P contamination from 3541) *Upper road silts with included coarse material from road and waste; biologically worked but some traces of dusty clay grain coatings.*
MFT E3/SMT 5c	MFS5	100-180 mm SM: Homogeneous; *Microstructure*: massive, channel and burrowed; 30% voids, fine to medium channels (1.5-2mm) with open vughs and chambers (4mm); *Coarse Mineral*: C:F, 75:25, moderately well sorted silt, with fine and medium sand-size quartz (mica, feldspar), and few coarse sand-size ironstone and gravel-size (10mm) quartzite and flint; *Coarse Organic and Anthropogenic*: rare charcoal (2mm); example of iron stained soil clast (subsoil Bg) fragment; traces of humifying and possibly burned amorphous organic matter; *Fine Fabric*: SMT 5c: dotted dusty yellowish brown (PPL), very low interference colours (close porphyric, speckled b-fabric, XPL), yellowish orange (OIL); weakly humic stained, abundant amorphous organic matter traces, with tissue fragments and spores; *Pedofeatures*: *Textural*: occasional very dusty clay void coatings (50-150 µm); some silty loam concentrations; many thin and broad (1mm) burrows; rare reddish yellow clay infills, associated with FeP; *Crystalline*:	Area 10, Phase 2, E Roman soil below metalled surface 3650 Yellowish brown sandy loam (cf FSM2) with rare charcoal, but traces of humifying amorphous organic matter concentrations throughout, and with remains of occasional dusty clay and matrix void coatings, alongside strongly burrowed and biologically worked soil; later much FeP inwash and secondary formation (also rare traces of vivianite), some times associated with yellowish red clayey infills. *Biologically homogenized soil with remains of textural features (dusty and matrix coatings) and humifying organic matter, and rare charcoal, all indicates a cultivated soil (cf uncultivated natural soil in FSM2 – 1323), with possible low levels of*

		trace amount of vivianite within some yellow amorphous infills; *Amorphous*: very abundant yellow amorphous staining and void infills of FeP; *Fabric*: abundant thin to broad burrows; *Excrements*: occasional patches of thin organo-mineral excrements, and patches of total excremental fabric. x3560	*manuring using dung. (affected by clay inwash and phosphate draining from overlying road)*
MFT G2/SMT 7d	MFS8	40-120 mm SM: Homogeneous; *Microstructure*: coarse prisms and subangular blocky; 45% voids, open vughy, complex packing voids, medium poorly accommodated planar voids (2mm) and coarse (5-8mm) chambers; *Coarse Mineral*: C:F, 65:35, poorly sorted with silt, fine and medium sand, and gravel and small stone size (14+mm) flint, sandstone, ironstone and anthropogenic inclusions; *Coarse Organic and Anthropogenic*: occasional wood charcoal (6mm), burned flint and ferruginous sandstone, rare iron stained coprolitic bone, burned bone, example of 7mm size; rare cess nodules (amorphous yellow nodules, BL autofluorescent) up to 1.5mm in size, and some with embedded bone and organic matter; rare dog(?) coprolites, weathering earthworm granules and probable slug plates; rare (3) weathering ash aggregates, with iron staining and humic staining sometimes; trace of very fine burned eggshell; *Fine Fabric*: SMT 7d: as SMT 7c, humic staining, with abundant amorphous organic matter, occasional fine charcoal, rare ash and phytoliths, including articulated phytoliths; *Pedofeatures*: *Textural*: occasional (and associated with broad burrow fills) 0.5mm thick void infills of dusty and speckled poorly oriented humic and charcoal-rich (with ash), with humifying/iron stained amorphous organic matter, mainly dominating upper 3674 part; *Fabric*: very abundant broad burrows, occasional thin burrows; *Excrements*: partial total biological fabric, with rare patches of very thin organo-mineral excrements. x3674 x3690	Area 10, Phase 10, Med Garden soil 3674 As below, but with less well biologically homogenized humic, charcoal-rich and ashy infills. *As biological worked and weathered as below, but without extant evidence of ash/hearth/cereal processing(?) residues.* Diffuse Context boundary 3690 Generally biologically burrowed and homogenized poorly sorted silt and sandy loam with gravel and small stones of rock fragments, burned flint and ferruginous sandstone; much coprolitic bone, burned bone, probable cess nodules, dog coprolites, weathered ash clasts, and weathering biogenic calcite (earthworm granules and slug plates); earthworm worked and some textural infills of humic fine charcoal rich clay containing ash; fine fabric was once humic, and still retains phytoliths and articulated phytoliths, and some rare traces of ash. *Biologically worked and weathering 'dark earth' accretionary accumulation from domestic waste dumping (hearth, food, sweepings from 'clay' floors, possible burned dung, latrine, nightsoil); possible longish phase of weathering before renewed dumping (3674).*

MFT H1/SMT 8a	MFS9	40-120 mm SM: Homogeneous (with variety of compoenents); *Microstructure*: massive with background subangular blocky, and weak layering (eg preferred horizontal orientation of bark fragments); 35%, open vughs, chambers and channels (1mm); *Coarse Mineral*: C:F, 65:35, moderately poorly sorted silt, fine and medium sand, with few gravel-size anthropogenic mineral inclusions including chalk (5mm); *Coarse Organic and Anthropogenic*: very abundant organic remains, including wood, bark (8mm) and amorphous organic matter; very abundant omnivore coprolite (human and possible pig?; embedded plant tissue material; some BL autofluorescent (pale orange to whitish orange); max 4mm); very abundant phytoliths, including articulated layers (use of monocot as well as from cereal processing); abundant charcoal (4mm); many pot and burned daub (3mm), and bone (fine to coarse fragments, usually coprolitic or burned); rare dog coprolites; examples of rounded sand-size igneous rock fragments (grindstone?); *Fine Fabric*: SMT 8a: dusty and dotted dark yellowish brown (PPL), very low interference colours (close porphyric, crystallitic b-fabric, XPL), greyish brown (OIL); humic, with very abundant amorphous OM, tissue and organ fragments; very abundant phytoliths, some articulated, rare ash crystals; *Pedofeatures*: *Amorphous*: abundant FeP and examples of CaP (BL autofluorescent) staining and infills; *Fabric*: very abundant broad (1-2mm) and occasional thin (250-500 µm) burrowing; *Excrements*: excremental fabric, with rare very thin (<50 µm) organic, Oribatid-like excrements (come in with wood and bark?). x5280(x5281)	Area 1, Phase 7, Saxo-Norman 'DE' 5280 Probably once layered richly organic, charcoal and phytolith-rich (some articulated) deposit containing very abundant wood and bark remains (some showing horizontal orientation, and organic excrements of Oribatids(?) – brought in on wood?), with very abundant amorphous yellow coprolitic material and staining features (some with embedded plant tissues) – omnivore – probably human (more churned if pig); also includes much wood charcoal, coprolitic bone and burned bone, and fine burned daub and pot, and possible examples of igneous rock grindstone. Much burrowed and bio-worked. *Midden in outside space (hence bioworking and decalcification of most ash; also no earthworm granules) that has received probable sweepings (generally inclusions are too fine for simple dumps) from wooden constructed (bark and wood), reed-covered? floors/roofed (phytoliths), domestic buildings (fine burned daub, pot, sand and silt of local environment, and coprolitic bone and dog coprolites from scavengers, and burned bone from hearths; possible inclusion of phytoliths from cereal processing); it was also the space used to dispose of human waste (omnivore coprolites – human; and liquid cess staining). Rapidly accumulated with contemporary bioworking and weathering – probably developed rather anaeorobic and acidic micro-environment.*
	MFS10	2-10 cm 20-40 mm – 5322	Area 1, Phase 9, E? Med hearths 5322

MFT I1/SMT 9a		40-70 mm – 5329 70-95 mm – 5330 SM: Mainly homogeneous within three layers (5322, 5329 and 5330) sampled; *Microstructure*: a: finely (0.5-2mm) laminated, parallel laminae (40%), b: massive with poor broad layering (45% voids), c: massive/finely and broadly (1-5mm) laminated (35% voids); 5322: *Coarse Mineral*: C:F, 80:20, moderately well sorted with very few gravel (3mm – eg Oolitic ironstone); *Coarse Organic and Anthropogenic*: very abundant charcoal (3-4mm), mainly in discrete laminae; examples of horizontally oriented burned flint; occasional fine burned daub, mortar and chalk; occasional thin burned eggshell (4mm, horizontally oriented, some partially fragmenting; rare fine coprolitic bone; *Fine Fabric*: SMT 9a: as (c, but only rare phytoliths; *Pedofeatures*: *Fabric*: occasional thin burrows; *Excrements*: rare very thin excrements.	Laminated and moderately well sorted coarse charcoal and moderately ash-rich, with occasional horizontally oriented burned eggshell (rare phytoliths only), and rare bone; moderately little fine fabric and low levels of bioactivity (as 5322c). *Waterlain, mainly domestic hearth debris(?); often wet and draining through underlying deposits; possible results of regular sluicing of kitchen floors/hearths.*
MFT I2/SMT 9b		5329: *Coarse Mineral*: C:F, 75:25, very poorly sorted, with frequent gravel (quartzite, ironstone) and small stones (eg mortar, 15mm); *Coarse Organic and Anthropogenic*: very abundant mortar 15mm); occasional charcoal (7mm), example of 0.5mm-size greenish non-ferruginous metal slag/droplet; many ash and ash aggregates; occasional sand-size burned daub (hearth fragments?), rare leached/coprolitic bone, examples of sand-size human cess (plant tissues embedded) cess; examples of burned flint; *Fine Fabric*: SMT 9b: dusty/cloudy dark yellowish brown (PPL), moderate interference colours (close porphyric, crystallitic b-fabric, XPL), mainly greyish yellow (OIL); very thin humic staining with occasional amorphous and many charred OM; abundant ash in places; rare phytoliths; *Pedofeatures*: *Fabric*: many thin burrows; *Excrements*: many thin excrements. 5330: *Coarse Mineral*: C:F, 60:40, poorly sorted, silt and sand with few gravel (5mm); *Coarse Organic and Anthropogenic*: very abundant charcoal (6mm), with charred bark, very abundant ash (with ash aggregates); abundant phytoliths; many	5329 Massive and very poorly layered charcoal-poor but coarse mortar-rich layer, showing much burrowing and excrements of very small mesofauna; includes scatter of coprolitic bone and cess fragments; example of greenish non-ferrous metal slag/metal droplet(?). *Dump or purposeful spread of poorly sorted building debris (including mortar) and fine burned daub/hearth, to create surface – ash-rich but phytoliths not present (cf below); in situ weathering and working by very small mesofauna*

MFT I3/SMT 9c		sand-size burned daub (hearth fragments?), trace amounts of leached bone (4mm), examples of burned flint; example of 4mm-size iron slag, with neo-formed olivines, and rusting ferruginous edge; *Fine Fabric*: SMT 9c: greyish brown to reddish brown (PPL), isotropic to high interference colours (cloes porphyric, undifferentiated [phytoliths] and crystallitic [ash] b-fabric, XPL), greyish orange to reddish orange (OIL); patchy humic staining, abundant charred OM, patches of very abundant phytoliths and ash; *Pedofeatures*: *Amorphous*: rare patch of iron impregnation around iron slag; *Fabric*: occasional thin burrows; *Excrements*: rare very thin excrements. x5322	*– possibly often wet (see above).* 5330 Massive, moderately irregular layered ash and charcoal-rich (including examples of charred bark), with very abundant phytoliths, small fragments of burned daub/hearth and example of iron slag (showing rusting); minor burrowing and excrements of very small mesofauna. *Trampled spread of mixed industrial and domestic (? – abundant phytoliths – floor coverings and/or roofing debris) waste; affected by small amount of very small mesofauna activity (possibly ash-toxic to earthworms – also probably often wet)..*
MFT G5/SMT 7g	MFS11A	0-80 mm SM: Homogeneous; *Microstructure*: massive, with poorly formed channel; 35% voids, complex packing voids, fine open vughs and chambers, and fine (0.5mm) channels; *Coarse Mineral*: C:F, 60:40, very poorly sorted with coarse mortar in uppermost 5mm, and included 20mm-size quartzite pebbles, and rock fragments and mortar throughout (weathering wall shedding mortar throughout DE formation); *Coarse Organic and Anthropogenic*: many mortar (9mm); occasional coprolitic and burned bone (5mm); occasional charcoal (3mm) and fine fragments of humifying/humified amorphous OM (dung residues?); rare weathering biogenic calcite from earthworms mainly; 3 coarse (max 5mm) inclusions of probable lead embedded in ash, showing corrosion haloes of red (OIL) lead oxide and white (OIL) lead carbonate – lead shows scratch marks from thin section manufacture as evidence of ‘soft pure	Area 1, Phase 5, Lower ‘DE’ below collapsed Roman wall 6450 6450a Very poorly sorted humic ash-rich fine fabric, with mortar throughout, and concentrated at top of thin section; coarse examples of lead metal embedded in ash (consistent with very enriched Pb – Table 1) occasional coarse charcoal and rare coprolitic bone and burned bone; amorphous organic matter has possible dung origins as well as possible *in situ* soil formation origin. *Similar formation processes as 6450b, below, but with rock fragments and coarse mortar possibly being added from the weathering of the wall*

		metal' (Thilo Rehren, IoA, UCL); *Fine Fabric*: SMT 7g: speckled and dotted, very dark yellowish brown (PPL), low interference colours (close porphyric, crystallitic b-fabric, XPL), brownish orange (OIL); humic stained, with very abundant amorphous and charred OM, abundant ash, rare to occasional phytoliths; *Pedofeatures*: as 6450b. x6450	*(6449); although ashy fine soil has been dumped, the relative paucity of phytoliths but higher amounts of organic matter (darker colour) from possible dung inputs, suggests a change in material being dumped (rather than topsoil formation – no difference in bioactivity – cf 6450c) – possibly from animal stabling waste, rather than domestic; ash dumping also included fragments of ash embedded lead (from constructional as well as industrial processes).*
MFT G4/SMT 7f	MFS11B	80-160 mm SM: Homogeneous, but more open structured and bioworked between 140-160mm; *Microstructure*: massive, with poorly formed coarse prisms and background subangular blocky; 60% voids (complex packing voids, 3mm chambers) at base, becoming 35% upwards, complex packing voids, fine open vughs and chambers, and poorly accommodated fine (0.5mm) planar voids; 6450b: *Coarse Mineral*: C:F, as 6450c, but poorly sorted, few gravel (6mm) size flint, quartzite, limestone; *Coarse Organic and Anthropogenic*: many to abundant charcoal (4mm) including twigwood; rare mortar, occasional fine burned and unburned daub, rare fine coprolitic bone (+burned bone) and example of fine non-ferrous metal (probable lead – see MFS11A above); rare to occasional weathering earthworm granules; *Fine Fabric*: SMT 7f: as 7e, but darker and more humic – possible patches of humifying amorphous OM (dung?), possible charred monocot material; *Pedofeatures*: *Fabric*: very abundant broad (1-3mm) burrows; *Excrements*: many very thin (50-100), thin (1mm) and very abundant broad (2-3mm). 6450c: *Coarse Mineral*: C:F, 70:30, very poorly sorted, silt and sand-size quartz, with common stone-size rock (chalk – 7mm, flint, siltstone, quartzite) fragments, pot (11mm) and mortar (8mm); *Coarse Organic and Anthropogenic*: abundant mortar, occasional charcoal (<1mm); weathering example of	Area 1, Phase 5, Lower 'DE' below collapsed Roman wall 6450 6450b: Strongly burrowed (by mainly earthworms – earthworm biogenic calcite granules), poorly sorted and more charcoal-rich (including twigwood) and humic dark earth, which includes fine burned daub and fine coprolitic bone, and similar ash and phytoliths-rich fine fabric. *Renewed dumping of domestic waste (floor sweepings: ash, silt and sand, phytoliths, charred monocot – cereal or other plant processing) – includes corroding non-ferrous metal droplet – probable lead (see above). Continuous process and little chance for 'surface soils' to form.*

MFT G3/SMT 7e		biogenic calcite (slug plate); *Fine Fabric*: SMT 7e: speckled darkish brown (PPL), moderately low interference colours (close porphyric, crystallitic b-fabric, XPL), reddish orange (OIL); moderately humic, with many amorphous and charred OM, many phytoliths and abundant ash; *Pedofeatures*: *Fabric*: very abundant broad (1-3mm) burrows; *Excrements*: variety - abundant very thin (50-100), thin (1mm) and broad (2-3mm).	6450c: Strongly bioworked (by earthworms, and smaller mesofauna of 'near' surface type) and open structured very poorly sorted, coarse mortar, pot and rock fragment-rich dark earth with moderately humic, ash and phytolith-rich fine fabric. *'Early' dark earth calcareous soil formed in building and domestic waste (ash and phytolith-rich floor sweepings); underwent short-lived 'surface' soil formation – short stasis.* (Courages, Tours, Colchester House, Bishopsgate?)

Figure 127: Soil micromorphology: scan of M11B (Context 6450), early dark earth 80-160mm below collapsed Roman wall 6449; note the poorly sorted and biologically open nature of lower sub-unit 6450c. Width is ~50mm.

Figure 128: Soil micromorphology: scan of M11A (Context 6450; sub-unit 6450a), immediately below collapsed Roman wall 6449; note coarse mortar (arrows) at the top of the thin section (from 6449); mortar is present throughout – presumably weathered from nearby wall 6449 (see Figure 135 -Figure 140). Width is ~50mm.

Figure 129: Soil micromorphology: scan of MFS9 (5280), showing examples of horizontally oriented wood and bark fragments (arrows) and semi-layered character; coprolitic bone, probable human coprolites (Cop) and much yellowish cess material is present. Width is ~50mm.

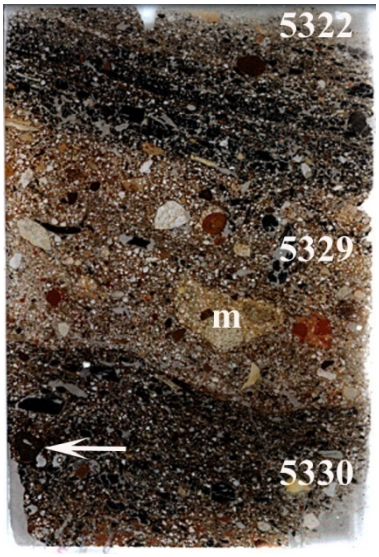


Figure 130: Soil micromorphology: scan of MFS10 (5322, 5229 and 5330) showing location of iron slag (arrow) in 5330; note gravel in 5329 that includes mortar (m), and finely laminated nature of 5322 (presumably from being waterlain). Width is ~50mm.

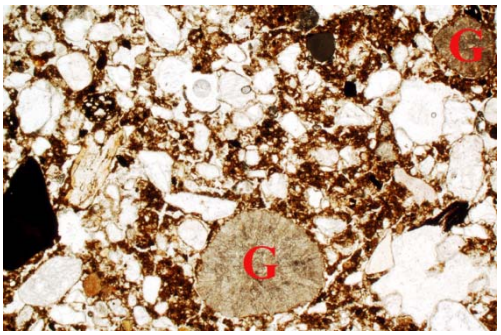


Figure 131: Soil micromorphology: photomicrograph of MFS11B (6450b); biologically-worked calcareous (includes mortar) dark earth soil containing earthworm granules (G). Plane polarised light (PPL), frame width is ~4.62mm.

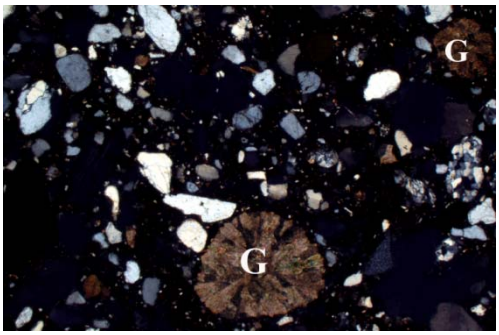


Figure 132: Soil micromorphology: as Figure 131, under crossed polarised light (XPL), showing biogenic calcite of earth granules (G) and sand-size quartz.

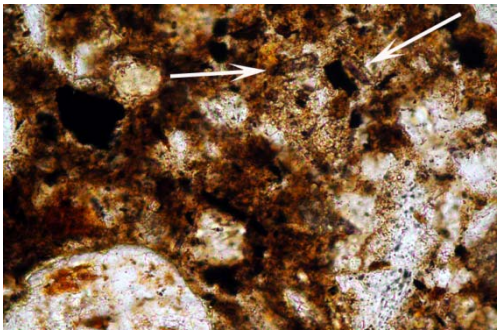


Figure 133: Soil micromorphology: as Fig, detail of humic and fine charcoal-rich fine fabric of dark earth containing ash (see Fig 8) and phytoliths (arrows). PPL, frame width is 0.47mm.

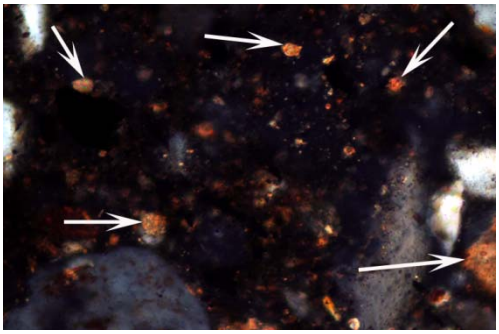


Figure 134: Soil micromorphology: as Figure 133, under XPL, showing scatter of calcite ash crystals and aggregates (arrow).

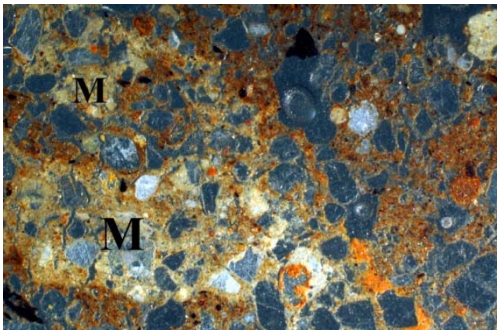


Figure 135: Soil micromorphology: photomicrograph of MFS11A (6450a): coarse fragments of mortar (M) – presumably from the Roman wall that collapsed and buried this dark earth soil (see Fig 2). Oblique incident light (OIL), frame width is ~4.62mm.

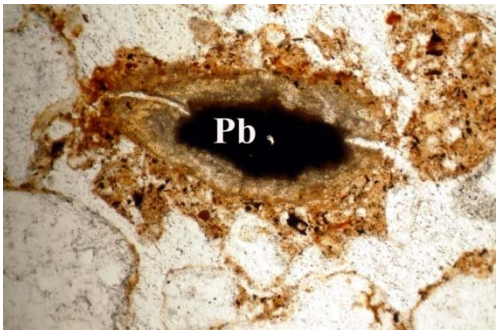


Figure 136: Soil micromorphology: as Figure 135; detail of pure lead fragment (Pb) found as small inclusions within the dark earth. PPL, frame width is ~0.90mm.

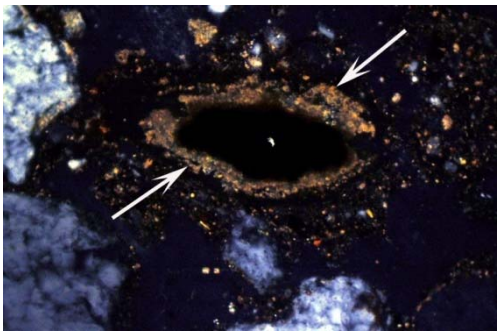


Figure 137: Soil micromorphology: as Fig. 10, under XPL, indicating that the lead fragment is embedded within a calcite ash aggregate (arrows); Context 6450 is generally strongly enriched in lead (2560 µg g^{-1}), a common metal on Roman sites.

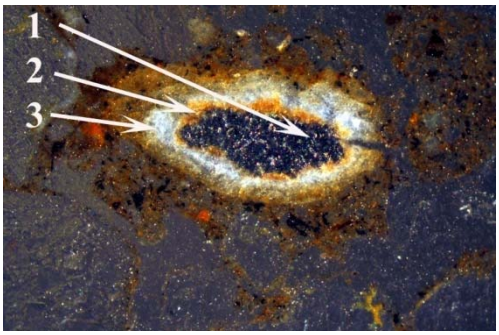


Figure 138: Soil micromorphology: as Figure 136 Figure 137, under OIL. Thilo Rehren, UCL (employing a metallurgical microscope) tentatively identified pure lead (1), with corrosion haloes of red lead oxide (2) and lead carbonate (3) within this ashy aggregate.

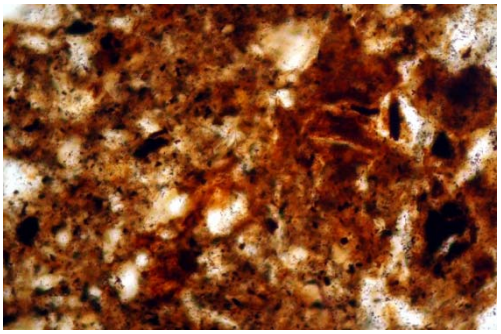


Figure 139: Soil micromorphology: photomicrograph of MFS11A (6450a); detail of humified amorphous organic matter-rich fine fabric, indicating inputs of dung and possible change of land use and dark earth development from 6450c and 6450b (cf. Fig 7) to 6450a. PPL, frame width is 0.47mm.

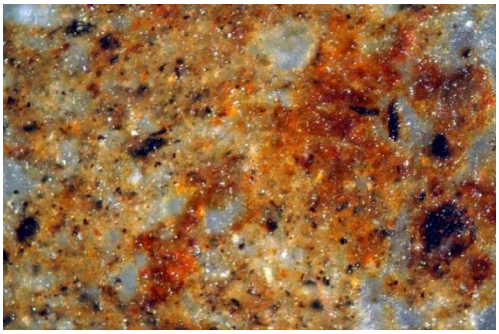


Figure 140: Soil micromorphology: as Figure 139, under OIL; note presence of ubiquitous very fine charcoal, and reddish (iron-stained) humified amorphous organic matter of probable dung origin.

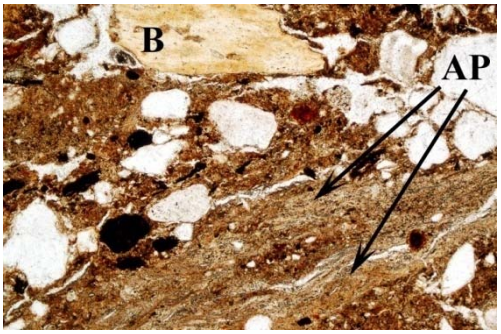


Figure 141: Soil micromorphology: photomicrograph of MFS9 (5280); organic matter-stained dark earth including coprolitic bone (B) and coarse fragments of articulated phytoliths (AP). PPL, frame width is ~2.38mm.

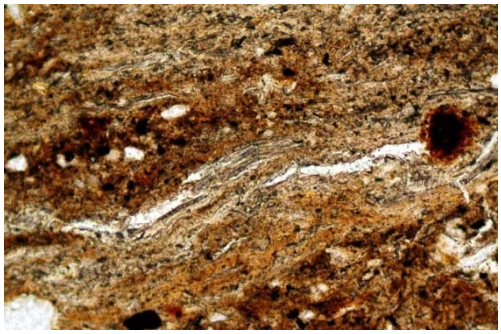


Figure 142: Soil micromorphology: detail of Figure 141, showing layered articulated phytoliths, amorphous organic matter and much general phosphate staining; the deposit is very strongly enriched in phosphate (Table 2). PPL, frame width is ~0.90mm.

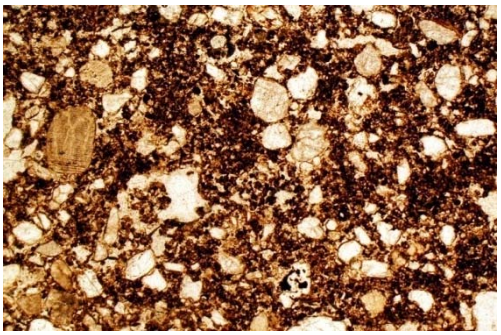


Figure 143: Soil micromorphology: photomicrograph of MFS2 (uppermost 1323): humic topsoil Ah1 horizon with microaggregate structure of in situ brown earth soil, probably formed under secondary/managed woodland. PPL, frame width is ~4.62mm.

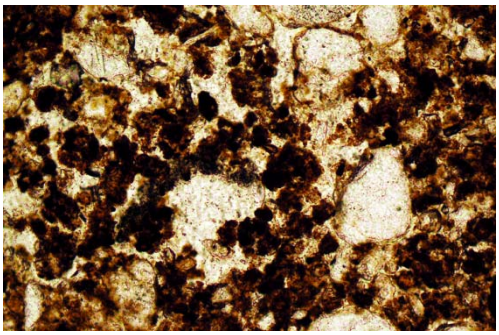


Figure 144: Soil micromorphology: detail of Figure 143, showing very abundant thin organic excrements of an acidophyle invertebrate mesofauna. PPL, frame width is ~0.90mm.

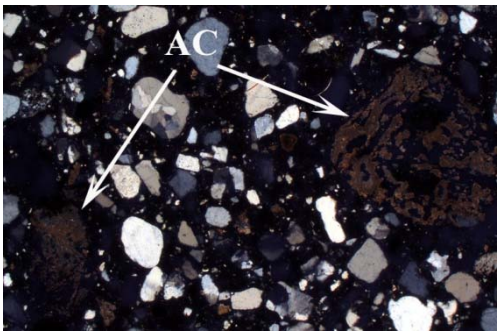


Figure 145: Soil micromorphology: photomicrograph of MFS8 (3690), Phase 2 Roman soil containing calcitic ash clasts (AC), relict of dumped hearth material. XPL, frame width is ~4.62mm.

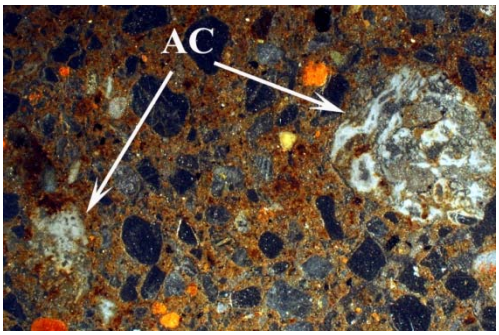


Figure 146: Soil micromorphology: as Figure 145, under OIL, showing 'grey' ash clasts (AC), with re-precipitated 'white' micritic calcite.

THE ^{14}C DATING *Göran Possnert and Maud Söderman*

Introduction (JC)

Two samples (Figure 147) were submitted for radiocarbon dating: one from the Area 7 SFB (2051), and one from a putative late Roman hearth on the edge of the street in Area 1 (6542). The samples were intended to provide corroborative dating to the stratigraphic and finds data.

The hearth date is broadly concurrent with other data, albeit indicating the possibility of a Phase 5 origin for this deposit rather than Phase 4; however, the very late date range of the SFB in Area 7 (Phase 7, touching Phase 8) appears unsustainable, especially in view of the early Saxon pottery derived from the same context.

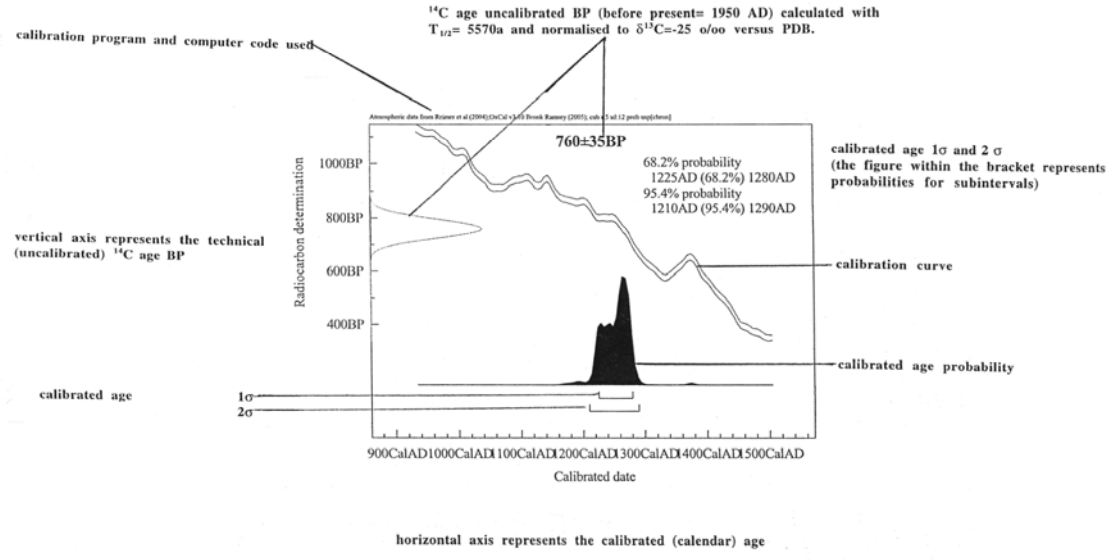
Methodology

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.

Explanation of the radiocarbon calibration output from the OxCal program



Results

Lab No.	Context	$\delta^{13}C$% PDB	^{14}C age BP
Ua-38082	2051	-24,4	1000±35
Ua-38083	6542	-26,2	1612±34

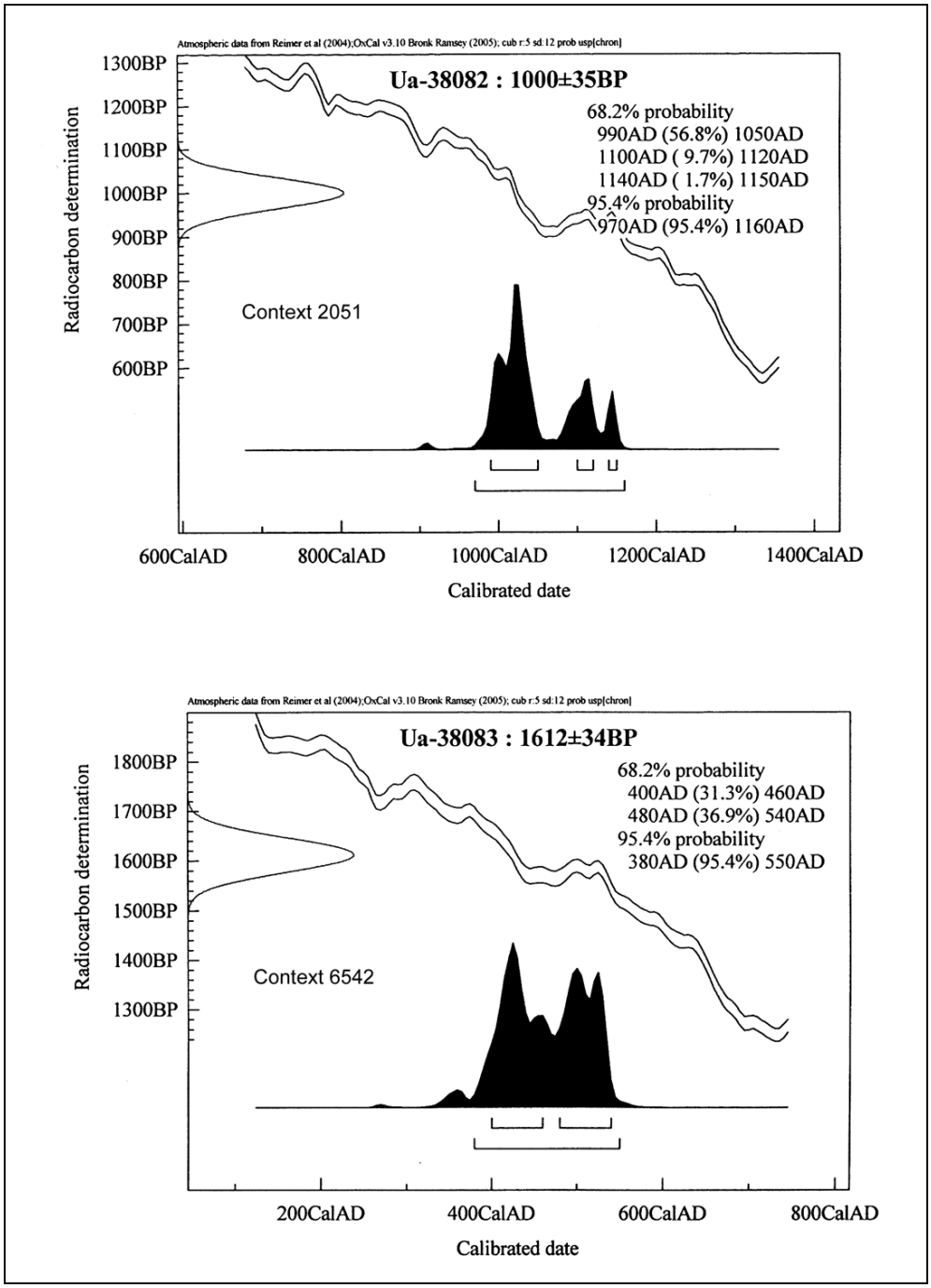


Figure 147 Radiocarbon results for contexts 2051, 6542.

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Contact Details

Richard Buckley or Patrick Clay

University of Leicester Archaeological Services (ULAS)

University of Leicester,

University Road,

Leicester LE1 7RH

T: +44 (0)116 252 2848

F: +44 (0)116 252 2614

E: ulas@le.ac.uk

w: www.le.ac.uk/ulas

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