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Leicester**

Archaeological Services

**The Excavation of
St. Peter's Church and Graveyard,
Vaughan Way,
Leicester 2004-2006**

Vol.2 Specialist Reports



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**The Excavation of
St. Peter's Church and Graveyard,
Vaughan Way, Leicester
2004-2006**

Vol. 2: Specialist Reports

by

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CONTENTS

CONTENTS	i
FIGURES	vii
TABLES	x
THE ROMAN POTTERY <i>Elizabeth Johnson</i>	14
Introduction	14
Assemblage size and condition	14
Methodology	14
Summary of major pottery fabrics within the assemblage	15
The Samian Ware <i>Robert Hopkins</i>	18
<i>Discussion</i>	18
<i>Catalogue of the decorated Samian ware</i>	19
<i>Catalogue of the Samian stamps and signatures</i>	22
<i>Acknowledgements</i>	25
Analysis of the Roman pottery assemblage by Area and Phase: the northern zone	25
<i>Introduction</i>	25
<i>Phase 2 (mid-1st to mid-2nd century AD)</i>	26
<i>Phase 3 (mid-2nd to 3rd century AD)</i>	29
Analysis of the Roman pottery assemblage by Area and Phase: the southern zone	32
<i>Phase 2 (mid-1st to mid-2nd century AD)</i>	33
<i>Phase 3 (mid-2nd to 3rd century AD)</i>	34
<i>Phase 4 (later 3rd and 4th centuries AD)</i>	36
Comparison of phase assemblages	40
Conclusions	42
THE EARLY TO MIDDLE ANGLO-SAXON POTTERY <i>Nicholas J Cooper and Alice Forward</i>	43
Introduction	43
Chronology	43
Methodology	44
Fabric analysis	44
Results	46
Discussion	47

<i>Stratigraphic distribution</i>	47
<i>Fabric, form, decoration and surface treatment</i>	47
THE MEDIEVAL AND POST-MEDIEVAL POTTERY AND TILE <i>Deborah Sawday</i>	48
Introduction	48
Methodology	48
Fabrics	48
The pottery by selected Groups by Phase.	48
<i>Phase 5 – Early Anglo Saxon (intrusive material)</i>	50
<i>Phase 7</i>	51
<i>Phase 8A</i>	53
<i>Phase 8B</i>	57
<i>Phase 8C</i>	62
<i>Phase 8 – Earlier Medieval</i>	63
<i>Phase 9A</i>	65
<i>Phase 9B</i>	68
<i>Phase 10</i>	72
<i>Phase 11</i>	75
<i>Phase 12</i>	78
<i>Unphased</i>	80
The fabrics (Table 12, Table 13, Table 31).....	84
The dating evidence	88
Conclusions	88
The illustrations David Hopkins	91
The medieval ridge tile (Table 33).....	96
The medieval floor tile (Table 34)	97
<i>Phase 9A</i>	99
<i>Phase 10</i>	99
<i>Phase 11</i>	99
<i>Phase 12</i>	99
<i>Unphased</i>	99
Conclusions	100
THE COINS <i>John A Davies & Martin Shore</i>	101
Overview of the collection	101

Roman coins	101
Post Roman coins	106
THE SMALL FINDS <i>Hilary Cool</i>	107
Introduction	107
Roman Finds	109
<i>Personal ornaments</i>	109
<i>Textile equipment</i>	113
<i>Household equipment</i>	114
<i>Weighing equipment</i>	114
<i>Writing equipment</i>	114
<i>Tools and knives</i>	115
<i>Fastening and fittings</i>	115
<i>Military equipment</i>	115
<i>Miscellaneous</i>	118
Early to middle-Saxon finds	118
<i>Personal ornaments</i>	119
<i>Textile equipment</i>	119
<i>Fasteners and fittings</i>	119
Saxo-Norman finds	119
<i>Personal ornaments</i>	120
Medieval Finds	121
<i>Personal ornaments and dress accessories</i>	121
<i>Textile equipment</i>	131
<i>Household equipment</i>	132
<i>Recreation</i>	132
<i>Weighing equipment</i>	133
<i>Items associated with writing and reading</i>	134
<i>Transport</i>	135
<i>Tools and knives</i>	135
<i>Fasteners and fittings</i>	136
<i>Military and hunting equipment</i>	137
<i>Religious items</i>	138
<i>Miscellaneous</i>	142
Selected finds from unstratified and post medieval contexts	142

Overview	143
<i>Phase 1 – Pre-Roman</i>	143
<i>Phase 2-4 – Roman</i>	143
<i>Phase 5 – Early Saxon</i>	143
<i>Phase 6 – Mid Saxon</i>	143
<i>Phase 7 – Saxo-Norman</i>	143
<i>Phases 8-10 - Medieval</i>	143
THE ROMAN TO MEDIEVAL GLASS <i>Hilary Cool</i>	145
The Roman vessel glass	145
The medieval glazing	146
THE CLAY TOBACCO PIPES <i>D.A. Higgins</i>	147
Material recovered	147
Discussion of the pipes	149
<i>Context 823</i>	149
<i>Context 2778</i>	151
<i>Marked and decorated Pipes</i>	151
<i>Burnishing/Context 2621</i>	151
Summary	152
ROMAN CERAMIC BUILDING MATERIAL <i>Terri Davies and Nicholas J. Cooper</i>	154
Introduction	154
Analysis of tile types present	154
ROMAN AND MEDIEVAL ROOFING AND FLOORING SLATE <i>Terri Davies and Nicholas J. Cooper</i>	156
Introduction	156
Provenance and dating	156
THE INDUSTRIAL RESIDUES <i>Alice Forward, Graham Morgan and Daniel Prior</i>	157
Introduction	157
Methodology	157
Bell-casting pit	157
THE ARCHITECTURAL STONWORK <i>Tony Gnanaratnam</i>	158
Conclusion	162

THE PLANT REMAINS <i>Angela Monckton</i>	163
Introduction	163
Methods	163
Roman plant remains	164
Medieval plant remains	164
<i>Cereals</i>	164
<i>Other foods</i>	164
<i>Seeds</i>	165
<i>Interpretation of remains in samples</i>	165
Results by Phase	166
<i>Phase 5, Saxon</i>	166
<i>Phase 7, Saxo-Norman (AD c.850-1100)</i>	166
<i>Phase 8, Early Medieval, (AD 1100-1250)</i>	166
<i>Phase 9, Early Medieval, (AD 1250-1400)</i>	170
<i>Phase 10, Medieval, (AD 1400 - 1500)</i>	171
<i>Phase 11, Post-Medieval, (AD 1500 -1650)</i>	171
<i>Phase 12, Post-medieval (AD 1650 -1750)</i>	171
Discussion	172
Conclusions	174
Acknowledgements	175
THE CHARCOAL: A CATALOGUE OF IDENTIFIED SPECIES <i>Graham Morgan</i>	189
Species present	189
THE ANIMAL BONE <i>Jeanette Wooding</i>	190
Introduction	190
Methodology	190
Phase 4: Late Roman (4th Century)	192
<i>Species identified: age at death and sex</i>	193
<i>Skeletal element representation</i>	201
<i>Bone modifications</i>	204
<i>Animal size and shape: metrics</i>	208
<i>Archaeological features: function</i>	209
Phase 5: Early Anglo-Saxon (c.400/50-650)	210
<i>Species identified: age at death and sex</i>	211

<i>Skeletal element representation</i>	216
<i>Bone modifications</i>	219
<i>Animal size and shape: metrics</i>	221
<i>Archaeological features: function</i>	222
Phase 7: Saxo-Norman (850-1150AD)	222
<i>Species identified: age at death and sex</i>	223
<i>Skeletal element representation</i>	225
<i>Bone modifications</i>	228
<i>Animal size and shape: metrics</i>	232
<i>Archaeological features: function</i>	232
Phase 8 Earlier Medieval (1100-1250).....	232
<i>Species identified: age at death and sex</i>	233
<i>Skeletal element representation</i>	240
<i>Bone modifications</i>	243
<i>Animal size and shape: metrics</i>	249
<i>Archaeological features: function</i>	249
Phase 9 Medieval (1250-1400AD).....	252
<i>Species identified: age at death and sex</i>	253
<i>Skeletal element representation</i>	261
<i>Bone modifications</i>	264
<i>Animal size and shape: metrics</i>	268
<i>Archaeological features: function</i>	269
Phase 10: Later Medieval (1400 – 1550AD)	271
<i>Species identified: age at death and sex</i>	272
<i>Skeletal element representation</i>	273
<i>Bone modifications</i>	274
<i>Animal size and shape: metrics</i>	275
<i>Archaeological features: function</i>	276
Summary and discussion	276
THE FISH REMAINS <i>Rebecca A. Nicholson</i>	283
Introduction	283
Methodology	283
Discussion	285

BIBLIOGRAPHY	286
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FIGURES

Figure 1 The Roman pottery: fabrics present within the assemblage (% sherds).....	16
Figure 2 The Roman pottery: decorated Samian, illustrations 1-17	23
Figure 3 The Roman pottery: decorated Samian illustrations 18-21	24
Figure 4 The Roman pottery: samian stamps and signatures, illustrations 1-3	25
Figure 5 The Roman pottery: fabrics present in the northern zone (% sherds).....	26
Figure 6 The Roman pottery: fabrics present within Surface 4 (% sherds).....	28
Figure 7 The Roman pottery: fabrics present in Surface 3 (% sherds).....	30
Figure 8 The Roman pottery: fabrics present within the southern zone (% sherds).....	33
Figure 9 The Roman pottery: fabrics present in Surface 9 (% sherds).....	35
Figure 10 The Roman pottery: fabrics present in the buried soil layer (% sherds).	37
Figure 11 The Roman pottery: fabrics present within each phase of activity.	40
Figure 12 The medieval and later pottery: percentages of Eves by phase.....	84
Figure 13 The medieval and post-medieval pottery illustrations: Figures 1-25	94
Figure 14 The medieval and post medieval pottery illustrations: Figures 26 - 44	95
Figure 15 The medieval and post medieval pottery illustrations: Figures 45 - 54	96
Figure 16: The small finds illustrations: Roman Brooches 4-6, Bracelet 8, Household equipment 10 and Fasteners and fittings 15	117
Figure 17 The Small finds illustrations: Saxon brooch 19, Saxo-Norman hooked tag 24, Medieval personal ornaments 25-26, 30, Buckles, buckle plates and strap fittings 31, 34-35.....	127
Figure 18 The small finds illustrations: medieval household item 55, Recreation item 56, Weighing equipment 58.....	134
Figure 19 The small finds illustrations: Book clasps 60-61, X-Radiographs of Knife blade 63, Barrel Padlock 67, and Arrowhead 70a	138
Figure 20 The small finds illustrations: Religious Items 71-74, and photograph 75	141
Figure 21 The Roman to medieval glass: Roman glass jug handle fragment	145
Figure 22 The clay tobacco pipes: the illustrated clay pipes from Vaughan Way (A2.2003	153
Figure 23 The architectural stonework: 1 the stone mortar.....	158
Figure 24 The architectural stonework: basin	159
Figure 25 The architectural stonework: 5 the possible stone coffin fragment	160
Figure 26 The architectural stonework: 6 the possible cusp fragment	161
Figure 27 The plant remains: Maslin, mixed wheat and rye as found in pit 2149; B: rye and wheat grains; C: chaff of rye and bread wheat, rachis segments (scale = 1mm squares).	169
Figure 28 The animal bone: proportion of fused to unfused bones in age categories	194
Figure 29 The animal bone: possible Ox skull (Phase 4: PC5311).....	196
Figure 30 The animal bone: proportion of fused to unfused bones in age categories	197
Figure 31 The animal bone: proportion of fused to unfused bones in age categories. Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months	200
Figure 32 The animal bone: cattle carcass components in Phase 4.....	201

Figure 33 The animal bone: skeletal distribution of elements in rank order	202
Figure 34 The animal bone: sheep/goat carcass components in Phase 4	202
Figure 35 The animal bone: skeletal distribution of elements in rank order	203
Figure 36 The animal bone: Pig carcass components in Phase 4	203
Figure 37 The animal bone: skeletal distribution of elements in rank order	204
Figure 38 The animal bone: Dog skull with trauma.....	207
Figure 39 The animal bone: close-up of trauma (Phase 4 PC3254).....	207
Figure 40 The animal bone: occipital perforations	208
Figure 41 The animal bone: Phase 4 PC3391	209
Figure 42 the animal bone: proportion of fused to unfused bones in age categories	211
Figure 43 The animal bone: proportion of fused to unfused bones in age categories	213
Figure 44 The animal bone: tibia from bow-legged dog (Phase 5 PC2786)	216
Figure 45 The animal bone: cattle carcass components: Phase 5.....	217
Figure 46 The animal bone: skeletal distribution of elements in rank order	217
Figure 47 The animal bone: sheep/goat carcass components, Phase 5	218
Figure 48 The animal bone: skeletal distribution of elements in rank order	218
Figure 49 The animal bone: pig carcass components, Phase 5	219
Figure 50 The animal bone: skeletal element distribution in rank order.....	219
Figure 51 The animal bone: cattle carcass components in Phase 7.....	226
Figure 52 The animal bone: skeletal distribution of elements in rank order	226
Figure 53 The animal bone: Sheep/goat carcass components in Phase 7.....	227
Figure 54 The animal bone: skeletal distribution of elements in rank order	227
Figure 55 The animal bone: pig carcass components, Phase 7	228
Figure 56 The animal bone: skeletal distribution of elements in rank order	228
Figure 57 The animal bone: proportion of fused to unfused bones in age categories	234
Figure 58 The animal bone: proportion of fused to unfused bones in age categories, Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months	236
Figure 59 The animal bone: proportion of fused to unfused bones in age categories, Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months	238
Figure 60 The animal bone: cattle carcass distribution, Phase 8.....	240
Figure 61 The animal bone: skeletal element distribution in rank order.....	241
Figure 62 The animal bone: Sheep/goat carcass components, Phase 8.....	241
Figure 63 The animal bone: skeletal distribution of elements in rank order	242
Figure 64 The animal bone: pig carcass components, Phase 8	242
Figure 65 The animal bone: Skeletal element distribution in rank order	243
Figure 66 The animal bone: pig lumbar vertebra chopped in half down the midline (PC5006)	244
Figure 67 The animal bone: burning types.....	245
Figure 68 The animal bone: sheep/goat pelvis.....	246
Figure 69 The animal bone: close-up view of surface degradation due to possible digestion (Phase 8: PC5289)	246

Figure 70 The animal bone: Cattle lumbar vertebrae displaying space-occupying lesion (Phase 8: PC2766)	248
Figure 71 The animal bone: close-up of space occupying lesion.....	248
Figure 72 The animal bone: X-Ray showing marked sclerosis at the margins of the lesion (X-Ray taken by Dr. Jo Buckberry, University of Bradford)	249
Figure 73 The animal bone: proportion of fused to unfused bones in age categories	254
Figure 74 The animal bone: proportion of fused to unfused bones in age categories,	258
Figure 75 The animal bone: cattle carcass components, Phase 9	261
Figure 76 The animal bone: skeletal element distribution in rank order.....	262
Figure 77 The animal bone: sheep/goat carcass components, Phase 9	262
Figure 78 The animal bone: skeletal distribution of elements in rank order	263
Figure 79 The animal bone: pig carcass components, Phase 9	263
Figure 80 The animal bone: skeletal distribution of elements in rank order	264
Figure 81 The animal bone: butchered sheep skull.....	265
Figure 82 The animal bone: close up of cut marks (Phase 9: PC 2019).....	265
Figure 83: Phalanx displaying extension of the articular surface, lipping and possible associated OCM/OCD (Phase 9: PC2019).....	268
Figure 84 The animal bone: skeletal distribution of elements in rank order	274
Figure 85 The animal bone: skeletal distribution of elements in rank order	274

TABLES

Table 1 The Roman pottery: summary of Leicestershire Museums Fabric Series (Pollard 1994, 112-114).....	14
Table 2 The Roman pottery: major fabric groups present within the assemblage.	16
Table 3 The Roman pottery: northern zone fabric summary	25
Table 4 The Roman pottery: surface 4 fabric summary	28
Table 5 The Roman pottery: surface 3 fabric summary	30
Table 6 The Roman pottery: southern zone fabric summary	32
Table 7 The Roman pottery: surface 9 fabric summary	34
Table 8 The Roman pottery: buried soil layer fabric summary.....	37
Table 9 The Anglo-Saxon pottery: concordance of Early to Middle Anglo-Saxon pottery fabrics from Leicester.....	45
Table 10 The Anglo-Saxon pottery: quantification of the Early – Middle Anglo-Saxon Pottery from Vaughan Way, by fabric.	46
Table 11 The Anglo-Saxon pottery: distribution of the assemblage by phase and fabric	46
Table 12 The medieval pottery and ridge tile fabrics.....	49
Table 13 The later medieval, post medieval and modern pottery fabrics.....	50
Table 14 The late Saxon pottery, phase 5, by fabric, sherd numbers, weight (grams), vessel form, and Eves.....	51
Table 15 The medieval pottery: the vessel forms phase 7, by sherd numbers, weight (grams) and Eves.....	52
Table 16 The medieval pottery: Saxo Norman pottery, phase 7, by fabric, sherd numbers and weight (grams).	52
Table 17 The medieval pottery: phase 8A by fabric, sherd numbers and weight (grams).	55
Table 18 The medieval pottery: phase 8B, by fabric, sherd numbers and weight (grams).	58
Table 19 The medieval pottery, phase 8C, by fabric, sherd numbers and weight (grams).....	62
Table 20 The medieval pottery, phase 8, by fabric, sherd numbers and weight (grams).	63
Table 21 The medieval pottery: the vessel forms, phases 8, 8A, 8B and 8C by sherd numbers, weight (grams) and Eves.....	64
Table 22 The medieval pottery, phase 9A, by fabric, sherd numbers and weight (grams).	67
Table 23 The medieval pottery, phase 9B, by fabric, sherd numbers and weight (grams).....	68
Table 24 The medieval pottery: the vessel forms phases 9, 9A and 9B, by sherd numbers, weight (grams) and Eves.....	71
Table 25 The medieval and later pottery, phase 10.0, by fabric, sherd numbers and weight (grams).	73
Table 26 The medieval pottery: vessel forms, phase 10, by sherd numbers, weight (grams) and Eves.....	74
Table 27 The medieval and later pottery: the vessel forms phase 11, by sherd numbers, weight (grams) and Eves.....	76
Table 28 The medieval and later pottery: phase 11.0, by fabric, sherd numbers and weight (grams).	77
Table 29 The medieval and later pottery: The vessel forms phase 12, by sherd numbers, weight (grams) and Eves.....	78
Table 30 The medieval and later pottery, phase 12, by fabric, sherd numbers and weight (grams).	79

Table 31 The medieval and later pottery: pottery fabric totals, by sherd numbers and weight (grams) and Eves.....	86
Table 32 Medieval and post-medieval pottery illustrations -	91
Table 33: The medieval ridge tile by fabric, fragment numbers and weight (grams) by phase	97
Table 34: Medieval floor tile: identifiable inlaid floor tile designs by fragment numbers:.....	98
Table 35: The Coins: summary of items recorded	101
Table 36 The Coins: chronological distribution of the Vaughan Way Roman coins	102
Table 37: The coins: catalogue of Roman coins (A2.2003).....	103
Table 38 The post-Roman coins	106
Table 39 The small finds: the discussed finds by material and site phasing	107
Table 40 The small finds: the discussed finds by date of find and function	108
Table 41 The small finds: summary of the Roman brooches from Leicester.....	111
Table 42 The small finds: Roman military equipment from Leicester.....	116
Table 43 The small finds: medieval dress and hair pins from Leicester	122
Table 44 The small finds: buckles and buckle plates from Leicester sites.....	124
Table 45 The small finds: lace chapes from the Highcross sites.....	128
Table 46 The small finds: sewing pins from the Highcross sites	131
Table 47 The small finds: sewing pins from Vaughan Way	131
Table 48 The clay tobacco pipes: Context Summary showing the numbers of bowl (B), stem (S) and mouthpiece fragments (M) from each context, the total number of fragments recovered (Tot) and then two date ranges. The first gives the overall date range of pipe fragments recovered and the second the likely deposition date for that particular group, based on the latest closely datable pipe fragments present. Decorated or burnished pipes are noted as well as the figure numbers of any illustrated examples	147
Table 49 The Roman ceramic building material: assemblage of Roman ceramic building material	154
Table 50 The plant remains (A2.2003)	175
Table 51 The plant remains (A2.2003)	179
Table 52 The plant remains: occurrence of food plants and weeds in samples by phase.....	183
Table 53 The plant remains: summary of samples (A2.2003)	184
Table 54 The charcoal: identified charcoal fragments within Roman contexts	189
Table 55 The animal bone: number of bones recorded in Phases 4-10.....	190
Table 56 The animal bone: number of identified specimens: Phase 4	192
Table 57 The animal bone: Minimum Number of Individuals (MNI) Phase 4	192
Table 58 The animal bone: cattle epiphysial fusion based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)	193
Table 59 The animal bone: cattle tooth wear	194
Table 60: Epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	197
Table 61 The animal bone: sheep/goat toothwear.....	197
Table 62 The animal bone: epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	199
Table 63 The animal bone: cut marks: butchery stages	205
Table 64 the animal bone: Phase 4: pathology.....	206

Table 65 The animal bone: withers height for cattle (after Matolcsi, J., 1970) and sheep/goat (after Teichert 1975).....	208
Table 66 The animal bone: number of identified specimens: Phase 5	210
Table 67 The animal bone: Minimum Number of Individuals (MNI): Phase 5	210
Table 68 The animal bone: epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	211
Table 69 The animal bone: cattle toothwear	212
Table 70 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	212
Table 71 The animal bone: epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	214
Table 72 The animal bone: cut marks: butchery stages	220
Table 73 The animal bone: Phase 5: Pathology	221
Table 74: Withers heights	222
Table 75 The animal bone: number of identified specimens: Phase 7	222
Table 76 The animal bone: Minimum Number of Individuals (MNI) Phase 7	223
Table 77 The animal bone: epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	223
Table 78 The animal bone: Cattle toothwear (*range narrowed based on frequency of tooth wear combinations).....	224
Table 79 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	224
Table 80 The animal bone: cut marks: butchery Stages.....	231
Table 81 The animal bone: Phase 7: pathology	231
Table 82 The animal bone: Withers height	232
Table 83 The animal bone: number of identified specimens: Phase 8	233
Table 84 The animal bone: Minimum Number of Individuals (MNI): Phase 8	233
Table 85 The animal bone: Epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	234
Table 86 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	235
Table 87 The animal bone: Sheep/goat toothwear	236
Table 88 The animal bone: epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	238
Table 89 The animal bone: Cut marks	244
Table 90 The animal bone: Phase 8 Pathologies.....	246
Table 91 The animal bone: number of identified specimens: Phase 9	252
Table 92 The animal bone: Minimum Number of Individuals (MNI): Phase 9	253
Table 93: Epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)	254
Table 94 The animal bone: cattle toothwear	255
Table 95 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5).....	257
Table 96 The animal bone: sheep/goat toothwear.....	259

Table 97: Epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, Table 3.5).....	260
Table 98 The animal bone: cut marks: butchery stages	266
Table 99 The animal bone: Phase 9: pathology	267
Table 100 The animal bone: withers heights.....	269
Table 101 The animal bone: Phase 10: NISP.....	271
Table 102 The animal bone: Phase 10 MNI.....	272
Table 103: The fish remains: numbers of fish bones and scales (in brackets) from soil samples taken from excavations at Vaughan Way (A2.2003).....	284

THE ROMAN POTTERY *Elizabeth Johnson*

Introduction

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

Assemblage size and condition

The stratified assemblage of Romano-British pottery comprises a total of 2466 sherds weighing 35.283kg. The material is reasonably well preserved with an average sherd weight of 14.3g.

Methodology

The pottery from contexts associated with Roman phases of activity was separated from that found within later deposits, producing an assemblage of 1372 sherds weighing 18.538kg for detailed recording and analysis. The material was identified using the Leicestershire Museums Fabric Series (Pollard 1994). Within the archive database specific fabrics were assigned to all sherds wherever possible, however in this report the generic ware groups summarised below in Table 1 are used for clarity of quantified data presentation.

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

Fabric Code:	Fabric Type:	Fabric Code:	Fabric Type:
Samian	Samian ware	AM	Amphora
C	Colour-coated wares	MO	Mortaria
WW	White wares	BB1	Black Burnished wares
OW	Oxidised wares	CG	Calcite gritted (shelly)
PR	Pompeian Red Ware	DS	Derbyshire ware
MD	Mica dusted wares	GW	Grey wares
WS	White slipped 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 (below). 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; Tyres 1996; Webster 1996; Clark 1999). The complete dataset was recorded and analysed 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. Grey, shelly and grog-tempered wares account for 54.7% of the assemblage, with grey wares dominant at 46.6%. 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 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 mostly jars including ledge-rim and roll-necked forms, some with combed decoration, dating from the late 1st-2nd century onwards. A wide variety of grey wares ranging from late-1st century Belgic-style jars and Trajanic 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 remaining coarse wares indicate regional pottery supply to the site. The Black Burnished wares comprise a range of jars, bowls and dishes dating from the mid-late 2nd and 3rd centuries. Although the forms present are long-lived and most likely continue through the 3rd century, later forms such as the bead and flanged bowl are absent (Holbrook and Bidwell 1991). Shelly ware jars and bowls from the Rutland/Lincolnshire border and the South Midlands account for 40% of the shelly wares in the assemblage. Of this, almost 18% are jars from the South Midlands which are not generally found in Leicester until the mid-late 3rd century (Tyres 1996, 192-193; Clark 1999, 124-125). Two sherds of Derbyshire ware dating from the later 2nd century onwards complete the suite of regional coarse wares dating from late 2nd century through to the 4th (Bolton 1968, 1-3; Brown 1994; Pollard 1994, 114).

A relatively small amount of oxidised wares (2.3%) are present, most of which are probably jars. There are a few bag-shaped beakers with roulette decoration and also a flagon neck. The forms and decorative styles suggest a date range within the 2nd century (Anderson 1980, 9; Pollard 1994, 77-79). 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 a tazza cup and two unguentaria complete the range of regional white wares. Likely sources for the oxidised, white and white slipped wares are Mancetter-Hartshill and Northamptonshire, with a small amount from the Verulamium region (Swan 1984, 98-101; Pollard 1994, 113-114).

Table 2 The Roman pottery: major fabric groups present within the assemblage.

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	6	0.4%	0.00	0.0%	479	2.6%	79.8
BB1	172	12.5%	1.57	5.9%	1090	5.9%	6.3
C	118	8.6%	3.07	11.6%	1149	6.2%	9.7
CG	95	6.9%	1.55	5.8%	1668	9.0%	17.6
DS	2	0.1%	0.00	0.0%	20	0.1%	10.0
GT	17	1.2%	0.00	0.0%	620	3.3%	36.5
GW	639	46.6%	13.90	52.4%	8838	47.7%	13.8
MD	6	0.4%	0.34	1.3%	69	0.4%	11.5
MO	39	2.8%	1.09	4.1%	1969	10.6%	50.5
OW	31	2.3%	0.21	0.8%	366	2.0%	11.8
PR	1	0.1%	0.05	0.2%	9	0.0%	9.0
Samian	144	10.5%	1.81	6.8%	1025	5.5%	7.1
WS	11	0.8%	1.00	3.8%	372	2.0%	33.8
WW	91	6.6%	1.93	7.3%	864	4.7%	9.5
Total	1372	100.0%	26.51	100.0%	18538	100.0%	13.5

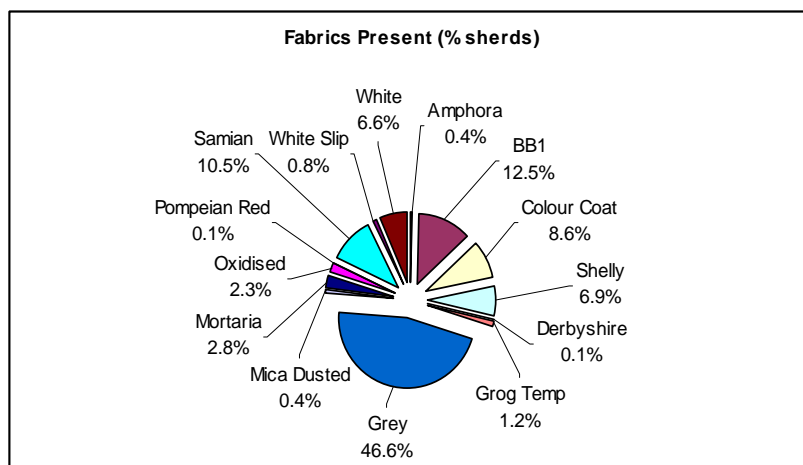


Figure 1 The Roman pottery: fabrics present within the assemblage (% sherds).

Fine wares account for 19.1% of the assemblage, the majority of which is imported Gaulish samian ware (10.5%) 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 Pompeian Red ware dates to the mid-1st century and is residual (Tyres 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 (Tyres 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 a jar and bowls imitating samian forms, which date to the 4th century in Leicester (Young 1977, 133).

The specialist wares comprise 3.2% of the assemblage, most of which are mortaria (2.8%). 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; Tyres 1996, 117-133). The very small amount of amphora present may represent as few as four vessels comprising Baetican Dressel 20 olive oil and Cam 186 type amphorae. The latter is associated with fish products and dates from the 1st to the early/mid-2nd century, whilst the former is common on Romano-British urban sites from the later 1st to the early 3rd century (Peacock and Williams 1986, 120-127).

The Samian Ware *Robert Hopkins*

Discussion

This discussion of the samian assemblage as a whole is followed by catalogues of the illustrated decorated pieces (Figure 2 and Figure 3) and those with stamps and signatures (Figure 4).

The small amount of samian recovered from the excavation suggests initial occupation starting in the Neronian period, with increased activity during the latter part of the 1st century. The relatively low proportion of Les Martres samian c. AD 100-120 compared to the volume of 1st-century samian corresponds with the so-called 'Trajanic gap' noticed elsewhere in Britain. There may be the possibility that the scarcity noticed here may reflect a changing use of the site. The volume of discarded Hadrianic samian suggests an increase in activity which continues into the mid-Antonine period. The relative absence of vessels characteristic of the later Antonine period, i.e. post c. AD 160, forms such as Dr 31, Dr 31 R and the large bowls e.g. Dr 45, suggest a change in use shortly before, or around this date.

The South Gaulish samian appears to be exclusively from La Graufesenque; the earliest products include a cup (Ritterling 8) and a bowl (Ritterling 12), which are pre-Flavian in date. The plain ware forms are not unusual, cups, platters, dishes and bowls are all represented, although the relatively few South Gaulish Dr 18/31s, a form introduced in the late 1st-century, should be noted. The decorated vessels, Dr 29, 37 and Dech. 67, are predominately of Neronian-Flavian date; although the sample may be too small. The relative absence of decorated South Gaulish Trajanic samian could relate to a possible change in use of the site suggested above.

The majority of the 2nd-century samian spans a period c. AD 120-160, with a few late Antonine products. A low number of vessels from Les Martres-de-Veyre's main exporting period reached the site c. AD 100-120. Other Leicester sites such as Freeschool Lane have a higher than normal number of post Hadrianic – early Antonine Les Martres vessels, which it is not the case here. East Gaulish samian appears to be under-represented; several vessels are present, however, including a Dr 31R, and a large bowl rim. The relative paucity of East Gaulish samian, although evident throughout Leicester, would seem to reinforce the idea of a change in use by the Late Antonine period. The range of 2nd-century samian is limited to the commonest forms, cups (Dr. 27 and 33), dishes (Dr 18/31, 18/31R and Dr 36) and bowls (Dr 30, 31, 36 and 38).

One sherd had been trimmed into a circular counter (/1042\). Three showed signs of burning; a CG 33 from (2859), a Lezoux 33 from (3245) and an SG jar from (5066). Two vessels had been drilled to take lead staples or cleats; a CG 35 from (2229) and a CG 18/31R from (2766). Cross context joins were identified between contexts 5051 and 5056 for an SG 27 and an SG 37.

The stamp report is only an interim statement due to the indisposition of the stamp specialist Ms B. M. Dickinson. Identifications or otherwise have therefore been made through the published stamps in the samian literature, including the first two volumes of the corpus of samian stamps (Hartley and Dickinson 2008). Five stamps were recovered but none have yet been positively identified. Two are tentatively ascribed to the early 2nd century potter Genialis iii, who appears to have migrated from Les Martres-de-Veyre to Lezoux. One other stamp of his is known from Leicester (A77 A1975.I; Hartley and Dickinson 2008).

Catalogue of the decorated Samian ware (Figure 2 and Figure 3)

Abbreviations:

O. = Oswald 1936-1937

CG = Central Gaulish

SG = South Gaulish

MdV = Les Martres de Veyre

1) A2.2003 (608)

CG Dr 37. Only a partial ovolo frieze remains. Antonine.

2) A2.2003 (611)

SG 29. The division band with part of the lower zone, with the vestige of a poinçon. Nero-Vespasian.

3) A2.2003 (616)

SG Dr 29. Part of the upper zone with the vestige of decoration. Neronian.

4) A2.2003 (809)

MdV Dr 37. An ovolo frieze (Rogers 1974 B28) directly over the decorative scheme, which consists of a tendril ending in an inverted leaf (Rogers 1974 H90). The style is that of Drusus I, a bowl from Corbridge has the same scheme (cf. Stanfield and Simpson 1958 Pl.11, 132). *c.* AD 100-120.

5) A2.2003 (2066)

CG Dr 37. Panel scheme bounded by a vertical wavy line to the right. The left hand panel contains an unidentified animal running to the left (possibly a horse or deer) over a trifold leaf (Rogers 1974 G32). The use of the trifold leaf in this position would suggest either potter X-6A or X-6B (cf. Rogers 1999 Pl.134 and 135). *c.* AD 125-150.

6) A2.2003 (2107)

CG Dr 37. A panel scheme bounded by an astragali border (Rogers 1974 A9). The left hand panel contains the drape of a cupid (O.450); the centre panel has an upright column (Rogers 1999 P3). In the right hand panel, part of a horizontal astragal which impinges on the vertical division. The arrangement is identical to a stamped Albucius bowl from Corbridge (Stanfield and Simpson 1958 Pl.122, 19). *c.* AD 140-170.

7) A2.2003 (2208)

SG Dr 37. An ovolo frieze over a horizontal roped border. The ovolo is known (e.g. Samian Research No: 2004200), but has not yet been found on a bowl with a stamp or signature, although it is thought to be associated with M. Crestio. Flavian-Trajanic.

8) A2.2003 (2222)

CG Dr 37. The very bottom of the decorative scheme, with the vestige of an unidentified poinçon. Hadrianic-Early Antonine

9) A2.2003 (2781)

CG Dr 37. An abraded sherd with part of a leaf (Rogers 1974 J48-74 range). Antonine.

10) A2.2003 (2808)

SG Dr 37. The raised lobe of a winding scroll; a composite column with an inverted trifold leaf at the base (Nieto and Puig 2001 Eb.49). Above, a horizontal bar of beads acting as a corbel for a spiral ending in a rosette. In the lower corner, a bird (O.2247). The basic scheme, but with a different bird occurs in the Cala Culip IV shipwreck (Nieto and Puig 2001 No: 377). Flavian.

11) A2.2003 (3030)

CG Dr 37. A feathered festoon (Rogers 1974 F44) with the vestige of an unidentified poinçon within. The festoon has only been recorded for X-13 and X-14. *c.* AD 120-140/145.

12) A2.2003 (3186)

SG Dr 29. The upper zone has a panel arrangement divided by a vertical wavy line ending in a rosette. The Left hand panel contains a lion to the left (O.1472); the panel on the right contains a pair of arrowheads. The lower zone has a festoon of trifold leaves as used by Passienus (Dannell *et al* No: 0836). The lion occurs on several vessels in the Cala Culip IV shipwreck (Nieto and Puig 2001 Ba.17). *c.* AD 65-85.

13) A2.2003 (3214)

SG Dr 29. Upper zone with a panelled scheme divided by a roped vertical border topped with a rosette terminal. The left hand panel has a series of roped diagonals with a Nile goose (O.2286) in the corner. The right hand panel has the legs of a man being gorged by a wild cat (O.1493). *c.* AD 65-85.

14) A2.2003 (3231)

(a) CG Dr 37 joins (3313) see (3313) for text. *c.* AD 120-190.

(b) CG Dr 37. An abraded ovolo frieze (Rogers 1974 B105) over a horizontal beads row border, which has an offset overlap. The ovolo was used by a number of potters *c.* AD 140-180.

15) A2.2003 (3260)

CG Dr 37. An abraded sherd, with a Triton (O.19) within a medallion. Antonine.

16) A2.2003 (3313)

CG Dr 37 joins (3231). An abraded ovolo (Rogers 1974 ?B180) which may be the one used by Cantomallus, Catussa I and Mercator II, over a horizontal row of large beads; below, an arcade or a medallion. *c.* AD 120-190.

17) A2.2003 (5049)

SG Dr 37. A Satyr (O.722) in a panel bounded by wavy line borders, a rosette sits on the left vertical. Flavian-Trajanic.

18) A2.2003 (5051)

(a) SG Dr 29. An upper zone which has been smoothed somewhat by the bowl finisher. The decoration consists of a stirrup leaf with a festoon with a central rib giving the appearance of a triple border. To the left, a pendant bottle bud. At the far

left, what may be the vestige of an upright chevron wreath (or possibly foliage). The festoon, leaf and pendant but are typically early Flavian.

(b) SG Dr 29. Three joining sherds. A winding scroll scheme below an indistinct horizontal wreath; the depressed lobes contain a 5 fingered leaf (Hermet 1979, Pl.7, 21; Nieto and Puig 2001, Ed.14). The raised lobe contains a composite plant motif, a trident leaf (Hermet 1979 Pl.14, 80; Nieto and Puig 2001, Eb.74) over an inverted quatrefoil leaf (Hermet 1979, Pl.14, 49; Nieto and Puig 2001, Ec.8); on either side, tendrils emanating from the centre end in striated buds. Flavian.

(c) SG Dr 37. Joins (5065). See (5065) for a discussion. Flavian.

19) A2.2003 (5065)

(a) SG Dech. 67. Upper part of the decoration which contains a horizontal row of 'arrowheads'. Flavian.

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

(c) SG Dr 37. Two joining sherds. The bowl has a double impression of the decoration at the bottom. A winding scroll scheme, the depressed lobes contain a large leaf (Nieto and Puig 2001, Ca.60) and a tendril ends in a short bar, probably a row of beads. The raised lobe has a composite plant column with an inverted grass tuft at the base (Hermet 1979, Pl.14, 87); tendrils emanate on either side, ending in striated buds. Below, a zone of festoons separated by pendant arrowheads, each festoon contains a spiral. A horizontal line divides the two zones. An identical scheme can be seen on a bowl from the Cala Culip IV shipwreck, (Nieto and Puig 2001, No: 422), although it is unclear whether the Leicester bowl has serrated festoons to match the Culip example. Flavian.

(d) SG Dr 37. 11 sherds, two join; six sherds from (5051). An ovolo frieze over a horizontal wavy line; the main decoration has a winding scroll over a horizontal wavy line and a chevron basal wreath. The ovolo is a worn version of one used by Frontinus (Samian Research No:2003121); the scroll contain three leaves: a fragmentary heart-shaped or tulip leaf (cf. *ibid* No:2004287), a fan shaped lobate leaf and a trifid leaf, and the raised lobes contain birds (?O.2260B). Flavian.

(e) CG Dr 37. The torso of a boar running to the right (?O.1641), used by a number of potters. Hadrianic-Antonine.

20) A2.2003 (5337)

SG Dr 37, two non-joining sherds from the same vessel. Both sherds have saltires with wavy line diagonals; one saltire is bounded by vertical wavy lines terminating in rosettes. The second sherd has a beaded vertical column, with a rosette at the centre. The visible motifs are a trifid leaf and elongated bud (Hermet 1979, Pl.14, 46 and Pl.12, 58). Flavian.

21) A2.2003 /1042\

SG Dr 37, trimmed into a circular counter. The decoration has the vestige of an ovolo frieze over an indistinct horizontal panel division. Little survives of the main decoration, save a tendril ending in a lanceolate leaf. Flavian-Trajanic.

Catalogue of the Samian stamps and signatures (Figure 4)

1) A2.2003 (296)

CG Dr 18/31. (?)Genialis iii GENIA[] Trajanic-Hadrianic.

2) A2.2003 (3313)

(a) Lezoux Dr 33. Very micaceous with a dull brown-red slip. Unidentified CR\CI\CO (retrograde), not listed by Hartley and Dickinson under the "C" potters (2008c), probably a "G" potter. Early 2nd Century.

(b) CG Dr 33. (?)Genialis iii G·E·NI[] Trajanic-Hadrianic.

3) A2.2003 (5051)

(a) SG Dr 18/31. Unidentified LO[] or LC[] the absence of a dot between the 'L' and 'C' precludes L.C- Celsus of Le Rozier, and it is unlikely to be L. Cosius Virilis. Flavian-Trajanic.

(b) SG Dr 29. Unidentified, a poorly moulded stamp. Flavian

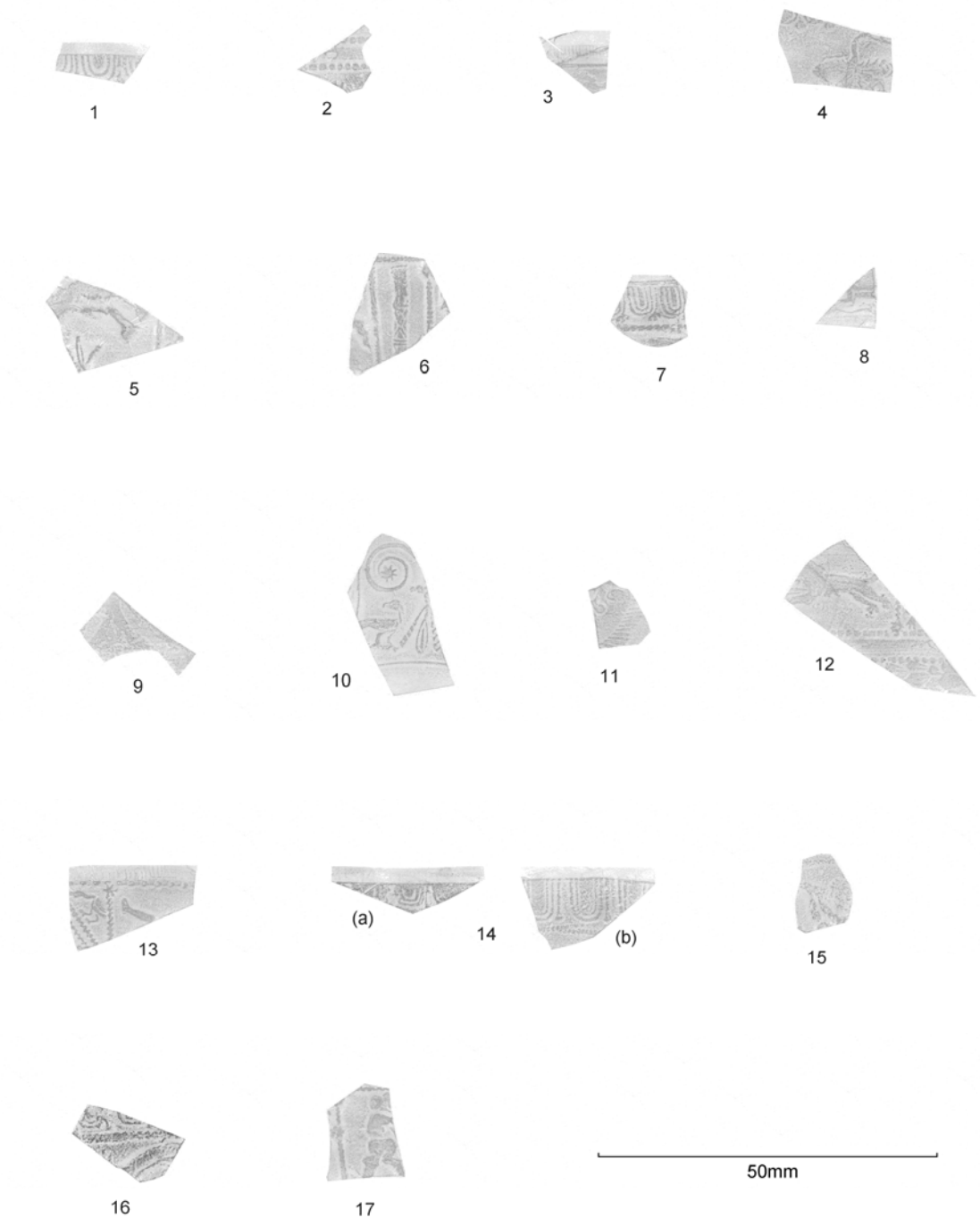


Figure 2 The Roman pottery: decorated Samian, illustrations 1-17

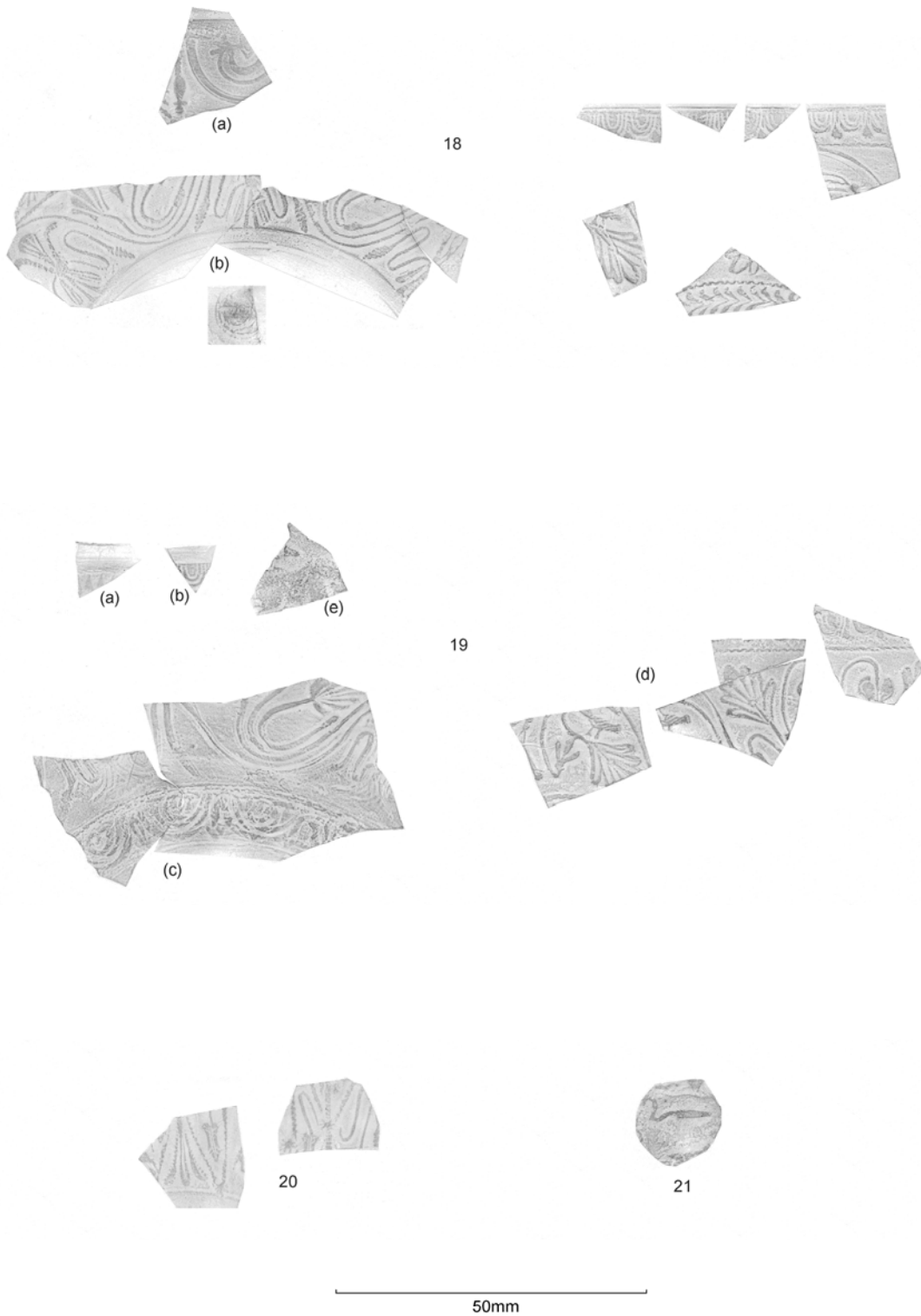


Figure 3 The Roman pottery: decorated Samian illustrations 18-21

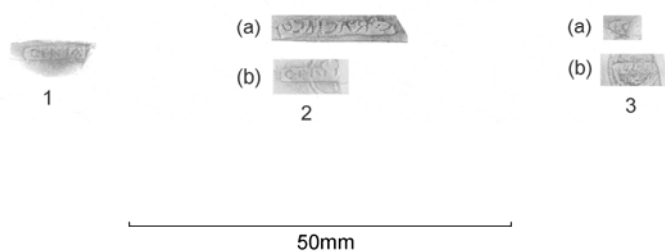


Figure 4 The Roman pottery: samian stamps and signatures, illustrations 1-3

Acknowledgements

I would like to thank Mrs J. Bird for reading and commenting on the reports for the stamps and decorated samian.

Analysis of the Roman pottery assemblage by Area and Phase: the northern zone

Introduction

The features referred to in this report were located solely in the area of excavation which occupied roughly the southern half of the site of the former St Margaret's Baths. Whilst features of Roman date were revealed in the northern part of the development area, these produced little or no pottery. In addition, there appeared to be two zones of activity located in the northern and southern parts of the excavation area. For the purposes of this report, these two zones will be referred to as the northern and southern zones. Both zones of activity are dominated by a series of surfaces, from which most of the pottery was recovered and the following section considers each by feature group and phase.

An assemblage of 774 sherds (10.440kg) was retrieved from contexts within the northern zone of activity within the excavation area, accounting for 56.5% of the site assemblage. The table and chart below detail the fabrics present within the assemblage. Although the material is reasonably well-preserved with an average sherd weight of 13.5g overall, there is some variability between fabrics with some abraded, small sherds.

Table 3 The Roman pottery: northern zone fabric summary

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	2	0.3%	0.00	0.0%	184	1.8%	92.0
BB1	54	7.0%	0.05	0.3%	177	1.7%	3.3
C	55	7.1%	0.28	1.7%	214	2.0%	3.9
CG	33	4.3%	0.53	3.2%	366	3.5%	11.1

GT	15	1.9%	0.00	0.0%	591	5.7%	39.4
GW	384	49.6%	10.53	63.8%	5707	54.7%	14.9
MD	5	0.6%	0.34	2.0%	66	0.6%	13.2
MO	20	2.6%	0.57	3.5%	1173	11.2%	58.7
OW	24	3.1%	0.00	0.0%	307	2.9%	12.8
Samian	102	13.2%	1.48	8.9%	730	7.0%	7.2
WS	8	1.0%	1.00	6.1%	307	2.9%	38.4
WW	72	9.3%	1.75	10.6%	618	5.9%	8.6
Total	774	100.0%	16.51	100.0%	10440	100.0%	13.5

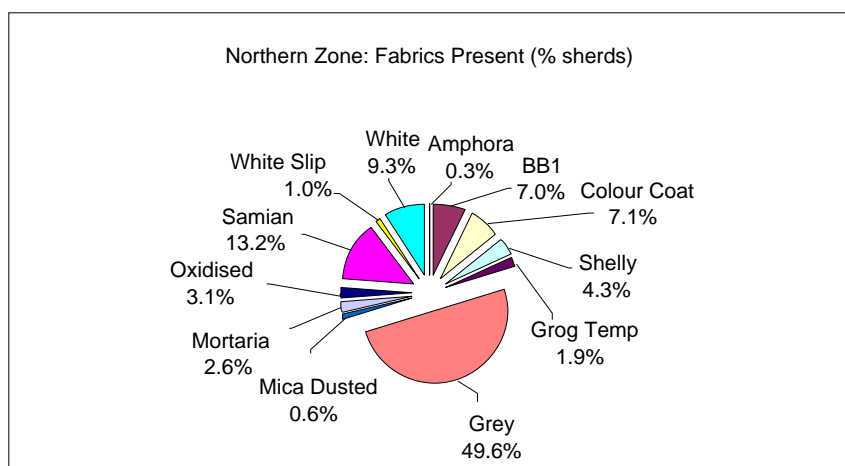


Figure 5 The Roman pottery: fabrics present in the northern zone (% sherds).

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

Most of the early Roman features were found in the northern zone and consist of a subsoil and ditch, quarry and surface. An assemblage of 528 sherds weighing 8.786kg was recovered.

Subsoil and ditch

Contexts: (616), (2936)

The earliest Roman feature was a subsoil layer (616) situated towards the north-western corner of the site. Thirty-eight sherds (845g) were recovered. Most vessels are grey and grog-tempered ware jars with everted and lid-seated rims, rusticated, barbotine ring and combed decoration dating from the late 1st to early 2nd century. The reeded rimmed bowl also dates between the late 1st century and the first quarter of the 2nd. Of interest is an

unusual small, inturned rim grey ware jar, possibly imitating a Late Iron Age/Early Roman form and a seria/dolia large storage jar rim (Pollard 1994, 77-79). The remaining coarse wares comprise a white ware flagon and oxidised ware jar dating to the late 1st or 2nd century. The samian ware is South Gaulish including a decorated bowl (Drag.29), platter (Drag.15/17) and cups (Drag.27, Ritterling 8) dating to the second half of the 1st century (Webster 1996, 30; 38-41; 70). A 'Belgic' style carinated grey ware jar dating from the late 1st or early 2nd century was found in a ditch (2936) to the east of the northern surfaces.

Roman quarry

Contexts: (2063), (2292)

Only eight sherds (53g) of pottery were recovered from a large quarry feature underneath the northern surfaces. The material comprises a complete white-ware ring-necked flagon rim probably dating to the first half of the 2nd century, and South-Gaulish samian ware dating from the late 1st to the early 2nd century. The samian ware comprises a platter (Drag.18), cup (Drag.27) and dish (Drag.18/31) (Webster 1996, 32-35; 38). The material found in these contexts provides an indication as to when the quarry was backfilled, suggesting it had fallen into disuse by the middle of the 2nd century.

Surface 4

Contexts: (5051) (5065)

Surface 4 constitutes the lowest surface in the sequence, lying over the quarry feature. An assemblage of 479 sherds weighing 7.872kg was recovered, accounting for 61.9% and 75.4% of the material found within the northern zone by sherd count and weight respectively. The average sherd weight of 16.4g indicates a good level of preservation. The table and chart below detail the proportions of fabrics present.

Grey wares comprise 59.3% of the assemblage, with jars the dominant form, including a group of at least six lid-seated necked jars. Other forms present include everted-rimmed and necked jars, with rusticated, barbotine, roulette and lattice decoration suggesting a date range from the late 1st to the middle of the 2nd century. There is also a group of nine reeded-rimmed bowls and 15 lids. A flask or flagon and an unguentarium complete the range of grey wares present. Rim diameters taken from the lid-seated jars range between 8cm and 14cm, whilst the lids range between 10cm and 17cm in diameter. In this respect this group is a good example of the suite of storage vessels available from the late 1st century through to the middle of the 2nd (Pollard 1994, 74-77). The majority of the grey wares are most likely locally made, however one of the bowls may originate from the Mancetter-Hartshill area, as the fabric is white with a pale grey surface (*ibid*, 114). The comparatively small amounts of local shelly ware jars include a ledge-rim form of the same date as the grey wares.

Table 4 The Roman pottery: surface 4 fabric summary

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	2	0.4%	0.00	0.0%	184	2.3%	92.0
BB1	1	0.2%	0.00	0.0%	6	0.1%	6.0
CG	16	3.3%	0.38	2.8%	227	2.9%	14.2
GW	284	59.3%	9.09	69.0%	4832	61.4%	17.0
MD	5	1.0%	0.34	2.5%	66	0.8%	13.2
MO	16	3.3%	0.32	2.4%	998	12.7%	62.4
OW	18	3.8%	0.00	0.0%	243	3.1%	13.5
Samian	82	17.1%	1.31	9.9%	551	7.0%	6.7
WS	7	1.5%	1.00	7.6%	303	3.8%	43.3
WW	48	10.0%	0.75	5.7%	462	5.9%	9.6
Total	479	100.0%	13.18	100.0%	7872	100.0%	16.4

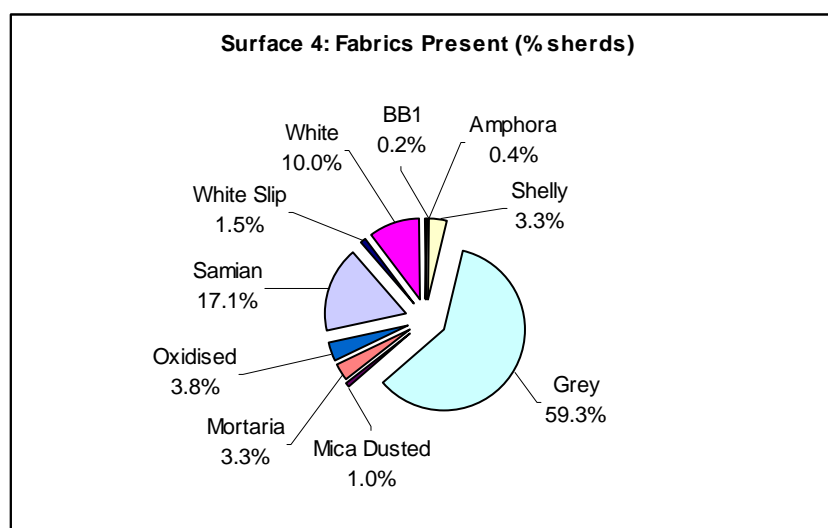


Figure 6 The Roman pottery: fabrics present within Surface 4 (% sherds).

White-ware flagons dominate the regional coarse wares at 10% of the assemblage, including a devolved ring-necked form dating to the middle of the 2nd century (Clark 1999, 146-148). The white slipped wares are also all flagons, including a complete ring/screw necked form dating to the earlier part of the 2nd century. An oxidised ware flagon and jar also date within the 2nd century, possibly within the first half. Sources for oxidised, white and white slipped

wares include Mancetter-Hartshill and Northamptonshire (Swan 1984, 98-101; Pollard 1986, 4; 1994: 113-114). There are at least three mica-dusted-ware vessels, comprising a beaker, dish and reeded-rimmed bowl dating within the first half of the 2nd century. These are also likely to come from a Midlands source (Pollard 1994, 54). The single sherd of Black-Burnished ware is from a jar with wavy-line decoration on the rim probably dating to around the middle of the 2nd century (Pollard 1986, 6; Holbrook and Bidwell 1991, 95; 101-103).

Most of the mortaria are from the Verulamium region dating from the late 1st to the middle of the 2nd century. There also mortaria from Mancetter-Hartshill with rim forms suggesting a date around the middle of the 2nd century (Swan 1984, 95-104; Pollard 1986, 4; Clark 1999, 152-154). The amphora types present comprise a Baetican Dressel 20 olive oil amphora and a Cam186 amphora associated with fish products. This group of specialist wares accounts for 16 of the 20 sherds of mortaria and both sherds of amphora found in the northern zone as a whole.

The finewares comprise imported samian wares from South and Central Gaul. A wide variety of forms are present including platters (Drag.15/17 and 18), dishes (Drag.18/31 and 18/31R), bowls (Drag.29 and 37), cups (Drag.27, 33 and 35) and a Drag.67 beaker. The group represents the range of samian table wares popular from the mid/late 1st century through to the middle of 2nd century (Webster 1996). The samian ware recovered from this group accounts for just over 83% by sherd count and 75.5% by weight of the samian found within the northern zone.

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

The mid-Roman features found incorporate a series of surfaces and soil layers, along with a possible beamslot and pit. The pottery comprises 246 sherds (1.654kg).

Surface 10

Contexts: (2864) (5063)

Surface 10 was situated over Surface 4. The latest datable pottery is a Nene Valley colour-coated ware with roulette decoration; most likely a beaker dating from the later 2nd or early 3rd century in the upper layer (2864). This single vessel accounts for 21 of the 28 sherds recovered from (2864) and is fragmentary. The remaining pottery comprises a South Gaulish samian-ware platter, white ware flagon, grog-tempered ware jar and everted-rimmed grey ware jar, suggesting a date within the 2nd century, possibly the first half of the 2nd century. Thirty sherds were recovered from (5063). Grey-ware jars, an oxidised ware beaker with roulette decoration and white ware flagons date within the 2nd century. Mortaria from Mancetter-Hartshill and the Verulamium region date from the late 1st century to the middle of the 2nd. The samian wares, comprising a decorated bowl (Drag.29), cup (Drag.27) and plain bowl (Drag.31) complete the range of material; the latest vessel dating to the mid-late 2nd century.

Surface 3

Contexts: (2859), (5039), (5040), (5042), (5043)

Surface 3 was the uppermost surface in the northern zone, from which an assemblage of 94 sherds (451g) was recovered. The table and chart below show the proportions of fabrics present.

Table 5 The Roman pottery: surface 3 fabric summary

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
BB1	31	33.0%	0.00	0.0%	97	21.5%	3.1
C	27	28.7%	0.28	59.8%	76	16.9%	2.8
CG	3	3.2%	0.00	0.0%	35	7.8%	11.7
GW	19	20.2%	0.06	13.0%	84	18.6%	4.4
MO	2	2.1%	0.13	27.2%	89	19.7%	44.5
OW	2	2.1%	0.00	0.0%	27	6.0%	13.5
Samian	2	2.1%	0.00	0.0%	7	1.6%	3.5
WS	1	1.1%	0.00	0.0%	4	0.9%	4.0
WW	7	7.4%	0.00	0.0%	32	7.1%	4.6
Total	94	100.0%	0.46	100.0%	451	100.0%	4.8

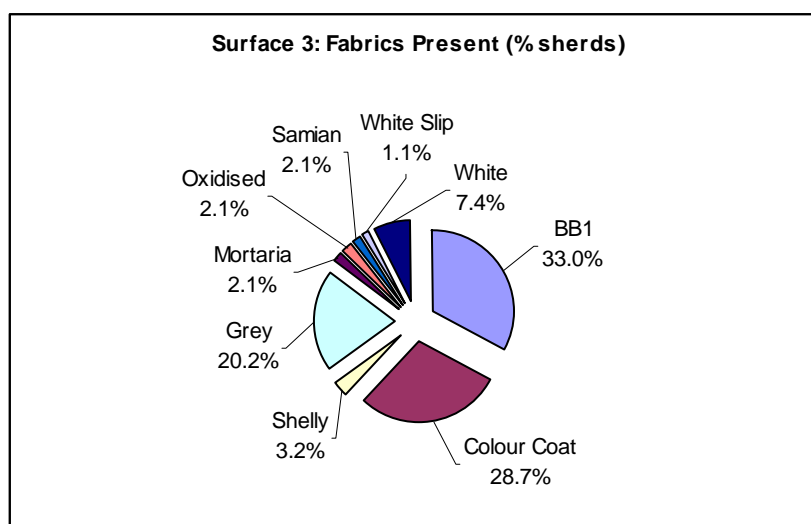


Figure 7 The Roman pottery: fabrics present in Surface 3 (% sherds).

The Black-Burnished wares comprise a plain rimmed dish and jars. The dish is a long-lived form dating from the later 2nd century until the end of Black Burnished ware production, whilst the presence of obtuse lattice decoration on the jars indicates a date into the 3rd century (Holbrook and Bidwell 1991, 95-96; 111). The grey wares are undiagnostic, with no decorated sherds and only one rim. The vessels are most likely jars or bowls and could date from the 2nd century onwards. One shelly ware jar probably dating within the 2nd century is also present.

As with the grey wares, many of the white, white slipped and oxidised wares are also undiagnostic. The white and white slipped wares are most likely flagons or bowls, including a probable bowl with orange painted decoration. Only two sherds of oxidised ware are present, one of which is from a jar. All these vessels most likely date within the 2nd century. A mortarium from the Mancetter-Hartshill area dates between the middle of the 2nd century and the early 3rd century. The Nene Valley mortarium has a reeded hammerhead rim dating from the 3rd century.

The majority of the fine wares are drinking vessels, most of which are Nene Valley colour-coated wares dating from the later 2nd and 3rd centuries. Forms present included curved rimmed, folded and roulette decorated beakers (Howe *et al* 1980, 18-19). The bead-rimmed colour-coated ware beakers from Central Gaul date from the middle of the 2nd century to the early 3rd century (Tyres 1996, 137-138). The earliest fine ware is a samian Drag.33 cup dating within the 2nd century. A flagon neck comparable to the pinched-spouted flagon form commonly produced in the Nene Valley is also present. Although this form is traditionally dated to the 4th century (Howe *et al* 1980, 22-23), the rest of the material in this group dates within the 3rd century, possibly the first half of the 3rd century. A similar circumstance was encountered at excavations at Catterick in North Yorkshire, where an example of this flagon form was found in association with material dating to the early-mid- 3rd century (Evans 2002, 276-277). In his discussion, Evans notes a few occurrences of forms usually dated as 4th century alongside groups of material dating within the 3rd century, perhaps indicating an earlier date than previously thought for the appearance of colour-coated flagons in the Nene Valley pottery industry repertoire (*ibid*, 280). In view of this, the flagon in this group may be another example suggesting the production of colour-coated flagons before the 4th century in the Nene Valley.

Soil over surfaces

Context: (2808)

The surfaces are overlain by a soil layer, from which 32 sherds of pottery (348g) were recovered. Most of the material (24 sherds) constitutes a single grey-ware carinated jar with lattice decoration dating to the later 1st or early 2nd century. A samian-ware bowl and dish, white-ware flagon, oxidised- and shelly-ware jar all date within the 2nd century, possibly within the first half of the 2nd century. Two sherds of Nene Valley colour-coated ware, probably from a beaker, date to the later 2nd or 3rd century. The pottery from this layer is dated earlier than that from Surface 3 beneath it, suggesting the presence of re-deposited material.

Soil

Context: (2895)

To the north of the surfaces, ten sherds of pottery (122g) were recovered from a soil layer (2895), which probably represents an accumulation layer over a wall (2896) found slumped into a pit. Two Nene Valley colour-coated ware beakers date from the later 2nd to 3rd century, as does a Nene Valley grey-ware jar. All the grey wares are jars including an East Midlands Burnished type vessel dating to the 3rd century. A Black-Burnished-ware bead-rimmed dish dates to the mid-late 2nd century and a white ware flagon probably dates within the 2nd century.

Silty layer, possible beamslot and pit

Contexts: (5139), (5141), (5151)

The pottery from the silty layer (5139) comprises 28 sherds (145g). The grey-ware jars with lattice decoration are in Leicester fabric GW1, denoting grey wares imitating Black-Burnished wares and probably date from the later 2nd century onwards (Pollard 1994, 114). A Black-Burnished ware jar is not closely datable, but in Leicester is unlikely to date before c.AD120 (Pollard 1986, 6). A Bourne-Greetham shelly ware jar dates from the later 2nd to 3rd centuries and is comparable to vessels found at Empingham in Rutland (Cooper 2000a, 80). One very small sherd from a Nene Valley colour-coated ware beaker is also present, most likely dating from the late 2nd to early 3rd century. A grey-ware jar with barbotine ring and dot decoration dating from the late 1st to mid-2nd century was found in a possible beamslot feature (5141). As this appears to cut into the silty layer (5139), the pottery is presumably residual. Twenty-one sherds of pottery (70g) were recovered from the pit (5151). The material comprises a Black-Burnished-ware jar with acute lattice decoration and a Bourne-Greetham shelly-ware jar, suggesting a date from the later 2nd to the early 3rd century. These features are situated between the northern and southern surfaces in an area that was not fully excavated. The silty layer may overlay Surface 4 as it is not certain that the full extent of this surface was revealed. The general date of late-2nd to early 3rd century is similar to that of Surface 10 and it may be that these features are contemporary however the relationship is not clear.

Analysis of the Roman pottery assemblage by Area and Phase: the southern zone

An assemblage of 598 sherds (8.098kg) was retrieved from the southern zone of activity within the excavation area accounting for 43.5% of the site assemblage, as illustrated in the table and chart below. Although the material is reasonably well preserved with an average sherd weight of 13.5g overall, there is some variability between fabrics.

Table 6 The Roman pottery: southern zone fabric summary

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	4	0.7%	0.00	0.0%	295	3.6%	73.8
BB1	118	19.7%	1.52	15.2%	913	11.3%	7.7
C	63	10.5%	2.80	27.9%	935	11.5%	14.8
CG	62	10.4%	1.03	10.2%	1302	16.1%	21.0
DS	2	0.3%	0.00	0.0%	20	0.2%	10.0
GT	2	0.3%	0.00	0.0%	29	0.4%	14.5
GW	255	42.6%	3.38	33.7%	3131	38.7%	12.3

MD	1	0.2%	0.00	0.0%	3	0.0%	3.0
MO	19	3.2%	0.52	5.2%	796	9.8%	41.9
OW	7	1.2%	0.21	2.1%	59	0.7%	8.4
PR	1	0.2%	0.05	0.5%	9	0.1%	9.0
Samian	42	7.0%	0.34	3.3%	295	3.6%	7.0
WS	3	0.5%	0.00	0.0%	65	0.8%	21.7
WW	19	3.2%	0.18	1.7%	246	3.0%	12.9
Total	598	100.0%	10.01	100.0%	8098	100.0%	13.5

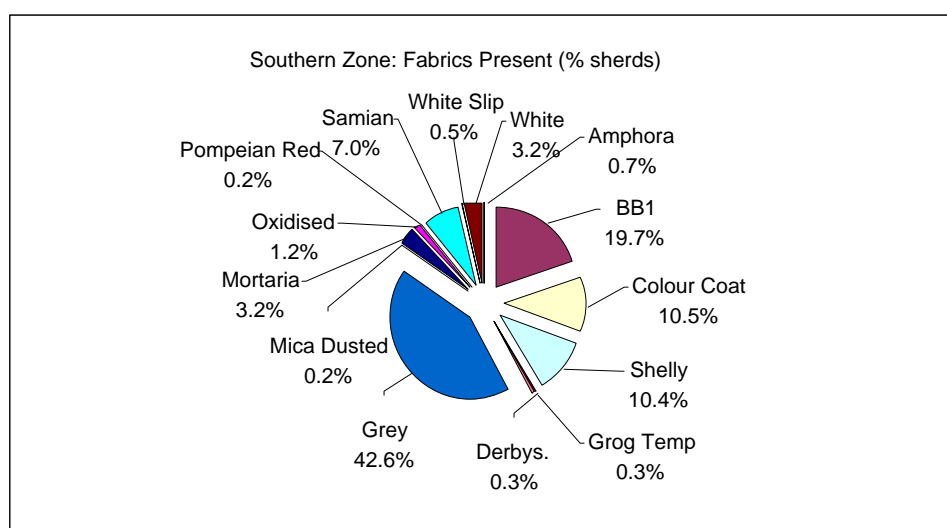


Figure 8 The Roman pottery: fabrics present within the southern zone (% sherds).

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

Pit

Context: (3310)

The earliest feature found in the southern zone was a pit towards the southern edge of the site, south of the surfaces, wall and ditch; from which 45 sherds (967g) of pottery were recovered. Most of the material is grey ware, including jars with everted rims and rusticated decoration dating from the mid/late 1st century to the early 2nd. Hemispherical and reeded-rimmed bowls also date from the later 1st century to the middle of the 2nd. The remaining vessels comprise shelly, grog-tempered and oxidised-ware jars; white and white-slipped ware flagons; a sherd of amphora and South-Gaulish samian ware dating to the late 1st-early 2nd century.

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

An assemblage of 274 sherds (3.182kg) was recovered from a surface, layer and post hole. The surface accounts for most of the material, with only small groups of pottery from the layer and post hole.

Surface 9

Contexts: (3313), (3314)

Surface 9 constitutes the lowest surface in the sequence. An assemblage of 265 sherds weighing 3.083kg was recovered, accounting for 44.3% and 38.1% of the material found within the southern zone by sherd count and weight respectively. The average sherd weight of 11.6g indicates a reasonable level of preservation, though some fabrics appear more abraded than others. The table and chart below detail the proportions of fabrics present.

Table 7 The Roman pottery: surface 9 fabric summary

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
BB1	61	23.0%	0.86	23.5%	529	17.2%	8.7
C	20	7.5%	0.46	12.6%	147	4.8%	7.4
CG	13	4.9%	0.33	8.9%	341	11.1%	26.2
DS	2	0.8%	0.00	0.0%	20	0.6%	10.0
GW	134	50.6%	1.57	42.8%	1497	48.6%	11.2
MD	1	0.4%	0.00	0.0%	3	0.1%	3.0
MO	7	2.6%	0.13	3.4%	314	10.2%	44.9
OW	5	1.9%	0.21	5.7%	45	1.5%	9.0
PR	1	0.4%	0.05	1.4%	9	0.3%	9.0
Samian	13	4.9%	0.06	1.6%	117	3.8%	9.0
WS	1	0.4%	0.00	0.0%	21	0.7%	21.0
WW	7	2.6%	0.00	0.0%	40	1.3%	5.7
Total	265	100.0%	3.66	100.0%	3083	100.0%	11.6

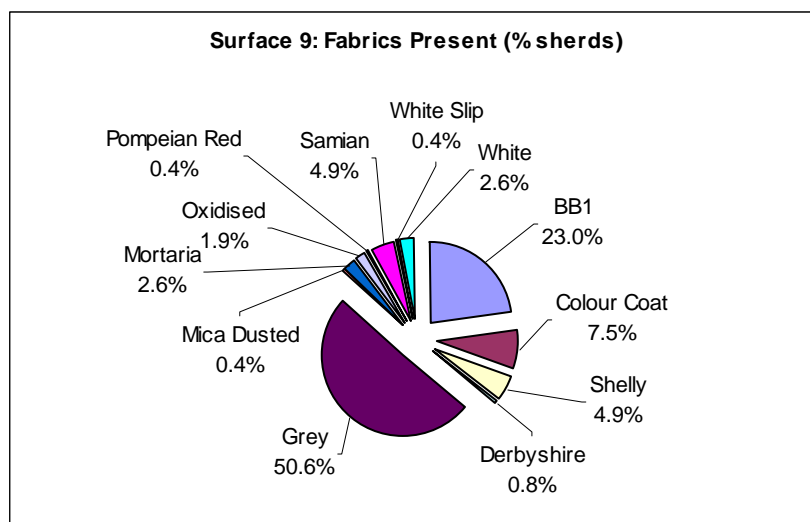


Figure 9 The Roman pottery: fabrics present in Surface 9 (% sherds).

Grey wares comprise 50.6% of the assemblage, the majority of which are most likely locally made. Jars are the dominant form, including everted, round necked and ledge-rim forms with barbotine, roulette and lattice decoration suggesting a date range within the 2nd century. There are also a few jars in a highly burnished fabric comparable to Todd's East Midlands Burnished type ware, dating into the 3rd century (Todd 1968; Pollard 1994, 74-77). The range of bowls includes a Flavian/Trajanic reeded rimmed form, copies of Black Burnished ware conical and flat rimmed bowls and a plain rimmed bowl comparable to the Cam 306 form. Examples of the latter have been found in Leicester at Causeway Lane in a variety of contexts dating from the middle of the 3rd century to the middle of the 4th (Clark 1999, 146-159). A grooved rimmed bowl from the Nene Valley also dates to the 2nd or 3rd century (Howe *et al* 1980, 14-15). A small tubular handle in a coarse grey fabric is probably from a cup or mug rather than a flagon, on account of its size. The comparatively small amount of shelly wares are mostly locally made jars dating within the 2nd century, however there is also a Bourne-Greetham jar comparable to vessels found at Empingham in Rutland dating to the later 2nd and 3rd centuries (Cooper 2000a, 80).

Black Burnished wares dominate the regional coarse wares at 23% of the assemblage. A range of jars, dishes and bowls are present ranging in date from the middle of the 2nd century into the 3rd. The dish is a long-lived form dating from the later 2nd century until the end of Black Burnished ware production, whilst the presence of obtuse lattice decoration on the jars indicates a date into the 3rd century (Holbrook and Bidwell 1991, 95-96; 111). The two sherds of Derbyshire ware also date from the later 2nd century into the 3rd.

The white and white-slipped ware flagons and tazza cup, along with an oxidised ware jar and roulette decorated beaker, complete the range of regional coarse wares dating within the 2nd century. A 2nd century mica dusted ware beaker is likely to come from a Midlands source, possibly the Lower Nene Valley (Pollard 1994, 112). The mortaria from Mancetter-Hartshill and the Nene Valley both date from the mid-2nd to the early 3rd century.

A mixture of imported and Romano-British fine ware is present within the assemblage. The samian table wares range from mid-late 1st century platters (Drag.15/17 and 18) to 2nd century cups (Drag.33) and a decorated bowl (Drag.37). A fragment from a Pompeian Red ware platter dates to the middle of the 1st century and is residual in this group, as is the early samian. The Romano-British colour-coated wares are all from the Nene Valley. Most are

beakers including cornice, plain rimmed and folded forms with barbotine and roulette decoration dating from the later 2nd and 3rd centuries (Howe *et al* 1980, 16-19). A colour-coated flagon is also present and, as with Surface 3 above, may be an indication of flagon production earlier than previously thought as this group does not date beyond the 3rd century.

Layer

Context: (3231)

A small group of pottery dating within the 2nd century was recovered from a layer overlying Surface 9. The material comprises a samian ware bowl, white ware flagon and grey ware jars and bowls including an imitation Black Burnished ware dish. The pottery is dated earlier than Surface 9 which dates to the 3rd century and may indicate re-deposited material.

Post hole

Context: (2191)

This post hole was located towards the southern edge of the site. An East Midlands Burnished type grey ware jar with frilled decoration round the neck was recovered, dating from at least the 3rd century.

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

A similar-sized assemblage to that found in Phase 3 was recovered from the later Roman features. The pottery totals 279 sherds (3.949kg) and, as with Phase 3 above, most of the material was recovered from a single layer.

Buried soil layer

Context: (2766)

A layer of buried soil constitutes the last layer of Roman activity over the southern surfaces. This layer has been altered by later activity in the medieval period and has, therefore, been placed stratigraphically in a post-Roman phase in order to interpret the site as a whole. However, during excavation it was seen as a coherent layer created during the Roman period and as such is evidence of late Roman activity at the site. An assemblage of 202 sherds (2.310kg) was recovered accounting for 33.8% of the material in the southern zone. The average sherd weight of 11.4g indicates a reasonable level of preservation. The table and chart below detail the proportions of fabrics present.

Grey wares comprise 31.2% of the assemblage, the majority of which are most likely locally made including an S-necked bowl and flask. Jars are the dominant form, although few rims are present. East Midlands Burnished type wares include a ledge-rim with frilled decoration and highly burnished body sherds including wavy line decoration dating into the 3rd century (Todd 1968). Although many of the sherds are undiagnostic, there is no evidence of decorative styles such as rustication, roulette and barbotine dot associated with material from the 1st and 2nd centuries.

The samian ware comprises a range of platters (Drag.18), dishes (Drag.18/31 and 36), cups (Drag.33) and bowls (Drag.37 and 38) typical of the later 1st and 2nd centuries. One of the

dishes shows evidence for repair in antiquity. This material, along with a white ware flagon, Cam 186 amphora, oxidised and grog-tempered ware jars is residual. A few locally made shelly ware jars are also residual in this group.

Table 8 The Roman pottery: buried soil layer fabric summary

Fabric	Sherds	% Sherds	EVEs	% EVEs	Weight (g)	% Weight	ASW (g)
AM	1	0.5%	0.00	0.0%	64	2.8%	64.0
BB1	57	28.2%	0.66	30.6%	384	16.6%	6.7
C	24	11.9%	0.31	14.1%	378	16.4%	15.8
CG	26	12.9%	0.32	14.6%	394	17.1%	15.2
GT	1	0.5%	0.00	0.0%	16	0.7%	16.0
GW	63	31.2%	0.75	34.7%	742	32.1%	11.8
MO	7	3.5%	0.13	6.0%	212	9.2%	30.3
OW	1	0.5%	0.00	0.0%	6	0.3%	6.0
Samian	19	9.4%	0.00	0.0%	87	3.8%	4.6
WW	3	1.5%	0.00	0.0%	27	1.2%	9.0
Total	202	100.0%	2.16	100.0%	2310	100.0%	11.4

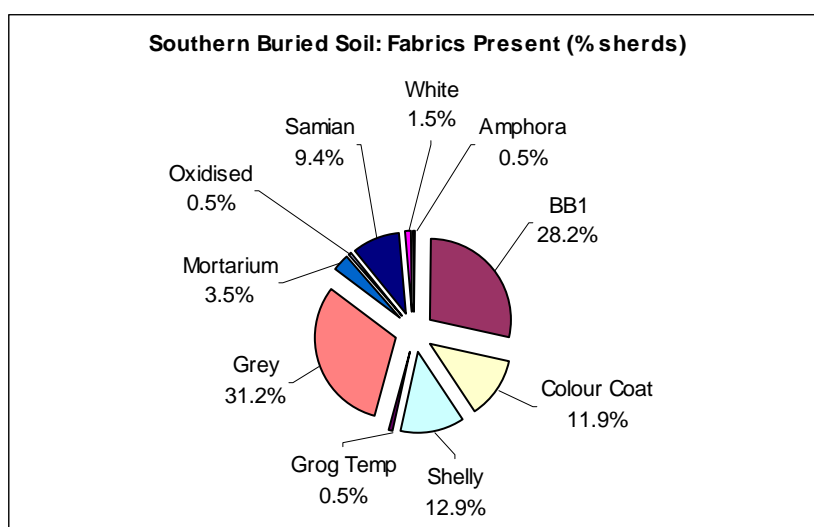


Figure 10 The Roman pottery: fabrics present in the buried soil layer (% sherds).

Unlike every other group on the site, the shelly wares are mostly regional imports from the South Midlands and Rutland/Lincolnshire border. A Bourne-Greetham bowl is comparable with a vessel found at Empingham in Rutland (Cooper 2000a, 84-85). Most of the remaining vessels are South Midlands shelly wares, probably from industries such as that at Harrold in Bedfordshire, which date from the mid-late 3rd and 4th centuries in Leicester (Tyres 1996, 192-193; Clark 1999, 124-125).

Black Burnished wares dominate the regional coarse wares at 28.2% of the assemblage, almost equalling the grey wares. There are more bowls and dishes than jars within this group, the latter displaying obtuse lattice decoration indicating a 3rd century date. The bowls are conical forms with flat plain and grooved rims and intersecting arc decoration, dating to the later 2nd and 3rd centuries. A bead rimmed dish with lattice decoration dates to c.AD160-200, whilst the rest of the dishes are plain rimmed with intersecting arc decoration. The plain rimmed dish is a long-lived form, with production starting during the later 2nd century until the end of the Black Burnished ware industry (Gillam 1968, 71; Holbrook and Bidwell 1991, 95-99).

The majority of the Romano-British colour-coated wares are from the Nene Valley. Beakers with roulette bands and barbotine scroll decoration date from the later 2nd and 3rd centuries whilst funnel necked forms date within the 3rd century. Examples of later Nene Valley colour-coated wares including a bead and flanged bowl, bowl with white painted decoration, plain rimmed shallow dish and flagons date to the 4th century (Howe *et al* 1980, 16-25). The remaining colour-coated wares are Oxfordshire red-brown colour-coated ware bowls imitating samian forms, popular during the later 3rd and 4th centuries. In Leicester, Oxfordshire colour-coated wares usually date to the 4th century (Young 1977, 133).

The mortaria are all of later Roman form. The hammerhead reeded rimmed mortarium from the Nene Valley dates from the 3rd century to the middle of the 4th. The remaining vessels are white-slipped and red-brown colour-coated vessels from Oxfordshire, dating to the 4th century (Young 1977, 122; 127).

Pit

Context: (3254)

This pit overlies Surface 9. A Nene Valley colour-coated ware dish dating to the 4th century and a beaker dating to the later 2nd or 3rd century are the latest datable vessels. The remaining material comprises an abraded shelly ware jar, a white ware flagon and plain grey ware jars dating from the 2nd century.

Wall

Context: (2121)

To the west of Surface 9 and the buried soil layer (2766), 16 sherds (468g) were recovered from the foundation trench of a wall. The material comprises East Midlands Burnished type ware jars with burnished roll-necks, loops and bands typical from the 3rd century onwards. The shelly wares are hooked rimmed jars from the South Midlands dating from the later 3rd and 4th century. A hammerhead reeded rimmed mortarium from the Nene Valley dates from the mid-3rd to the mid-4th century. Colour-coated jars from Oxfordshire and the Nene Valley date to the 4th century.

Gully

Contexts: (5309), (5311)

To the east of the Surface 9 and the buried soil layer (2766), 30 sherds (713g) were recovered from a gully. The material comprises grey ware jars including an East Midlands Burnished type ware. The shelly wares are from the South Midlands including a hooked form dating to the mid-late 4th century (Brown 1994, 63-78). An Oxfordshire white-slipped mortarium also dates to the 4th century. The colour-coated wares comprise Oxfordshire red-brown colour-coated ware bowls and Nene Valley colour-coated ware jars dating to the 4th century. Finally, a white ware unguentarium is presumably residual, though this vessel type is produced throughout the Roman period.

Post hole

Contexts: (3390), (3420)

Sixteen sherds (161g) of pottery were recovered from a post hole located towards the southern edge of the excavation area. The grey wares comprise a bowl of Swanpool type dating to the 4th century, possibly the mid-4th century (Darling 1977, 10-11; 27-28), and an East Midlands Burnished type jar. A Harrold shelly ware jar dates from the later 3rd or 4th centuries. The colour-coated wares include a 4th century Nene Valley colour-coated ware jar and a flagon form dating to the mid-late 4th century. The Oxfordshire red-brown colour-coated wares comprise a mortarium and bowl or dish dating to the 4th century and a bowl imitating a samian form dating to the mid-4th century. Four sherds of samian and white ware are residual.

Comparison of phase assemblages

Romano-British pottery can be broadly divided into local, regional and imported supply. Local supply is generally accepted as within a 15-25km (9-15 mile) radius of manufacture (Peacock 1982, 156-158), whilst regional or 'non-local British' (Cooper 2000b, 79) describes products from large industries such as Oxfordshire or the Nene Valley. The following comparison of the phase assemblages as illustrated in figure 8 highlights the changes in pottery supply through time.

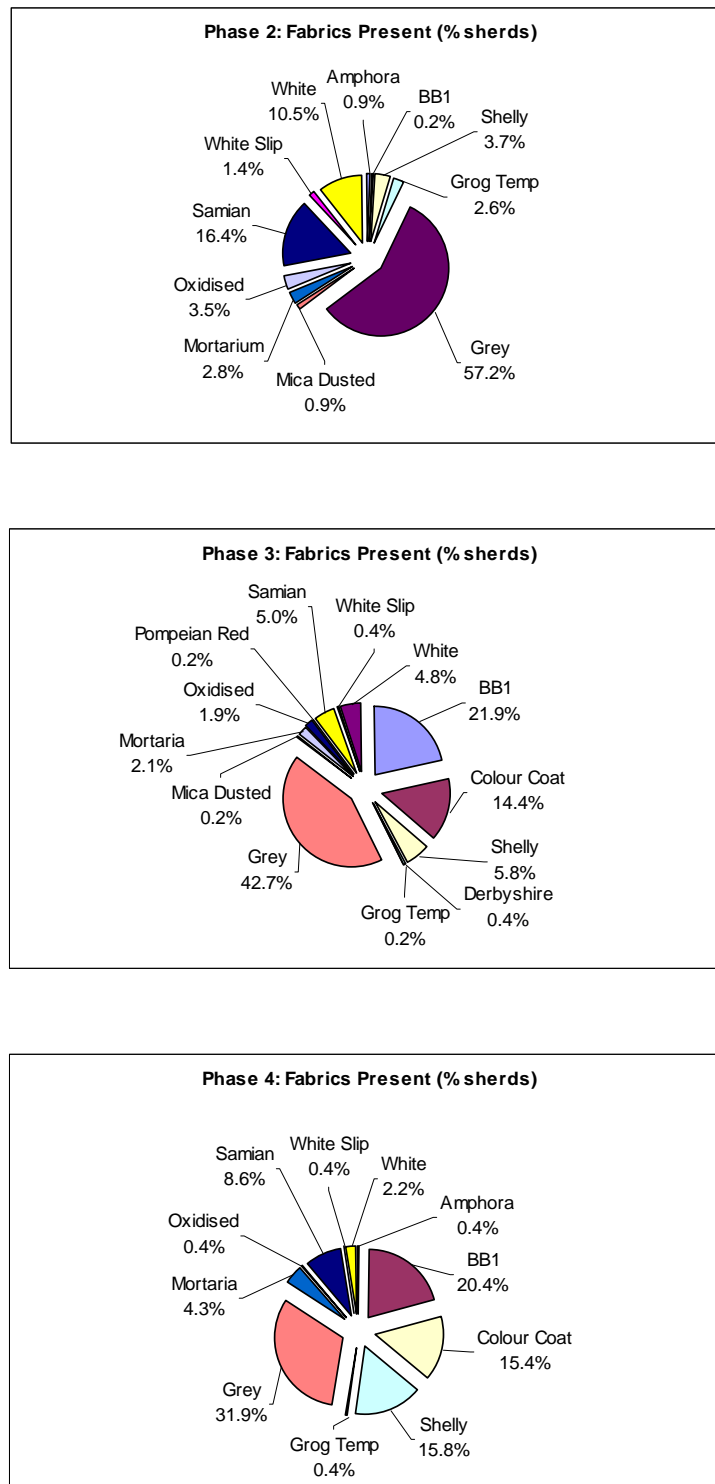


Figure 11 The Roman pottery: fabrics present within each phase of activity.

Local fabrics are dominant in the earliest phase, Phase 2, with grey, shelly and grog-tempered fabrics comprising 62% of the assemblage. White ware at 10.5% is the most common regional fabric along with higher levels of oxidised, white slipped and mica dusted wares in comparison with the later phases. The mortaria from the Verulamium and Mancetter-Hartshill regions have distinctively heavier flanges and bead rims associated with earlier vessel forms. A single sherd from a Black Burnished ware jar is the latest datable coarse ware, probably dating from *c.*AD120-160. The fine wares are all imported samian wares from South and Central Gaul. In this respect, the Phase 2 assemblage typifies the range of wares in common usage during the first half of the 2nd century, with local pottery supplemented by regional wares from Mancetter-Hartshill, Northamptonshire and Verulamium. The complete absence of colour-coated wares and paucity of Black Burnished ware is also indicative of a date within the earlier part of the 2nd century, probably up to *c.*AD160.

Grey wares are still dominant at 47.2% within Phase 3, however, a significant increase in the quantity of Black Burnished ware is a noticeable difference between this and Phase 2. Grey ware jars from the Nene Valley and East Midlands Burnished type wares are also present indicating a later 2nd- and 3rd-century date. The decrease in the presence of white, white-slipped and oxidised wares along with the appearance of Derbyshire ware and some Bourne-Greetham shelly ware indicates a progression through the latter half of the 2nd century and into the 3rd century. Although one mortarium from the Verulamium region is present in Phase 3, this is most likely residual. Most of the mortaria are from Mancetter-Hartshill or the Nene Valley, with changes in vessel form also evident.

The fine wares are very different in Phase 3, with imported samian ware overshadowed by Romano-British colour-coated wares from the Nene Valley. Some of the samian may well be residual, however much of the material comprises 2nd-century Central-Gaulish vessels, including a bowl form dating to the mid-late 2nd century. The majority of the colour-coated wares are beakers, again suggesting a date within a late 2nd and 3rd-century range. A small amount of imported colour-coated ware from Central Gaul, so called 'Rhenish' ware dating from the middle of the 2nd century to the early 3rd, is present, however this may represent one or possibly two vessels. As mentioned previously, the occurrence of colour-coated flagons in association with 3rd-century material is worth noting, as it adds to the body of evidence relating to production at the Nene Valley pottery centres for future research.

The material from Phase 4 comprises similar proportions of Black Burnished and Romano-British colour-coated wares to that in Phase 3, with grey wares reduced to 31.9% of the assemblage. East Midlands Burnished type jars and a Swanpool type bowl represent later grey-ware forms of the 3rd and 4th centuries. The small quantities of white, white-slipped and oxidised wares are residual. The samian ware is also most likely residual as although it accounts for 8.6% of the assemblage by sherd count, it should be noted that in this instance, the samian is very fragmentary comprising only 3.2% of the assemblage by weight.

In addition to beakers, the colour-coated repertoire includes jars, dishes and bowls common in Nene Valley and Oxfordshire colour-coated ware during the 4th century. The Oxfordshire vessels popularly known for imitating samian wares are not found in Leicester until the 4th century (Young 1977, 133). The mortaria also represent the latest forms found in Leicester, with hammerhead reeded vessels from the Nene Valley, and Oxfordshire white and colour-coated mortaria. A significant increase in the quantity of shelly wares is also apparent in Phase 4, half of which are later regional wares. Most of the vessels are jars from the South Midlands industries such as at Harrold in Bedfordshire. In Leicester these are not commonly found before the mid-late 3rd century and are most commonly found during the 4th century

including, as previously noted, a hooked rim form dating to the mid-late 4th century from a ditch in the Southern Area.

Conclusions

Overall, there is evidence for activity at the site from the late 1st/early 2nd century to possibly the end of the 4th. The earliest evidence is in the northern zone of the excavation area, where the quarry feature is backfilled and sealed by Surface 4 by the middle of the 2nd century. Surface 4 provides the most coherent and best preserved group of material suggesting it constitutes a deposit of some sort rather than an accumulation over a surface. The rest of the material from the northern surfaces is more fragmentary as would be expected from material left strewn on a surface to be constantly crushed. These later surfaces date no later than the 3rd century.

Apart from the small pit [3312], the earliest feature in the southern zone of the excavation area is Surface 9 dating to the 3rd century, suggesting a movement of activity from the north to the south of the site. It may be that the upper surfaces in the northern zone are contemporary with Surface 9 in the south, but there does not seem to be evidence for activity in the north after the 3rd century. Activity in the southern zone continues into the 4th century with some examples of the latest fabrics and forms found in Leicester. More examples of later colour-coated wares from the Nene Valley and Oxfordshire, along with later Harrod shelly wares and 4th century mortarium forms were also found in post-Roman contexts, hinting at significant later 3rd and 4th century activity in the area.

In the southern zone, pit [3312] (3310) and post holes [2190] (2191) and [3391] (3390), (3420) have been difficult to interpret. These features were all found towards the southern edge of the excavation area, south of the surfaces and other features. The small amount of dating evidence suggests the pit is early Roman, whilst the two post holes date to the 3rd and 4th centuries respectively. The relationship between these features is uncertain; they may be the remnants of some sort of boundary, perhaps a long-lived boundary, or they may be unrelated.

The phased assemblage provides an insight into pottery supply to Leicester, demonstrating a decrease in local and imported wares matched with increases in regional supply throughout the 3rd and 4th centuries.

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

Introduction

A total of 16 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 8 and 12. The assemblage is one of four, totalling 114 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 and Williams 2007), Causeway Lane (Blinkhorn 1999) and Bonners Lane (Blinkhorn 2004), the total from the City in recent times totals 255 sherds. In addition, a large assemblage from the settlement at Eye Kettleby near Melton Mowbray totalling 2581 sherds, is currently being analysed (Cooper and Forward in prep), and has provided the opportunity to review the methods of analysis of an unprecedented amount of material at the same time.

Chronology

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

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

With the exception of a Maxey ware vessel from Wymondham Manor House (Pickstone and Connor 2008) 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.*AD650-720 (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 analysed by fabric and form and quantified by sherd count, weight and EVEs, with rim diameter, girth, decoration and surface treatment also being recorded. Fabrics have been analysed using low power microscopy (x20) and identified in accordance with the series developed by Blinkhorn for the two currently published assemblages from the City (Blinkhorn 2000 and 2004), but simplified following petrological thin-section work undertaken by David Williams on the material from Causeway Lane and The Shires (Little Lane and St Peter's Lane) (Blinkhorn and Williams forthcoming), the details of which are discussed below.

Fabric analysis

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

The petrological examination by Williams identified four main inclusion types; granite, quartz, quartzite and sandstone, from which a series of six fabrics (SX1-6) was established, to

include a dense, fine sandy quartz fabric and a quartz fabric also including calcareous material. Blinkhorn's analysis of the same material recognised the same divisions but included further subdivision of the quartzite fabrics to make nine in all (F1-9), six of which were recognised in the small assemblage from Causeway Lane (Blinkhorn 1999, 165).

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 9 The Anglo-Saxon pottery: concordance of Early to Middle Anglo-Saxon pottery fabrics from Leicester

Sx	Highcross	sx	Williams	F	Blinkhorn 1999	BL	Blinkhorn 2004
sx 1	Quartz	sx 1	Quartz(ite)	F 1	White quartz(ite)	BL 5	Quartzite
				F 2	Grey quartz(ite)		
		sx 2	Fine sandy quartz	F 3	Fine sandy quartz(ite)		
				F 5	Sparse sandy		
		sx 6	Sandstone	F 8	Sandstone		
sx 3	Granite	sx 3	Granite	F 4	Coarse Granite	BL 1	Granite
				F 6	Fine Granite		
						BL 3	Granite and shell

sx 4	Quartz shell	and	sx 4	Quartz Limestone	and	F 7	Quartz calcareous	BL 4	Limestone and white quartzite
								BL 2	Shell
n/ a			sx 5	Sand and mica (IA?)		F 9	Fine micaceous (IA?)		

Results

Table 10 The Anglo-Saxon pottery: quantification of the Early – Middle Anglo-Saxon Pottery from Vaughan Way, by fabric.

Fabrics	Sherds	%sherds	Weight	%weight
SX1	14	88	201	90
SX3	2	12	25	10
Total	16	100	226	100

Table 11 The Anglo-Saxon pottery: distribution of the assemblage by phase and fabric

Phase Sherds	/	SX1 Quartz	SX3 Granite	Total
5		4	1	5
8		2	1	3
8A		2		2
8B		1		1
12		1		1
0 Unphased		4		4
Total		14	2	16

Discussion

Stratigraphic distribution

Two sunken featured buildings 2027 and 2786, attributed to Phase 5, were identified from excavations at Vaughan Way. Five sherds of early Saxon pottery were found from the fills of these features, four of which were retrieved from (2026) and one from (2784). Despite the presence of the sherds, both fills also contained intrusive pottery. Two early medieval sherds were retrieved from (2026) and three sherds of post-medieval pottery were also found in fill (2784). It is probable that these intrusive sherds are the result of later features cutting the sunken-featured buildings. This disturbance is also seen with the remaining 11 early Saxon sherds retrieved from Vaughan Way which are found residually in features assigned to phases 8 and 12 as well as in unphased contexts. Despite the residual nature of the ceramic assemblage, the presence of the Saxon sunken-featured buildings as well as a small long brooch in burial soil (2217) (Cool this vol no. 19) indicates that there was early Saxon occupation and activity at Vaughan Way.

Fabric, form, decoration and surface treatment

There is an absence of decorated sherds as well as rim forms in the assemblage and only the two base sherds, signifying two globular vessels from phase 8 contexts, are representative of diagnostic forms. Despite there being little evidence for diagnostic vessel forms from the assemblage the fabrics do indicate that the sherds are most likely to be from the early to mid Saxon period 450-700. In keeping with the other early Saxon ceramic assemblages from the Highcross excavations, the quartz tempered fabric appears to be more common than the granite tempered wares, although this may be a distorted representation due to the small size of the assemblage. Burnt residue and lime scale on the interior of the base from (2766) is indicative of domestic use and this is also supported by the consistent smoothing and burnishing of internal surfaces, whilst some external surfaces are untreated.

THE MEDIEVAL AND POST-MEDIEVAL POTTERY AND TILE

Deborah Sawday

Introduction

A total of 6148 sherds of medieval and later pottery were recovered from the site of which approximately 60 % by sherd count – 3691 sherds, weighing 62.519 kg – was targeted for detailed study, and was analysed and recorded using Access and Excel databases which together form the site archive. Most of the material dated from the 12th to the 14th centuries, typically Potters Marston being the most common ware present, accounting for approximately 70 % and 66 % of the pottery totals by sherd count and weight respectively.

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 12 and Table 13. Previously undefined fabrics without a known kiln source, which consequently have not been defined elsewhere, and those new to the series are described in the Freeschool Lane report.

The pottery by selected Groups by Phase.

The quality and size of the pottery assemblages discussed below is somewhat restricted. Not only were many of the archaeological deposits only partially excavated, many were also extremely fragmentary and had been truncated by later features. The resultant often rather limited pottery evidence has, however, been subjected to detailed examination in order to try and refine the chronological sequence relating to the structures and associated activities, in particular, the development of the church and cemetery.

Other important aspects of the site are also examined, namely the phases of gardening or horticultural activity, the pitting and other evidence of occupation. This analysis, taken together with other post excavation research on the site, may also help to clarify and develop our understanding of the topographic development of this hitherto largely unexplored part of the north east quarter of the town.

Table 12 The medieval pottery and ridge tile fabrics.

Fabric	Common Name/Kiln & Fabric Equivalent where known	Approx. Date Range
LE	Leicester ware (1)	c.850-c.1100
ST3	Stamford ware 3 – coarse, fabrics E/F, H A/D (2)	c.850/900-1050+
ST2	Stamford ware 2 - fine, fabrics G B/(A) (2)	c.1050-12th C.
ST1	Stamford ware 1 – very fine, fabrics B/C (2)	c.1150-13th C.
LI1/2	Lincoln Kiln type/Lincoln late Saxon Shelly ware (3)	c.870–early 12th C.
SN	St Neots/St Neots type ware - Northants CTS 100 (4)	c.850-1100
TH	Thetford ware/type (5)	c.850-c.1200
TO	Torksey ware/type (6)	c.850-c.1200
RS1-3	Reduced Sandy wares-? Local (7)	c.850-c.1400
PM	Potters Marston ware - Potters Marston, Leicestershire (8)	c.1100-c.1300/50+
SP1	Splashed ware 1 - Nottingham (9)	c.1180-1250
SP2	Splashed ware 2 – Nottingham (9)	c.1100-1180
SP3	Splashed ware 3 - Leicester (10)	c.1100-1250
OS1	Oxidised Sandy ware 1-? Local, Brackley fabric T68, (11) Northants CTS fabrics 302-305, (12)	c.12th-13th C.
OS2	Oxidised Sandy ware 2-? Local.	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
LY1	Lyveden/Stansion type ware 1 - Northampton fabric T2 (13), Lyveden/Stansion 'B' ware, Northants CTS fabric 320 (12)	c.1200/1225-1400
CO2	Coventry Sandy ware/type – Coventry fabric A (14), Warwick CTS SQ202/203 (15)	12th-14th C.
CO1	Coventry Glazed ware/type – Coventry fabric D (14), Warwick CTS SQ21/SQ211 (15)	c.1150-1250
CC1	Chilvers Coton ware 1 - Chilvers Coton fabric A/Ai (16), Warwick CTS WW01, WW012? (15)	c.1250-1400
CC2	Chilvers Coton ware 2 - Chilvers Coton fabric C (16), Warwick CTS SQ30 (15)	c.1250/1300-1500
NO1	Nottingham ware 1 - Nottingham fabric group W 7 (17)	c.1250-c.1275
NO2	Nottingham ware 2 - Nottingham fabric group W10/W13 (17)	c.1230-c.1280
NO3	Nottingham ware 3 - Nottingham fabric group W13/W14 (17)	Early/mid 13th c.1350
BR2	Brill/Boarstall ware/type –Brill/Boarstall 'standard fabric', Oxford fabric OXAM (18)	c.1200-1400
SC	Scarborough ware – formerly Nottingham off white sandy ware	13th-14th C
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 (19)	Early/mid 13th C.- 1400
MS3	Medieval Sandy ware 3 – misc. coarse hared fired quartz tempered fabrics -? Burley Hill/Allestree/Ticknall, Derbyshire (19)	Early/mid 13th C.- c.1400-1400/1450
MS7	Medieval Sandy ware 7 - 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 8 – misc. sandy fabrics ? including under fired Midland Purple ware, fabric MP2 (19)	c.1300-1550

(1) Hebditch 1967-8	(11) Mellor pers. comm.
(2) Kilmurry 1980, Leach 1987	(12) Northants CTS
(3) Young <i>et al</i> 2005	(13) McCarthy 1979, Brown 1993/4
(4) Hunter 1979 , Northants CTS	(14) Redknap and Perry 1996
(5) Rogerson and Dallas 1984	(15) Ratkai and Soden 1997.

(6) Barley 1964, 1981	(16) Mayes & Scott 1984
(7) Davies and Sawday 1999	(17) Based on a fabric series by V. Nailor, Nottingham Castle Museum
(8) Haynes 1952, Vince 1984, Sawday 1991, Davies and Sawday 1999	(18) Mc Carthy and Brooks 1988
(9) V. Nailor pers. comm./ Prelim fabric series by Nailor & Young 2001	(19) Coppack 1980, Cumberpatch 2002/3
(10) Sawday 1998, Davies and Sawday 1999	

Table 13 The later medieval, post medieval and modern pottery fabrics.

Fabric Code	Common Name/Kiln & 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
MP	Unclassified Midland Purple ware	c.1375/1400-1600
TG2	Tudor Green ware/type ware (3)	c.1375/1400-1600
BO1	Bourne D ware (4)	c.1450-1650
CW1	Cistercian ware 1 -? Chilvers Coton fabric E (1)	c.1450/1475-1550
CW2	Cistercian ware 2 -? Ticknall, Derbyshire (5)	c.1450/1475-1550
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 - Raeren, Frechen/Cologne (8)	c.1500-1700
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. +
EA6	Earthenware 6 - Black Glazed Earthenware	16 th C.-18th C.
EA7	Earthenware 7 - Slipware - Staffs etc	17 th C.-19th C.
SW6	Stoneware 6 - Red Stoneware	1760+

(1) Mayes & Scott 1984	(6) Gooder 1984,
(2) Coppack 1980, Cumberpatch 2002/3	(7) Woodfield 1984
(3) Pearce, Vince <i>et al</i> 1988	(8) Hurst <i>et al</i> 1986
(4) Healey 1973	(9) Sawday 1989
(5) Spavold and Brown 2005	

Phase 5 – Early Anglo Saxon (intrusive material)

A small group of apparently intrusive late Saxon pottery was found in the backfill of two features which have been interpreted as possible *grubenhauser*. Figure 13.12.

The two intrusive post medieval sherds in PC2786 are not discussed here.

Backfill – Grubenhauser Building 2 and associated post hole

PC2027 – Building 2, PC2035 – Post Hole

Assemblage: 3 sherds, 8 grams, 0.0 EVEs, 2.6 grams ASW.

A fragment of coarse handmade Leicester ware, fabric LE and a fine wheel thrown sherd in an unclassified Reduced Sandy ware, fabric RS, occurred in PC2027 . A hard fired wheel thrown sherd in TO, a Torksey type ware, was found in the backfill of a post hole, PC2035, associated with the structure. Leicester ware is dated typologically from the mid to late 9th or 10th centuries (Hebditch 1967-8, 8-9), and the unclassified Reduced Sandy ware and the Torksey type ware may also be late Saxon in date.

Table 14 The late Saxon pottery, phase 5, by fabric, sherd numbers, weight (grams), vessel form, and Eves.

Fabric	Sherds	Weight	Form	EVE
LE - Leicester	1	4	vtu	
LI2 - Lincoln	1	25	jar	0.075
SN – St Neots	1	4	vtu	
TO - Torksey	1	3	vtu	
RS – Reduced Sandy	1	1	vtu	
Totals	5	37		

Backfill – Grubenhauser Building 3

PC2786 – Building 3

Assemblage: 2 sherds, 29 grams, 0.075 EVEs, 14.5 grams ASW.

A sherd of St Neots ware/type ware sherd, fabric SN, and a jar rim in fabric LI2, Lincoln Late Saxon Shelly ware, fabric A, (Young *et al* 2005, fig.53.232, 56) were found in the backfill of PC2786. Lincoln fabric A, is found on 10th century sites in York and Lincolnshire (*ibid* 2005, 62), whilst the Saint Neots type ware may well be of a similar date.

Phase 7

Activity outside the churchyard

PC2008, PC2086, PC2669, PC2733, PC2998, PC3413 Pits

Assemblage: 29 sherds, 445 grams, 0.107 EVEs, 15.3 grams ASW.

The pottery in this small assemblage came from a series of small pits, none of which was fully excavated, almost half of the group by sherd count, occurring in PC2733. The coarse Stamford ware, ST3, dominated, accounting for 79% of the assemblage by sherd count.

Table 15 The medieval pottery: the vessel forms phase 7, by sherd numbers, weight (grams) and Eves

Form	Sherds	% of total	Weight	% of total	Eves	% of total
Jar	3	10.3	137	30.7	0.515	48.1
Bowl	5	17.2	111	24.9	0.325	30.4
Spouted Pitcher	3	10.3	91	20.4	0.23	21.5
Vtu	18	62.0	106	23.8		0.0
Totals	29	99.8	445	99.8	1.07	100.0

Three of the identifiable vessels in ST3, a jar with an everted rim and two bowls, one with an inturned rim and diamond rouletting on the exterior flange, are of 11th century date. Another pot, a glazed spouted pitcher or jar in the same fabric, dates to the late 11th century, a lid seated jar in the fine Stamford ware, fabric ST2, perhaps re-enforcing this terminal date. Two residual fragments, one very abraded, of Lincoln Late Saxon Shelly ware, fabric LI2, including a jar rim similar to vessels in fabric E, dated from the 10th century at Lincoln, (Young *et al* 2005, fig.55.267, fig.55.270, 62) are also present. (Figure 13.1 - 4, Figure 13.8, Figure 13.13 and Figure 13.16).

Table 16 The medieval pottery: Saxo Norman pottery, phase 7, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight
ST3 - Stamford	23	21208
ST2 - Stamford	1	85
LI2 - Lincoln	2	60
TO - Torksey	3	88
Totals	29	445

Phase 8A

Church and churchyard

PC3296 Bell casting extraction pit associated with the church and cemetery.

Expansion

Assemblage: 238 sherds, 5713 grams, 3.070 EVEs, 24.0 grams ASW.

A Potters Marston storage jar (Davies and Sawday 1999, fig.91.87) and jars in the same ware and similar to those from the soils beneath the church floor in PC3339, were found in the backfill of the pit, principally in context (3370), which lay within the bell turret of the church. These vessels, which have everted or upright rims and shouldered bodies, are paralleled in late 11th- or 12th-century contexts at Causeway Lane (*ibid* 1999, figs.89 and 90, 192). A fire cover appears to confirm the relatively early appearance of this vessel type in Leicester, another example at Causeway Lane was found in a context dated by coin evidence from the late 12th or early 13th century (*ibid* 1999, 194). The only other identifiable vessel is an upright jar rim in Coarse Shelly ware, fabric CS, dated from c.1200 at Northampton (McCarthy 1979, fig.97.528, 56).

The archaeomagnetic date of c.1150-1180AD from the stone lining of the flue at the base of the pit, relates to the last use of the bell casting pit, and gives a useful *terminus post quem* for the backfill of the flue and pit and its finds. More importantly, the pit cuts the line of the original wall of the nave, suggesting a *terminus ante quem* also for the extension of the western end of the nave of the church (R. Buckley, pers. comm.). The relatively large average sherd weight indicates that this is possibly secondary refuse, signalling occupation nearby. (Figure 13.20 – 22 and Figure 14.39).

PC3457 Pit within the Nave of the Church

Assemblage: 21 sherds, 184 grams, 0.305 EVEs, 8.7 grams ASW.

The pottery from a pit within the nave of the church includes residual coarse Stamford ware, fabric ST3, and Lincoln Late Saxon Shelly ware, fabric L12. Collared jars and a flared bowl dating from the late 11th or 12th centuries in the fine and very fine Stamford fabrics ST2 and ST1 are also present. Whilst there is no pottery evidence relating to the initial building and presumed earlier phases of the development of the church, this feature is thought to be a possible scaffold pit, and hence the pottery may relate to a phase of alteration or maintenance in this part of the church. (Figure 13.6-7, Figure 13.9-10)

PC3339 Soils below the North Aisle Floor

Assemblage: 7 sherds, 134 grams, 0.120 EVEs, 19.1 grams ASW.

Context (3339), a soil below the north aisle floor of the church, contained a small group of Stamford ware, fabric ST2, and Potters Marston. The former dates generally from the mid- or late 11th to the 12th century. The only identifiable vessels, two Potters Marston jar rims, are paralleled at Causeway Lane, Leicester (Davies and Sawday 1999, fig.88.34, fig.89.53), in association with both cylindrical and shouldered vessel profiles. The latter rim (*ibid* 1999, fig.83.5.1-5.3) is perhaps more frequently associated with a shouldered vessel form, and first

occurred in phase 8, at Causeway Lane, dated from the mid- 11th to the late 12th century or, possibly, slightly later, (*ibid* 1999, 192). Typologically, Potters Marston is thought to originate in the mid- to late 11th or early 12th century. The relatively high average sherd weights, and lack of abrasion, suggest that this pottery may be secondary if not primary refuse, perhaps associated with an earlier phase of occupation near the church. (Figure 13.18 and Figure 13.19).

PC5161 Pit within the Churchyard.

Assemblage: 64 sherds, 928 grams, 0.575 EVEs, 14.5 grams ASW.

A date in the late 11th or 12th century is suggested for two of the more complete vessels in the assemblage, all of which occurred in context (5160), a cylindrical jar in Potters Marston and another jar rim in the same fabric (Davies and Sawday 1999, fig.88.44 and fig.88.40). The latter is represented by sixteen sherds, with an average sherd weight of over 23 grams, suggesting that this particular vessel may be secondary refuse, and evidence perhaps of nearby occupation relating to the church. However, the group as a whole is dated from the mid or late 12th century by two or three small collared jars, Kilmurry form 11 (Kilmurry 1980), in the Stamford fabrics ST3 and ST2. (Figure 13.5, Figure 13.15, Figure 13.23 and Figure 14.31).

Possibly residual sherds include the Late Saxon or Saxo Norman Shelly wares, fabric LI2 and unclassified sandy sherds in the same ware. However, a Stamford ware tubular spouted pitcher, with thick yellow glaze, Kilmurry form 5-07, (*ibid* 1980) probably dates from the late 11th or 12th centuries and a storage jar body sherd with a thumbled clay strip in Thetford type ware and the Reduced Sandy ware fabric RS1 and the Torksey ware/type ware, TO, could both be of a similar date. This pit is thought to pre-date the expansion of this part of the church in phase 9 and is sealed by the phase 8B Street 4 gravels.

PC3148 Possible Oven or Hearth Pre-dating the Cemetery and Structure 4.

Assemblage: 33 sherds, 245 grams, 0.640 EVEs, 7.4 grams ASW.

The identifiable vessels included a Thetford ware/type jar rim (Rogerson and Dallas 1984, fig.155.86), single examples of Stamford ware jars with everted and lid-seated rims, and a small bowl - possibly Kilmurry form 12 (Kilmurry 1980) in the coarse Stamford fabric ST3. Torksey type ware, unclassified Lincoln Shelly ware, the Stamford fabric ST2, Potters Marston and an everted jar in the Oxidised Sandy ware fabric OS2, and two sherds in the fine Nottingham Splashed ware, SP2, were also present. Whilst the bulk of the pottery is from context (3147) – and may have a terminal date in the early to mid- 12th century, the Splashed ware in context (3242) gives a terminal date of post *c.*1180 to this group pre-dating the cemetery, which also contained a sherd of intrusive modern pottery in context (3253).

PC3352 Communal Grave

Assemblage: 48 sherds, 305 grams, 0.255 EVEs, 6.3 grams ASW.

The earliest pottery from this burial pit, which lay to the south-west of the site, dated from between the late 9th to the 11th century, comprised the Lincoln Shelly ware fabrics LI2 and the Saint Neots ware/type ware, SN, a lamp, possibly Kilmurry form 20-03 (Kilmurry 1980), in the coarse Stamford ware fabric ST3, and a fragment tentatively identified as Leicester ware, fabric LE. Later fabrics include the fine and very fine Stamford fabrics ST2 and ST1, a

bowl, possibly form 1-53, (*ibid* 1980) in the former dating from the mid 12th century, together with a shouldered jar in Potters Marston and the Splashed ware fabric SP3 (Davies and Sawday 1999, fig.88.32 and fig.94.135). Whilst a terminal date in the mid or later 12th century may be suggested for the pottery– the evident residuality of much of this material in this mass grave, which is all recorded from the one context, (3190), is also demonstrated by the relatively low average sherd weight of *circa* six grams, suggesting that the burials may be of a later date, but possibly pre-dating the Black Death.

Table 17 The medieval pottery: phase 8A by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST3 - Stamford	41	7.7	344	3.7
ST2 - Stamford	105	19.7	995	8.4
ST1 - Stamford	5		30	
LE - Leicester	1		3	
LI - Lincoln	8		88	
LI2 - Lincoln	11		67	
SN – Saint Neots	1		7	
TH - Thetford	3		70	
TO - Torksey	7		107	
RS1 - Reduced	3		26	
RS/RS3 - Reduced	3		7	
PM – Potters Marston	310	58.2	6742	73.7
CS – Coarse Shelly	18	3.3	453	4.9
SP2 - Splashed	2		4	
SP3 – Leicester Splashed	4		61	
OS1 – Oxidised Sandy	6		117	
OS2 – Oxidised Sandy	4		19	
Totals	532		9140	

Activity outside the churchyard

PC2921, PC5167 Lime Kilns.

Assemblage: 68 sherds, 730 grams, 0.370 EVEs, 10.7 grams ASW.

Most of the pottery came from PC2921, including 37 sherds from one vessel, a jar, one of two collared jars in the Stamford ware fabric ST2, (Kilmurry 1980, fig.51.50) recovered from the two kilns. Potters Marston jars, (Davies and Sawday 1999 fig.88.29), and Reduced and Oxidised Sandy wares and Lincoln Late Saxon Shelly ware, and the coarse Stamford fabric ST3 were also present; some of this pottery is probably residual. However, whilst the latter fabric is generally characteristic of the early 10th to the late 11th centuries at Stamford, it continued to be made at the production centre into the 12th century (*ibid* 1980, 131-133). It is thought that the lime kilns were associated with a phase in the expansion of the church.

Structure 4 – Wall Fragment PC2781 (over Pit PC5036)

Assemblage: 3 sherds, 16 grams, 0.00 EVEs, 5.5 grams ASW.

Two thin-walled sherds of Potter Marston and a fragment of fine lead-glazed Stamford ware, fabric ST1, were recovered from the wall, context (2781). A date in the 12th or, possibly, the early 13th century is suggested for the pottery: the only finds associated with this earth-bonded rubble walling, which pre-dated a phase in the expansion of the cemetery – but the dating evidence is clearly limited.

PC2534, PC2624, PC2626, PC5036, PC5159 Pits below Structure 4

Assemblage: 25 sherds, 471 grams, 0.150 EVEs, 18.84 grams ASW (OA15)

These pits, to the north and east of the northern end of the church, appear to pre-date Structure 4, but the evidence is extremely restricted. All were heavily truncated by later burials, and most contained only two or three sherds each. The bulk of the pottery, eleven sherds, came from PC2624. PC5036, which lies directly below the structure, contained two thin-walled body sherds in Potters Marston, which are typologically early and could date from the mid- or late 11th century, and a sherd in an unclassified Reduced Sandy ware which could also be early in date. Possibly residual pottery included Torksey ware and the Stamford fabric ST3. However, 12th century Potters Marston and the Stamford fabric ST2, the latter including body sherds with incised horizontal and curvilinear decoration, make up the bulk of the assemblage. The only identifiable vessel forms were a storage jar and a shouldered jar in Potters Marston, (Davies and Sawday 1999, fig.90.74) and a flared bowl in the Reduced Sandy ware RS1.

PC2002, PC2288, PC2548 Pits Predating Buildings, Street 4 and the Expansion of the Cemetery

Assemblage: 25 sherds, 414 grams, 0.590 EVEs, 16.5 grams ASW.

The twenty sherds of Potters Marston account for 68% of the assemblage as a whole, with jars being the most common form (Davies and Sawday 1999, fig.88.35, fig.88.39, fig.88.44 and fig.89.54), the rims types generally associated with, cylindrical vessel forms. This pottery and a spouted pitcher and a collared jar in the fine Stamford ware ST2, suggest a date in the 12th century for this group, the absence of fabric ST1, indicating a date in the first half of the century.

Phase 8B

Activity outside the churchyard

(i) Features relating to Building 6

PC5306 Gully in the Floor of the Undercroft, Building 6

Assemblage: 18 sherds, 101 grams, 0.080 EVEs, 5.6 grams ASW.

Fifteen of the eighteen sherds in this group – all in Potters Marston ware – are from one vessel, a jar, (Davies and Sawday 1999, fig.89.54) possibly dating from the late 11th or, more likely, the 12th century. These finds are thought to relate to a construction phase of the building, and perhaps come from the base of an internal partition.

PC5312, PC5451 Construction of Ramp to Building 6, the Undercroft.

Assemblage: 13 sherds, 175 grams, 0.00 EVEs, 16.4 grams ASW.

The only identifiable pottery vessel was part of a copper glazed spout from a tubular spouted pitcher, Kilmurry vessel form 24, spout form 20, in the very fine Stamford fabric ST1 in context 5236. This form and the glaze date from *c.*1150 at Stamford (Kilmurry 1980, 141). Several highly decorated body sherds in Potters Marston share a similar date from the mid or later 12th century.

(ii) Features relating to Building 7, the hall/vicarage

PC2591, PC2993 Pits predating the Building

Assemblage: 45 sherds, 656 grams, 0.772 EVEs, 14.5 grams ASW.

Typically early medieval wares make up this small assemblage, cylindrical and shouldered jars in Potters Marston and the Leicester Splashed ware, SP3, together with a flared bowl and a highly decorated jug in the latter fabric. A fine Stamford ware jar, Kilmurry vessel form 4-36 probably dates from the early 12th century at Stamford, whilst a copper glazed sherd in the very fine Stamford ware, ST1, gives a terminal date of post 1150 for the group (Kilmurry 1980, 134).

Table 18 The medieval pottery: phase 8B, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST3 - Stamford	27		219	
ST2 - Stamford	52	5.6	504	3.7
ST1 - Stamford	24		363	
LII - Lincoln	5		57	
SN – Saint Neots	2		21	
LE - Leicester	1		4	
TO – Torksey	7		80	
RS1/2 – Reduced Sandy	3		73	
PM – Potters Marston	714	77.9	10291	76.5
CS – Coarse Shelly	34		644	
SP1/2 – Splashed	2		24	
SP3- Leicester Splashed	38	4.0	808	6.0
OS/1/2 – Oxidised Sandy	14		276	
CO1 – Coventry	1		3	
NO2 – Nottingham	3		65	
CC1 – Chilvers Coton	1		5	
Totals	928		13437	

PC2571 – foundation trenches

Assemblage: 30 sherds, 379 grams, 0.425 EVEs, 12.6 grams ASW.

Potters Marston predominated, accounting for 80% of this small assemblage by sherd count, with cylindrical and shouldered jars the most common vessel form (Davis and Sawday 1999, fig.87.24, fig.88.49 and fig.89.50). Two jug fragments in Potters Marston and the Splashed ware, SP3, decorated with incised wavy lines and applied clay strips respectively and a collared jar rim in the fine Stamford fabric ST2, Kilmurry vessel form 4-46 (Kilmurry 1980).

A jar with a simple everted rim in the Lincoln fabric L13, one of only three sherds from context (2904), is probably residual in this context.

A date from the mid- or later 12th century is suggested for this pottery – which may well derive from deposits similar to that used to backfill the pits, PC2591 and PC2993, which lay below the foundations of the building. (Figure 13.24, Figure 14.27, Figure 14.29 – 30, Figure 14.32-34, Figure 14.36 -7, Figure 14.41-44).

PC2687 Wall repair trench

Assemblage: 3 sherds, 32 grams, 0.040 EVEs, 10.6 grams ASW.

A decorated jug body in Potters Marston possibly dates from the mid or later 12th century. An abraded bowl rim in the Torksey ware/type ware, in a form similar to that from kiln 5 at Torksey (Barley 1981, fig.12.26) is probably residual in this context.

(iii) Contexts relating to Building 5

PC5246 – Floor Layers

Assemblage: 4 sherds, 37 grams, 0.00 EVEs, 9.25 grams ASW.

The very limited dating evidence for this building was made up of body and base fragments from unidentifiable vessel forms. Two, possibly late Saxon, sherds in coarse Stamford ware, fabric ST3, and what has been tentatively identified as a handmade fragment of Leicester ware, fabric LE, occurred in contexts (5249) and (5250). However, the latter context also produced a sherd of lead glazed fine Stamford ware dating from c.1100 plus, with a terminal date in the early to mid 13th century. A fragment of Oxidised Sandy ware, fabric OS1, of a similar date range, was found in context (5246).

(iv) Contexts relating to Street 4

PC5023, PC5170, PC5325 – Gravel Surfaces east and north of the Chancel

Assemblage: 10 sherds, 144 grams, 0.100 EVEs, 14.4 grams ASW.

Few of the sandy gravel surfaces separated by deposits of silt associated with this possible lane yielded any pottery; hence the dating evidence is very limited. A jar rim of possibly 10th-century date in the coarse Stamford ware, fabric ST3 is perhaps residual in context (5023), the Potters Marston in the same context producing the one identifiable vessel in this ware, the rim of another jar, (Davies and Sawday 1999, fig.87.21) with a diameter too small to measure. The latter, was accompanied by unidentifiable sherds also in Potters Marston, the thin walls and flattish bases an apparently early trait of this pottery, and suggesting a terminal date in the early to mid 12th century for this group as a whole. A sherd of Coarse Shelly ware, fabric CS, weighing 43 grams, was found in the earliest surface, context (5170), probably dating from the early 12th century. Mid or late 11th or 12th century fine Stamford ware occurred in context (5325).

It is thought that these surfaces formed a path separating Building 7 from the church and cemetery, and that they may also represent a contemporary property boundary. However, the

sherds showed little evidence of abrasion or trample, and most had an average sherd weight, only four weighing seven grams or less.

(v) Ovens and pits

PC525 Stone-built oven

Assemblage: 23 sherds, 806 grams, 0.305 EVEs, 35.0 grams ASW.

The archaeomagnetic date for the last firing, taken from the deposits on the oven floor is AD 1170-1235. The pottery, which was found in contexts (526) and (528), obviously post-dated the disuse of the oven and came from the backfill of the feature. This small assemblage comprised seven sherds of Potters Marston, including fragments of a jar rim and a large storage jar (Davies and Sawday 1999, fig.87.18 and fig.91.83) and a sherd of the Chilvers Coton fabric, CC1, with spots of 'splashed ware' type yellowish green glaze. This latter fabric originally identified at the production centre as Chilvers Coton A ware (Mayes and Scott 1984, 40-41) has been catalogued as fabric WW01 dated from c.1240 in the Warwickshire County Fabric Series (Ratkai and Soden 1997). Also present in an associated context was a Potters Marston thumbled jug strap handle, a developed Stamford ware jug neck, fabric ST1, with copper glaze, and two Coarse Shelly ware jar rims, in fabric CS, with externally rolled rims. This oven lay to the north of the site, and may relate to occupation on the western end of Causeway Lane, formerly St John's Lane.

PC2930 Pit.

Assemblage: 6 sherds, 175 grams, 0.150 EVEs, 29.1 grams ASW.

A small assemblage of pottery of probable early to mid- 12th-century date came from this feature, which lay to the east of the site. The only identifiable vessels are two jars in Potters Marston, one well made and finished with a simple everted rim probably imitating Stamford ware, the other, a large fragment, weighing 117 grams, a storage jar with a hammer headed rim, (Davies and Sawday 1999, fig.91.85).

PC2075, PC2142 Pits, west end of cemetery, north of the church

Assemblage: 18 sherds, 236 grams, 0.460 EVEs, 13.1 grams ASW.

All the identifiable vessels occurred in the pit PC2075 and included a collared jar and a spouted pitcher, form 5-35, the latter dated from the second quarter of the 12th century (Kilmurry 1980), in the fine Stamford ware, fabric ST2. However, this group is dated from the early to mid- or later 12th century by a flared bowl (Davies and Sawday 1999, fig.92.98), and a jug neck, the coils visible on the inner wall, in Potters Marston ware which, typically, dominated the assemblage. Only two sherds in Potters Marston and the coarse Stamford ware, ST3 were recovered from the pit PC2142, which lay below the burials at the western edge of the cemetery north of the church. These pits, as with the malting oven, may relate to occupation on the western end of Causeway Lane, formerly St John's Lane.

PC2000, PC2006, PC2124, PC2149, PC2301, PC2485, PC3375 Pits

Assemblage: 194 sherds, 3427 grams, 2.415, EVEs, 17.6 grams ASW.

Two sherds, in the pits PC2006 and PC2124, probably from jugs, in the Nottingham fabric N02 with a transitional yellowish green splashed type glaze, give a terminus post quem of *c.*1230 for this assemblage. Potters Marston vessel forms more commonly found in the late 12th or 13th century, such as shouldered jars (Davies and Sawday 1999, fig.87.20, fig.94.135), bowls with rounded or flared bodies, including one with an inturned rim (*ibid* 1999, fig.92.99), and a dripping dish (*ibid* 1999, fig.93.104) are also present. Potters Marston dominates the assemblage, accounting for 67 % of the total by sherd count.

Significant quantities of minor local wares dating from the 12th and 13th centuries including Coarse Shelly ware, fabric CS, Oxidised ware, fabric OS, a shouldered jar (*ibid* 1999, fig.94.135) in PC2149 and jugs in the Leicester Splashed ware, fabric SP3, and a jug or tubular spouted pitcher in the very fine Stamford fabric ST1, accounted for 19% of the total by sherd count. Residual wares include Lincoln Kiln type Shelly ware, coarse Stamford ware, fabric ST3, a sherd in the latter from a pedestal dish, form 10 or 23 (Kilmurry 1980), and Torksey type wares.

The layout of the pits in this sub phase, especially the absence of pits along the line of Street 4 and near the church probably relates to the development of the churchyard, whilst the pits PC2124 and PC2149 lie below burials along the western edge of the cemetery and hence pre-date its expansion. Whilst most of the pottery occurred in PC2006, PC2485 and PC2124, all the pits in this group appear to be share a broadly contemporary terminus post quem in the early to mid 13th century. (Figure 13.17).

PC5006 Pit with Ash Deposits.

Assemblage: 405 sherds, 4315 grams, 2.248 EVEs, 10.4 grams ASW

Eighty Seven percent of the assemblage by sherd count was in Potters Marston, predominantly jars, many with shouldered profiles (Davies and Sawday 1999, figs.87.23-25, fig.88.23, fig.89.53 and 59), and two bowls with upright and rounded profiles (*ibid* 1999, fig.92.96). Minor wares included residual Lincoln and Torksey ware, and a crucible in the coarse Stamford ware ST3. The fragments of two jugs occurred in CS, Coarse Shelly ware, CS together with a jar rim with internal beading (McCarthy 1979, fig.88.2730. Of note was the leg of a cauldron in the Oxidised Sandy ware, OS2 (Davies and Sawday 1999, fig.96.168). (Figure 13.11).

PC2552 Pit possibly associated with Buildings 7 and 5.

Assemblage: 92 sherds, 1983 grams, 0.925 EVEs, 19.4 grams ASW.

Potters Marston dominated this assemblage which was all from one context, (2857), accounting for 82.6 % of the total by sherd count. Typical 12th- and 13th-century vessel forms in this ware included a storage jar (Davies and Sawday 1999, fig.91.86), and rounded and shouldered jars (*ibid* 1999, fig.87.21, fig.88.35 and fig.90.69) and the profile of a rounded jar with a simple everted rim, part of a jug, and a fragment of a possibly straight-sided bowl with a squared rim. The Nottingham and Leicester Splashed ware fabrics SP2 and SP3 and the Coarse Shelly, fabric CS, the two latter including jar rims (*ibid* 1999, fig.94.134), (McCarthy 1979, fig.81.56) contemporary with the Potters Marston, were also present. The absence of Chilvers Coton or Nottingham dating from *c.*1230 or 1250, suggests a terminal date in the early 13th century for this group, similar to that for the disuse of the undercroft and the majority of the other pits in this phase. (Figure 13.25, Figure 14.26, Figure 14.28, Figure 14.35 and Figure 14.40).

Phase 8C*Churchyard expansion*

SK1189 Grave cut by burial with coin of Edward I.1272-1307.

Assemblage: 13 sherds, 237 grams, 0.135 EVEs 18.2 grams ASW.

All the sherds are in Potters Marston. One, a jar rim is typical of pottery in phase 9 at Causeway Lane, Leicester (Davies and Sawday 1999, fig.87.25), another jar rim in the same fabric is probably residual. This grave cuts the bell casting extraction pit, the coin dating evidence supporting the dating evidence for the former, both features being directly associated with church.

Table 19 The medieval pottery, phase 8C, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST3 - Stamford	2		4	
ST2 - Stamford	18	7.5	109	3.0
ST1 - Stamford	1		11	
LI2 - Lincoln	1		16	
PM – Potters Marston	202	85.2	3211	91.2
CS – Coarse Shelly	3		45	
SP1 – Nottingham Splashed	1		24	
SP3 – Leicester Splashed	7	2.9	76	2.1
OS2– Oxidised Sandy	1		7	
CO1 - Coventry	1		16	
Totals	237		3519	

Activity outside the churchyard

Disuse of the undercroft, Building 6

PC2557 Robber Trench, PC2637, PC5128, PC5218, PC5289 soils/dump

Assemblage: 237 sherds, 3519 grams, 1.630 EVEs, 14.8 grams ASW.

Over 85% of the assemblage, by sherd count, was in Potters Marston, with little obviously residual pottery present. The bulk of this pottery, five vessels in Potters Marston, accounting for 105 sherds, came from PC2557, PC2637 and PC5128.

Shouldered jars were the most common form, with only one cylindrical profile being evident, (Davies and Sawday 1999, fig.87.24 and 25, fig.88.32, 40, 41 and 45, fig.89.51 and 54, fig.89.60). The remaining identifiable Potters Marston vessels were: a shouldered storage jar (*ibid* 1999, fig.91.83), a flared bowl (*ibid* 1999, fig.92.98) and jug fragments, including a large strap handle with thumbing down the sides and a neck with diagonal rouletting. An unidentifiable vessel in the same ware was decorated with lines of rectangular rouletting, others with random rouletting or incised lines.

A jug in the local Splashed ware fabric, SP3, and an upright jar rim in the Coarse Shelly ware fabric, CS, (McCarthy 1979, fig.82.91) were also present. The range of vessel forms, and the absence of any wheel thrown medieval sandy wares from Nottingham or Chilvers Coton, suggests a date from the middle of the 12th century for this group, with a possible terminal date in the early to mid 13th century

Phase 8 – Earlier Medieval*Activity outside the churchyard*

Table 20 The medieval pottery, phase 8, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST2 - Stamford	5		41	
ST1 - Stamford	1		2	
PM – Potters Marston	19	73.0	345	86.6
SP3 – Leicester Splashed	1		10	
Totals	26		398	

PC2082, PC3429, PC3438, PC5082 Pits

Assemblage: 26 sherds, 398 grams, 0.450 EVEs, 15.3 grams ASW.

Cylindrical and shouldered jars with simple upright, collared and everted rims (Davies and Sawday 1999 fig 87.18, fig.88.42 and fig.89.54, 55 and 59) and a bowl with a simple everted rim all occur in Potters Marston, together with two body sherds decorated with stabbing and incised horizontal lines. This fabric accounts for nineteen sherds of the twenty-five sherds in this small group of partially excavated pits. A sherd of Splashed ware, SP3, with orange glaze spots, probably from a jug, is also present. A terminal date from the mid 12th century is suggested by these vessel forms and by a fragment of developed Stamford ware, ST1, with copper glaze. The lack of abrasion and relatively high average sherd weight, indicate that this pottery may be refuse, associated perhaps with an earlier phase of occupation on the site prior to the extension of the cemetery.

Table 21 The medieval pottery: the vessel forms, phases 8, 8A, 8B and 8C by sherd numbers, weight (grams) and Eves.

Form	Sherds	% of total	Weight (grams)	% of total	Eves	% of total
Jar	400	23.2%	6331	24.0%	14.11	82.1%
Storage jar	11	0.6%	974	3.7%	0.455	2.5%
Cauldron	1	0.1%	105	0.4%		0.0%
Bowl	27	1.6%	935	3.5%	1.43	8.2%
Spouted pitcher	3	0.2%	100	0.4%	0.345	2.1%
Jug	71	4.1%	2259	8.5%	0.225	1.3%
Tubular spouted pitcher	8	0.5%	237	0.9%	0.25	1.5%
Dripping dish	1	0.1%	60	0.2%	0.08	0.5%
Fire cover	3	0.2%	219	0.8%		0.0%
Pedestal dish	1	0.1%	26	0.1%		0.0%
Lamp	1	0.1%	10	0.0%	0.075	0.4%
Crucible	1	0.1%	17	0.1%	0.125	0.7%
Vtu	1195	69.1%	15221	57.4%	0.13	0.6%
Totals	1723	100.0	26494	100.0%	17.300	100.0%

Phase 9A

Activity outside the churchyard

(i) Disuse of Building 7, hall

PC2596 Robber trench phase, PC2282, PC2599 Pits

Assemblage: 284 sherds, 5144 grams, 3.350 EVEs, 18.1 grams ASW.

Over 82 % of the total by sherd count was in Potters Marston ware, with shouldered jars with upright moulded rims (Davies and Sawday 1999, fig.90) the most commonly identifiable profile, followed by jugs, half of which were represented by strap handles, but including examples of vessels with thickened upright or flanged rims (*ibid* 1999, fig.93.106, fig.94.112 and 119, fig.). A flared bowl and a fire cover were also present in this ware. Decoration on the Potters Marston was common and included thumbing, comb stabbing, rouletting and combed or incised wavy, horizontal and diagonal lines.

The Splashed and Coarse Shelly wares were the next most common pottery types, but each only accounted for less than 4% of the totals by sherd count. The two jars with everted rims and the jugs in the Leicester Splashed ware fabric SP3, the latter with strap or rod handles and the incised chevron pattern, are typical of this fabric and form (*ibid* 1999, fig.94.133-135, fig.95.139). A rim and handle fragment with heavy sooting under the latter, in the same fabric, are thought to be from a cauldron, Figure 14.38. The Coarse Shelly ware, fabric CS included an upright jar rim, dating from the 13th century, (McCarthy 1979, fig.82.91), and a bowl with a simple everted rim

The nine sherds in the medieval Chilvers Coton, fabric CC1, and the Nottingham fabrics NO1 and NO3, date this group as a whole from c.1240/50. Much of the CC1 has a mottled yellowish-green 'transitional' glaze, and at least one sherd is hand-built suggesting that this material is typologically early. The latter feature is a characteristic of the earliest pots in the kiln sequence, for example from site 12, kiln 30 (Mayes and Scott 1984, Table 1, 61) where coil built jug necks were applied to wheel thrown bodies. A tubular spout from a pitcher in the same fabric is a form not found at the production centre, but tripod pitchers are recorded from the same early kiln noted above (*ibid* 1984, 61).

The Nottingham fabric NO1 has a similar 'transitional' glaze, whilst the fine body and bright glaze of another sherd classified as NO3 suggests that this may in fact be a Brill Boarstall type ware, BR2, the latter sharing the same date range with the Nottingham and Chilvers Coton wares.

Over 72% of the pottery was recovered from the robber trench, PC2596 and several sherds from this context weighed over 80 grams, predominantly in Potters Marston and Coarse Shelly, indicating that some of this material was possibly secondary refuse. Both this and the pottery from the pit, PC2599, shared similar characteristics in terms of the pottery types present. (Figure 14.38)

(ii) Building 8-1, mud walled

Two of the post holes, PC1022 and PC1034 relating to the earliest phase of this structure, contained single sherds of probably residual pottery of 12th or early to mid 13th century date. These were not catalogued.

(iii) Other activity

PC2010, PC2019, PC2065, PC2093, PC2174, PC2337, PC2751, PC5007, PC5235 *Pits*

Assemblage: 960 sherds, 16074 grams, 9.970 EVEs, 16.7 grams ASW.

Over 80 % of the sherds were in hand-made wares, Potters Marston, the Coarse Shelly ware fabric CS, and the Splashed ware fabric SP3, dating from c.1100, with cylindrical and shouldered jars and storage jars the most common vessels over all, the latter dating into the 13th century. Jugs and bowls were also present in Potters Marston and Coarse Shelly ware, together with a fire cover in the former ware. Typically, jugs dominated the SP3 assemblage, often decorated with applied cordons, (Davies and Sawday 1999, fig.95.138 and 139), or clay strips with combed horizontal lines. An uncommon vessel, the strut from a tubular spouted pitcher was identified in the Coventry fabric, CO2.

Clearly much of this pottery, including the Lincoln Shelly wares, and coarse and fine Stamford wares, is residual. Sherds of very fine Stamford ware fabric, ST1, also made up a not insignificant part of the assemblage, many decorated with the 'developed' copper glaze dating from c.1150. Stamford table wares such as jugs, lids, pitchers, including a highly decorated example, and pedestal dishes and a bottle were all recorded, whilst, interestingly, only three cooking vessel or jars were present in this ware.

However this group is dated from c.1230-50 to the later 13th century by the Chilvers Coton fabric CC1, the Nottingham fabrics NO, NO2 and NO3, and the Medieval Sandy ware MS2, which make up only approximately 7.0% of the total by sherd count, but which occur in every pit save PC2282 and PC2337. Most of these latter wares were fragmentary, but a jug in CC1 had a thumbled basal angle, another base in the same fabric was heavily knife trimmed. Other sherds in CC1 were decorated with incised or combed horizontal lines, or clay strips, the latter an early trait at Chilvers Coton. Pottery with similar applied decoration was found in one of the earliest features at the Chilvers Coton kilns, site 11, feature 63, (Mayes and Scott 1984, Tables 1, 61), suggesting a terminal date of post 1240/1250 for this group as a whole.

One CC1 jug rim is similar to a vessel from Coventry (Redknap and Perry 1996, fig.37.543). Two other jugs in the same fabric have a greenish yellow 'transitional' glaze similar to that noted in the robber trenches associated with the disuse of the hall, building 7, in the same phase, further evidence perhaps, of a deposition date early in the second half of the 13th century. Over all jugs and pitchers are the most common vessels, accounting for fifty of the one hundred and forty one identifiable vessels in the assemblage, further supporting a date from the mid 13th century for this group.

The pit PC2174 perhaps relates to properties along the western end of Causeway Lane. The skeletons slumped into the back fill of PC 2093 are a good example in the change of land use, the pit clearly pre dates this phase of the expansion of the cemetery in the 14th century.

This and the linear cut/ditch PC5235 above appear to lie adjacent to the boundary to the church yard which was formed by the gravel surface, Street 4, perhaps dividing the church and Building 7. It appears that the cemetery expanded eastward over these pits during the 14th century. (Figure 13.14).

PC5290, PC5004 Garden soils/dump

Assemblage: 11 sherds, 140 grams, 0.00 EVEs, 12.72 grams ASW.

This small assemblage, which was cut by the post holes PC1022 and PC1034, which represented the first phase of Building 8, consisted of abraded sherds of generally thin walled

Potters Marston, the coarse and fine Stamford wares, ST3 and ST2, a hand-made sherd in an unclassified Oxidised Sandy ware, and a fragment of coarse Nottingham Splashed ware, SP1 possibly dating from the later 12th century. This pottery and that from the post holes noted above, PC1022 and PC1034, is all probably residual in this phase.

Table 22 The medieval pottery, phase 9A, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST1-3 - Stamford	102	8.1	1098	5.1
LI - Lincoln	10		123	
PM - Potters Marston	904	71.7	16229	75.8
CS – Coarse Shelly	50	3.9	788	3.6
SP1/2/3 - Splashed	83	6.6	1803	82.4
RS – Reduced Sandy	11		88	
OS/1/2 – Oxidised Sandy	11		218	
CO2 - Coventry	6		67	
CC1 – Chilvers Coton	54	4.2	709	3.3
CC2 – Chilvers Coton	7		59	
NO/1/2 - Nottingham	6		47	
NO3 - Nottingham	9		84	
MS2 – Medieval Sandy	3		75	
Totals	1256		21388	

PC5487 Oven

Assemblage: 1 sherd, 30 grams, 0.00 EVEs, 30 grams ASW.

This glazed sherd, from the backfill of the oven, context 2583, was in a hard-fired and thick-walled Medieval Sandy ware, fabric MS2. A date from the mid- or later 13th century seems likely for the fragment.

Phase 9B

Table 23 The medieval pottery, phase 9B, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST1-3 - Stamford	17		176	
LI - Lincoln	2		5	
RS – Reduced Sandy	1		42	
PM – Potters Marston	128	64.3	1601	63.1
OS1 – Oxidised Sandy	1		34	
CS – Coarse Shelly	3		36	
CO2 - Coventry	1		4	
SP3 - Splashed	2		9	
LY1 – Stanion Lyveden	1		23	
CC1 – Chilvers Coton	17	8.5	273	10.7
NO/1/2/3 - Nottingham	21	10.5	222	8.7
SC - Scarborough	1		8	
MS3/7/8 – Medieval Sandy	4		103	
Totals	199		2536	

Church and churchyard

Extension of the chancel

PC5292, PC3334 Grave clearance pits

Assemblage: 4 sherds, 43 grams, 0.050 EVEs, 10.7 grams ASW.

It appears that the partial emptying of the grave PC5292 preceded the laying of the floor of the extended chancel. Much later, the pit PC3334, presumably representing another emptied grave, though no skeletal remains were found, was dug through the floor make up layers. Two sherds of the coarse Stamford ware, ST3, were the only finds from the former, and two more sherds from a lid seated jar rim in the very fine Stamford ware, ST1 and a thin walled

sherd in Potters Marston ware were recovered from the latter. These fragments probably have a terminal date in the 12th century and are residual in this phase.

Activity outside the churchyard

Construction of the mud walled building, Buildings 8-2, 8-3 and external features

PC1026 Demolition/ collapse

PC637, PC670, PC722, PC726, PC759, PC760, PC1028 Walls

PC631, PC933, PC1030, PC1048, PC914 Dumps, PC675 Gully

PC987, PC1043 Hearths, PC972 Drain, PC968, PC932 Surfaces

PC 971, PC1004, PC1041 Soils, PC1020 Pit

PC923 Post Hole

Assemblage: 155sherds, 2078 grams, 1.330 EVEs, 13.4 grams ASW.

A layer of granite rubble PC1026 to the north of Building 8-2, representing either the collapse or demolition debris associated with a small wall prior to the construction of Building 8-2, produced 12th and 13th century Potters Marston ware, including jar and a jug fragments, (Davies and Sawday 1999, fig.88.33, fig.93.113). A ridge tile in fabric CC1 from the same context, gives a *terminus post quem* of c.1240/1250 + for this group

One of the largest groups of pottery associated with the buildings came from the soil layer, PC1004, below the floor (920) in room 6, Building 8-3, which in turn lies above and post dates the abandonment of the undercroft, Building 6, and the Hall, Buildings 7, during the early to mid- 13th and later 13th centuries respectively. Here, 41 sherds of residual 12th- or early 13th-century pottery including coarse and fine Stamford wares and Potters Marston, together with an intrusive fragment of modern flower pot, were recovered. Unfortunately, however, most of the other contexts associated with the buildings produced few finds, but taken together the material does provide some, if rather limited, dating evidence for the structure and associated contexts.

Eighteen sherds of pottery weighing 90 grams were found in the walls PC637, PC670, PC722, PC726, PC759, PC760 and PC1028. All, save PC637 and PC670 in Building 8-3, contained sherds, in some cases from highly decorated jugs, in the medieval Chilvers Coton and Nottingham fabrics CC1, NO1 and NO3 and the Medieval Sandy ware, MS3, dating from mid- or later 13th century, whilst a sherd of medieval ridge tile of a similar date to the pottery, was found in PC627. Sherds in the wall PC1028, in the Nottingham ware fabric NO1, also dating from c.1250, linked with the only find from the stone-built hearth PC1043 and two of the four sherds from the dump PC1030. This suggests that the two structures and the dump, share a similar *terminus post quem*.

Pottery of a similar or slightly later date was recovered from some of the other contexts. The clay and slate lined drain, PC972 and the charcoal layer, (988) sealing the hearth PC987 in the same room in Building 8-3, also contained four sherds of the Chilvers Coton fabric CC1. That from the latter context was highly fired and may date to the first half of the 14th century.

The lowest course of the east wall, PC722, in Building 8-2, contained an abraded fragment of medieval floor tile in CC1. This tile had evidently been re-used, as the upper surface and

sides were covered in a white mortar. The tile suggests a date some time after the mid 13th, or possibly the 14th century, for this phase of building.

Table 24 The medieval pottery: the vessel forms phases 9, 9A and 9B, by sherd numbers, weight (grams) and Eves.

Form	Sherds	% of total	Weight (grams)	% of total	Eves	% of total
Jar	162	10.1%	3857	14.9%	10.135	61.8%
Storage jar	16	1.0%	597	2.3%	0.255	1.6%
Cauldron	1	0.1%	88	0.3%	0.15	1.0%
Bowl	18	1.1%	527	2.0%	0.835	5.2%
Spouted pitcher	6	0.3%	74	0.3%	0.47	3.0%
Jug	217	13.5%	4275	16.5%	3.875	23.7%
Tubular spouted pitcher	3	0.1%	69	0.3%		
Lid	4	0.2%	112	0.4%	0.405	2.4%
Fire cover	4	0.2%	109	0.4%		
Pedestal dish	6	0.3%	92	0.4%	0.22	1.3%
Bottle	2	0.1%	20	0.0%		
Vtu	1164	72.6%	16152	62.2%		
Totals	1603	100%	25972	100%	16.345	100.0%

Small amounts of mostly residual pottery or, in some instances medieval ridge tile, with a terminal date similar to the above occurred in the soil PC971, the dumps PC1030 and the cobbled surfaces PC1048 (998) and PC932 and PC968. The latter consisted of a series of year surfaces sealing the rubble PC1026, north of Building 2 in the same phase. A sherd of Medieval Sandy ware, MS7, possibly dating from the 14th century, was found in the dump, PC914, together with apparently residual earlier material.

The soils PC1041 in room 1, Building 8-3, produced seven sherds of Potters Marston and two in the Nottingham fabric NO2, these and a sherd of possible Scarborough ware, SC, made up this small assemblage of body sherds of unidentifiable vessel form. The Nottingham wares date generally from the early to mid 13th century to the early or mid 14th century.

PC2556 Pit Fill Contemporary with Building 8

Assemblage: 30 sherds, 305grams, 0.230 Eves, 10.1 grams ASW.

A Potters Marston jug with complex moulded rim suggests a date in early to mid- or slightly later 13th century for this group, as do the ten sherds in the Nottingham fabrics NO2 and NO3. One base sherd in the latter fabric has the light grey interior typical of pottery dating

from the later 13th century at Nottingham, whilst the Medieval Sandy ware fabric MS8 is thought to date generally from c.1300, becoming more common in the later medieval period. This pit is thought to be contemporary with this phase in the construction of Building 8.

Phase 10

Church and churchyard

Floor, single-celled structure, possibly a vestry or anchorhold

PC5212 Make up Layer for Floor

Assemblage: 1 sherd, 16 grams, 0.0 EVEs, 16 grams ASW.

One sherd of Potters Marston was recovered from this context. The relatively thick walls and oxidised surfaces suggest a later 12th- or even early 13th-century date for this fragment.

Pit PC5067 Pit at the function of the possible vestry or anchorhold and chancel assemblage: 72 sherds, 1977 grams, 0.750 EVEs, 27.4 grams ASW.

Over 81% of the assemblage by sherd count was in the late medieval Midland Purple fabrics MP2 and MP3 and the Medieval Sandy ware MS7. The only identifiable vessel forms were two jars, one with a simple everted rim (Woodland 1981, fig.35.130), and part of a frying pan (*ibid* 1981, fig.39.185). Why this apparently domestic rubbish was buried here in a pit by the possible Vestry or Anchorhold is not clear. It may relate to a phase of building work or have been produced by one of the anchoresses known to have lived on the site (A. Gnanaratnam, pers. comm.).

PC5331 Charnel house

Assemblage: 4 sherds, 107 grams, 0.075 EVEs, 26.7 grams ASW.

The finds, which were recovered from within the charnel, included two body sherds in the Midland Purple fabrics MP2 and MP3, together with a posset pot rim and a cup decorated with a wheel-stamped white clay pad in the Cistercian ware fabric CW2. Similar Cistercian ware vessel forms and decoration have been recorded at the Austin Friars, Leicester (Woodland 1981, fig.41.204 and fig.41.207, fig.47.209 and fig.47.218). Highly decorated Cistercian ware vessels from site 6 at the Ticknall kilns, dated from the last quarter of the 15th century and the first half of the 16th century, have been paralleled with the Leicester vessels in fabric CW2, and Ticknall confirmed as the latter's source of production (Spavold and Brown 2005, 93). Three fragments of residual medieval ridge tile and two heavily abraded medieval floor tiles, one inlaid and consequently not identifiable, and one monochrome, were found in the same context. (Figure 15.51).

PC2062 Pit

Assemblage: 6 sherds, 25 grams, 0.0 EVEs, 4.1 grams ASW

Only residual Stamford ware and Potters Marston occurred in this truncated pit within the churchyard, which was not fully excavated, and was situated away from the majority of the burials. This feature may be associated with the pit noted above, which lay close to the chancel, PC5067, in the same phase.

Churchyard expansion

PC5502 Pit below charnel house

Assemblage: 2 sherds, 56 grams, 0.075 EVEs, 28 grams ASW

Two sherds were the only pottery finds retrieved from this partially excavated pit below the charnel house, an abraded body sherd of Potters Marston ware and a flared bowl in the Chilvers Coton fabric CC2. The latter vessel form first occurs from the earliest kilns in the sequence at Chilvers Coton, but becomes more common in the later 14th century. The fabric, Chilvers Coton A ware, occurs sporadically from *c.*1250, and is common during the 14th and 15th centuries at the kiln site (Mayes and Scott 1984, 41), although a moderately sandy version of this ware, fabric SQ30 in the Warwickshire County fabric series, has been dated into the 16th century.

Table 25 The medieval and later pottery, phase 10.0, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	% of total	Weight	% of total
ST1-3 – Stamford	6		20	
PM – Potters Marston	11		125	
CS – Coarse Shelly	1		2	
SP3 – Splashed ware	3		10	
CC1/2 – Chilvers Coton	7		238	
NO3 - Nottingham	2		20	
MS2/3 – Medieval Sandy	19		648	
MS7/8 – Medieval Sandy	6		169	
MP1 – Midland Purple	3	1.9	133	2.5
MP2 – Midland Purple	32	21.3	1338	25.1
MP3 – Midland Purple	51	34.0	2151	40.5
CW2 - Cistercian	5		64	
BO1 - Bourne	1		20	
RH – Rhenish	4		389	
Totals	151		5327	

Activity outside the churchyard

Mud-walled building - Building 8-3

PC604, PC716 Walls, (973) Floor, PC605, PC629 Pits, PC633 Dump, PC600, PC955, PC973 Soils, PC1007 Trample, PC990 Disuse Stone Lined Pit

Assemblage: 56 sherds, 2543 grams, 0.530 EVEs, 45.4 grams ASW

The late medieval wares – Bourne D ware, fabric BO1, the Medieval Sandy ware, fabrics MS7 and MS8, the Midland Purple fabrics MP1, MP2 and MP3 the Cistercian ware fabrics CW2, together with late examples of fabric MS3, accounted for well over half of the assemblage by sherd count. Typical late-medieval vessel forms included jars with everted rims, (Mayes and Scott 1984, fig.38.470-474), squat shouldered jugs (Woodland 1981, fig.38.181), a cistern (*ibid* 1981, fig.40), and a frying pan. One Cistercian-ware sherd was decorated with a leaf in white clay, a motif commonly found on a range of cups and jugs in this ware at Leicester (*ibid* 1981, fig.41.211, fig.42.223 and 224, fig.43.262) and at Ticknall, (Heath 2006, 1). This late material occurred in all the features and provided evidence of continuing activity, including the possible refurbishment or remodelling of the building during this phase. (Figure 15.46 –.50).

Table 26 The medieval pottery: vessel forms, phase 10, by sherd numbers, weight (grams) and Eves

Form	Sherds	% of total	Weight (grams)	% of total	Eves	% of total
Jar	51	33.8%	1485	27.9%	0.89	50.4%
Bowl	11	7.3%	419	7.9%	0.15	8.5%
Spouted pitcher	1	0.7%	20	0.4%		
Jug	20	13.2%	1036	19.4%	0.525	29.6%
Frying pan	3	2.0%	233	4.4%	0.125	7.1%
Cistern	2	1.3%	760	14.3%		
Posset pot	1	0.7%	9	0.1%	0.075	4.2%
Cup	1	0.7%	10	0.2%		
Vtu	61	40.3%	1355	25.4%		
Totals	151	100%	5327	100%	1.765	100%

PC2102, Pit

Assemblage: 10 sherds, 603 grams, 0.335 EVEs, 60.3 grams ASW.

Nine sherds of predominantly late medieval pottery, which were not catalogued, were recovered from the pit PC2040 in the same phase, and neither pit was fully excavated. Three of the ten sherds in this small group were in the late medieval Midland Purple fabrics, MP2 and a further four made up the profile of a jug in Rhenish Stoneware, possibly Raeren (Hurst *et al* 1986, fig.94.299), dated from c.1425-1475.

These pits dug outside the limits of the cemetery are evidence of continuing activity in the area. The relatively high average sherd weight suggests that this pottery was domestic rubbish from occupation nearby, rather than from deposits associated with horticultural activity such as manuring.

Phase 11

Church and churchyard

(i) Features associated with the demolition of the charnel house

PC5330 Demolition rubble

Assemblage: 11 sherds, 639 grams, 0.200 EVEs, 58.0 grams ASW.

The late medieval Midland Purple wares, fabrics MP, MP2 and MP4 together with the Cistercian/Midland Blackware Fabrics CW2 and CW2/MB and a fragment of Rhenish stoneware, possibly Frechen, made up the bulk of the assemblage. The Midland Blackware and the Rhenish Stoneware suggesting a terminal date from the later 16th or early 17th century for this group. The pottery dates tie in the documentary evidence which suggests that the church was in decline by c.1550, and demolished in 1573 (Courtney 1998).

The body of a cup in CW2 was decorated with a wheel stamp on a pad of white clay, and a wheat ear or corn impression stamped directly on to the wall of the pot. Similar decoration has been noted at the Austin Friars Leicester, (Woodland 1981, fig.43.258), and at site 6 at Ticknall in Derbyshire, where pottery of an equally high quality may have been made during the last quarter of the 16th century (Spavold and Brown 2005, 93). Five fragments of inlaid medieval floor tile and one plain tile were also found in the rubble.

Interestingly, in view of the association of the pottery with a church, two pedestal based vessels were found in the assemblage in the transitional late medieval or early post medieval Cistercian/Midland Blackware, fabric CW2/MB. These were possibly pedestal cups, similar to those found at the Austin Friars (Woodland 1981, fig.41.218), or, possibly chalices, similar to Brears type 17 (Brears 1971). However the bases lacked the faceting often associated with this form or, as has been suggested at Ticknall, the decoration (Spavold and Brown 2005, figs.32-34, 95). (Figure 15.45, Figure 15.52 –.54).

(ii) Burial soils

PC2230 Soils

Assemblage: 9 sherds, 220 grams, 0.210 EVEs, 24.4 grams ASW

Residual pottery and four sherds of Midland Yellow ware and the early post medieval Earthenware, EA1, were the only finds associated with the burial and garden soils in this phase.

Table 27 The medieval and later pottery: the vessel forms phase 11, by sherd numbers, weight (grams) and Eves

Form	Sherds	% of total	Weight (grams)	% of total	Eves	% of total
Bowl	2	5.1%	158	13.6%	0.1	15.0%
Cup	2	5.1%	31	2.7%		0.0%
Jar	1	2.6%	21	1.8%	0.11	16.5%
Jug	7	17.9%	269	23.2%	0.455	68.4%
Pedestal cup	2	5.1%	303	26.1%		0.0%
Vtu	25	64.1%	377	32.5%		0.0%
Totals	39	100.0%	1159	100.0%	0.665	100.0%

Activity outside the churchyard

(i) Mud-walled building – continued use of Building 8-3

PC640 Wall

Assemblage: 3 sherds, 24 grams, 0.0 Eves, 8 grams ASW.

Residual Potters Marston and the base of an unidentified vessel in MY, Midland Yellow ware, dating from *c.* 1500 (Sawday 1989, 35), were the only pottery finds from the base of a clay wall. The patching of this wall in room 3 is thought to represent the final phase of alterations or use of the building.

(ii) Building 8-3 demolition

PC627, PC695 Layers

Assemblage: 5 sherds, 116 grams, 0.075 Eves, 23.2 grams ASW.

A cup base in the late medieval Cistercian ware, fabric CW2, dates from the mid or later 15th century, and together with a fragment of the Midland Purple ware, MP1, has a terminal date in the mid 16th century. Whether this pottery from within room 2 is residual or is contemporary with the final disuse of the building is unclear.

Table 28 The medieval and later pottery: phase 11.0, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight
ST1-3 – Stamford	5	45
LI1 - Lincoln	1	6
PM – Potters Marston	10	95
CS – Coarse Shelly	1	17
LY1 – Stanion/Lyveden	1	8
CC1 – Chilvers Coton	1	18
NO1 - Nottingham	1	43
MS3 Medieval Sandy	4	204
MP/1/2/4 – Midland Purple	4	137
CW2/MB – Cistercian/Midland Purple	5	349
RH - Rhenish	1	42
MY – Midland Yellow	3	37
EA1 - Earthenware	2	158
Totals	39	1159

Building 8-3 disuse

PC911

Assemblage: 11 sherds, 110 grams, 0.075 EVEs, 13.5 grams ASW.

This assemblage consisted of exclusively residual Lincoln Shelly, Stamford and Potters Marston wares.

Phase 12

Table 29 The medieval and later pottery: The vessel forms phase 12, by sherd numbers, weight (grams) and Eves.

Form	Sherds	% of total	Weight (grams)	% of total	Eves	% of Eves
Jar	13	10.6%	430	15.8%	0.865	44.9%
Storage jar	1	0.8%	37	1.4%	0.04	2.1%
Bowl	5	4.1%	496	18.2%	0.465	24.2%
Jug	10	8.1%	180	6.6%	0.16	8.3%
Cistern	1	0.8%	20	0.7%	0.07	3.6%
Cup	4	3.3%	47	1.7%	0.055	2.9%
Candlestick	2	1.6%	10	0.4%		0.0%
Vtu	87	70.7%	1501	55.2%	0.27	14.0%
Totals	123	100.0%	2721	100.0%	1.925	100.0%

Post Occupational Activity

PC2106, PC2211, PC2286, PC2340, PC2342, PC2434, PC2436, PC2442, PC2444, PC2620, PC3000
 Horticultural Features cutting Garden Soils

Assemblage: 120 sherds, 2461 grams, 1.62 EVEs, 20.5 grams ASW.

Residual medieval pottery made up the bulk of this assemblage. The lack of post medieval material, only six sherds occur in the post medieval Earthenwares EA2, EA6 and EA7 and in Rhenish Stoneware, appears to confirm the documentary evidence which suggests that not only was St Peters Church abandoned in the later medieval period, but there was also little if any occupation in this part of the medieval town (Courtney 1998, 133).

Building 9

Table 30 The medieval and later pottery, phase 12, by fabric, sherd numbers and weight (grams).

Fabric	Sherds	Weight
ST2/3 - Stamford	12	122
PM – Potters Marston	36	576
SP3 - Splashed	4	99
CS – Coarse Shelly	1	32
OS1/2 – Oxidised Sandy	4	173
CC1/2 – Chilvers Coton	11	142
NO1 - Nottingham	2	12
SC - Scarborough	1	2
MS7 – Medieval Sandy	1	97
MP1/2 – Midland Purple	6	128
TG2 – Tudor Green/Surrey	1	32
CW1/2 - Cistercian	13	158
MB – Midland Blackware	5	158
RH - Rhenish	3	16
DE2 –Anglo Netherlandish	1	3
MY – Midland Yellow	7	99
EA1/2/6/7 - Earthenware	15	872
Totals	123	2721

PC825 Cellar

Assemblage: 3 sherds, 260 grams, 0.350 EVEs, 86.6 grams ASW

A Potters Marston jar rim and a fragment of Midland Blackware were residual in a context which also included an earthenware pancheon rim in a later post medieval or modern fabric, EA2. Similar vessels at Causeway Lane Leicester, (Davies and Sawday 1999, fig.97.181-182), were found beneath a brick cellar floor. Clay tobacco pipes in a bedding layer for the cellar provided a *terminus ante quem* of c.1820 for the pottery deposit below (*ibid* 1999, 196-7).

Unphased

Structure 12 PC2069 medieval building fragment

Assemblage: 5 sherds, 127grams, 0.090 EVEs, 25.4 grams ASW.

The pottery recovered from the foundation trench included an upright moulded jar rim with an internal bevel in the Chilvers Coton fabric CC2, which is most commonly dated to the 14th and 15th centuries (Mayes and Scott 1984, 41) and an externally knife trimmed sherd in the Medieval Sandy ware fabrics MS3 of a similar date. Another sherd in Brill/Boarstall type ware, fabric BR2, lies within a date range from the 13th to the 15th century. This feature is thought to pre-date phases in the expansion of the cemetery.

PC823 Post-medieval structure

Assemblage: 108 sherds, 5003 grams.

An interesting group of pottery was recovered from a feature, possibly the backfill of cellar, within a building on St John's Lane, later Causeway Lane. A building in approximately, but not exactly in the same position appears in Roberts plan of Leicester dated AD 1741 (T. Gnanaratnam, pers. comm.).

Unfortunately, lack of time meant that this material was not examined in detail or catalogued by the author.

Figure 12, Figure 13, Figure 14, Figure 15)

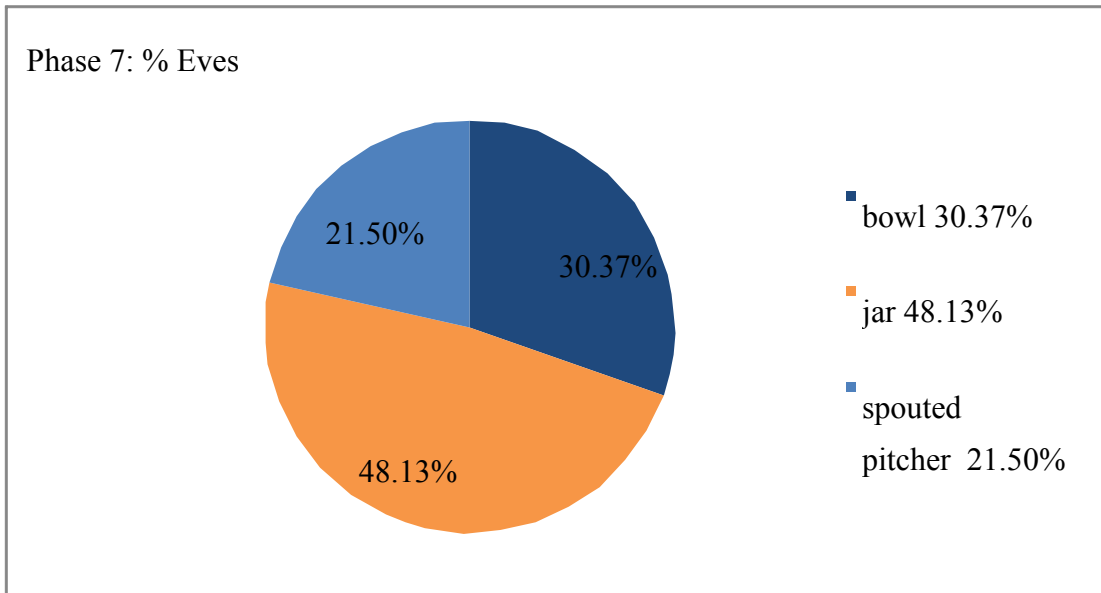
Jars, bowl and jugs dominated the assemblages, jars being the most common form by Eves in all phases, save for the small assemblage in phase 11 where jugs were the dominant vessel type. The jars occurred in a wide range of both fine and coarse ware fabrics, especially in the early period, chiefly in Stamford ware. Bowls made up approximately one third of the small group of identifiable vessels in the phase 7, where they occurred in Stamford, Lincoln and Torksey type wares, but made up only 8.77% of the Eves totals in phase 8, though they still represented the second most common vessel type in this phase, but became less common in phase 9. Many of the jars and bowls were heavily sooted externally and were evidently used for cooking. Both these and allied vessels also used for cooking and food processing in the earlier medieval period, such as cauldrons, frying pans and dripping dishes together with storage jars, generally occurred in the hand-made coarse wares such as Potters Marston, Splashed and Oxidised Sandy ware. Three fire covers were also recorded in Potters Marston in phases 8 and 9.

Single examples of a lamp and a crucible in the coarse Stamford ware, ST3, were recorded in phase 8, whilst a wide range of vessels types are found in both phases 8 and 9, notably jugs and other table wares: spouted and tubular spouted pitchers and lids, pedestal dishes, and bottles. These latter vessels are found almost exclusively in fine Stamford ware and are generally residual in phase 9, save for two tubular spouted pitchers in Coventry and Chilvers Coton ware, which are relatively uncommon vessels in these wares. Table wares, again predominantly jugs, dominated the Chilvers Coton and Nottingham assemblage in the high medieval phase 9, jugs accounting overall for over 23% of the Eves.

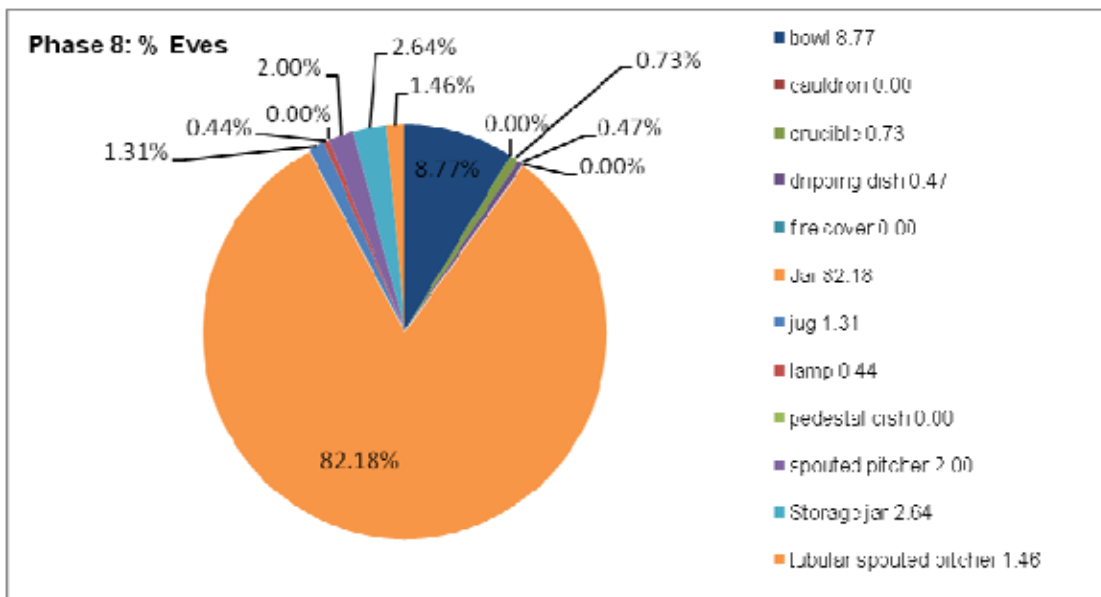
The range of vessel forms becomes more limited in phase 10, but includes typically late medieval types such as flared bowls, frying pans and cisterns, generally in the Medieval Sandy ware MS3, and the Midland Purple fabrics MP2 and MP3. Phase 10 and the early post medieval phase 11 also sees a new range of table ware forms, notably posset pots, cups and

pedestal cups in Cistercian or Midland Blackware. The identifiable post medieval vessels included a candlestick in Midland Yellow ware and a cup in the Slipware, EA7.

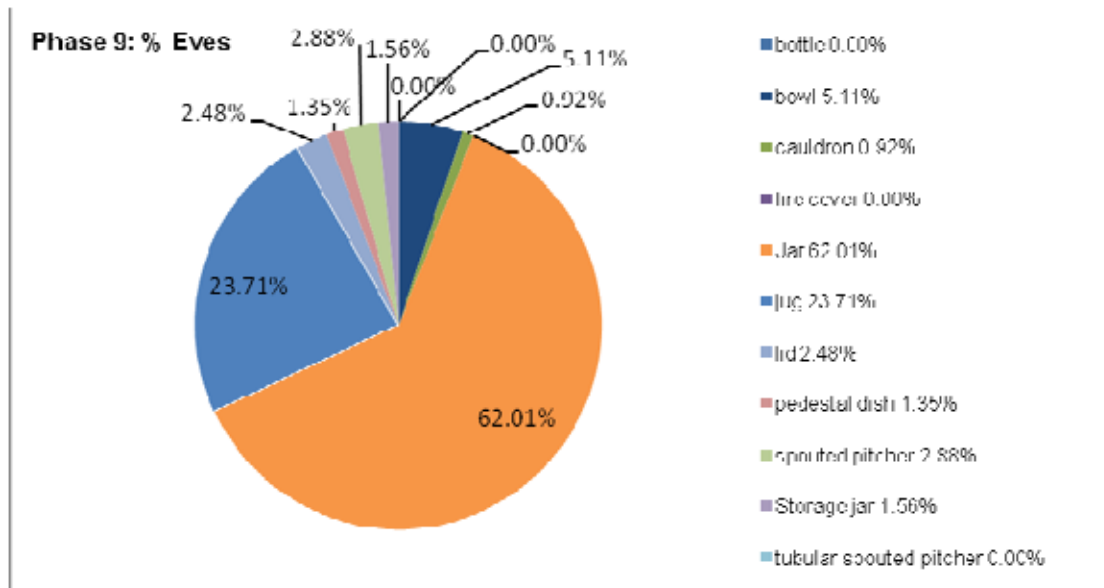
The range of vessels is typical of that found in the city generally and in particular is similar to the predominantly early medieval assemblages at Causeway Lane (Davies and Sawday 1999), but is also comparable to other assemblages at the Austin Friars, (Woodland 1981, Tables 19-20h), the West Bridge (Sawday 1994, Table 22), Causeway Lane (Davies and Sawday 1999, fig.85), and Bonners Lane in the western suburb of the city (Davies and Sawday 2004, 96). The pottery provides little evidence of anything other than household activity, save for one Stamford ware crucible. It is also just possible that the two pedestal based vessels noted above which have been formerly identified as cups were used as chalices for the celebration of mass in the church.



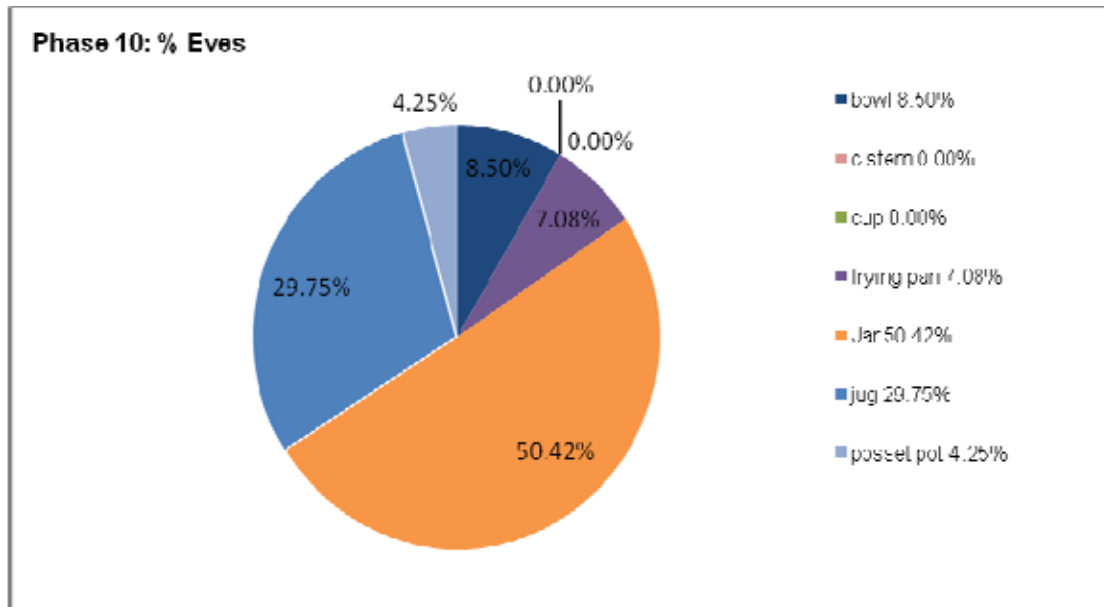
Phase 7: Eves = 1.07



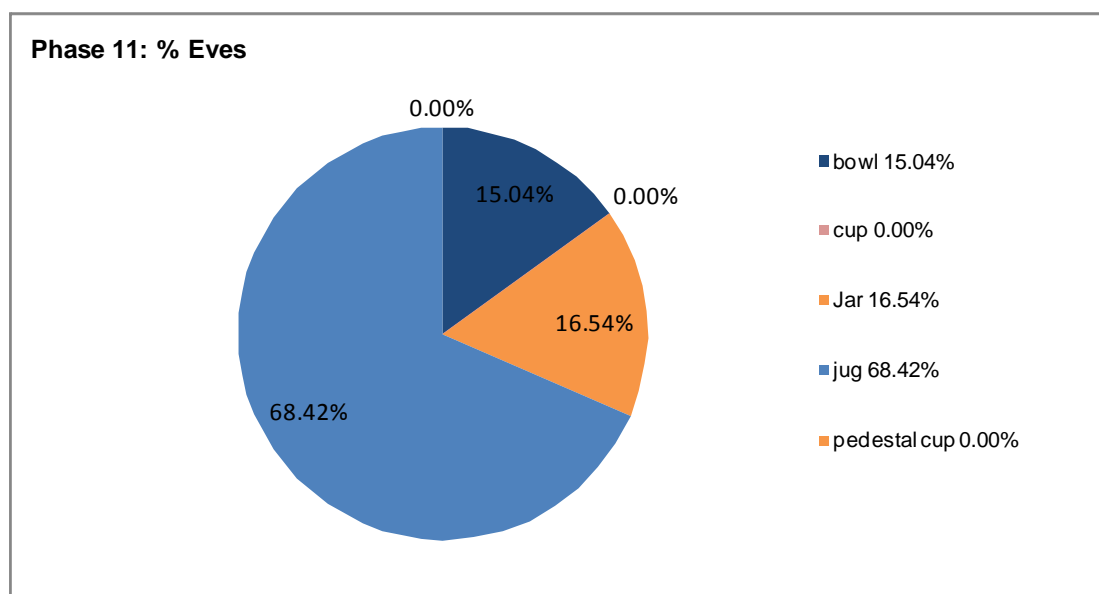
Phases 8, 8A, 8B and 8C: Eves = 17.17 (excluding vtu).



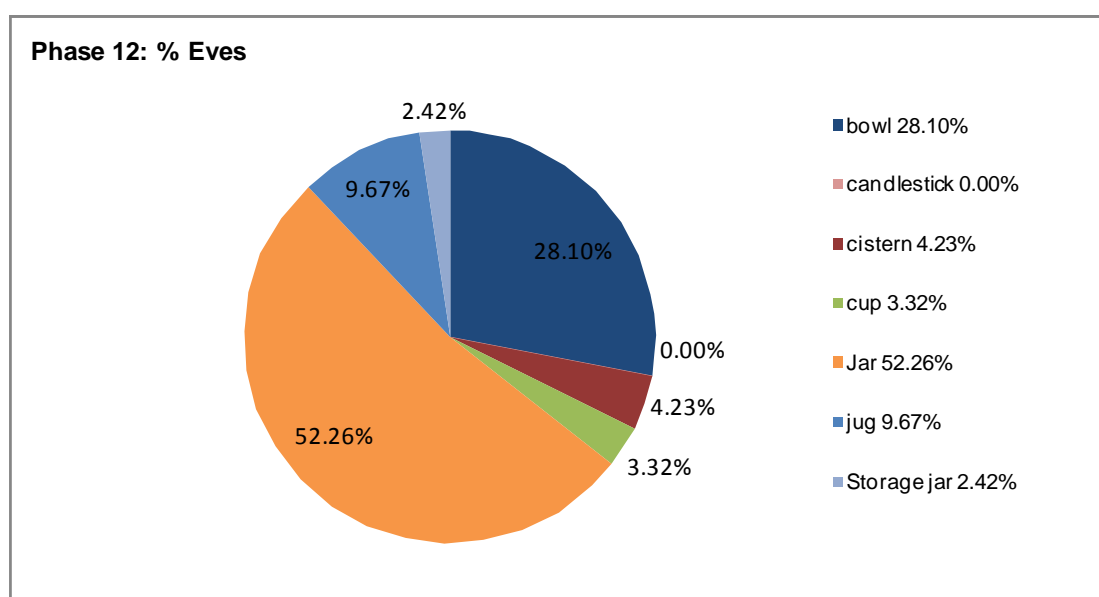
Phases 9, 9A and 9B: Eves = 16.345



Phase 10: Eves = 1.765



Phase 11: Eves = 0.665



Phase 12.0: Eves = 1.655 (excluding vtu).

Figure 12 The medieval and later pottery: percentages of Eves by phase

The fabrics (Table 12, Table 13, Table 31)

The presence here of three sherds of Leicester ware, fabric LE, is of note. Typologically, the ware has been dated from the mid- to late 9th or 10th centuries (Hebditch 1967-8, 8-9) but, to date, only a few sherds have been tentatively identified as possible examples of this fabric, all in residual contexts in the city. Five vessels in Leicester-type ware have 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).

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. Here fabrics LI1, LI2 and the unclassified fabric LI, all occur in residual contexts in phases 8 and 9, save for three sherds in phases 5 and 7.

The most common late Saxon ware is the coarse Stamford ware, ST3, Stamford fabrics E, F, H and A/D (Kilmurry 1980), (Leach 1987). This fabric is not exclusively late Saxon, a combination of fabric and vessel forms can be used to separate out the later material. Fine examples of fabric A continued in use at Stamford until at least the late 12th century, often as glazed table wares (Kilmurry 1980, 133).

Table 31 The medieval and later pottery: pottery fabric totals, by sherds numbers and weight (grams) and Eves

Fabric	Sherds	% of total	Weight	% of total	Eves	% of total
LE - Leicester	3	0.0	11	0.0		
ST1-3 - Stamford	453	12.2	4414	7.0	6.045	15.39
LI/1/2 - Lincoln	44	1.1	473	0.7	0.535	1.56
SN - Saint Neots	4	0.1	32	0.0	0.08	
TH - Thetford	3	0.0	70	0.1	0.100	
TO - Torksey	17	0.4	275	0.4	0.215	
RS1/2/3 - Reduced Sandy	23	1.1	244	0.4	0.605	
PM - Potters Marston	2470	67.0	41286	66.0	24.27	61.76
CS - Coarse Shelly	114	3.1	2054	3.3	1.745	4.44
SP1/2/3 - Splashed	154	4.1	3009	4.8	1.74	4.43
OS/1/2 - Oxidised	41	1.2	844	1.3	0.83	2.11
CO1/2 - Coventry	9	0.3	90	0.1	0.02	0.05
LY1 - Stanion/Lyveden	4	0.1	60	0.1		
CC1/2 - Chilvers Coton	102	2.8	1498	2.4	0.375	0.95
NO/1-3 - Nottingham	44	1.1	493	0.8		
BR2 - Brill/Boarstall	2	0.0	24	0.0		
SC - Scarborough	2	0.0	10	0.0		
MS/2/3/7/8 - Medieval Sandy	39	1.1	1345	2.3	1.01	2.57
MP/1-4 - Midland Purple	97	2.6	3890	6.2	0.895	2.28
TG2 - Tudor Green/Surrey	1	0.0	32	0.1		
CW1/2/MB - Cistercian/Midland Black	28	0.7	729	1.2	0.325	0.56
BO1 - Bourne	1	0.0	20	0.0		
RH - Rhenish	8	0.2	447	0.7	0.335	0.85
DE2 - Anglo Netherlandish	1	0.0	3	0.0		
MY - Midland Yellow	10	0.3	136	0.2	0.08	0.20
EA1/2/6/7 - Earthenware	17	0.5	1030	1.7	0.405	1.03
Totals	3691	100	62519	100	39.25	100

Twenty three of the 29 sherds in the Saxo Norman phase 7 are in fabric ST3 (Table 15), and overall this fabric accounts for approximately 3.2 % of the site totals by sherd count, the late Saxon Lincoln Shelly wares, fabrics LI1 and LI2, and SN, Saint Neots ware/type ware and unclassified LI sherds accounting for another 1.2% of the totals. The average sherd weight of the 121 sherds in the Stamford fabric ST3, which weigh 1071 grams in total, is just under 9 grams, whilst the late Saxon Leicester and Lincoln wares average only just over 10 grams each hinting, perhaps, at redeposited material associated with horticultural activity rather than occupation in the immediate area during the late Saxon period.

The relatively large assemblages of the Stamford ware fabrics ST2, and ST1, the former dating from *c.*1050, are convincing evidence of occupation from at least the 12th century onwards. These two fabrics account for just under 9% of the site totals, and together with ST3, account for over 28%, 11% and 0.8% respectively of the phase 8, 8A, 8B and 8C totals by sherd count (Table 17, Table 18, Table 19, Table 20). Whilst the very fine Stamford ware, ST1, dating from the 12th century accounted for only just over 2.1% of the site totals, this and the small assemblages of Torksey and Thetford type ware, and some of the as yet not closely dated local Reduced Sandy wares, are notable in having fairly large average sherd weights, further evidence of early medieval occupation in the vicinity.

Potters Marston, a local coarse ware, (Haynes 1952), (Sawday 1991) is the most common pottery in Leicester from the early 12th century, if not before, until at least the late 13th century (*ibid* 1991, 34), (Davies and Sawday 1999, 195). Typically, this ware dominated all the assemblages from all the sub phases in phases 8 and 9, accounting for over 72% of the phase 8 totals by sherd count, to just under 72% in phases 9A and 9B, (Table 22, Table 23), and almost 70 % of the site totals by sherd count. The large average sherd weight of 21.7 grams for PM in phase 8A suggests that much of this material was refuse from occupation nearby rather than the result of manuring, evidence supported by the large amount of pitting across the site from both this phase and phases 9A and 9B.

Potters Marston is often accompanied by two other coarse wares which generally, as here, only occur as minor wares in the city. The Leicester Splashed ware, fabric SP3, dated from *c.*1100 to 1250, first appears in phase 8A, and is residual by phase 9B. Similarly, the Coarse Shelly ware, fabric CS, first occurs in phase 8A, though this ware is dated *c.*1100-1400. Typically, both wares only account for between approximately 4 and 7% of the phase totals by sherd count in phases 8, 8A, 8B and 8C.

The wheel-thrown medieval fine wares, Chilvers Coton fabric CC1, dating from *c.*1240, together with the Nottingham green glazed wares, fabrics NO2, dating from *c.*1230 at Nottingham, first appear in phase 8B, where they represent just over 0.4% of the assemblage by sherd count. These also occur in the phase 9A and 9B assemblages which are dated from *c.*1250, together with the related fabrics CC2 and the Nottingham fabrics NO1, NO2 and NO3. The Medieval Sandy ware MS, MS2 and four sherds of the generally later MS3, MS7 and MS8 also make their first appearance in this phase, but, like the coarse wares discussed above, these are only minor wares here, accounting for less than 8% of the phase 9A and 9B totals by sherd count.

The later Medieval Sandy wares, MS3, MS7 and MS8, the late medieval Midland Purple wares MP, MP1, MP2 and MP3 and the Cistercian ware, CW2, account for over 74% of the phase 10 sherd totals (Table 25), but the total assemblage for this phase is limited to 151 sherds. Overall these and the late medieval fabrics MP4 and CW1 only make up

approximately 4% of the site totals by sherd count, (Table 31), evidence of a decline in activity on the site in by the end of the medieval period.

The limited range of regionally imported fine wares in phases 9 and 10 is also apparent; only eight sherds were recorded in the medieval glazed Lyveden Stanion fabric, LY1, the Brill/Boarstall type ware, BR2, the Scarborough ware, SC, and the late medieval Bourne ware/type ware, BO1 and the Tudor Green ware or type ware, TG2. Few continental imports were present either, only nine sherds of Rhenish Stoneware, fabric RH, and DE2, Anglo Netherlandish Tin Glazed Earthenware, occurred in targeted contexts.

The dating evidence

The estimated radiocarbon dates for the start of the burial activity on the site of between AD 860/940-1010/1020 taken together with the late Saxon pottery, confirms that there was pre-Conquest activity on the site.

The radiocarbon samples from the burial SK1557, in the church, provide a *terminus post quem* for the north aisle of between AD 890 and 1030. This ties in well with the pottery from soils below the north aisle, PC3339, in phase 8A, which were dated from the mid/late 11th or 12th century. The pottery in the 'plague pit' PC3352, also in phase 8A, was given a terminal date in the mid- or later 12th century. The radiocarbon evidence dates this communal grave to the 11th to 12th centuries also. Only one sherd of pottery, in Potters Marston, dated typologically from the later 12th or early 13th century was found in soils below the anchorage or Lady Chapel, PC5212, phase 10, where a burial, SK716, was radiocarbon dated c.1000-1160.

Two useful *termini post quos* were recorded for the pottery associated with two features with archaeomagnetic dates: the bell casting extraction pit and the stone built oven. The flue at the base of the former, PC3296, in phase 8A, gave a date of c.1150-1180AD for the backfill of the pit and its contents, providing also a useful *terminus post quem* for the original west wall of the nave of the church which was cut by this feature. The deposits on the floor of the stone-built oven, PC525, in phase 8B, gave a date for the last firing of c.1170-1235 AD. Another *terminus post quem* for the associated pottery assemblage was recovered from the grave, SK1189 in phase 9A, which cut the bell-casting extraction pit, and contained a coin of Edward 1 dated c.1272-1307.

The latest radiocarbon date for a burial within the Charnel House in phase 10, gave a *terminus post quem* of AD 1260-1400 for the building. There was no pottery dating evidence for the construction but, the 15th-century dendrochronological date for felling of timbers in the Free Grammar School roof thought to have come from the church, accords well with the late medieval pottery assemblage from the Charnel House in phase 10. Similarly, the date of the Midland Blackware and the Rhenish Stoneware found in the phase 11 demolition rubble associated with the church ties in well with the documentary date for the demolition of the church and the construction of the Grammar School in AD 1573-4.

Conclusions

The excavation site lies near to what was to become the medieval High Street, the main north-south axis of the settlement. The site of the Roman forum also lies close to this thoroughfare to the south, as does the Southgate Street kiln, source of the Leicester ware, (Hebditch 1967-8). That there was pre-Conquest activity here is suggested not only by the pottery but by the estimated radio carbon dates for the initial burial activity on the site. The

late Saxon pottery, the Leicester, Lincoln and early Stamford wares, may even relate to the development of the fortified burh of Leicester, dating from c.850, though the evidence remains tenuous (Courtney 1998, fig.1, 114-115). It is interesting to note that a similar late-Saxon kiln has been excavated at Northampton also on the main north-south street, but apparently unlike Leicester, also close to a middle-Saxon minster or palace.

At the very least the small assemblage of pottery in phase 7 provides some evidence of pre-Conquest activity in an area which lay within the back lanes in the north-east quarter of the walled town. And, whilst 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' (*ibid* 1998, 115), it seems likely that this area remained a relative backwater throughout the medieval period.

This initial activity perhaps relates to horticulture and to the first building phases of the Church of St Peter, which is only documented from c.1220 (*ibid* 1998, 133). Whilst there is no late Saxon ceramic evidence relating directly to the church, the pottery from phases 8, 8A, 8B and 8C, phase 9, 9A and 9B and 10 does provide a *terminus post quem* for the subsequent phases of the expansion and final abandonment of the church and the associated buildings and the cemetery.

Occupation in the area from the 12th century is evidenced by pitting and somewhat fragmentary associated structural evidence. Although the catalogued pottery only comprises approximately 60% of the site totals by sherd count, the relative proportions of the phased material may also give some indication of the intensity of activity on the site over time. Hence the increase in site activity during the 12th century noted above is reflected in the increase in the relative proportions of pottery present in phase 8, 8A, 8B and 8C, which dates from c.1100 to 1250, and accounts for over 46% of the site totals by sherd count.

The archaeological evidence in subphase 8B seems to reflect the cessation of pitting along the line of Street 4, no pits appear to occur close to the church apart from the west end. This suggests that the core of the churchyard was laid out at this time. Two of the pits lay below burials along the western edge of the cemetery and hence pre-dated its expansion. One pit also contained a dump of grain; evidence of that cereal was being processed on or near the site. This and the other rubbish in the pits perhaps related to properties along the western end of Causeway Lane, formerly St John's Lane.

Similarly, whilst the documentary evidence suggests that the area was predominantly given over to gardens and orchards from at least the late 13th century (*ibid* 1998, 133), the pottery in phase 9, 9A and 9B, dated from c.1250 to c.1400, still accounts for a large proportion of the assemblage, just over 43% of the site totals, by sherd count, a significant amount even when allowing for the inevitable residuality of at least some of this material. However, the apparent decline in this part of the town does seem to be reflected in the pottery record in later phases. That from phase 10, dated from c.1400, accounts for less than 5% of the sherd totals for the site, apparently confirming the documentary evidence which indicates that St Peter's Church had been abandoned by the 16th century, (*ibid* 1998, 133), and suggesting that the parish as a whole was in decline.

The low ratio of table-ware forms compared to cooking wares, and the limited range of regionally imported pottery wares, may be used as evidence to suggest that the site was indeed a backwater and of low status. The developed Stamford table ware, and the medieval glazed and sometimes highly decorated jugs making up the regional imports from Lyveden Stanion and Brill/Boarstall type ware, together with the late medieval Bourne ware/type ware,

only account for a very tiny fraction of the assemblage, whilst the lack of continental imports is even more marked.

The dearth of regional imports, save for the Chilvers Coton, Nottingham, Medieval Sandy and Cistercian wares, much of the two latter wares probably originating from Ticknall, is typical of medieval assemblages of glazed pottery in Leicester, whilst the lack of continental imports is not altogether surprising given the absence of significant late-medieval and early-post-medieval archaeological levels on the site, but is also a characteristic of many excavation sites in the city. The essentially local nature of most of the pottery supply into the town in the medieval period, all the production centres noted above are within a 30km radius of Leicester, has been demonstrated elsewhere, notably at the Austin Friars, (Woodland 1981), Causeway Lane (Davies and Sawday 1999) and on the extra-mural site at Bonners Lane (Davies and Sawday 2004).

However, when considering the relative importance of the area, research elsewhere has shown that even sites thought to be occupied by persons of some social standing do not necessarily produce high status pottery, (Brown 2002), and in medieval Leicester what pottery evidence there is of status, is often surprisingly restricted. At St Nicholas Place, for example, which lay close to the main north south street through the town, the medieval High Street, and to St Martin's the richest church in the borough by the late 13th century, (Courtney 2001, 124-126), only a few continental imports were found and an unusual regional import from Lincoln, which were perhaps indicative of some wealth or status (Sawday 2009a). On the other hand, excavations on the other major thoroughfare of the medieval town and home to local notables including the earls of Huntingdon, the medieval Swinesmarket, did produce possibly high status pottery (J. Hurst, pers. comm.), including a set of Langerwehe table wares, and a notable Frechen tankard or shnelle (Sawday 2007).

The illustrations David Hopkins

Table 32 Medieval and post-medieval pottery illustrations -

Illus. No.	Dr. No.	Principal Context	Context	Feature	Phase	Fabric	Vessel Type
1	71	3413	3412	Pit	7.0	ST3	jar
2	65	2733	2732	Pit	7.0	ST3	bowl
3	70	2998	2997	Pit	7.0	ST3	bowl
4	67	2733	2732	Pit	7.0	ST3	Spouted pitcher
5	81	5161	5160	Pit in churchyard	8A	ST2	jar
6	79	3457	3456	Pit in nave	8A	ST2	jar
7	80	3457	3456	Pit in nave	8A	ST2	jar
8	69	2733	2732	Pit	7.0	ST2	jar
9	77	3457	3456	Pit in nave	8A	ST2	jar
10	78	3457	3456	Pit in nave	8A	ST2	bowl
11	62	5006	2978	pit	8B	LI1	jar
12	64	2786	2784	Grubenhauser 2	5-6	LI2	jar
13	68	2733	2732	Pit with ash deposit	7.0	LI2	jar
14	63	2751	2904	Pit	8B	SN	jar
15	82	5161	5160	Pit in churchyard	8A	TH	Storage jar
16	66	2733	2732	Pit with ash deposit	7.0	TO	bowl
17	282	2124	2123	Pit pre-dating cemetery expansion	8B	RS2	jar
18	284	3339	3339	Soils below north aisle floor	8A	PM	jar
19	283	3339	3339	Soils below north aisle floor	8A	PM	jar
20	72	3296	3297	Bell casting extraction pit	8A	PM	jar

21	74	3296	3297	Bell casting extraction pit	8A	PM	jar
22	73	3296	3297	Bell casting extraction pit	8A	PM	jar
23	84	5161	5160	Pit in churchyard	8A	PM	jar
24	277	2571	2752	Foundations Building 7	8B	PM	jar
25	263	2552	2857	Pit	8B	PM	jar
26	264	2552	2857	Pit	8B	PM	jar
27	278	2571	2752	Foundations Building 7	8B	PM	jar
28	265	2552	2857	Foundations Building 7	8B	PM	Storage jar
29	271	2571	2752	Foundations Building 7	8B	PM	Storage jar
30	272	2571	2752	Foundations Building 7	8B	PM	Storage jar
31	83	5161	5160	Pit in churchyard	8A	PM	bowl
32	274	2571	2752	Hall foundations	8B	PM	bowl
33	275	2571	2752	Hall foundations	8B	PM	bowl
34	276	2571	2752	Hall foundations	8B	PM	bowl
35	266	2552	2857	Pit	8B	PM	bowl
36	270	2571	2752	Hall foundations	8B	PM	jug
37	279	2571	2752	Hall foundations	8B	SP3	jar
38	281	2282	2282	Pit post dating robbing of Hall	9A	SP3	cauldron
39	75	3296	3297	Bell casting extraction pit	8A	CS	jar
40	267	2552	2857	Pit	8B	CS	jar
41	269	2571	2752	Hall foundations	8B	CS	jar
42	268	2571	2752	Hall foundations	8B	CS	jar
43	273	2571	2752	Hall foundations	8B	CS	bowl

44	280	2571	2752	Hall foundations	8B	MS2	jug
45	85	5330	5330	Charnel house Dis-use	11.0	MS3	jug
46	286	955	955	Building floor 8-3,	10.0	MS7	jug
47	287	605	621	Building floor 8-3	10.0	MP1	jar
48	288	605	621	Building floor 8-3	10.0	MP1	jug
49	285	629	629	Building floor 8-3	10.0	MP3	jug
50	289	604	603	Building wall 8-3	10.0	MP3	cistern
51	76	5331	5331	Charnel House	10.0	CW2	Posset pot
52	86	5330	5330	Charnel house dis-use	11.0	CW2	Pedestal cup/ chalice
53	88	5330	5330	Charnel house Dis-use	11.0	CW2	Pedestal cup/ chalice
54	87	5330	5330	Charnel house Dis-use	11.0	CW2	Cup stamp

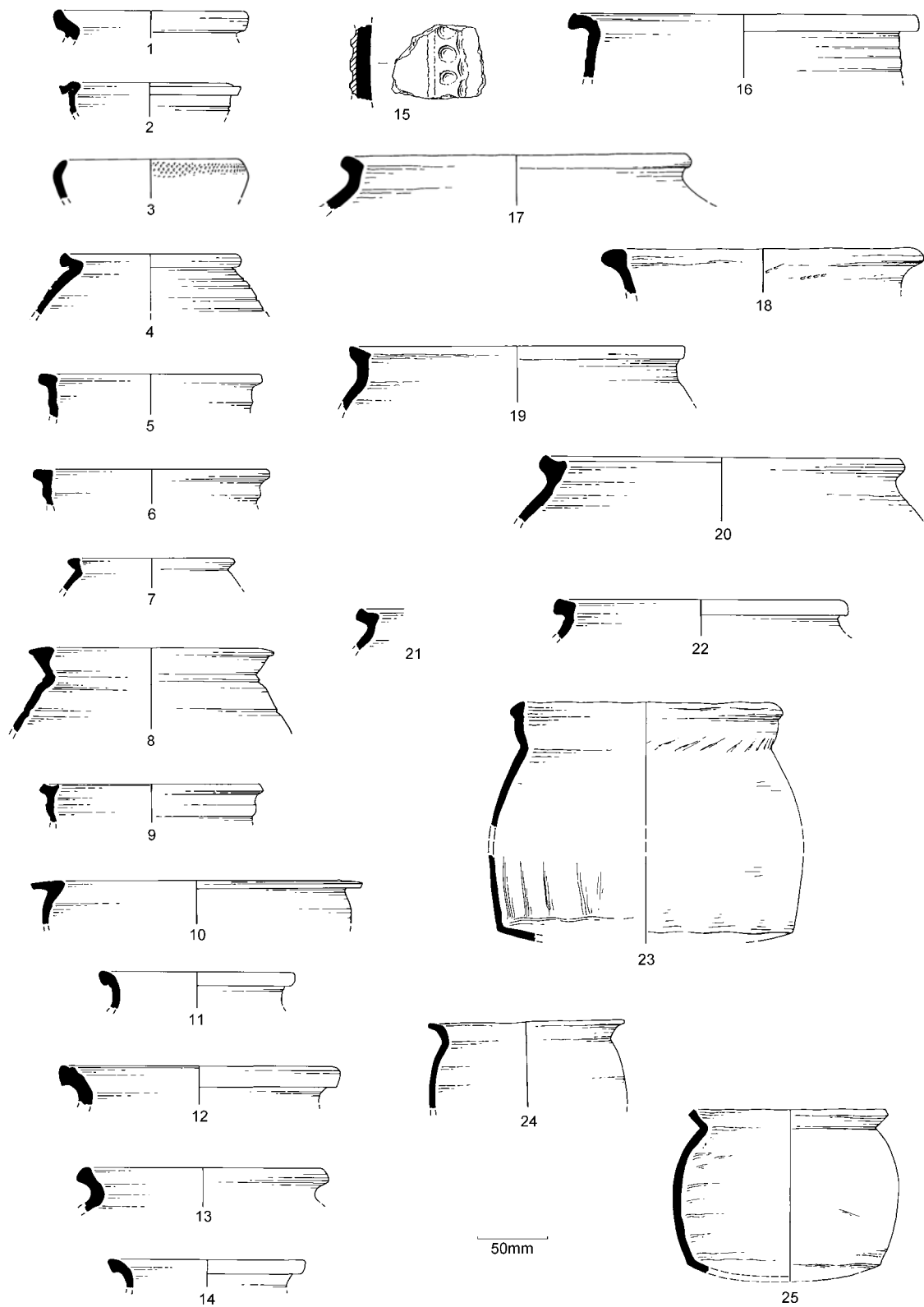


Figure 13 The medieval and post-medieval pottery illustrations: Figures 1-25

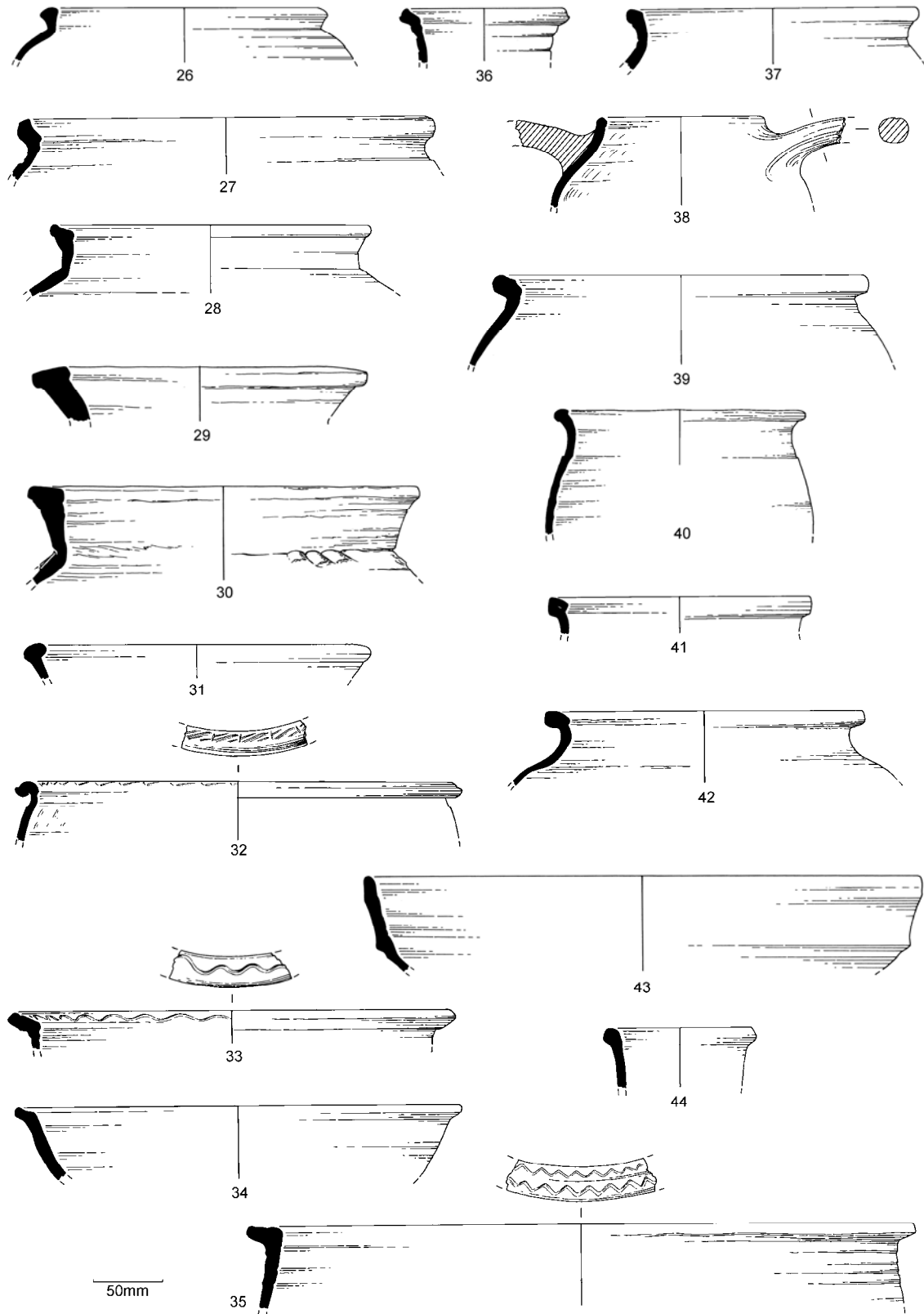


Figure 14 The medieval and post medieval pottery illustrations: Figures 26 - 44

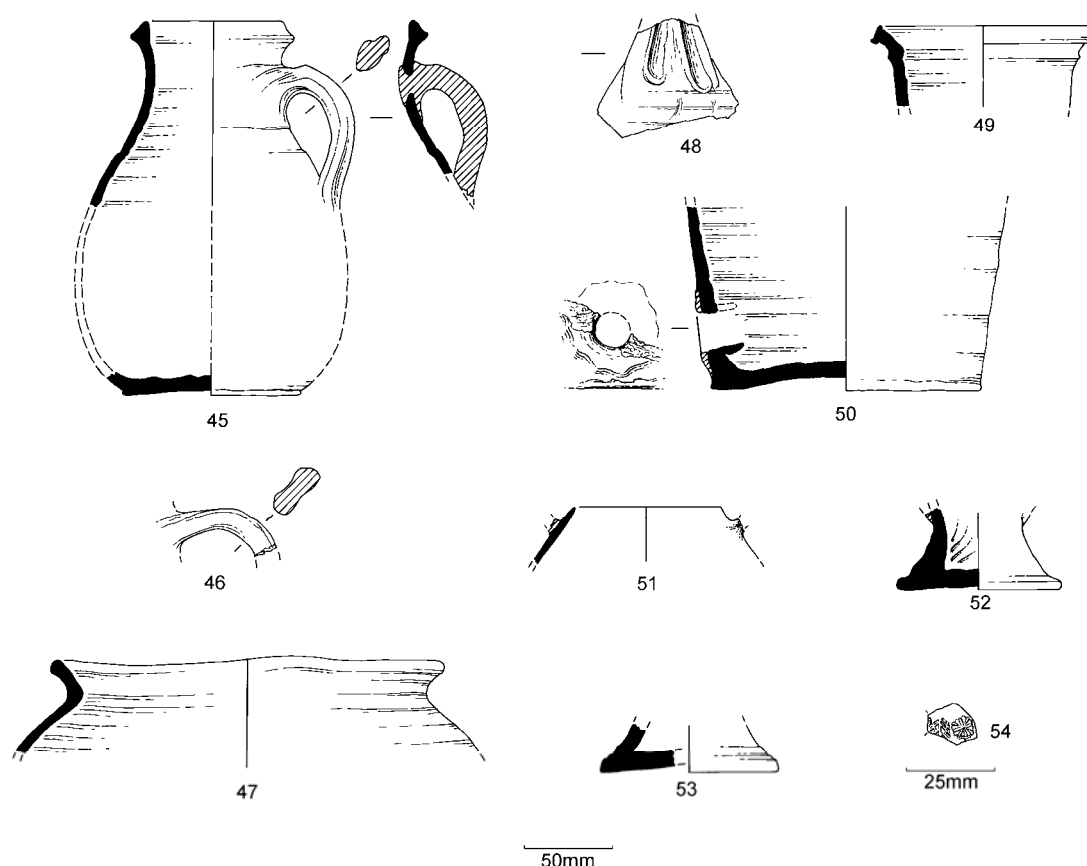


Figure 15 The medieval and post medieval pottery illustrations: Figures 45 - 54

The medieval ridge tile (Table 33)

Of the 159 fragments of medieval ridge tile from the site, just under half, 71 fragments, occurred in the targeted phased contexts. The earliest recorded contexts with ridge tile occur in two phase 8B pits, one PC2124, with pottery dating from c.1230, predating the expansion of the cemetery and possibly associated with an early phase of the church or associated buildings. The fabric of these tiles, the Leicester splashed ware, SP3, is thought to have been used for the earliest medieval roofing tile in the city, (R. Buckley, pers. comm.) and SP3 accounts for over half of the phased tile fragments from the site. This tile may be evidence of early occupation in the area, perhaps associated with buildings fronting on to the back lanes nearby, or with the church,

Over 70% of the tile by both fragment numbers and weight occurred in the early medieval and medieval phases 8B and 9.0, 9A and 9B although, unfortunately, the tile could not be directly linked with any particular structures. The tile in the later phases was generally associated with this dis-use and demolition of the Mud Building, Building 8, in phases 10.0 and 11.0. The relative dearth of ridge tile in Midland Purple and associated fabrics ties in with the other ceramic evidence of a decline in activity on the site by the late medieval period.

Table 33: The medieval ridge tile by fabric, fragment numbers and weight (grams) by phase

	Phase						Totals
Fabric	8B	9	9A	9B	10	11	
PM – Potters Marston			1/10	1/11	1/33		3/54
SP3 - Splashed	4/124		16/429	18/920	2/102		40/1575
CC1 – Chilvers Coton		2/450	1/9	8/342	6/170		17/971
MS1 – Medieval Sandy				1/65			1/65
MS2 – Medieval Sandy		1/12		1/27			2/39
MS3 – Medieval Sandy				2/49	2/34		4/83
MS – Medieval Sandy					1/121	1/147	2/268
MP2 – Midland Purple						2/342	2/342
Totals	4/124	3/462	18/448	31/1414	12/460	3/489	71/3397

Most of the tile was typically very fragmentary, the few identifiable crests included examples of possible domed knob and a pyramid or cockscomb crests in phases 9 and 10, in the early medieval fabric SP3, (Allin 1981, fig.17.16, fig.16.6-8). A closed loop or rams horn crest in CC1 in phase 9.0, and a possible spiked knob in MP2 in phase 11.0 (*ibid* 1981, fig.15.1, fig.17.13) were also present. The Splashed ware crests suggest that these types may have a wider date range than previously thought (*ibid* 1981, 59, 62). A residual thick walled fragment of SP3 in phase 10.0 may be part of a chimney.

The medieval floor tile (Table 34)

Ninety-eight fragments of medieval floor tile were recovered, most were abraded and very fragmentary, but a minimum of 43 fragments had definite evidence of inlaid decoration, and of these 26 fragments could be identified. Some of the remainder were evidently glazed plain, geometric and/or border tiles, the fabrics suggesting that they were contemporary with the inlaid tiles.

All the tiles in designs identified here as Whitcomb ‘types’ have been previously found in Leicestershire and belong to Whitcomb’s tile group IV dating from the later 14th century (Whitcomb 1956, 16-17). Of those tile designs already recorded in the city, the heraldic tiles,

W38 and W58, the Arms of Beauchamp and Warren, are known at Leicester Abbey. W38 was also identified at All Saints Church, and the Arms of Lancaster, W29, at the Austin Friars, (Lucas 1981). All of the remaining identifiable inlaid tiles have been recorded at Leicester Abbey save W86 and W87. W85 and W86 have been noted at All Saints Church, and W86 also at St Margaret's, and W80 and W131 at St Mary de Castro, and the latter also at Trinity Hospital. A fragment of W113 from Causeway Lane is part of the Leicester Museum's Spurway Collection. Neither of the Eames designs, E1531 and E1662, (Eames 1980) as far as the author is aware, has been previously identified in Leicester.

Table 34: Medieval floor tile: identifiable inlaid floor tile designs by fragment numbers:

W – Whitcomb 1956, E – Eames 1980, (*an apparently variant of this design)

Tile Type	Phase 9A	Phase 10.0	Phase 11.0	Phase 112.0	Unphased
W29					3 (join)
W38					2 (join)
W58		1			
W70	1*		1		2 (join)
W70c			1		1
W80				1	
W85					1
W86			1		2 (join)
W87					1
W99				1	
W113				1	1
W131				1	1
E1531					1
E1662				1	1

In terms of dating, the Arms of Lancaster tile design, W29, is dated 'after 1324' (Whitcomb 1956, 38), and Warren, W58, c.1240 to 1347 (Lucas 1981, 73). Tile designs W70, W80, W85, W86, W87 and W113, and E1662 are also found at Beauvale Priory in Warwickshire, where these and other tiles were laid in the original pavements – which presumably relate to the foundation date of the building in 1343. Another *terminus post quem* is provided by the foundation date for Trinity Hospital in 1331, and 1340-2 for St Mary's Hall Coventry, where

tile designs W58, W70 and W131 are also found (*ibid* 1984, 73-74). The tile design E1531 is known at Ulverscroft Priory and Beauchief Abbey in Nottinghamshire, where it is dated by association with other Nottingham tiles, which have also been found at Beauvale Priory and Trinity Hospital in Leicester, to the later 14th century (*ibid* 1984), (Eames 1980, 230-231).

Phase 9A

One inlaid floor tile, possibly a variant on a sixteen-tile design, W70, occurred in the burial soil PC2678 and PC2599 associated with Structure 11 the mud-walled building, Building 8. Three more tiles, including one inlaid but unidentifiable example occurred in the pit PC2599, and one more in PC5004, was associated with the disuse of the undercroft, Building 6 all in phase 9A. Another much-abraded tile fragment occurred in the pit, PC2093 and an unidentifiable fragment in context PC2599 in the same phase.

Phase 10

Four monochrome tiles, including two triangular fragments and one unidentifiable inlaid fragment occurred in the soil layer in south aisle of the church PC3152, interpreted as a dump. Two more tiles, one a complete triangle with dark brown glaze, the other too abraded to identify were found in contexts PC604 and in the mud walled building, Building 8-3.

Two abraded fragments of tile, one monochrome with a brownish black glaze, and the other inlaid but unidentifiable, were found within the charnel of the charnel house PC5331. The lower half of an abraded tile, design, W58, the Arms of Warren, occurred in the pit PC5067, at the junction of a building, a possible anchorage, attached to the chancel and the Lady Chapel.

Phase 11

Three abraded and unidentifiable fragments of floor tile lay in the floor, PC3336 and six more occurred in the Phase 11.0 demolition rubble PC5330, of the charnel house. All of the latter were abraded, one was a monochrome triangle with dark brown glaze, and three of the remainder were decorated with the designs, W70, W70c and W86.

Phase 12

Nine more tiles, mostly abraded, including one monochrome tile with dark brown glaze, the rest inlaid were associated with the phase 12 robbing of the charnel house. The five identifiable designs were W80, W99, W113, W131 and E1662.

Unphased

Seven inlaid tiles were recovered from a pit PC3215 cutting through the floor of the north aisle of the church together with a small fragment of residual late 11th- or 12th-century pottery. These included four joining fragments making up the two Whitcomb designs W70c,

part of a sixteen-tile pattern, and W86. In the same pit were tile designs W131 and E1531 and another inlaid tile too abraded to identify. One of the three monochrome tiles from the same context was glazed yellow over a white slip.

Two inlaid tiles, one identified as W87, were found in the PC5183, associated with the robbing of the church. Six more floor tiles relate to the church robber trenches PC5258, PC5263 and PC5303. Four or five were possibly inlaid, but too abraded to identify, one was a monochrome tile with dark green glaze. Two unidentifiable fragments were found in contexts, PC696, PC922

Thirty six tiles occurred in unstratified contexts, many were abraded and unidentifiable, but at least fourteen were inlaid. The identifiable designs included the heraldic tiles W29, the Arms of Lancaster post dating 1324, and W38 the Arms of Beauchamp, together with W86 and W113 and E1662, all of these tiles occurring in association with inhumations in the cemetery. Another unstratified tile was decorated with design W85.

Conclusions.

The floor tile fabrics have not been analysed in detail here, but clearly tiles from both Chilvers Coton and Nottingham are present. Whitcomb's designs W58, W113, and W131 are known to have been made at Chilvers Coton (Eames 1984, 178). Eames suggests that the Warwickshire tile at Chilvers Coton were earlier than the northern examples of the same design made, for example at Nottingham. Eames thinks it is possible that a tiler from Chilvers Coton went north to work, taking his tile stamps with him, perhaps eventually allying himself with commercial potters in Nottingham, where he continued to supply customers in Leicestershire. There was no evidence here of the stabbed Wessex tiles, possibly made by itinerant tillers, found at Leicester Abbey and elsewhere in the county (*ibid* 1984, 203-206).

In terms of the relevance of the heraldic tile designs, Eames notes that the arms of de Warren – amongst others – was one of the most commonly used in tile designs, and that heraldic tiles in general could not be taken to indicate any connection either with the kilns or the sites where the tiles were to be used (*ibid* 1984, 177). As at the Austin Friars, Leicester, there is a notable lack of religious designs, this dearth of religious symbolism is common; perhaps floors were not regarded as the right place for such material (Lucas 1981, 71).

Although medieval tile pavements from domestic buildings, such as manor houses and merchant's town houses are not unknown (Eames 1980, 280), work in the Severn Valley has shown that there at least, in the mid- to late 13th century, only rich monasteries and Royal palaces were using decorated tiles, but that by the early 14th century floor tiles were being used by both the smaller monasteries and parish churches (Vince 1984, 8). It seems safe to assume here that the floor tiles do relate to the church of St Peter, even though the documentary evidence tells us that the church was poorly endowed and situated in the back lanes (Courtney 1998, 133). Most of the tiles were found in deposits directly associated with the church, and its ancillary buildings, albeit in residual contexts, and in the cemetery. The church itself lay well away from the main streets and it seems unlikely that the floor tile would have been deposited here as rubbish from any other building.

THE COINS *John A Davies & Martin Shore*

Table 35: The Coins: summary of items recorded

	Roman Coins	Post-Roman coins
Vaughan Way (A2.2003)	34	5

Overview of the collection

This site assemblage comprises 34 Roman coins and one post-Roman item (Table 35).

Roman coins

Thirty-one of the Roman coins are closely identifiable. They range in date from the emperor Nero (54-68) to the end of the 4th century (Table 36).

A substantial proportion are early coins of the Augustan system, which are mainly *aes* issues. The list starts with a *denarius* of Nero. This is followed by *dupondii* and an *as* of the late first and early 2nd century. There is a single *sestertius* of Lucilla

A strong late 3rd-century group contains three barbarous radiates and two radiates of Carausius, which are not common site finds. One of these can be identified to the London mint.

The assemblage is dominated by the later 4th-century coin, which accounts for more than half of the items. These are mainly Valentinianic bronzes, of the years 364-78. However, the assemblage continues right through to the end of the 4th century, with Theodosian bronzes.

Table 36 The Coins: chronological distribution of the Vaughan Way Roman coins

Issue	Period	No.	%
1	To AD 41	0	
2a	41-54	0	
2b	54-69	1	3.2
3	69-96	2	6.5
4	96-117	1	3.2
5	117-138	1	3.2
6	138-161	2	6.5
7a	161-180	1	3.2
7b	180-193		
8	193-222		
9a	222-238		
9b	238-259		
10	259-275	1	3.2
11	275-294	5	16.1
12	294-317	1	3.2
13a	317-330		
13b	330-348	2	6.5
14	348-364		
15a	364-378	11	35.5
15b	378-388	1	3.2
16	388-402	2	6.5
Total		31	
1st – 2nd century		1	
3rd – 4th century		2	
Post-Roman		1	
Total Items		35	

Table 37: The coins: catalogue of Roman coins (A2.2003)

Ref	Context	Small find	Emp/type	Denom	Date	Obverse	Reverse	Rel	Mint	Notes
1	U/S	41	Nero	Denarius	AD 54-68	Obv ----CAESAR AVG- ---	Rev Illeg.; female fig. seated left.			
2	U/S	2003	Vespasian	Dupondius	AD 72-73	Obv IMP CAESAR VESPASIAN AVG COS III	Rev FORTVNAE [REDVCI]; SC	RIC 2: 739	Lugdunum	
3	2766	1044	Domitian	Dupondius	AD 81-96	Obv ----GERM COS----	Rev Illeg. Smooth			
4	3339	1178	Trajan	Dupondius	AD 98-117	Obv Illeg.	Rev Illeg. Smooth.			
5	2065	232	Hadrian	As	AD 117-38	Obv [HADR]IANVS AVGV[S][TVS]	Rev Illeg. V. worn.; SC. Female fig. stg.			
6	U/S	2005	Antoninus Pius	Base denarius	AD 151-2	Obv ANTININVS AVG PIVS PP TRP XV	Rev TR POT COS III; ITALIA	Rev as BMC 4: 247		
7	2864	206	Faustina II	Denarius	AD 141-61	Obv Illeg.	Rev Illeg. Female fig. stg. l.			
8	2808	147	Lucilla	Sestertius	AD 164-9	Obv [LV]CILLA AVGVSTA	Rev Illeg. Figure seated right.			
9	3030	1019		Illegible denarius. Incomplete, broken and heavily corroded.	1 st -2 nd century					
10	2637	100	Victorinus	Radiate	AD 268-70	Obv IMP C----	Rev Illeg. - corroded			
11	3030	1007	Barbarous radiate – Claudius II		AD 270-84	18mm				
12	2766	1038	Barbarous radiate		AD 270-84		Rev Sacrificial implements			17mm
13	2119	51	Barbarous radiate – Victorinus		AD 270-84		Rev. Illeg.			20mm

Ref	Context	Small find	Emp/type	Denom	Date	Obverse	Reverse	Rel	Mint	Notes
14	2880	167	Carausius	Radiate	AD 287-93	Obv ----ARAV----	Rev PAX AVG	As RIC 5: 98	London	26mm
15	2721	1016	Carausius	Radiate	AD 287-93	Obv Illeg	Rev PA[X AVG]; vertical sceptre			
16	U/S	69	Diocletian	Follis	AD 300-1	Obv IMP DIOCLETIANVS AVG	Rev MONETA SACRA AVGG ET CAESS NN	RIC 6: 424	Trier	
17	3030	1017	Helena	Follis	AD 337-40	Obv FL IVL HELENAE AVG	Rev [PAX PV]BLICA			
18	2925	173	House of Constantine	AE3	AD 347-8	Obv Illeg.	Rev [VICTORIAE DD AVGG Q NN]			
19	3030	150	Valens	AE3	AD 367-75	Obv DN VALENS PF AVG	Rev. SECVRITAS REIPVBLICAE	RIC 9: 32b	Trie	
20	2119	54	Gratian	AE3	AD 367-75	Obv [DN] GRATIANVS AVGG [AVG]	Rev [GLORIA NOVI SAE CVLI]	RIC 9: 15	Arles	
21	3245	1166	Gratian	AE3	367-75	Obv DN GRATIANVS [AVGG AVG]	Rev GLORIA NOVI SAE CVLI	RIC 9: 15	Arles	
22	3073	1005	Valens	AE3	AD 375-8	Obv DN VALEN[S PF AVG]	Rev SECVRITAS REIPVBLICAE	RIC 9: 19a	Arles	
23	3030	149	House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [GLORIA ROMANORVM]			
24	2678	1024	Valens	AE3	AD 364-78	Obv ----S PF AVG	Rev [GLORIA ROMANORVM]			
25	2785	163	House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPVBLICAE]			
26	2722	1002	House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev SECVRITAS REIPVBLICAE			
27	3243	1063	House of	AE3	AD 364-78	Obv Illeg.	Rev SECVRITAS			

Ref	Context	Small find	Emp/type	Denom	Date	Obverse	Reverse	Rel	Mint	Notes
			Valentinian				REIPUBLICAE			
28	2766	1055	Valens	AE3	AD 364-78	Obv [DN] VALENS PF AVG	Rev SECVRITAS REIPUBLICAE			
29	3284	1068	House of Valentinian	AE3	AD 364-78	Obv Illeg.	Rev [SECVRITAS REIPUBLICAE]			
30	U/S	2004	Theodosius	AE4	AD 378-83	Obv DN THEODOSIVS PF AVG	Rev CONCORDIA AVGGG	RIC 9: 21	Arles	
31	U/S	1047	House of Theodosius	AE4	AD 388-94	Obv Illeg.	Rev SALVS REIPUBLICAE			
32	2127	49	House of Theodosius	AE4	AD 388-94	Obv Illeg.	Rev SALVS REIPUBLICAE			
33	U/S	27	Illegible and corroded	AE3	AD 260- 400					
34	Gr. SK1547	1154	Illeg.	AE4	AD 335- 400	Obv Illeg.	Rev Illeg.			
35	U/S	55	James I / Charles I	Royal farthing token	AD 1603- 49	Illegible. Border faintly visible.				

Post Roman coins

Table 38 The post-Roman coins

Small Find No.	Context	Cut	Skeleton number	Details
1031	3152		1383	Henry V silver penny, mullet & trefoil by crown, reverse, long cross with quatrefoil in centre AD1413-22.
53	2181		64	Eadgar silver penny, small cross, reverse, two line type with crosses between, trefoils top & bottom, York area mint AD959-75.
75	U/S			Charles 1 copper royal farthing AD1625-49
108	U/S			Nuremburg Jetton AD15th-16th century, copper alloy.
1011	3115	3114	1189	Edward 1 long cross silver penny, mint unsure, broken & worn. AD1272-1307

THE SMALL FINDS *Hilary Cool*

Introduction

The excavations at Vaughan Way produced the smallest of the small find assemblages from the Highcross sites. 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 39 and Table 40 provide summaries of the assemblage as a whole. In Table 39 finds found in association with the graves have been summarised as a separate category, irrespective of whether they were deliberately placed grave goods or residual inclusions. 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 University of Leicester Archaeological Services 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 Vaughan Way 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.

Table 39 The small finds: the discussed finds by material and site phasing

Phase	White metal	Copper alloy	Lead alloy	Iron	Glass	Bone & ivory	Jet & shale	Stone	Total
2	-	2	-	1	-	-	-	-	3
3	-	1	-	3	-	-	-	-	4
5	-	2	-	-	-	-	-	-	2
8	-	2	2	-	-	-	1	2	7
9	-	5	-	3	1	-	-	1	10
10	-	4	-	2	-	-	-	-	6
11	-	12	1	-	-	-	-	-	13
12	-	6	-	-	-	-	-	1	7

Grave	1	5	3	2	-	3	1	-	18
U/S	1	7	1	1	-	3	-	-	13
Total	2	49	7	12	1	6	2	4	83

Table 40 The small finds: the discussed finds by date of find and function

Function	Roman	A/S	Saxo-Norm	Medieval	Post Med	Total
Personal	8	2	2	18	11	40
Textile	1	1	-	2	-	4
House	2	-	-	1	-	3
Recrea	-	-	-	1	-	1
Weighing	-	-	-	3	-	3
Writing	1	-	-	2	-	3
Transport	-	-	1	-	-	1
Tools	1	-	-	4	-	5
Fast	1	1	-	4	2	8
Military	1	-	-	1	-	2
Religion	-	-	-	5	-	5
Misc	3	-	-	3	2	8
Total	18	4	3	44	14	83

Roman Finds

Personal ornaments

This category of finds was dominated by brooches. Table 40 summarises the brooches from Leicester as a whole and as can be seen the site has produced a relatively small assemblage. Mid-1st-century forms are represented by the simple one-piece brooch no. 1 and the Colchester brooch no. 2. The former is an example of the simple Gaulish ribbon bow form which is generally found in eastern England from North of the Thames into the East Midlands (see Olivier 1988, 40). As can be seen one-piece brooches of this general type are the commonest form found in Leicester, though most are of the rod bow form. Colchester brooches (Bayley and Butcher 2004, 148-9) were also very common at Leicester. These two types would have been what most of the Leicester population would have been wearing both in the period before it developed into the Roman town and shortly thereafter. The Colchester derivative no. 3 would have been in use from the mid 1st century (Bayley and Butcher 2004, 157). Again this is a common type in Leicester but this example is too corroded to assign to a particular variant.

The site also produced two Trumpet brooches which in general are developments of the later 1st century and which continued to be used into the mid-2nd century. A variety of typologies have been suggested for trumpet brooches of which the simplest is that of Bayley and Butcher (2004, 160-64). No. 4 belongs to their Group A, the standard undecorated type with fully round acanthus. No. 5 belongs to the decorated form Group D. These are the first examples of these variants to have been recovered from Leicester and both belong to the earliest developments of the form, though they both continued in use into the 2nd century. The other trumpet brooches recovered from Leicester (Mackreth 1999, 249 nos. 9-13; Redcross Street A316. 1962 sf 1047) belong to the more devolved Groups B and C. The result of the metal analysis of these two types suggests a northern manufacture for Groups A and D and a south and west origin for Groups B and C.

The Phase 2 context of no. 4 is clearly contemporary with its period of use. The context of no. 5 calls for more comment. It was in the grave with Skeleton 1536 and found next to the shoulder but a connection could not be proven. The brooch lacks its separate headloop and the collar which would have bound it, but is in all other respects complete and still retains its pin. Decorated trumpet brooches such as this are the least common of all the trumpet brooch variants generally, and as may be seen from Table 40, trumpet brooches are not particularly common at Leicester. In such circumstances it would be a remarkable co-incidence that a virtually complete brooch of this type should find itself accidentally incorporated into this grave, and one can only assume that it must have been deliberately included, perhaps pinning clothing, and that it must have been found at some point by the medieval inhabitants. Given that burial only seems to have started in the 11th century, the brooch would seem to have developed a second life a millennium after its first one.

The brooch no. 6 is an example of a Hull Group 122 which is one of the T-shaped series made in the south-west from the later 1st century (Bayley and Butcher 2004, 167). This is the third of this broad family of brooches to have been found at Leicester, the others being a Hull Group 137 from Vine Street (Cool 2009b) and a Hull Group 109 from the Shires (Cooper 2007, cat no.8). These, together with the devolved trumpet brooches recovered from the town point to trade links to the south-west, which is not surprising given the position of the town on the Fosse Way.

The final Roman brooch from the site (no. 7) is an example of a Fowler type C penannular found residually. These are not closely dateable within the Roman period and so unfortunately the precise period when this small brooch was in use cannot be established.

Table 41 The small finds: summary of the Roman brooches from Leicester

Type	Vine Street	Free School	Vaughan Way	Cause way	Shires	Jewry Wall	Misc sites	Total
End 1st BC/early 1st AD								
Lion	-	1	-	-	-	-	-	1
Early to mid 1st AD	-							
One-Piece	2	-	1	11	2	8	4	28
Colchester	-	1	1	1	3	7	7	20
Rosette	1	-	-	1	-	-	-	2
Langton Down	1	-	-	-	1	-	3	5
Mid 1st century								
Aucissa	-	-	-	-	1	-	-	1
Bagendon	-	-	-	-	-	-	1	1
Hod Hill	6	-	-	1	2	8	3	20
Early Plate	-	-	-	-	1	-	-	1
Mid 1st – 2nd century								
Colchester Derivative	5	-	1	5	4	14	5	34
Headstud	3	-	-	1	3	1	2	10
Trumpet	-	-	2	5	-	-	1	8
Lower Severn T-shape	1	-	1	-	1	-	-	3
Fantail	-	-	-	-	-	-	5	5
Almgren 227	-	-	-	1	-	-	-	1
2nd century								
Shield bow	-	-	-	-	-	1	-	1
Alcester	-	-	-	-	-	1	-	1
Wroxeter	1	-	-	-	-	-	-	1

2nd to 3rd century								
Equal-armed	1	-	-	-	-	-	-	1
Knee	-	-	-	-	2	1	2	5
Disc	-	-	-	1	-	4	1	6
Plate	-	-	-	-	1	-	-	1
Cruciform plate	1	-	-	-	-	-	-	1
Figured plate	-	-	-	-	-	1	-	1
4th century								
Crossbow	-	-	-	-	-	1	-	1
Penannular								
Penannular	-	-	-	-	1	-	-	1
Penannular A	-	-	-	1	-	8	-	9
Penannular C	1	-	1	-	-	-	-	2
Penannular D	3	-	-	-	-	2	-	5
Penannular E	-	-	-	-	1	1	2	4
Total	26	2	7	28	23	58	36	180

The only bracelet present (no. 8) is a 4th century form of snake bracelet (Cool 1983 Bracelet Group XI; Cool 1979 fig 2B). The form has not been found in Leicester before but this is not surprising as it was not particularly common. In my 1983 corpus I only recorded 14 examples.

Brooches

1 One-piece strip bow brooch, now in two pieces. Flat strip bow bent out of shape and retaining upper part of catchplate; broken spring of 3 turns on extant side with chord held by forward facing hook. Present length *c.*50mm. sf21: 569: Unphased road. (ID 470)

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.

- 3 Colchester Derivative. Copper alloy. Long closed hinge or spring cover; arched oval-sectioned tapering bow, possibly with small projecting foot knob; small broken triangular catch-plate. All obscured by corrosion. Length 29mm, wing width 26mm. Sf22: 533: Unphased road surface. (ID471)
- 4 Trumpet brooch. Copper alloy. Trumpet head with lug behind holding spring of two turns on either side with broken pin and chord below, base of free wire headloop with ribbed collar remains; fully round acanthus moulding with two beaded ribs above and below; lower bow has groove parallel to each edge; triple ribbed cylindrical foot with central rib beaded; triangular catchplate, original broken and a replacement riveted to it with two flat-headed rivets. Present length 46mm, width of head 14mm. sf 230: 5065: Phase 2. (ID457). Figure 16.4
- 5 Trumpet brooch. Copper alloy. Trumpet head with lug behind and small projecting stump; spring of two turns on either side with chord below, complete pin; tapering bow with central spherical knob with traces of acanthus mouldings and triple rib below; foot a flattened sphere with rib above; trapezoidal catchplate with chipped return. Upper bow has curvilinear and triangular cells; foot has triangular cells down each side; cells now empty. Length 68mm, width head 16mm. sf 1131 (SK1536 – just above right shoulder). (ID483). Figure 16.5
- 6 ‘T’-shaped brooch. Copper alloy. Small flat headloop; broken closed hinge cylinder retaining part of bar; shallow ‘D’-sectioned bow tapering to small projecting foot with diamond-shaped expansion centrally; upper bow has vertical row of transverse ribs; central expansion has two triangular cells, now empty, groove around cells; small trapezoidal catch plate Length 48mm, original width of wings 24mm. sf 1066: 2722: Phase 12. (ID465). Figure 16.6
- 7 Penannular (Fowler type C) brooch. Copper alloy. Circular-sectioned wire with terminal coiled back onto hoop. Diameter 18mm, hoop section 1mm. sf1023: 2678: Phase 9. (ID469)

Bracelet

Snake-headed penannular bracelet, one end missing. D-sectioned hoop tapering to rectangular-section, narrowest to wrist terminal. Hoop divided into three decorative zones by two plain units, central unit – diagonal ribs; extant end unit a central horizontal groove with diagonal grooves on either side; moulded ear on either side behind terminal which has ring and dot eye on either side and notch at end for mouth. Diameter *c.* 55mm, maximum section 8 x 3mm. sf174: 3030: Phase 12. (ID463). Figure 16.8

Textile equipment

The shale biconical spindle whorl no 9 is the third example to have been recovered from Leicester. The others coming from Vine Street and Redcross Street (Cool 2009b; A316.1962 cat no. 74). Despite coming from a Phase 8 context which is a period when spindle whorls were regularly in use, the fact that this is a residual piece is indicated by the diameter of its perforation as would have been suitable for a narrow Roman spindle rather than the thicker ones of the earlier medieval period (Walton Rogers 2007, 23). Lawson (1976, 272) suggested that shale spindle whorls were not intrinsically dateable, but the biconical form such as no. 104 here does appear predominantly to be a late Roman form. The Vine Street

example came from a 4th-century context (Cool 2009b). At Greyhound Yard Dorchester, for example, four were recovered all from 3rd century or later contexts (Mills and Woodward 1993, 145 fig. 78 nos. 8, 9, 11-2), and at Shakenoak two were found in late 4th-century contexts (Brodrigg *et al* 1973, no. 44 nos. 9 and 10) and it occurs regularly in the most recent excavations at Lankhills, Winchester in later 4th-century graves. In general turned shale spindle whorls do not start to appear until the middle of the 4th century and currently evidence would appear to suggest that they are commonest in the later part of that century and into the 5th century (Cool forthcoming).

Another Roman item that could well have been used in textile working is the set of shears (no. 13), but as these were all purpose implements it has been catalogued with the tools.

Spindle whorl. Shale. Squashed globular, area either side of perforation flat with small step down to side; now laminating. Diameter 41mm, thickness (now) 23mm, perforation diameter 6.5mm. Sf 1092: 3243: Phase 8. (ID536).

Household equipment

Only one item of Roman household equipment can be identified with certainty. No. 10 is typical of the drop handles found in Roman contexts (e.g. Crummy 1983, 80 nos. 2115-45), and was found in a Phase 2 context. The two small fragments of Mayen lava (no. 11) would have come from a quernstone. Such querns were imported during the Roman and during the later Saxon to earlier medieval periods. Evidence for the use of lava quernstones in Leicester is regularly found. In addition to these fragments, examples came from Causeway Lane (Cooper 1999, 270), The Shires (forthcoming Cat no. 69), St Nicholas Street (A653.1965 cat no. 75) and Freeschool Lane though it is not possible always to assign them to their correct period. The Vaughan Way fragments are no exception as they are residual in the late post-medieval context they were found in and so could be of either date.

10 Drop handle. Copper alloy. Square sectioned bar becoming circular-sectioned and bent over to form 'U'-shaped terminals; one end now bent out of shape. Original width of handle c. 40 – 45mm, maximum section 3mm. Sf 199: 5051: Phase 2. (ID459). Figure 16.10

Quernstone. Mayen Lava. Two small fragments. SF 1059: 2722: Phase 12 (ID 535)

Weighing equipment

Two Roman steelyard weights were found (nos. 58 and 59) but as they were recovered from medieval burials they will be discussed amongst the medieval finds.

Writing equipment

A stylus (no. 12) came from a Phase 3 occupation deposit. It 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. In her preliminary survey of the decorated

examples Major (2002) defined eight groups and this appears to be another example of her Group 1 distinguished by the bulbous expansion. Only one of these came from a dated context which was described as 'early Roman'. The Phase 3 context of this example would provide added proof that this was an earlier rather than later Roman form. The only other decorated stylus so far found at Leicester came from a 4th century context at Freeschool Lane. 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.

Stylus, in two fragments. Iron. Expanded eraser with curved lower edges; narrow shank with bulbous expansion above point, junction of expansion and shank marked by waisting. Shank decorated by transverse bands of non-ferrous metal. Length 88mm, width eraser 10mm, width of shank 3mm. Sf 1081: 3313: Phase 3. (ID 768).

Tools and knives

Shears with plain springs such as 13 are a common Roman form as they fulfilled all the functions that modern scissors do. These are short examples which would have suitable for general household use (See Manning 1985, 34).

Shears. Iron. Rectangular-sectioned 'U'-shaped spring; blades with slightly arched backs lacking tips of blades. Present length c. 115mm, maximum width of blade 20mm. Sf201: 5051: Phase 2. (ID 539).

Fastening and fittings

Dome-headed nail. Copper alloy. Hemispherical knob head; circular-sectioned tapering shank. Length 20mm, head section 6mm, shank section 2.5mm. Sf 1132: 3314: Phase 3. (ID 460).

Military equipment

There can be no doubt that the strap mount no. 15 was part of the harness fittings of a Roman cavalry horse. It is very similar to the Group D fittings from the set of harness found at Xanten (Jenkins 1985, 149). Originally it would probably have been tinned or silvered with the outer elements inlaid with niello for contrast and the central unit covered by a large rounded attached via the central perforation. On this piece faint lines can be seen on the outer units. These are the ghosts of the lines that would have been inlaid, and have the typical curving pattern seen on the better preserved pieces. Such fitting decorated straps that hung down the horse's legs (see Jenkins 1985, fig. 15 for reconstruction. The decorative style on the piece is typical of 1st-century military equipment and indicates at least a passing military presence at Leicester in the earliest decades of the province.

This piece joins the other items of military equipment from Leicester (summarised in Table 42) and is one of the earliest pieces to have been recovered.

Table 42 The small finds: Roman military equipment from Leicester

	Vine Street	Free-school	Vaughan Way	Causeway Lane	Shires	Jewry Wall	Other sites	Total
1st -2nd century	1	-	1	-	-	-	2 ⁽¹⁾	
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	1 ⁽³⁾	2	8	20

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 (Cool 2009a) 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.

15 Strap mount. Copper alloy. Strip fitting with rectangular unit at either end, large central circular unit with smaller circular unit on either side; rectangular units have integral rivet on underside, both bent to one side; central unit has circular perforation; rectangular and smaller circular units have faint curving grooves. Now bent slightly out of shape. Length 71mm, width 10mm. Sf23:575:Phase 8A. (ID 472). Figure 16.15

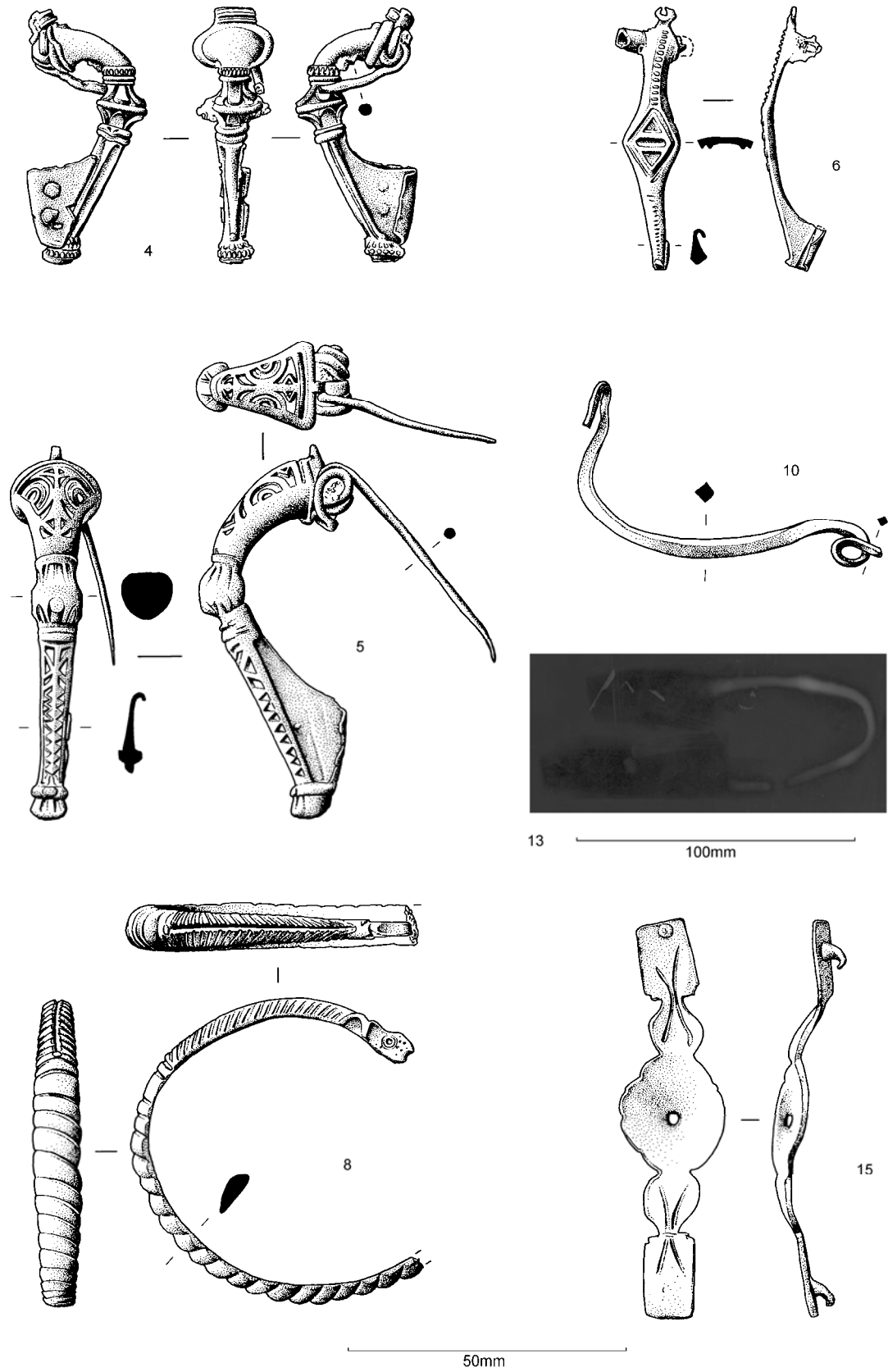


Figure 16: The small finds illustrations: Roman Brooches 4-6, Bracelet 8, Household equipment 10 and Fasteners and fittings 15

Miscellaneous

Three iron items from Roman contexts which would have needed investigative conservation to identify them are placed here for future reference. The faint X-radiograph image of no. 16 suggests that it may be the head of a large needle although only investigation could have confirmed this. If there are indeed two perforations this would be unusual in an iron needle as normally there is only a single rectangular one (see Manning 1985, 35). If the identification is correct, it would have been too large to have been a sewing needle though might have been used as a packing needle.

16 Needle (?). Iron. Rod with pointed end, one circular and one (?) rectangular perforation. Present length 31mm, width 4.5mm. Sf 1149: 3314: Phase 3 (ID 769).

17 Rod. Iron. Three fragments with one end expanding and the other possibly broken across perforation. Present length c. 170mm, shank width 3mm. Sf 1134: 3313: Phase 3. (ID 770).

18 Penannular ring. Iron. Oval outline, possibly with one expanded and one broken terminal. Diameter 60 x 45mm. Sf 1052: 3231: Phase 3. (ID 789)

Early to middle-Saxon finds

The Vaughan Way finds produced a similar range of evidence for early Saxon occupation as was seen at Freeschool Lane (Cool 2009a). As there it consisted of items that can be assigned to it on typologically grounds and a couple of items found in Phase 5 contexts which could be residual Roman pieces.

The item that is most obviously of early Saxon date is the small long brooch no. 19. It belongs to Leeds' 'cross potent' category with smooth curved junctions of the arms with the square head plate (Leeds 1945, 14). 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). Leeds saw the smooth arm/head junction seen here as early in the sequence, but in the absence of well-dated sequences such typological dating should probably be regarded with caution. Unfortunately this example came from the burial soil of the cemetery and so can be of little help in refining the dating.

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 Freeschool Lane (Cool 2009a).

The bead no. 20 also from a cemetery burial soil context is also likely to be an early Saxon item. Glass beads were not a medieval fashion and so it is likely that this piece was residual in its context. Roman green disc cylindrical beads are almost invariably made of opaque glass (Guido 1978, 211) and not translucent as seen here. That shape and colour combination does occur more regularly in the early Saxon period (Guido 1999, 230-37). 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. 20 may most likely be of this date.

Of the other two items found stratified in Phase 5 contexts, the needle fragment no. 21 could be a residual Roman piece because this type of needle (Crummy 1983, 67 Type 3) was a relatively common late Roman form. Examples have previously been found at Leicester stratified in mid- to later Roman contexts at Causeway Lane (Cooper 1999, 365 no. 128) and Vine Street. The small stud no. 22 is also of a type not infrequently found in Roman contexts, but with this piece there is also a slight possibility it could be an intrusive relatively modern piece.

Personal ornaments

19 Small long brooch. Copper alloy. Cruciform head with small perforated lug on back, front of head has pairs of grooves along top and sides; curved upper bow has bevelled edges with transverse grooves above and below and wedge-shaped notches between bow and head; lower bow expanding at foot into triangular plate; top of foot has wedge-shaped notches on either side with pairs of ribs below; pair of grooves parallel to base of foot; short catch plate on upper part of foot with grooves on return. Length 63mm, width head 22mm. Sf62: 2217: Phase 11 (ID525). Figure 17.19

20 Disc cylindrical bead. Mid-green translucent glass. Diameter 5.5mm, length 3mm, perforation diameter 3mm. sf113: 2678: Phase 9. (ID544)

Textile equipment

21 Needle. Copper alloy. Upper end with part of eye; flat head with rectangular eye and groove above on either side. Present length 18mm, section 3.5 x 1.5mm. Sf40: 2026: Phase 5. (ID473)

Fasteners and fittings

22 Stud. Copper alloy. Flat disc head, short shank and broken integral washer. Diameter 16mm, length 7.5mm, shank section 3mm, washer diameter 9mm. Sf 133: 2800: Phase 5. (ID 464)

Saxo-Norman finds

Although no items discussed in this report were found stratified in Phase 7 context there are two items which suggest some 10th to 11th-century activity. Pins made from pig fibulae (no. 23) have been recovered regularly on the Highcross sites with the two examples from Vine Street coming from Phase 8 contexts and the three from Freeschool Lane coming from those

of Phases 7, 8 and 9. Those from Jewry Wall (Kenyon 1948, 266 no 8) were not usefully stratified.

Despite the numbers coming from 12th century and later contexts at Leicester, elsewhere they 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 ones as well. 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. All of the Highcross examples, no. 23 included, have quite glossy surfaces, possibly hinting they were used as textile tools.

In general hooked tags like no. 24 have a long lifespan from the 7th to the mid- 14th centuries (Rees *et al* 2008, 216), but they do appear commonest in the 10th to 11th centuries as can be seen at York where five come from contexts of that date (MacGregor 1982, 88 no. 450; Mainman and Rogers 2000, 2546) as opposed to two from 11th to 12th century ones (Rogers 1993, 1359 nos. 5334-5). At Winchester a similar pattern can be seen with 18 coming from 10th- or 11th-century contexts as opposed to eight from 12th century or later ones (Hinton 1990, 549-52 nos.1407-27; Rees *et al* 2008, 216 nos. 1337-41). So though no. 24 might have been contemporary with its 12th to mid- 13th-century context, a slightly earlier date is just as likely. Precisely what their functions were is unclear, but a pair found *in situ* in a 9th-century grave at Winchester would appear to have been used to fasten stockings (Hinton 1990, 590 no. 1407).

Personal ornaments

23 Fibula pin. Fibula with proximal end trimmed straight; diaphysis broken; circular perforation in head. Surfaces glossy. Length 110mm, perforation diameter 4mm. sf2012: unstratified. (ID545).

24 Hooked tag. Copper alloy. Circular disc tapering to bent hook with junction between elements marked by angular expansions; two small circular perforations at rear of tag. Upper face decorated by 'V'-shaped punch marks in line parallel to edge and in lines radiating out from side. Length 21mm, diameter disc 12mm, thickness 1mm, diameter perforations 1.5mm. sf97: 2623: Phase 8A (ID466). Figure 17.24

Medieval Finds

Personal ornaments and dress accessories:

Dress pins

Medieval dress pins have been found at all the Highcross sites and are relatively common in Leicester generally (see Table 43). Vaughan Way is no exception.

Table 43 The small finds: medieval dress and hair pins from Leicester

	Vine St.	Freeschool Lane	Vaughan Way	Austin Friars	Other Sites	Total
Diminutive	2	1	1	-	5	9
Hemispherical head	2	2	-	-	-	4
Cupped glass head	1	-	-	-	-	1
Composite head	-	1	2	1		4
Total	5	4	3	1	5	18

No. 25 from a Phase 12 context where it was 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 (MacGregor *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 Walk (A186.1966 cat no. 6) and Redcross Street (A174.1963 cat no. 87).

There were also two examples of the long later medieval pins where the head was formed from two hemispheres of copper alloy sheet filled with a white substance (nos. 26-7). 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 too unlikely. A probable example from Freeschool Lane came from a Phase 9 context and so would be too early for the Crummy dating. One of the examples from this site (no. 26) came from a 16th- to 17th-century context associated with the destruction of the charnel house and so may have been associated with a burial originally. The other came from a grave and was associated with Skeleton 1030 where it was described as a 'shroud pin' though unfortunately its position was unrecorded. If the 15th to 16th century Crummy dating is followed then Skeleton 1030 would have been buried late in the cemetery's history (i.e. 15th to early 16th century). The earlier examples from Winchester and the Freeschool Lane example in a later 13th to 14th century context though, indicate that the type was likely to have been in use earlier.

The final dress pin (no. 28) has lost its head and so cannot be assigned to a particular type. It too came from a grave (no. 790) where it was found by the left fibula. The lower would not be a normal place for a pin like this to be worn, so possibly this damaged piece had been used to hold part of the shroud in position whilst the body was sewn into it.

25 Dress pin. Copper alloy. Cubic head with small perforated projection on top, one face of head has diagonal lines; horizontal rib at head/shank junction; circular-sectioned shank, pointed at end. Figure of eight twist of wire through perforation on top of head. Length (pin) 29mm, head section 2mm, shank section 1mm. sf91: 2351: Phase 12. (ID480). Figure 17.25

26 Pin. Copper alloy. Spherical head made of two hemispherical cups in-filled with a laminating white substance that has pushed the caps apart' circular-sectioned shank, pointed at end. Length 54mm, head section 6.5mm, shank section 2mm. sf 253: 5330: Phase 11 – from charnel house demolition. (ID458). Figure 17.26

27 Pin. Copper alloy. Hemispherical hollow sheet cap with central perforation; detached wire shank with pointed end. Length c. 55mm, diameter head 6mm, diameter shank 1mm. sf 110: skeleton 1030 (described as 'shroud pin'). (ID484)

Dress pin. Copper alloy. Circular-sectioned wire shank tapering to point; notched upper end. Length 90mm, section 2mm. Sf 240: 5208: grave 70702 by left tibia. (ID790)

Finger-rings

Two finger-rings were recovered. No. 29 is of especial interest as it was found on the finger of an inhumation. It was a very simple band with milled edges thinning at one point through wear. In the medieval period high ecclesiastic officials were often buried wearing their gold finger rings, but it seems to have been much less common amongst lay people (Gilchrist and Sloane 2005, 99). This then is an interesting addition to the small corpus of known examples.

The damaged no. 30 was found in a grave fill and was not directly associated with a body. It is distorted but when complete the outline of the ring would have veered towards the stirrup shape favoured in the 12th to 14th centuries. The moulded decoration on the shoulders does not appear to be a very common feature of medieval finger rings though rings with decoration in this position have been recorded from a late 11th century context at London (Egan and Pritchard 2002, 329 no. 1615) and a 13th-century context at Winchester (Hinton 1990, 651 no. 2081). It is possible that this ring was imitating gold examples where blocks were arranged around the hoops with letters inscribed onto the blocks (see for example Bury 1984, fig. 25 no. F). The patterns on the blocks on this example though are clearly just decorative..

29 Finger ring. Copper alloy. D-sectioned band with narrow flange on either side transversely nicked. Worn thin on one side at one point. Diameter 24mm, section 4 x 1.5mm. Sf46.

30 Finger ring. White metal. Rectangular-sectioned hoop thickening at bezel to form small square block, shallower raised block on each shoulder. Each block has diagonal crossed grooves, bezel block has an additional horizontal groove, shoulder blocks each have a vertical groove. Hoop has diagonal grooves forming an intermittent zig-zag with small punched dot

on either side. Hoop snapped and ring now distorted. Width 24mm, hoop section 3 x 1mm, depth at bezel 3mm. A2.2003. sf74: 2454: with skeleton. (ID481). Figure 17.30

Buckles and buckle plates and strap fittings

At the Austin Friars, some of the dead were buried wearing belts (Clay 1982) and the same appears to have been the case here occasionally. No 31 is the commonest type of medieval buckle from Leicester as can be seen from Table 44. They were in use during the later 13th and 14th centuries (Egan and Pritchard 2002, 70; Rees *et al* 2008, 220 no. 1446). This would fit the observation made from other cemeteries that clothed burials appear to post-date the mid 13th century (Gilchrist and Sloane 2005, 80). The position, it was recorded as being on the right chest, would be too high for a belt buckle. At the Austin Friars the buckles were regularly found on the pelvis. It is possible that the belt moved in post depositional settlement as the frame is now bent back over the plate and is not in the position to be expected if it had been fastening a belt. The other buckle from a grave (no. 32) is a composite iron and copper alloy piece and as it is fragmentary it is unclear whether it was deliberately included. If it was, the position by the right shin might hint at it being used to fasten hose.

There was also a small spectacle buckles like this were used on shoes (no. 33). 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). It was found in a post-medieval bedding trench where it was probably residual. Though the time-span of the type would make it possible that it could have been associated with one of the later burials, the fact that it is a shoe buckle argues against this. It is much more likely to have been a casual loss.

Table 44 The small finds: buckles and buckle plates from Leicester sites

Type	Vine St.	Freeschool Lane	Vaughan Way	Austin Friars	Other Sites	Total
Type 1	1	-	-	-	1	2
Type 2	-	-	-	1	-	1
Type 3	2	-	-	-	-	2
Type 4	1	-	-	-	-	1
Type 5	1	1	1	3 ¹	1	7
Type 6	2	-	-	(?)	-	2
Type 7	2	-	-	-	-	2
Type 8	-	-	-	1	-	1
Type 9	-	-	-	1	-	1

Type 10	-	-	-	1	-	1
Type 11	1	1	1	-	-	3
Not classified	-	2	1	-	-	3
Recessed plate	4	1		2	4	11
Non-recessed plate	4	3	1	1	1	10
Total	19	7	4	10	7	45

(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)

The individual in burial 581 may have been buried wearing a belt as the small mount no. 35 is typical of the sort found on leather straps in the later medieval period. If it was in situ and associated with the body, it is curious that one of the rivets is missing and that only the single mount was found. Such mounts tended to be used together, strengthening and decorating a strap at regular intervals (see for example ones from London where parts of the leather straps have survived, Egan and Pritchard 2002, figs. 123-6).

The strap stiffener no. 36 has been included here though it might have come from a strap that was not used as part of a belt (Egan and Pritchard 2002 226-7). In London numerous examples have been found and they were commonest in the mid 14th to mid 15th centuries. This example came from a context associated with the demolition of the charnel house so may have been associated with a burial originally.

31 Buckle frame and plate (Type 5) copper alloy. Oval lipped frame; rectangular buckle plate folded around crossbar and tapering slightly on underside, diamond shaped slot for articulation of iron pin; single rivet at back of plate. Plate now folded back below frame. Total length originally 28.5mm, Buckle – length 15.5mm, maximum width 16mm, crossbar width c. 9mm. Plate length 16mm, width 9mm. Sf82: 2470: grave. Found on the right side of the chest, suggested as *in situ* rather than loose in the soil. (ID482). Figure 17.31

32 Buckle (?). Iron. Part of an iron ring; tongue of sheet copper alloy, narrow triangular shape wound around hoop. Present length 23mm, hoop section 5mm, maximum width tongue 9mm. Sf 1029: 3135: grave. Found by right shin, perhaps in situ. (ID461)

33 Spectacle buckle frame. Copper alloy. Double oval loops with line of central crossbar continued beyond outer edge of frame by small knobs. Length 23mm, maximum width 21mm, width crossbar 12.5mm. sf66: 2231: Phase 12. (ID478)

34 Buckle plate. Copper alloy. Rectangular strip originally folded around buckle crossbar; broken at fold and front part of one plate missing. Circular opening for pin, possibly not recessed at fold; central single rivet hole; both faces of plate decorated with rocker arm ornament parallel to edges and around pin opening, one plate has additional line of ornament

in front of rivet hole. Length 27mm, width 10mm. Sf 43: 2081: unphased. Phase 9A (ID474).
Figure 17.34

35 Mount. Rectangular with convex section and hollow back; central unit has rectangular aperture with beaded edge; bar with rounded end at each side of this; small perforation in each bar centrally, one retaining rivet. Length 13mm, width 11mm. Sf165: 2351: Burial 581 at waist. (ID 479). Figure 17.35

36 Strap stiffener. Copper alloy. Two rectangular plates with fragment of leather strap between, fastened by rivet in each corner; central circular perforation through all three layers; vertical grooves at each end on front plate. Length 42mm, width 25mm. Sf256: 5330: Phase 11. (ID 455)

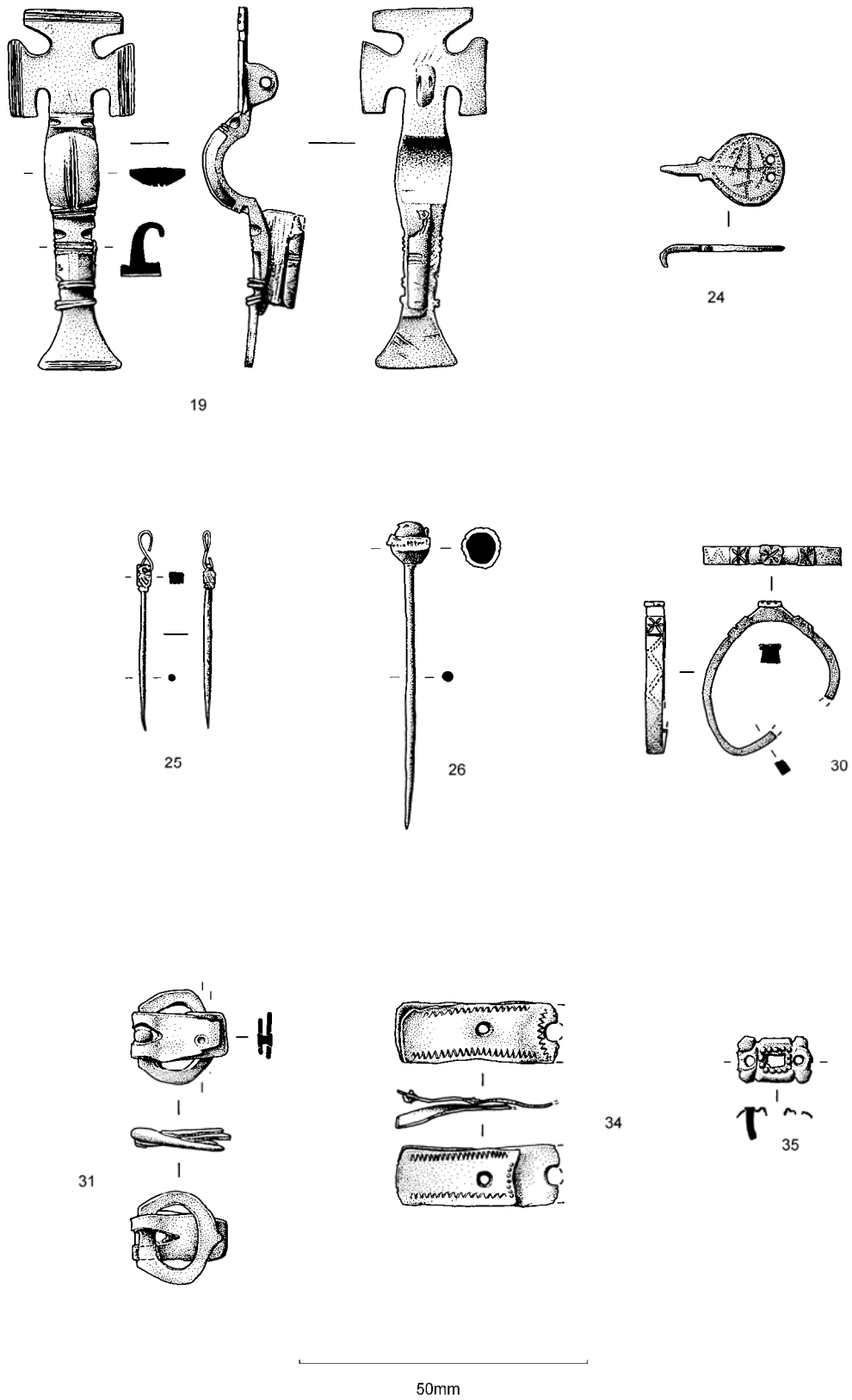


Figure 17 The Small finds illustrations: Saxon brooch 19, Saxo-Norman hooked tag 24, Medieval personal ornaments 25-26, 30, Buckles, buckle plates and strap fittings 31, 34-35

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. The ones from Vaughan Way were generally fastened to the lace with the help of a perforation sometimes retaining traces of a fine wire internally.

The examples from the Highcross sites are summarised in Table 45. As can be seen the chapes first appear in quantity in Phase 10 (c.1400-1500). This is interesting as that is several decades later than the evidence at London (Egan and Pritchard 2002, 281-90) where the main introduction can be seen in the second half of the 14th century, as it is at Winchester (Biddle and Hinton 1990, Table 79). Several were also recovered from the Austin Friars, one of which (Clay 1982, 137 no. 49) was present in an early context. As the evidence stands, Leicester generally may have lagged a little behind in adopting the fashion for laced clothing. The Vaughan Way ones were all either found associated with the charnel in the charnel house or with the demolition of the house. The presence with the charnel probably indicates that they were associated with the clothing of the corpses buried, and it is possible the demolition debris ones should be interpreted in the same way.

Table 45 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	-	-	7	7
12	-	1	-	1
13	1	-	-	1
Total	2	21	10	32

37 Lace chape. Copper alloy. Sheet wrapped into cylinder slender cone flattened at top end. Length 23mm, section 1.5mm. sf 262: 5331: Phase 10. (ID 775).

38 Lace chape. Copper alloy. Sheet wrapped into cone. Length 17mm, section 2.5mm. sf 262: 5331: Phase 10. (ID 776).

39 Lace chape. Copper alloy. Sheet wrapped into cylinder. Length 19mm, section 2.5mm. sf 262: 5331: Phase 10. (ID 777).

- 40 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top. Length 27mm, section 2mm. sf 254: 5330: Phase 11. (ID 778).
- 41 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top. Length 24mm, section 2mm. sf 254: 5330: Phase 11. (ID 779).
- 42 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top. Length 21mm, section 2mm. sf 254: 5330: Phase 11. (ID 780).
- 43 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top, other end flattened. Length 19mm, section 2mm. sf 254: 5330: Phase 11. (ID 781).
- 44 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top. Length 18.5mm, section 2mm. sf 254: 5330: Phase 11. (ID 782).
- 45 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top. Length 18mm, section 2mm. sf 254: 5330: Phase 11. (ID 783).
- 46 Lace chape. Copper alloy. Sheet wrapped into cylinder; perforation at top; lower end broken. Present length 16.5mm, section 2mm. sf 262: 5331: Phase 10. (ID 778).
- 47 Lace chape. Copper alloy. Sheet wrapped into cylinder; broken across perforation at top. Present length 13.5mm, section 2mm. sf 254: 5330: Phase 11. (ID 784).

'Sewing' pins

A regular element of any medieval or post-medieval assemblage is the 'sewing' pin, so-named because of its resemblance to a modern dressmaker's pin which it eventually developed into. Medieval examples were made of wire a wire shank with a second length of wire forming a spiral head. They had a much wider range of functions than just as sewing aids and were a vital element of cloths fastenings as noted in the previous section. At Winchester they first started to appear in any quantity in the 13th century and it was possible to show that their length decreased with time (Biddle 1990, 561-4). At the Highcross sites in general, the evidence would agree with a 13th-century introduction (see

Table 46). One of the examples from Vaughan Way (no. 49) was recovered from a grave and may have been associated with clothing, though as it was found by the upper leg this could be questioned as it is not in a position where it might be expected to have been worn. As with no. 27 it might have been used in the process of shrouding the body and not removed.

Table 46 The small finds: sewing pins from the Highcross sites

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
Grave find	-	-	1	1
Unstratified	1	-	-	1
Total	8	63	5	77

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 (Table 47).

Table 47 The small finds: sewing pins from Vaughan Way

Cat. No.	Length	Head diameter	Shank diameter	Head	Sf. No.	Context	Phase	ID no.
48	51	2	1	Disc	35	2011	9A	787
49	46	3	1	Disc	1051	3234	Grave ⁽¹⁾	784
50	39	2	1.5	Disc	76	2456	12	785
51	37	2	>1	Disc	106	2722	12	786
52	-	1.5	0.5	Disc	253	5330	11 ⁽²⁾	788

Notes ⁽¹⁾ by right femur of Skeleton 1494. ⁽²⁾ From charnel house

Textile equipment

The implement no 53 although broken appears to be a picker-cum-beater and the glossy surfaces would agree with it being a textile tool. 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 elsewhere. At the other Highcross sites appear to have ceased to be used earlier than that. Two came from Period 7 at Freeschool Lane and two each from Period 8 contexts at

Freeschool Lane and Vine Street. No. 53 was recovered when washing the human bones after excavation and so its relationship with Skeleton 665 is unknown and it might have been a casual find in the fill. The proposed 11th- to 12th-century date for the grave is contemporary with when these items were in use. Textile equipment in the form of spindle whorls has sometimes been recorded deliberately placed in medieval graves (Gilchrist and Sloane 2005, 102), but on balance it seems best to regard this as an inclusion in the fill.

The lead whorl no. 54 could have been a spindle whorl as it has a central perforation of the correct dimensions for the type of spindle that would have been in use during Phase 8 (Walton Rogers 2007, 23), but the disc is slightly distorted so it might not have functioned very effectively. Another lead whorl with a perforation in the correct range to be a phase 8 spindle whorl was also found at Vine Street.

53 Picker-cum-beater (?). Bone. Rectangular-sectioned with squared end, other end broken; squared end has dished faces. Surfaces glossy. Present length 62mm, maximum section 17 x 6.5mm. Sf2006: 5088: Grave SK665. (ID542).

Spindle whorl (?). Lead alloy. Slightly distorted disc with cylindrical central perforation. Diameter 29mm, thickness 6mm, perforation diameter 10mm, weight 35g. SF48: 2123: Phase 8B. (ID491).

Household equipment

Bone inlay decorated with ring and dot decoration like no. 55 is typical of late Saxon and medieval pieces (see for example Biddle and Hinton 1990, 781-4). It was used to decorate caskets and the like and normally any one item would have several pieces of inlay. At Leicester it has also been recovered from Freeschool Lane in a Phase 7 context and from Jewry Wall (Kenyon 1948, 269, fig. 92 no. 2). This piece is obviously fragmentary and was recovered whilst washing the skull of skeleton 1335. As with no. 55 it seems best to regard this as a casual inclusion.

Inlay. Rectangular plate retaining part of one original end, other end broken. Upper face decorated by double row of triple ring and dots; lower face has cancellous tissue. Present length 75mm, width 24mm, thickness 1.5mm. Sf 1181: 3030:SK 1335. Found whilst washing the bones from the skull (ID 540). Figure 18.55

Recreation

A single ivory tuning peg from a musical instrument was recovered from an unphased context. It belongs to Lawson's (1985) Type A which was suitable for an open-framed instrument such as a harps and simple fiddles like rebocs. The way in which they would have been used is illustrated in Lawson 1990, fig. 201.VIII). They appear to have been introduced in the 13th century and continued in use into the 17th century. At Leicester eight were found from various contexts at the Shires (Cooper 2007, cat. Nos. 148-55), most apparently belonging to this type.

56 Tuning peg. Ivory? Square-sectioned head expanding slightly to junction with circular-sectioned shank tapering to straight end; cylindrical perforation through narrow circular end, slight groove top and bottom on sides at level of perforation. Length 59mm, head section 5mm, end section 4.5mm. Sf 20: 89: Unphased. (ID54). Figure 18.56

Weighing equipment

A scale pan from a small equal-armed balance was recovered from a Phase 9 context (no. 57). Such balances are a regular find on medieval sites and Leicester is no exception. In addition to this little pan, there are examples from the Shires (folding balance, Cooper 2007 cat no. 96), from Vine Street (folding balance), Freeschool Lane (folding balance and one pan), and from Jewry Wall (the central suspension fork and pointer misidentified as part of a chatelaine – Kenyon 1948, 257 no. 5). 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).

The other two items in this category (nos. 58 and 59) have been placed here because they were both found in graves. This would suggest they were of medieval date though if they had not come from such contexts there can be no doubt that they would have been identified as Roman steelyard weights. They have the typical shape and construction of such weight as can be seen on a steelyard that preserved one of its weights found in the Walbrook, London (Merrifield 1965, pl. 128). Steelyards did come back into use during the medieval period but their weights were of a different shape and composition often decorated with armorial motifs (Ward Perkins 1940, 171-4).

No. 58 was found on or by the upper left forearm of skeleton 1574. Given its size and weight it seems unlikely to have been a casual inclusion. Possibly the intention might have been to utilise it as a stone as part of the lining, though its shape might have made it less than ideal for the purpose. The fact that the second smaller weight (no. 59) was found between the feet of skeleton 548, by the right ankle, might suggest that both of these were deliberate inclusions. Items of lead were also associated with two other burials. A piece of casting waste (not catalogued) was found on the stomach of skeleton 1066, and a piece of lead window came (see discussion of glazing), was found with skeleton 583. Lead has sometimes been known to take on symbolic meanings being a heavy dark material sometimes associated with magical practices. Possibly the inclusion of lead in these four graves should be seen as deliberate, and intended to act as some form of charm.

57 Scale pan. Copper alloy. Damaged disc lacking c. two-thirds of circumference but retaining one small circular perforation, with a detached fragment of the circumference retaining part of a second.. Original diameter c. 35mm, present dimensions 37 x 35mm. Sf63: 2233: Phase 9. (ID477)

58 Steelyard weight. Lead. Squashed spherical with flattened area around top with iron loop centrally, latter now appearing as a solid projection due to corrosion. Length 40mm, maximum diameter 47mm, weight 423g. Sf1164: 3367: Grave SK 1574. Found on or by the upper left arm. (ID 494) Figure 18.58

59 Steelyard weight. Lead alloy. Sphere with flattened top and bottom; stumps of (?) iron suspension loop in upper face. Length 17mm, maximum diameter 20.5mm, weight 44g. SF 153: Between feet of SK548 close to right ankle) (ID 490).

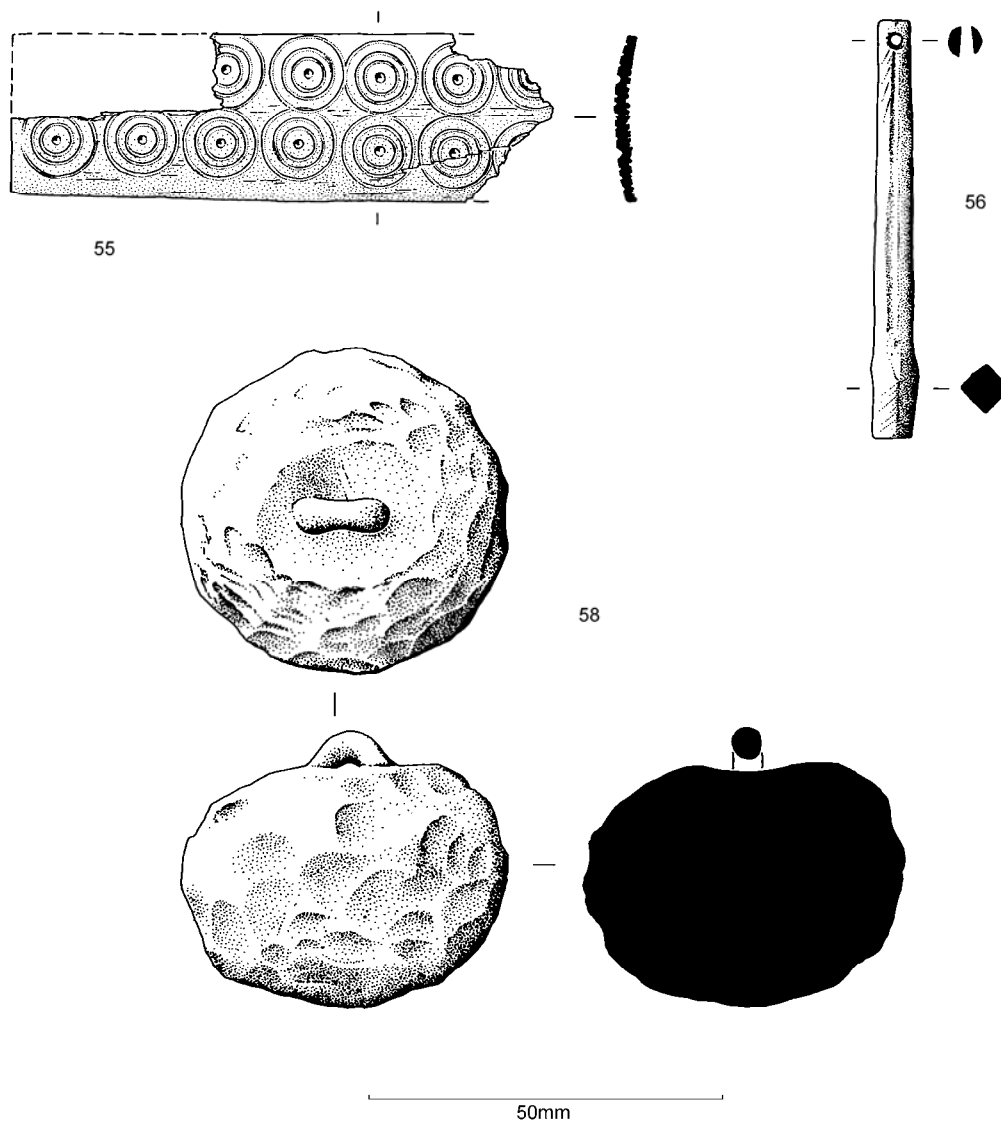


Figure 18 The small finds illustrations: medieval household item 55, Recreation item 56, Weighing equipment 58

Items associated with writing and reading

Two of the most interesting items from the site were the unstratified book clasps attached to straps to keep books safely closed when not in use. The earliest is no 60, a type that came into use during the 13th century (Biddle and Hinton 1990, 755 nos. 2324-6). No. 61 is a hinged form that until fairly recently was being identified as a strap end (see Egan 1998 277-80). They are of late 14th to 15th-century date. A book clasp is also recorded from the Shires (Cooper 2007, cat. No. 165), but other than that these appear to be the first examples

of this type of find to be found in Leicester. This can probably be explained by the nature of the site, a demolished church. It is noticeable that such items are often common in the Dissolution layers associated with monastic houses such as Battle Abbey (Geddes 1985, 160 nos. 65-71). Though both of these were unstratified they came from the area of the interior of the church and from the area of Building 8 which might have been part of the vicarage. Both of these spaces were ones where books were likely to have been in use.

60 Book clasp. Copper alloy. Rectangular strip with slightly splayed end with central perforation for rivet; hook at other end; splayed end has two 'V'-shaped notches; other end has shallow moulded decoration of transverse ribs and bosses close to hook and zig-zag groove behind it. Length 48mm, maximum width 14mm. Sf107: unstratified in the South Aisle of the church. (ID 485). Figure 19.60

61 Hinged book clasp. Copper alloy. Sheet folded to form trapezoidal plates with cut-outs for recessed crossbar of terminal, other end has concave edge; strap (missing) fastened inside plate by two small rivets at outer end. Terminal flat backed with two perforated loops, the terminal loop being at 90° to first, with ridged decoration on outer edge of an approximately zoomorphic form. Total length 40mm. Plate – length 22mm, maximum width 14mm. Terminal – length 20mm, maximum width 11mm. SF26: unstratified, possibly from Building 8.. (ID486). Figure 19.61

Transport

No 62 has been tentatively identified as a skate. Shaped horse and cattle metapodials such as no. 62 are a common feature of 8th to 13th centuries finds assemblages. They often show fine longitudinal striations on the underside and this wear pattern, together with pictorial and literary evidence, has led to them being identified as skates (MacGregor 1985, 141-4). Whether nos. 58 should be viewed as a skates is open to some doubt as it lacks these striations and there are bands of short striations that are at right angles to those that would have developed had the bone been used as a skate. The fact that this appears to have been deliberately placed in a grave might also argue against this being a skate.

62 Skate (?). Metapodial bone; distal end trimmed to point. Anterior surface very glossy with bands of short transverse grooves. Longitudinal striations. Length 206mm. Sf 89: Grave of Sk 312, on the right side of the head. (ID 537).

Tools and knives

The most interesting find in this category is the knife no. 63, found in a Phase 9A pit. The X-radiographs reveal an elaborate decoration of twisted wire, clearly of non-ferrous metal though no analysis has been carried out to identify which one it was. From the colour in the exposed areas, gold or brass are possibilities. The decoration was probably carried out by the overlay technique described by Theophilus in the earlier 11th century (Book 3, chapter 91). After the surface had been keyed with a cross-hatch pattern, gold or silver wire patterns were arranged on the blade, lightly hammered to keep them in place and then heated and hammered to flatten everything out (Hawthorne and Smith 1979, 185, also quoted in Cowgill

et al 1987, 16). The surfaces of the iron revealed through the investigative conservation are too poorly preserved to retain any evidence of the cross-hatch pattern as was observed in some of the pieces decorated in this way at London (Cowgill *et al* 1987, plate 3a), though as Theophilus describes it the final hammering should have removed these in a well-made piece. The fact that no. 63 has overlay rather than inlay decoration is certain

In London the examples of this technique were all from mid- to late 13th century contexts which would fit the context of this piece (Cowgill *et al* 1987, 16). Approximately 10% of the assemblage of knives and shears from 13th century had silver wire decoration using this technique (Cowgill *et al* 1987, 80-82 nos. 14, 25-6, 106 nos. 316-7), with two of the knives also having overlay on the backs as well. It has not been possible to ascertain whether the back of no. 63 was decorated. The proportion of overlay decorated blades as London suggests that whilst the technique was not rare, it was not particularly common, so there can be no doubt that this would have been an unusual, probably expensive, and much prized possession.

The other items in this category are the hones found in Phase 8 to 10 contexts. As no expert identification of their lithologies has been undertaken, further comment is not appropriate.

63 Knife blade, two joining fragments. Small part of tang extant, set off-centre closer to back; diagonal shoulders, straight back and parallel edge on extant part lower end missing. Blade inlaid with twisted wires on both sides, a small area of investigative conservation has revealed golden-coloured wire. The pattern appears different on both sides. On each a central band is framed by a straight wire, on one side the pattern may be a cabled / running scroll pattern; the other has figure of eight, elongated ovals and diagonal cross patterns. Present length c. 120mm width of blade 23mm. Sf 156: 2752: Phase 9A. (ID767). Figure 19.63

64 Hone. Dark grey very fine-grained stone. Originally a square-sectioned rectangular bar; heavy wear has reduced it to a shallow triangular section over much of length. Length 72mm, maximum section 14mm. Sf 170: 2572: Phase 8B (ID 532).

65 Hone. Very fine grained grey stone. Approximately square-sectioned rectangular block; faces showing wear, one wide face especially resulting in a slight step down. Present length 91mm, maximum section 16 x 15mm. Sf 238: Phase 8-10 demolition. (ID 538)

66 Sharpening stone. Grey fine-grained stone. Rectangular-sectioned rectangular bar with sharp edges, one end broken; widest face each have small pit close to original end and one of the faces also has vertical grooves. Present length 36mm. section 15.5 x 10mm. Sf 189: 2939: Phase 9A (ID 531)

Fasteners and fittings

The most interesting item in this category is a small barrel padlock decorated with non-ferrous bands and possibly end plates found in a Phase 9 pit (no. 67). It is now much fragmented and has only been seen on an X-radiograph plate. Unfortunately it was not recognised during the assessment phase and so no investigative conservation was undertaken. In as far as it is possible to be sure from a two dimensional image it seems that it might have

been like the example from a Phase 8 context at Vine Street. In which case it is Goodall's (1990, 1001) type B in use throughout the post Conquest period. When complete it may have resembled the reconstruction prepared in connection with one of the Coppergate examples (Ottaway 1992, 667 fig. 285)

67 Padlock. Iron. X-radiographs show parts of casings with bands of non-ferrous metal running around them, tube for hasp, and part of lock mechanism. Probably with non-ferrous end plate. Diameter of casing c. 31mm. Sf 36-7: 2015: Phase 9A. (ID 773-4). Figure 19.67

68 Rivet. Copper alloy. Shallow inverted conical head; square-sectioned shank tapering to point. Length 9mm, head section 4.5mm. Sf 117: 2678: Phase 9 (ID468).

69 Hook. Iron. 'U'-shaped pointed hook with shank at 90°. Width 85mm, depth 75mm, section 15mm. Sf 34: 2015: Phase 9A. (ID 772)

70 Split pin. Iron. Ends bent out horizontally. Length 40mm, width of arms 24mm. Sf 1032: 3152: Phase 10 (ID 771).

Military and hunting equipment

The arrowhead found in the grave of Skeleton 70306. Arrowheads such as this were used with long bows and could have been used for either hunting or fighting. At Winchester they were found in 11th to 13th century contexts (Goodall 1990, 1071). A similar arrowhead was found at Freeschool Lane in a Phase 10 robber trench. It is unclear whether this was a deliberate inclusion in the grave, though as it appears complete other than for surface corrosion it may well represent an arrow that had been deliberately placed with the body.

70a Arrowhead. Iron. Triangular blade, possibly with central thickening but the surfaces much corroded; long socket. Length 80mm, blade length 29mm, width of blade c. 15mm. --: 2526: Grave 70306. (ID 802). Figure 19.70a

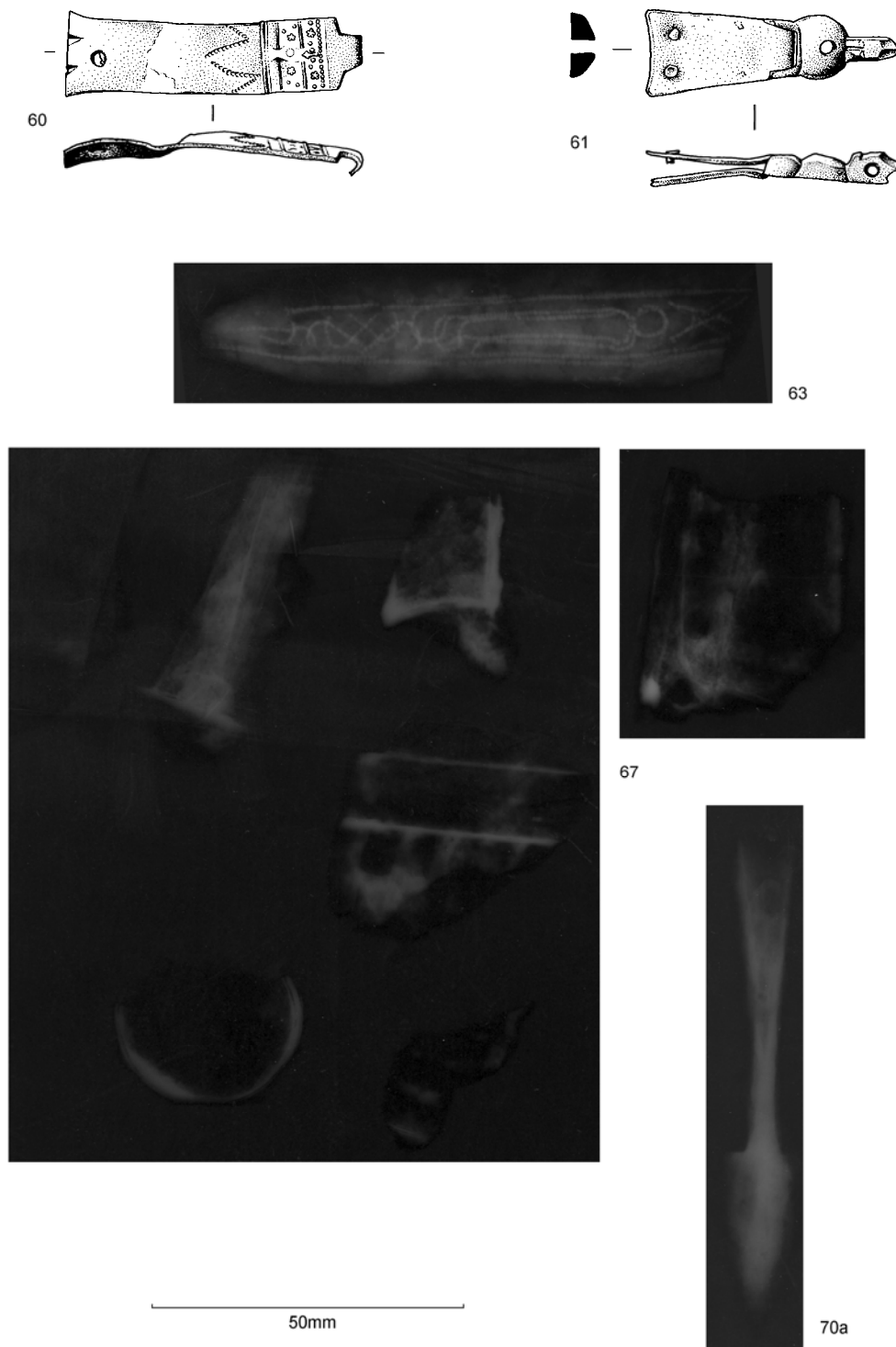


Figure 19 The small finds illustrations: Book clasps 60-61, X-Radiographs of Knife blade 63, Barrel Padlock 67, and Arrowhead 70a

Religious items

There are two explicit religious items in this assemblage and an additional three possible ones.

The papal bulla no. 71 was originally to an indulgence granted by Pope Innocent VI (1352-62). It was found in a grave within the church. The deceased was of middle adult age and

possibly female. Gilchrist and Sloane (2005, 94-6) have recently reviewed the practice of depositing lead bullae within medieval burials and this example seems to fit exactly the pattern they uncovered. The practice was in fashion for a limited period for about 100 years from the papacies of John XXII (1316 to 34) to Martin V (1417-31) and only seems to have been current in England and Wales, no examples of the practice have been found in the rest of the British Isles or on the continent. Approximately two-thirds belong to the period 1342-78 with those of Innocent VI being the commonest. Gilchrist and Sloane point out that this coincides with the worst ravages of the plague and associate the practice with heightened anxiety associated with the prospect of sudden death. Some of the deceased were clearly grasping the bulla when placed into the grave as if it was the bulla and not the indulgence itself that was important. The rite appears to have been favoured especially by women and the positions of the graves often point to them being elite members of their communities, and this is what appears to be the case here

The other certain item of religious importance is from a crucifix (no. 72) and consists of the right arm of the Christ figure. The original crucifix was composite and this piece has become detached. It was unfortunately found unstratified like the book clasps so it is not possible to explore its context. Given the reverence devoted to crucifixes before the reformation it is unlikely to have been casually disposed of and it, like the book clasps, possibly points to a somewhat violent end to the church similar to that monastic establishments underwent.

The most likely interpretation of the large jet bead no. 74 found on the left abdomen of skeleton 270 is that it was part of a rosary. Beads were not a normal element of personal ornamentation in the medieval period and in the medieval period jet was overwhelmingly used for ecclesiastical jewellery (Muller 1987, 27). Rosaries consisted of combinations of large and small beads to allow the prayers to be counted off. In the medieval period the number of different types of beads was not constant (Evans 1970, 50). This bead would have been appropriate for one of the larger ones (a paternoster). Rosary beads came in a variety of materials including wood, so here it is possible that only one bead remains because the rest of the set was made from wood. Rosaries are not common finds in graves. Gilchrist and Sloane (2005, 93-4) found only three examples in their survey together with an abbess buried at Winchester found with only a single bone bead.

The lead mount no. 73 was found unstratified whilst processing the charnel. It appears too substantial to be part of a pilgrim badge and so might be part of the tracery decoration of a small shrine.

Finally the silver key-shaped mount no. 75 was found in modern disturbance in the south aisle of the church close to where the book clasp no. 60 was recovered. The angle of the key suggests that originally the mount consisted of two keys crossed in a diagonal arrangement, the second missing key would have fitted into the recess of the extant one. The cross key motif, one of the symbols of St Peter, would be very appropriate for a decorative mount used in a church dedicated to the saint. However, the hallmark indicates that it was produced in 1912 and that any association with the church is fortuitous.

71 Papal bulla. Lead alloy. Circular disc retaining voids for original cords. Obverse: raised inscription in three lines, surrounded by beaded frame – INNO/CETIVS/PP VI. The PP of the third line are obscured by corrosion but remains of contraction mark above still visible, contraction mark also visible above CT on second line. Reverse: Portraits of Saints Peter and Paul again within a beaded border, above the saints the inscription SPASPE is much obscured by corrosion but the final SP is legible; between the saints' heads only the upper cross of the central motif is now visible. Diameter 42mm, thickness 5mm. SF 1159: 3337: SK71552 on the body. (ID489). Figure 20.71

72 Crucifix; right arm of figure. Copper alloy. Arm curved up to hand with fingers curved in and thumb lying across palm, cylindrical perforation in palm; step and part of perforation at other end of arm indicating the figure was composite; back of arm flat, front slightly rounded. Length 50mm, maximum section 6 x 4mm. Sf109 – unstratified. (ID487). Figure 20.72

73 Mount. Lead alloy. Rectangular openwork mount with flat back and moulded upper face; lower part solid with three small pellets in recessed panel between transverse ribs; upper part forms openwork tracery with scalloped upper edge; one side broken. Present length 45mm, width 26mm, thickness 3mm. Sf 2009: unstratified found during processing of charnel. ID 492. Figure 20.73

74 Rosary bead (?) Jet. Barrel-shaped, one end angled, other concave. A band of criss-cross grooving around centre; spiral grooves at either end. Maximum diameter 12mm, length 14mm, perforation diameter 3mm. Sf 84. Sk 270 on left abdomen. (ID543) Figure 20.74

75 Mount. Silver. Key-shaped with 'D'-sectioned 'stem' and flat 'ward'. 'Stem' has conical terminal with double transverse ribs and similar pair of ribs above junction with ward; each edge of ward has square notch. Ward has inscribed Greek key pattern on front, ward has frame of small grooves all around edge; stem has grooved floral pattern on front of terminal and on stem beside the ward. Small spot of additional metal on front of stem close to ward with stem curved below. Patch of additional metal on back of ward. Back of stem carries hallmarks comprising company P P&Co: an anchor: a letter 'n' in square die with angled corners: a lion. This indicates it was produced by Payton Pepper and Company registered in Birmingham in 1882 with the 'n' indicating the date of 1912 (Birmingham Hallmarks 5: an encyclopaedia of silver marks, hallmarks and makers' marks <http://www.925-1000.com/dlBirmingham5.html>) Length 39mm, section stem 3.5 x 2mm, width at ward 12mm. Sf 1035: 3158: modern disturbance in south aisle of church. (ID 794) Figure 20.75

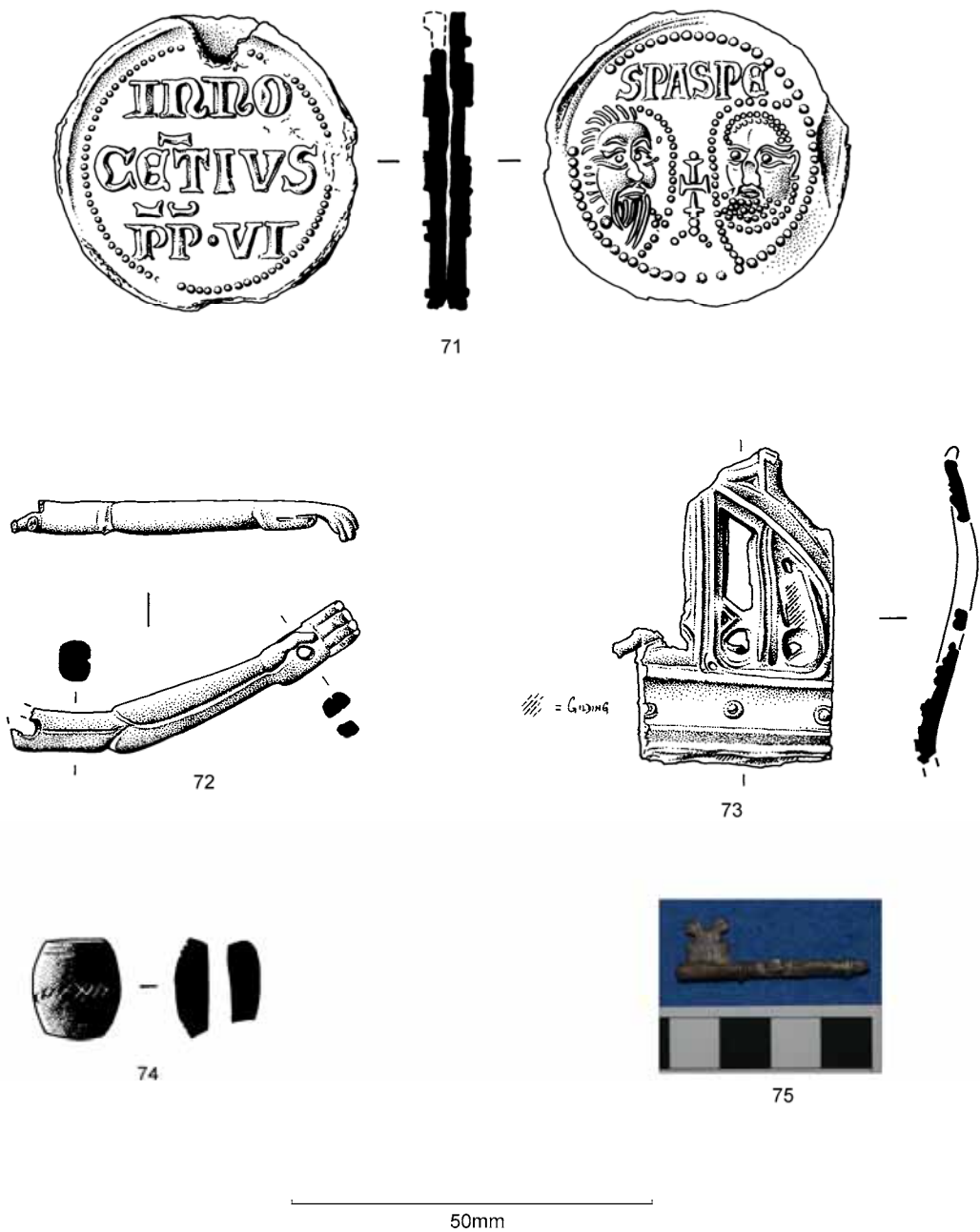


Figure 20 The small finds illustrations: Religious Items 71–74, and photograph 75

Miscellaneous

76 Toggle. Phalange (?) with trimmed ends, central circular perforation. Length 60mm. Sf52 ; unstratified. (ID541).

77 Bar. Iron. Elongated equilateral triangle outline, possibly with a perforation centrally in the widest point. Length 110, width 5 - 17mm. Sf 1158: 3333: Phase 8-10. (ID 788).

Selected finds from unstratified and post medieval contexts

Two other finds are worthy of note. No. 78 from a late post-medieval context provides possible evidence of copper-alloy working in the vicinity as it is a failed casting. No 79 resembles the arm of a beam balance but appears highly unlikely to have functioned like this because given its length and the fact that it is hollow weighing anything of the weight commensurate with its length would have cause it to buckle. Also there is no sign that a central suspension fork was ever attached. Though unstratified and never given a context number it is believed to have been found either in the 1570s robber trenches for the charnel house or the early post-medieval bedding trenches dug into the charnel house. It may well, therefore, have been associated with the medieval church or cemetery. One possibility is that though not capable of functioning as a beam balance, it might have been part of some decorative sculpture in the church or churchyard. The Angel Michael is often shown in scenes of the Last Judgement holding a set of scales in the form of a beam balance, weighing the souls of the departed.

78 Mount. Copper alloy. Five conjoined very shallow plano-convex heads, each with circular-sectioned shank; now bent out of shape and central shank missing. Possibly a failed casting? Length c. 72, diameter of head 16mm. Sf 103: 2621: Phase 12 (ID 467).

79 Suspension bar. Copper alloy. Sheet bent into long slightly irregular hollow tube pinched close at terminals; each end has a circular perforation with an 'S'-shaped wire threaded through. Tube surfaces show close-set transverse milling. Length 285mm, diameter 6mm, length of hooks 20mm. SF 233 U/S. (ID 795)

80 Weight ? Lead alloy. Disc with many scratches on upper face including one cross dividing it into quarters. Diameter 28mm, thickness 5mm, weight 25g. SF92: 2169: Phase 11. (ID493)

81 Mount. Copper alloy. Quatrofoil hemispherical hollow head; faceted shank with point at end. Length 27.5mm, head diameter 30.5, shank section 4.5mm. Sf 88: 2169: Phase 11. (ID476)

82 Spike. Lead alloy. Rectangular-sectioned bar tapering to point at one end; other end flattened and split with ends coiled into loops. Length 97mm, maximum section 6 x 4mm.sf 237: 5119: Phase 8B

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 Vaughan Way from the Roman to medieval periods is offered. It is structured according to the overall site phases and will consider both the material stratified from them and those items which must have been in use at a given time which are found residually or unstratified.

Phase 1 – Pre-Roman

The finds provide no evidence for occupation during this period.

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 later 4th century where dateable. On the whole they are typical of what might be expected from a Leicester site. One interesting feature is a fragment of cavalry equipment which is the earliest piece of Roman military equipment to have been found in Leicester.

Phase 5 – Early Saxon

There is a very small assemblage of objects indicating occupation at this time but they are not capable of defining its character.

Phase 6 – Mid Saxon

There are no finds that indicate occupation at this period.

Phase 7 – Saxo-Norman

There are slight hints of occupation at this time but the two items that might indicate this could as easily be of 12th-century date.

Phases 8-10 - Medieval

There are a small number of finds which indicate a normal domestic assemblage belonging to the earlier part of the medieval period but the majority of the finds relate to the use of the site as a church and cemetery. The domestic assemblage though small does hint at a degree of

affluence, indicated by such finds as the decorated knife no. 63, the ban from a balance (no. 57) and the small padlock (no. 67).

The assemblage is rich in items that indicate the activities carried out in the church. These include explicitly devotional objects such as the arm from the crucifix (no. 71) and the possible rosary bead (no. 74), and items that would have supported worship such as the books indicated by the fastening clasps (nos. 60-1) and music indicated by the tuning peg (no. 56). The richness of the assemblage undoubtedly derives from the deliberate destruction of the church and is very similar to the range of objects recovered from Dissolution deposits on monastic sites.

A number of finds were associated with graves but it was frequently difficult to tell whether these were deliberate rather than chance inclusions. The most bizarre of these associations being the enamelled 2nd-century trumpet brooch found with skeleton 1536. There are hints that a few of the deceased may have been buried wearing their clothes as definitely happened at the Austin Friars and as hinted at by the assemblage from Vine Street. One feature that requires note is the regular inclusion of lead items in the grave. The lead papal bulla with skeleton 71552 fits a well known burial pattern in the 14th to early 15th centuries. The inclusion of Roman lead steelyards with skeletons 1574 and 548 is exceptional but it is hard to accept that these are just chance inclusions especially when the presence of lead can also be noted with skeletons 1066 and 583. To these items in the graves can be added the curious spike no. 82 which has no obvious function from the charnel pit and which is likely to have been associated with a body initially. It does appear that a disproportionate amount of lead is present in the graves compared to other materials if all of these items are chance inclusions. Possibly this heavy dark metal which in earlier times was thought especially appropriate for the gods of the underworld, had some special symbolism for the bereaved. It has been suggested that in some cases it was the lead bulla, rather than the indulgence to which it would have been attached, that seems to have had special meaning for the deceased or bereaved given its position (Gilchrist and Sloane 2005, 95). It is interesting to speculate in the light of the amount of lead in the Vaughan Way graves whether what was making the bulla especially important in these circumstances was, in part, the material it was made of.

THE ROMAN TO MEDIEVAL GLASS *Hilary Cool*

The Roman vessel glass

Two fragments of Roman vessel glass from the site were selected for analysis. The first (Figure 21; no. 1) is a most interesting piece as it would have come from a colourless globular jug with self-coloured snake-thread trails. Snake-thread decoration was used in the late 2nd to 3rd centuries. The pieces from Britain are generally relatively undiagnostic body fragments and it is unusual to be able to identify the form they came from as here (Price and Cottam 1998, 32; Cool and Price 1995, 61-2). It is most likely that it would have been a spouted jug, though with a pinched-in spout rather than the pulled out ones seen at Vine Street, Causeway Lane (Davies 1999, 289 nos. 44) and St. Martins (Jewry Wall Museum Acc. No. 116.1962.135). Certainly in the Rhineland, where these vessels are generally thought to originate, snake-thread jugs with handles such as this generally have pinched-in spouts (Fremersdorf 1959, 51-2, Tafn. 55-7, 59).

The other piece is the handle from a bath-flask. These became popular in the late 1st century and continued in use in the second and 3rd century (Price and Cottam 1998, 188-90). A fragment from a similar vessel was recovered at Vine Street there are several examples in the Jewry Wall museum (Acc nos. LP.132.3; 123.3.a; 225.5, 132.30; 228.7)

Jug; handle fragment. Colourless. Straight ribbon handle with slightly expanded lower attachment retaining fragment of slightly convex body. Parts of two self-coloured curved trails with diagonal slash marks between handle and body fragment. Dimensions of body 34 x 16mm, handle section 16 x 4mm. EVE 0.14. sf1073: 3313: GID 362. Phase 3.

Bath flask; handle fragment. Blue/green. Dolphin handle applied to lower part of neck and shoulder, trailed up to the edge of the attachment with return trailed down to the edge of the attachment; deep tooled mark on the interior of the loop. Dimensions of attachment 42 x 35mm. EVE 0.17. U/S sf 1065. GID 363.

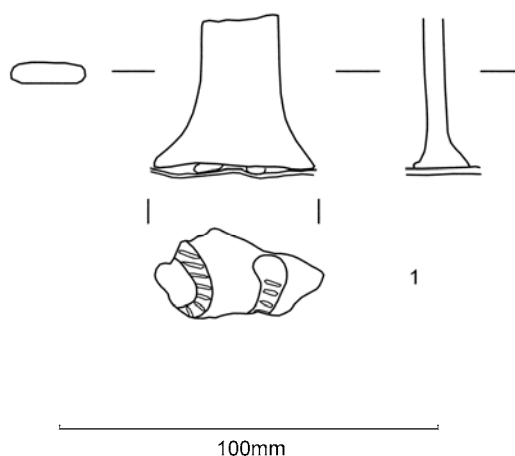


Figure 21 The Roman to medieval glass: Roman glass jug handle fragment

The medieval glazing

Fragments of window glass that had come from the church were found in a robbing deposit (nos. 1-4) and from the burial soil (no. 5). There is one complete quarry (no. 1) that is likely to have come from the apex of an architectural canopy. The glass is now corroded but would have appeared white and is fairly thick, so a 13th- or more probably 14th-century date might be appropriate. The fragments that form nos. 2 and 3 are made of similar glass but their designs cannot be reconstructed.

The other sizeable fragment (no. 5) is decorated using yellow stain rather than painted lines and the glass itself is of better quality and thinner. The yellow-stain technique was introduced early in the 14th century. Its use here on thinner glass would suggest that this fragment came from a window installed in the 15th century.

One fragment of a medieval lead came was recovered from the demolition deposits in the charnel house. It was cast and the outer edge has been neatly trimmed. It thus belongs to Knight's type C (Knight 1985).

Window glass. Rectangular quarry. Green-tinged colourless with surface corrosion. Painted with design possibly from the top of a canopy motif; triangular motif with pointed fleur-de-lis in apex; bar across base, design below obscured by corrosion; top corners infilled by three-leaved clover design. Length 63 x 43mm. Area 27cm². sf259: 5330: Phase 11.

Window glass. Fragment from tip of diamond-shaped quarry. Glass corroded. Curved painted line. Area 3.5cm². sf260: 5330: Phase 11.

Window glass. Five fragments, one retaining a 90⁰ grozed angle. Glass corroded. Fragments retaining traces of painting. Total area 20cm². sf260: 5330: Phase 11.

Window glass. Fragment with straight grozed edge. Thin pale green glass with yellow stain. Part of design obscured by corrosion – part of a ring with projecting rays with spirals at end. Present dimensions 42 x 35mm. Area c. 14cm². sf260: 5330: Phase 11.

Window glass. Five small completely corroded fragments without any traces of painting. Total area c. 2cm². sf192: 5013: Phase 11.

Window came. Lead alloy. Shallow 'H' section. now slightly distorted. Present length 46mm, width 5mm, depth 4.5mm. Weight 4g. sf257: 5330: Phase 11.

THE CLAY TOBACCO PIPES *D.A. Higgins*

Material recovered

A total of 102 fragments of clay tobacco pipe were recovered from the excavation, comprising 17 bowl fragments and 85 stem fragments. No mouthpieces were recovered. There are no marked pipes in this group although there is one 18th-century stem decorated with a stamped Midlands style border. There are the remains of three mould decorated pipe bowls amongst the assemblage with scalloped, Masonic (two joining fragments) and footballer decoration on them. Four of the pipe fragments are burnished (joining bowl and stem fragments and two other stems).

The pipes were recovered as 26 different groups, all but two of which contained between just one and three fragments of pipe. This severely limits the reliability that can be placed on them for dating purposes. In contrast, the two larger groups, context 823 with 52 fragments and context 2778 with 12 fragments, provide good samples of mid-18th and early 19th-century pipes from Leicester respectively. These two groups are described in more detail below, together with notes on other individual pieces/contexts of interest. A context summary for the pipes is also provided as Table 48.

Table 48 The clay tobacco pipes: Context Summary showing the numbers of bowl (B), stem (S) and mouthpiece fragments (M) from each context, the total number of fragments recovered (Tot) and then two date ranges. The first gives the overall date range of pipe fragments recovered and the second the likely deposition date for that particular group, based on the latest closely datable pipe fragments present. Decorated or burnished pipes are noted as well as the figure numbers of any illustrated examples.

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
811		1		1	1700-1770	1700-1770			
823	9	43		52	1650-1770	1710-1750		1-6	Group includes three residual C17th spur bowls but the majority (6 bowls) form a consistent group of c.1710-50. This looks like good deposit from a limited period of deposition. This group is important because it includes a group of bowl forms from a period that has rarely been seen before in Leicester.
824		2		2	1700-1850	1750-1850			Hard to date with certainty but the latest piece could well be c.1750-1800.
2180		1		1	1750-1800	1750-1800	roll-stamped stem (Midlands border)	7	Quite a thin, unburnished stem fragment stamped with an incuse 'Midlands style' stem border. Stem bore 5/64".
2210		1		1	1640-1700	1640-1700			Quite a thick and sharply tapering stem fragment with a large bore (9/64").
2222		2		2	1750-1850	1750-1850			

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
2231		1		1	1630-1700	1630-1700			Quite a thick stem fragment with a large bore (9/64") and a good burnish.
2305		3		3	1700-1900	1750-1900			One piece of thicker C18th stem and two thin fragments of later C18th or C19th date.
2323		3		3	1740-1900	1740-1900			Two pieces of C18th stem and one of later C18th or C19th date.
2339		1		1	1640-1720	1640-1720			
2341		1		1	1610-1700	1610-1700			
2390		1		1	1640-1700	1640-1700			
2433		1		1	1630-1700	1630-1700			
2443		2		2	1630-1720	1630-1720			
2621	1	2		3	1620-1700	1640-1680	burnished x 3		Group includes a very small and 'petit' spur fragment with an average burnish and stem bore of 8/64", which probably dates from c.1620-60. This piece joins a burnished stem fragment (fresh break) and there is another stem fragment (from a different pipe) with a good burnish and a stem bore of 9/64". This is thicker and probably dates from c1640-80. It is interesting that both pipes represented were of better quality types with burnished surfaces.
2765	1			1	1880-1910	1880-1910	Running figure and moulded milling	9	Bowl fragment of c.1880-1910 with moulded milling around the rim and part of a figure depicted on the left hand side of the bowl that is running away from the smoker. This is almost certainly a footballer, – frequently depicted on pipes, usually chasing a ball away from the smoker. Many manufacturers made similar pipes but this may well be from a local firm since examples are known with 'PLAY UP LEICESTER' on the stem.
2777		1		1	1800-1910				Probably a C19th stem although it is just possible that it's earlier.
2778	5	7		12	1640-1900	1800-1840	Masonic x 2 (joining); scalloped x 1	8	One residual piece of C17th stem but all the others are probably of later C18th or C19th date. There are also two plain bowl fragments from different pipes, one fragment with scalloped decoration and two joining pieces from a Masonic pipe (old break; Small Find No 120). Although Masonic motifs were popular on late 18th- and early 19th-century pipes from other parts of the country, these motifs have not been previously recorded from Leicester and this might

Cxt	B	S	M	Tot	Range	Deposit	Dec, etc	Figs	Comments
									be an imported piece, perhaps from London. It dates from c.1800-1840.
2784		1		1	1760-1910	1760-1910			
3001		3		3	1610-1740	1610-1740	burnished x 1		These stems are hard to date accurately but they are all of C17th or early C18th types and include one finely burnished fragment with a stem bore of 7/64".
3710		1		1	1750-1900	1750-1900			Most likely of later C18th or early C19th date.
5272		1		1	1640-1710	1640-1710			A thick and quite sharply tapered stem fragment with a large bore (just under 8/64").
5337		1		1	1760-1910	1760-1910			
U/S - North Aisle		3		3	1650-1910	1650-1910			Mixed fragments of C17th, C18th and C19th date including one long (114mm) fragment of curved stem from a C19th pipe.
U/S - W. end of Church Wall	1			1	1660-1700	1660-1700			Lower part of a bowl and spur from a chunky, heavily built but neatly finished pipe in a local style.
U/S		2		2	1610-1910	1610-1910			One fragment of C17th stem and another of later C18th or C19th date.
Total	17	85	0	102					

Discussion of the pipes

Context 823

This context produced a particularly interesting group of pipes that helps fill a hitherto poorly represented period in the sequence of known Leicester pipes. The pipes were recovered from the fill of a barrel-shaped stone-lined pit of uncertain function. This had been truncated prior to excavation and was not initially recognised as a discrete feature, leading to the possibility of contamination amongst the finds. Having said that, the bulk of the pipes recovered represent a homogeneous and closely dated group that probably represents a single deposition event within this feature around the middle of the 18th century. As such, these pipes provide an important benchmark for the study of pipes from the city as a whole.

Context 823 produced a relatively modest group of pipes, comprising just 52 fragments in total (9 bowl and 43 stem fragments). The bowls have been identified with the letters A-I, which have been pencilled onto them, so as to allow them to be cross referred to a detailed archive catalogue. Three of the bowls, A-C (Figure 22.1-3), are local 17th-century spur forms, ranging from c.1650-1700 in date. These are clearly residual in this context since the remaining six bowl fragments, representing six different pipes, all date from c.1710-50 (D-I). Three of these later bowl forms are complete, showing that they comprised fairly chunky

bowls with relatively thick walls and upright forms (Figure 22.4-6). This style was particularly common in London from *c.*1700-1770, where it occurs in large numbers and was the dominant form in production. Pipe smoking appears to have remained extremely common in London throughout the 18th century whereas in many other parts of the country, including Leicester, there seems to be a general drop in the number of pipes represented in the archaeological record during this period. Whether this was as a result of the differing degrees to which snuff taking, an 18th-century vogue, was taken up or as a result of some other factor, such as changes in waste disposal patterns from towns, is uncertain. Whatever the reason, very few 18th-century bowl forms have previously been recorded from Leicester and so this context group makes a useful and important addition.

The 18th-century bowls have well developed forms, and so have been dated to after *c.*1710, a date supported by the presence of both white and brown stonewares in this pit. On the other hand, their heavy nature suggests they are likely to be earlier in the century rather than later. This being the case, the group may well date from *c.*1710-40 but, to be on the cautious side, a date of up to *c.*1750 has been put on them. None of these 18th-century bowls is marked, milled or burnished and the rims are simply cut across the top. The rims are often internally trimmed as well (three out of four examples where the rim survives). One of the bowls also has an internal bowl cross (Figure 22.4). What is significant is the consistency of the bowl forms, despite the fact that most, if not all, of the six examples appear to have been made in different moulds. This shows that this particular style had been widely adopted by local manufacturers and was in regular use in the city. During the 17th century spur forms had almost completely dominated the market (Higgins 1985, 291) and so this marks a major shift in taste and consumption patterns. More importantly, it shows that this form, hitherto barely represented in the finds from Leicester, must have gone through a period of popularity during the first half of the 18th century.

In terms of stem bore, five of the 18th-century bowls were measurable and these had stem bores of 6/64" (2 examples), 5/64" (2 examples) and 4/64" (1 example). The stem bore of 4/64" is unusually small for the period and shows the early adoption of bores of this size in Leicester (Figure 22.4). The 17th-century spur bowls has stem bores of 8/64" (2 examples) and 6/64" (1 example). Although a very small sample, this is in keeping with evidence from elsewhere and suggests that there was a sudden decrease in bore size between the late 17th century and early 18th century. It is also interesting to note that, despite the presence of these three earlier bowls, there do not appear to be many residual stems in this context. There were none of the thick and chunky stems with large bores that would be expected to go with these earlier spur forms and only one fragment with a bore of 7/64" seems likely to be of earlier date. It is unclear why residual bowl fragments should have been present if there were not some earlier stems as well. The other stems recovered had bores of 6/64" (12 examples), 5/54" (28 examples) and 4/64" (2 examples), matching the range of the later bowls. Furthermore, the stems were of forms that would be consistent with an 18th-century deposit. The larger sample provided by the stems also suggests that 5/64" was the dominant bore size in use at this period.

The final point to note about these stems is the absence of any decoration on them. Decorative stem borders became popular in the Midlands and North of England during the 18th century and Leicester is thought to have been a production centre (Higgins 1985, 191). Some of these borders are certainly of later 18th-century date and so this group may be a little early for them to be present. This group is also too small to provide any conclusive evidence one way or the other; it is simply worth noting the absence of any decoration in a group that included the remains of at least six 18th-century pipes dating from the first half of the 18th century.

Context 2778

This context produced a small group of pipes, most of which are rather fragmentary. One piece of 17th-century stem is residual but all the others are probably of later 18th- or 19th-century date. There are two plain bowl fragments (from different pipes) and one fragment with scalloped decoration that also dates from this period. The scalloped fragment has a number of fairly widely spaced curved lines, without any other ornamentation, extending right up to the rim of the pipe on the side away from the smoker. This piece is similar to other examples already recorded from Leicester (e.g. Higgins 1985, Figs 6.92 & 6.94), where this was a popular late 18th- and early 19th-century style. The most interesting pieces, however, are two joining fragments from a Masonic pipe (Figure 22.8). Although Masonic motifs were popular on late 18th- and early 19th-century pipes from other parts of the country, the use of these particular motifs has not been previously recorded from Leicester and this might be an imported piece, perhaps from London, where the closest parallels for this particular style of Masonic pipe can be found. The use of leaf seams with little rows of dots that look like berries beside the leaves, for example, is typical of early 19th-century London pipes. Furthermore, the range and layout of the Masonic emblems is exactly matched by London finds, for example, that made by W. Cope at Woolwich (Le Cheminant 1981, Fig 112). Cope was working from at least 1811-1859 (Hammond 1999) but his Masonic design is likely to be from the earlier part of this range. The Leicester example (Figure 22.8) is likely to date from c.1800-40 and it has an internal bowl cross, arranged as a '+' in relation to the long axis of the pipe. The heel or spur is missing, as is most of the right hand side of the bowl. The stem bore is 5/64".

Marked and decorated Pipes

Apart from the scalloped and Masonic fragments from context 2778 described above, there were only two other marked or decorated fragments from this site. Context 2180, the fill of a post hole, produced a stem with an incuse roll-stamped stem border in a typical local style (Figure 22.7). This probably dates from the second half of the 18th century and is similar to, or the same as, other examples that have been found in the city. The other piece came from context 2765 and is a bowl fragment with moulded milling and part of a running figure on the left hand side (Figure 22.9). This figure is almost certainly a footballer and would have formed part of a popular scene with players chasing a ball around the bowl. Very similar examples were made by a number of manufacturers across the country, but local production for this piece is likely since various examples are known to have been produced with 'PLAY UP LEICESTER' moulded on the stem (e.g., Green 1984, Figs 3 and 5).

Burnishing/Context 2621

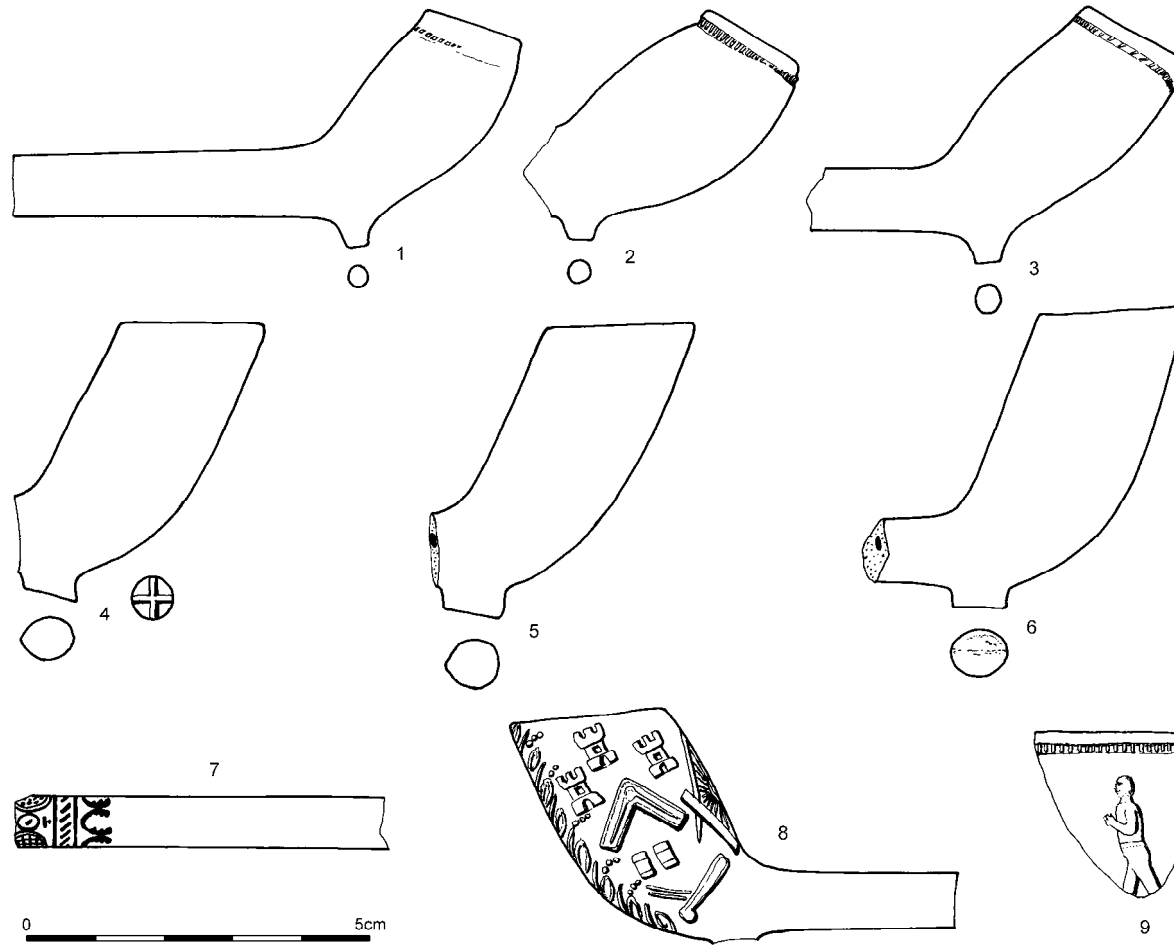
Only four of the 102 pipe fragments recovered were burnished (3.9%) and two of these joined together. These joining fragments, plus one of the other burnished fragments, all came from context 2621, where they were the only pipe fragments present. This context formed the fill of an agricultural feature, probably a cultivation trench, running across the site. All three fragments in this context date from the 17th century, including part of a bowl with a very diminutive spur dating from c.1620-60. The latest looking piece suggests a date of around 1640-80 for this feature and it is interesting that so many of the burnished fragments were present in this one feature – perhaps suggesting that rubbish from a more wealthy household was being discarded at this time. The other burnished fragment is also likely to be of 17th-century date and was recovered from context 3001. The small numbers of burnished

fragments is in keeping with other groups from in and around Leicester that have been examined by the author. Burnishing appears to be relatively rare in this region and, when it does occur, it is almost always on 17th-century fragments. These probably retailed at a higher price than their unburnished contemporaries and so can lend weight to the identification of better quality assemblages when they are present.

Summary

Although only a small assemblage of pipes, this site has produced an interesting context group (823) that provides a reference point for the styles of pipe that were being used in Leicester during the first half of the 18th century. Other individual pieces add to our knowledge of 18th-century stem marks from the region while the Masonic pipe from context 2778 is most likely to represent evidence of travel to or trade with the capital. In relation to the site as a whole, the pipe finds suggest that at least some of the gardening features may date from the 17th century (context 2621), while the fill of the barrel-shaped, stone-lined pit (823) represents 18th-century activity on the site.

Figure 22 The clay tobacco pipes: the illustrated clay pipes from Vaughan Way (A2.2003)



ROMAN CERAMIC BUILDING MATERIAL *Terri Davies and Nicholas J. Cooper*

Introduction

A stratified assemblage of 620 fragments of ceramic brick and tile weighing 74kg was recovered from the excavation. The analysis entailed the creation of an MS Excel database recording the tile types present by context and broad fabric type, quantified by fragment count and weight. No detailed fabric analysis was undertaken, due to the poorly stratified nature of the assemblage. The material derived from 210 contexts with about 1% being unstratified. Only twelve context groups were from securely stratified Roman deposits ranging from the second to 4th century and none were larger than 10kg.

Analysis of tile types present

The assemblage quantification is summarised below in Table 49.

Table 49 The Roman ceramic building material: assemblage of Roman ceramic building material

Form	Frag	Weight(g)	AvFragWt	%Weight
Boxflue	41	3956	96	5
Imbrex	90	9258	103	12
Tegula	164	32100	196	43
Opuspicatum	2	573	287	1
Wall	67	23478	350	32
Total Class	364	69365	191	93
Unclassified	256	4819	19	7
Grand Total	620	74184	120	100

The forms and proportions are broadly typical of assemblages across the Roman town with the majority deriving from roofing and general masonry construction. The proportion of boxflue tile (displaying a variety of combed patterns), indicative of hypocausted buildings is, notably, as high as in any of the large stratified deposits selected from the Vine Street town house and may indicate the existence of such a building in the vicinity. However, the low average fragment weights and lack of large demolition dumps indicates a disturbed and largely residual assemblage. The one outstanding feature of note is the presence of two tiles used in *opus spicatum* flooring, which have subsequently been reused in the chancel wall of St Peter's church. Other reuse and re fabrication of wall tiles is also apparent, but not related to any *in situ* structure. Two broad fabric types were identified, firstly a range of orange sand tempered fabric typical of products found across the City and County, and second, six

fragments in a shell-tempered fabric (in both roofing and boxflue types), typical of Northamptonshire or Rutland products.

ROMAN AND MEDIEVAL ROOFING AND FLOORING SLATE *Terri Davies and Nicholas J. Cooper*

Introduction

A stratified assemblage of 70 roofing slates weighing 10.5kg was recovered from the excavations, comprising 37 near-complete and identifiable, and 33 unidentifiable fragments. The analysis entailed the creation of an MS excel workbook recording the shape and size of the slates, the shape and size of the nail or peg hole, and quantification by weight and count. Additionally, two sample fragments (951g) from the floor of the charnel house of the church were taken.

Provenance and dating

All the material, retrieved from 44 contexts across the site was manufactured in the Charnwood area of north-west Leicestershire and more specifically Groby for the Roman material and Groby or Swithland for the medieval material. Thirty-two slates were diagnostically medieval in date with a round, drilled peg hole, and five were Roman diamond shaped slates with square, pecked nail holes. With the exception of samples from the floor of the charnel house, there are no significant deposits of material suggestive of construction or demolition and it is uncertain how the assemblage relates to *in situ* structures on the site.

One Roman example had a right-angled tiler's mark inscribed on its underside. These marks, which have also been found on a larger group of slates from the Vine St site but are otherwise appear unknown in the literature, are inscribed once the underside has been prepared, but possibly before the lower angle of the diamond is shaped and the nail hole is cut. The right-angle appears to delineate the square area of tile which will be exposed when hung and may act as a template for the shaping and hanging of other tiles in the same row. Work by local quarry expert David Ramsey has traced the likely source of Roman slates to two sites in Groby (Ramsey 2007).

THE INDUSTRIAL RESIDUES *Alice Forward, Graham Morgan and Daniel Prior*

Introduction

This report concentrates on the evidence for metal working from the fill (3379) of the bell-casting pit (3296) situated in the western tower/turret of St. Peter's church. Very little other evidence for metal working was recorded across the site and comprised a range of ferrous and non-ferrous waste material including iron hearth slag and copper alloy dross. The material was found in features dating from the Roman to Medieval periods and in contexts which are associated with refuse and redeposition, and would be indicative of metal working in the vicinity.

Methodology

All slag has been subjected to a visual assessment only. Some types of slag are visually diagnostic, providing unambiguous evidence for a specific metallurgical process. Other debris is less distinctive and it is not possible to say from which metallurgical, or other high temperature process it derives. The terminology in this report follows the conventions in the English Heritage Guidelines (Bayley *et. al.* 2001) and the recent glossary of terms used in the study of ancient metal-working (Salter and Gilmour 2009).

Bell-casting pit

The backfills of the bell casting pit provided the supporting evidence for copper-alloy melting and casting with dross (104g), casting waste (496g), hearth lining (272g), hearth slag (155g), and fragments of the bell casting mould (4.558kg) being retrieved from four fills. Although a hearth was not found, the waste material indicates that one lay in the vicinity of the casting pit. Additionally, the fills of two graves (sk1118 and sk1189) cut into the top fill of the casting pit, contained casting waste comprising dross (98g) and an ingot fragment (60g).

Bell mould fragments were recovered from contexts (3366), (3351) (3370) and (3379). These appear to represent the destruction of a single bell mould, following the casting process. The fragments were consistently of about 20mm in thickness with a slightly curved inner face although the shaped pieces from (3366) are likely to be from the base of the mould (Dodwell 1961, 150-158) forming the 'lip' and were considerably thicker. Another piece from this context is shaped in to a slightly shallow C shape and may represent part of the bell lip, decoration, or drainage for tallow used in the production of some bells (Dodwell 1961, 150-158; Bayley, Bryant & Heighway 1993, 229). Two conjoining pieces of mould from (3351) appear to represent the 'shoulder' towards the top of the bell. The fragments are comparable to those from Deansway, Worcester (Taylor 2004).

The fabric of the mould appears to be a loam, burnt during the casting. This contained straw impressions and charcoal, visible by eye and confirmed under x10 binocular microscope (Dodwell 1961, 150-158). The organic content (probably dung) may have been high, given the relatively light weight of the fragments. The pieces all have a smoothed inner face, which usually preserves fine parallel rilling. This is usually burnt to a dark grey or black, and frequently carries greenish copper alloy staining.

THE ARCHITECTURAL STONWORK *Tony Gnanaratnam*

The worked stone from Vaughan Way was largely recovered from the robber trenches of the church and presumably derive from this building. They thus contrast with the stonework from the adjacent Freeschool Lane site, where the provenance of the stone is less certain.

1 – sf246 (Context 5272, charnel house robber trench) Pale brown oolitic limestone. Fragment of medieval mortar/grinding bowl. This has a thickened rim and external vertical flange. This type has been recovered from sites in the town and its environs, such as Freeschool Lane, 9 St Nicholas Place, and the Abbey. Given the softness of the stone, this was probably used with a wooden pestle, a slight depression was cut into the stone to form a shallow spout.

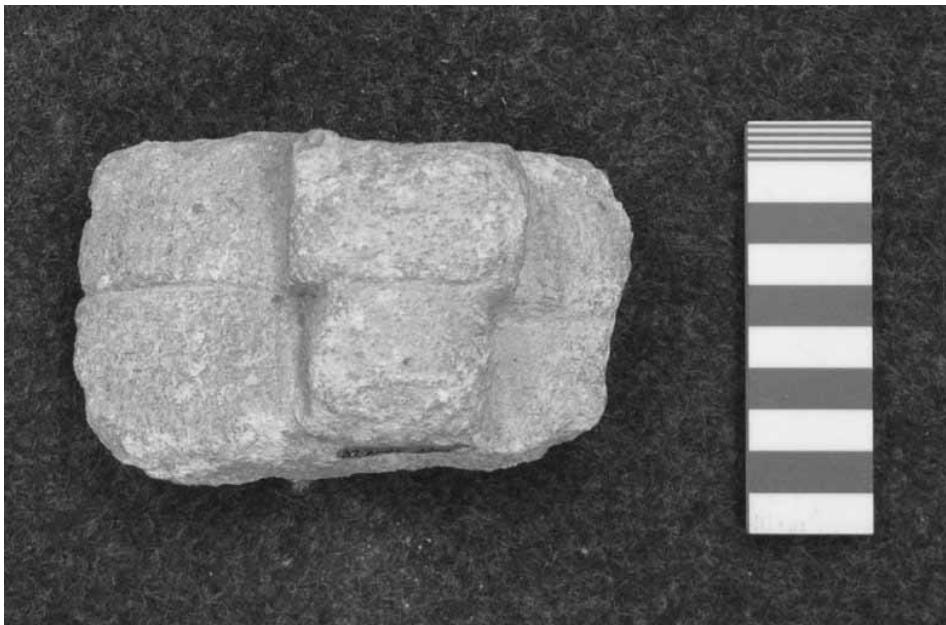


Figure 23 The architectural stonework: 1 the stone mortar

2 – sf1180 (Context 3411, bell-casting pit 3454) – pale brown, oolitic limestone. This consists of a rectangular block of stone with a shallow rectangular basin (60mm deep) cut into the top, with walls around 30mm in thickness. A hole pierces the base to a depth of 120mm, and is 20mm in diameter. The hole flares at the top, to around 60mm across. The hole was drilled or bored, whilst the flared top seems to have been pecked or cut with a chisel. A second abandoned hole was located immediately next to the first. This was of the same diameter as the first hole.

Being circular, the hole could conceivably have been plugged with a turned stopper, although the shallowness of the basin would have made this a rather cumbersome arrangement. More likely it remained open, which would preclude its use as a stone lamp or holy water stoup. As the basin was shallow with a capacity of around 1.4 litres, it may have been more suited for use as a drain.

It could have been part of a piscina/sacrarium. Although the arrangement seems uncommon, Bond illustrates the use of a basin situated beneath a piscina, from an unidentified church in Grantham (Bond 1916, 158). This consists of a rough square block sitting beneath the decorated mouth. Whatever the function of the basin, it was discarded in the late 12th

century and re-used in the bell-casting pit. Piscinas become more common from the 13th century and so an example of this early date would be unusual (Parsons 1986, 114).



Figure 24 The architectural stonework: basin

3 – (Context 5263, ?anchorhold/vestry robber trench) Light grey, fine grained sandstone, probably Dane Hills – plain chamfered mullion fragment. The chamfers are at angle of 62 degrees from horizontal. This form could date anywhere from the mid-13th century to mid-16th century.

4 – (Context 5263, ?anchorhold/vestry robber trench) Light grey, fine grained sandstone, probably Dane Hills sandstone – indeterminate fragment, possible mullion or label moulding. This retains traces of at least two whitewash layers, which might indicate that it was from an internal rather than external feature.

5 – (Context 5500, nave robber trench) Pale cream, oolitic limestone. This could possible be a fragment of stone coffin lid, however the rear of the piece does not survive. The fragment is too small to indicate the design. The fragment is fairly well finished and this might indicate a later medieval date.

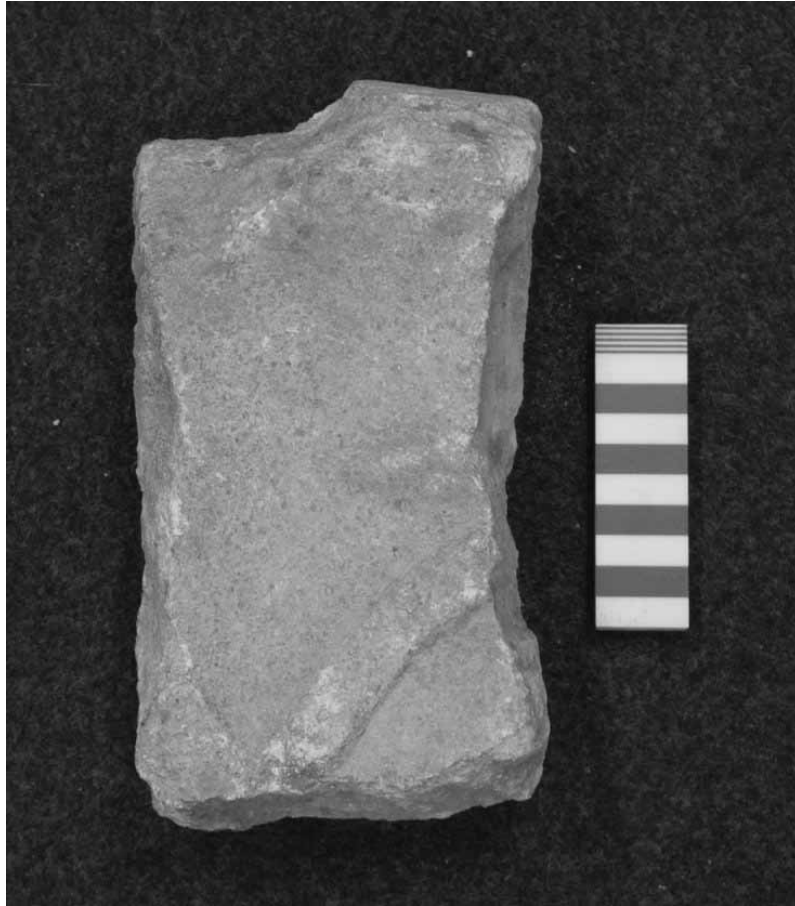


Figure 25 The architectural stonework: 5 the possible stone coffin fragment

6 – sf245 (context 5272, charnel house robber trench) - Pale cream oolitic limestone. It consists of a curving projecting roll. The fragment retains traces of a red paint, which had been re-painted white. The inner part of the curve retains a slight ridge of paint indicating a now lost feature. This retains blue-grey paint along this arris, which has also been later whitewashed. This may have been an attached cusp, perhaps a soffit cusp, however this is not clear.



Figure 26 The architectural stonework: 6 the possible cusp fragment

7 – sf25, (context 665, fill Roman quarry 2036) Mid-grey, coarse grained sandstone, probably millstone grit. Roman column drum diameter 450mm at top and base and bulges out to around 530mm in middle and was 630mm high. The piece is unfinished, the upper and lower faces are around 10mm from flat. These were both nearly finished, one face a maximum 5-10mm deviation from flat and the other up to 20mm. As they would have been hidden, it is possible that the faces would not have been worked much further. These faces were worked using a bolster with a 40-50mm blade, with tooling in a radial pattern, suggesting that no substantial reduction was anticipated. No setting-out marks were observed.

The curved surface of the drum is less finished, and was mainly worked with a *c.*25mm chisel, a point and occasionally a bolster *c.*40mm wide. The point represents crude reduction in the diameter of the drum. The chisel marks were generally around 2-4mm deep and occurred in sweeps or arcs. The chisel often seems to have been tilted, using the corner to achieve depth. Although barrel shaped, it was probably intended to reduce the middle of the drum to a similar diameter to the top and bottom faces. At this point presumably a wider bolster would have been used to finish the drum. However, the piece was abandoned, possibly due to the large crack running through the stone. The direction of the tooling indicates that the curved surface was probably worked with the drum upright.

Similar-sized drums are not uncommon in Leicester. The drum was found within a Roman quarry [2036] which went out of use and was backfilled during the 2nd century. Presumably the drum was intended for a public building being erected around this date.

Conclusion

Overall, most of the fragments shed little light on the appearance of the church. This reflects the limited investigation of the church robber trenches. Most of the fragments are too damaged to identify or, in the case of the mullion fragment, not closely datable.

The basin is an unusual form of Romanesque fitting which may have rarely survived above ground because of its age. It is likely to be a piscina base, although there seems to be a lack of comparative published examples. The discard of the piscina fragment might also indicate renewal of parts of the church fabric in the later 12th century alongside any other building work. The possible stone grave slab, is the only indication of monumental tombs within the church.

The researches of Greenhill indicated that the removal and reuse of grave slabs may have occurred regularly during the medieval period, alluded to in Langland's *Vision of Piers Plowman* (lines 997-1000) and recorded in churchwardens' accounts from London (Harding 1992, 129). At Bakewell church, a large number of grave slabs were re-used as rubble by 13th-century builders (Greenhill 1958, 18-20) and the wholesale re-use was also seen at Wharram Percy (Hurst and Rahtz 1987, 86-91).

The finding of the Roman column drum was unusual but could not be related to any specific structure. However, as an incomplete drum it indicated something of the techniques used.

THE PLANT REMAINS *Angela Monckton*

Introduction

During the excavation of this site, samples were taken from selected features of mainly medieval date for the recovery of plant remains such as seeds and cereal grains which might provide evidence of diet, environment or activities in the past. The remains found here were mainly charred cereal grains, chaff and seeds with only occasional mineralized remains from possible cesspits. Other food remains included fish bones and scales. The site was surprisingly rich in charred cereal remains which was unexpected because the main focus of the excavation was the investigation of St Peter's church and cemetery. However, medieval features including a kiln and an oven, together with a pit containing a dump of charred cereals were exceptionally rich deposits. Other deposits from the buildings and other features on the site were also investigated. It was hoped that evidence from these remains would help to determine the type of occupation and activity on the site and compare with evidence from excavations of other sites in the town and suburbs of Leicester. The results will be considered together with analysis of the rest of the remains from the Highcross project, particularly with the kiln deposits from Freeschool Lane (Radini in progress).

Methods

A total of 110 environmental samples were taken from features selected by the excavators. From these 74 samples were processed including two of Roman date, three of post-medieval date, and the remainder from medieval contexts. In addition 22 samples were taken from features within the church associated with building construction and bell casting, of these six were processed for remains. A series of samples associated with the burials were also taken to be considered separately, some from the charcoal burials will be sorted for plant remains and charcoal for identification.

The samples were processed by wet-sieving in a tank using a 0.5mm mesh with flotation into a 0.3mm sieve. Unprocessed sub-samples were retained from each context. All residues were air-dried and the residue fraction over 4mm was sorted for all finds which are included in the relevant sections of the report. Smaller sub-samples of some samples rich in charred remains were processed by manual flotation to ensure recovery of delicate plant remains and the residues treated in the same way as those above. The residue below 4mm was examined for the presence of remains and retained for analysis. This work was carried out by Alex Beacock and Anita Radini at ULAS. Samples from significant features were assessed (Monckton 2006) and a range of samples selected for analysis. During analysis the flotation fractions (flots) were all examined and selected samples sorted using a x10-30 stereo microscope. The plant remains were identified by comparison with modern reference material at the University of Leicester Archaeological Services. The plant remains from the selected samples with more numerous remains were counted and tabulated (Table 50 and Table 51), the plant names follow Stace (1991) and are seeds in the broad sense unless described otherwise. The results from the remaining samples were summarised by phase (Table 52) and referred to in the text as from scanned samples. All the samples were listed for the archive (Table 53).

Roman plant remains

The few Roman samples produced only small numbers of charred plant remains.

The cereals found were wheat, which included evidence for glume wheat, either emmer or spelt (*Triticum dicoccum/spelta*), with a fragment of spelt chaff (glume base) showing this cereal was used here. A few free-threshing wheat grains were possible contamination from medieval contexts. The weed seeds found included those of large grasses (Poaceae) and vetches (*Vicia/Lathyrus*), which are known as weeds of arable or disturbed ground. Apart from the cereal the only other evidence for food remains was from a few fragments of medium-sized legumes, either peas or beans. These are plants typical of deposits from the town such as at Causeway Lane (Monckton 1999).

The small amount of cereal remains from these Roman soil samples, 35 and 36, shows the cereal present with some of the arable weeds and represents only a scatter of charred remains from local occupation. These remains add little to the distribution of Roman material in Leicester.

Medieval plant remains

Cereals

Charred cereals were very numerous in some samples from the excavation including wheat (*Triticum* sp.) mainly as free-threshing wheat grains which in the could have been bread wheat (*Triticum aestivum* s.l.) or rivet wheat (*Triticum turgidum* type) both of which are free-threshing wheats which have been found in medieval Leicester. Fortunately diagnostic chaff was found in some of the samples and was mainly of bread wheat showing that this was the main wheat grain used on the site. However, rivet wheat has been found on some other sites in Leicester from the Early Medieval period onwards (Monckton 2004). Although chaff was abundant at this site rivet wheat could not be found. An additional cereal was rye (*Secale cereale*) with abundant grains, and very abundant chaff, in the samples from the grain dump 2149 where it occurred together with wheat. Oats (*Avena* sp) were found to be very abundant in the oven 5487 with some in kiln 525. Germination was noted amongst the above cereals, in some cases sprouting was observed, while some grains had the impression of the sprout, and other grains were hollow and sunken where the starch had been converted to sugars during germination. Many grains were hollow and broken so germination could not be confirmed, so germination rates could be an underestimate. Where germination percentages were highest in the oven deposits it was taken as evidence of malting grain for brewing. Barley grains (*Hordeum vulgare*) of a hulled form were also present but in small numbers only.

Other foods

The samples also contain occasional legume fragments of either beans or peas. Legumes may also include cultivated vetch because some of the legumes are of the size of this legume (4 to 6mm), but this could not be confirmed as the seeds were incomplete. Legume crops are an element of crop rotation. All the legumes found were charred, probably as accidental spillage during cooking so probably represent domestic rubbish. It is thought that legumes are under-represented in the archaeological record as they do not usually come into contact with fire in their processing and are probably only burnt by chance during food preparation, they are poorly represented here as in other samples from within the walls of the town at the

Shires and Causeway Lane (Moffett 1993, Monckton 1999). Plants which may have been collected and consumed are represented only by fragments of hazel nutshell (*Corylus avellana*).

Seeds

Charred seeds were mainly those of arable or disturbed ground including the numerous seeds of stinking mayweed (*Anthemis cotula*) which is a plant of heavy soils, large grasses (Poaceae) including brome grass (*Bromus* sp), and cleavers (*Galium aparine*) found, and corn cockle (*Agrostemma githago*), all of which are known as weeds of the cereals, the latter two being associated with autumn sown cereals. Seeds of cornflower (*Centaurea cyanus*) were also found as a weed of the free-threshing cereals. Other weeds of disturbed ground included goosefoots (*Chenopodium* sp), docks (*Rumex* sp.) and knotgrass (*Polygonum aviculare*) all of which are typical of spring sown crops or disturbed soils near settlements. A second mayweed, called scentless mayweed (*Tripleurospermum inodorum*) was found to be abundant in one deposit which is unusual in urban deposits from Leicester. Other plants included some of grassy vegetation such as clover type plants (*Trifolium* type) which, together with other such plants may have been brought to the site with fodder. Some plants are of wet ground such as sedges (*Carex* sp.) which may have been brought to the site for other purposes such as flooring. However, some of these plants may have grown in field margins and damp areas of the cultivated fields and so have been brought to the site with the crops. Mineralized remains from cesspits at other sites in Leicester include food remains of fruits, however only a few mineralized weed seeds were found here including sedges which may have been used on the site, although this and a few other plants may have been from nearby vegetation.

Interpretation of remains in samples

The plant remains were counted to find the proportions of cereal grains, chaff and weed seeds which can indicate the stage of cereal processing or activities on the site (c.f. van der Veen 1992). Deposits with a high proportion of grains represent the cereal product for use, while deposits with a high proportion of chaff and weed seeds represent waste from various stages of cereal processing and cleaning to prepare grain for use. Bread wheat and rye are both free-threshing cereals which are easily threshed from the chaff, so chaff would not be expected to be found in quantity far from where the cereals were grown and is an unusual find here in the town. Chaff was sparse at the Shires and Causeway Lane but more common in the suburb at Bonners Lane where it was probably associated with commercial activity (Monckton 2004a). Domestic occupation is typified by a low density scatter of charred cereal grains and weed seeds, probably as waste from food preparation of whole grain foods such as pottage, with the weeds from the final cleaning of the grain and a few spilled grains burnt in the hearth. Richer burnt deposits of grain can represent accidental fires during storage or processing grain for a variety of reasons including malting, this is indicated in some of the deposits of oats found here by germination of the grains. Modern malting shows over 70% germination of the grains but lower levels have been found in medieval deposits, perhaps because the cereals were less uniform (Moffett 1990), and poor preservation and damage by burning makes this more difficult to recognize.

Results by Phase

Phase 5, Saxon

Grubenhous sample 227

This sample contained single numbers of cereal remains with free-threshing wheat grains and barley present, a few weed seeds and a fragment of hazel nutshell were present at a low density of 2.2 items per litre of soil. A single chaff fragment was a glume of spelt which was the wheat grown in Roman times and as Roman deposits are present on the site it is likely to be residual here. There have been questions as to whether spelt was used in Saxon times but a single fragment is insufficient evidence to suggest so here. The wheat grains present are free-threshing grains of bread wheat type which have been found in the few Saxon samples from Leicester and at other sites in the region indicating that bread wheat had replaced spelt by this time. The deposit appears to be a low density scatter of domestic waste suggesting the food plants consumed and food preparation nearby.

Phase 7, Saxo-Norman (AD c.850-1100).

Saxo-Norman pit 2086, sample 84

This sample contained only a few charred remains including a few free-threshing wheat grains and a fragment of hazel nutshell at a low density of 1.4 items per litre of soil suggesting only a scatter of domestic waste. However, the pit also contained small organic fragments and some mineralized stem fragments and possible small larvae fragments suggesting that some latrine waste was present. Additional food remains included around 20 fish vertebrae of small size which were submitted for identification (see Nicholson below)

Pit context 3415 sample 1055:

A sample from a pit in the area of the church was quite rich in charred plant remains (Table 50). The sample 1055 was from context 3415 contained cereal grains including wheat of free-threshing type possibly bread wheat, rye and oats, many of the cereal grains were broken and only one sprouted oat grain was seen. Weeds of cultivation included stinking mayweed as the most numerous and scentless mayweed was also present, others included corn gromwell and fat-hen. Grains dominated the sample and outnumbered weeds suggesting that this probably represented domestic waste from cereal preparation for consumption. The cereals and weeds were all typical of medieval sites in Leicester and elsewhere.

Phase 8, Early Medieval, (AD 1100-1250)

Phase 8A

Church construction deposits (Phase 8A) industrial samples from bell-casting pits.

Samples from these industrial deposits, contexts 3297, 3358, from a pit dug to remove the bell, and contexts 3410, 3409 and 3396 from the bell pit itself were processed and scanned for charred plant remains as well as industrial residues. Only a few charred cereal grains and weed seeds were recovered as would be found in a scatter of domestic waste. No remains which could be associated with casting were found.

Oven or pit 3148: (Phase 8A)

This feature was within the churchyard and samples from five contexts were examined, some were sampled from east and west ends, and all contained charred cereal remains except context 3219 which was mainly charcoal. Several successive uses as an oven are possible, although some may be dumps of charred material from nearby processing in other features.

Lower fills contexts 3244 and 3253 were similar and contained numerous charred seeds with some straw nodes from an early stage of crop processing. Sample 1010 from the former included oats as the most numerous grains, with about half being germinated, wheat barley and rye were also present (Table 51). This may represent some brewing waste or be from a spoiled crop. Numerous chaff fragments showed that bread wheat was represented with some chaff of barley and rye also present. Numerous small weed seeds included stinking mayweed, scentless mayweed, poppy and goosefoots. Very numerous large crop weed seeds including corn cockle and black-bindweed were also present. This abundant waste shows that uncleaned crops were brought into town and this may represent waste from cleaning crops for consumption or for trade.

Above context 3244 was a soil layer and over this was context 3219 a layer rich in charcoal only. Above this the east end of context 3218 contained numerous silicified fragments of light chaff including some from wheat, fewer were found at the west end. Such remains are often carried with the draught in the flue and deposited in the flue suggesting that this elongated pit may have originally acted as a kiln or oven. However, this may be waste dumped from kilns.

The upper fill, context 3147, contained more numerous grains mainly of free-threshing wheat and barley in about equal numbers, and including a little rye and some oats. Some of the barley and oats were germinated but insufficient to suggest malted grain. Chaff of bread wheat (rachis) was quite numerous with occasional barley and rye rachis fragments, this suggests that partly cleaned cereals were being processed on the site, probably mainly bread wheat. Weed seeds were less numerous than the grains which included stinking mayweed and corn cockle as crop weeds. A few legumes included peas and possibly cultivated vetch. This material suggests that cereals were being cleaned on the site, possibly for use in such food as pottage, and partly cleaned cereals were being brought to the site which suggests that the cereals were grown near to the town.

Undercroft/cellar, Building 6 (Phase 8B)

The fill of this probable cellar was from the disuse and backfill of the feature and the six samples examined are similar to domestic rubbish pit deposits seen elsewhere in the town. Charcoal and probable fire-ash were abundant, with a moderate number of charred cereal grains, hazel nutshell, occasional legume fragments, and with weed seeds probably as waste from preparing cereals for consumption. The main cereals are wheat, barley and oats in that order; bread wheat was recognized from sparse chaff fragments suggesting that this was the cereal processed for use. The richest sample was sample 280 from dump layer 5218 (Table 50) with a moderate density of 12.1 items per litre, while a second sample from these dumps, sample 291 was similar with fewer remains, while sample 281 contained quite numerous fish scales as additional food waste. This seems to represent the use of the feature as a rubbish pit for domestic rubbish from surrounding occupation perhaps including building 7.

Phase 8 pits, samples 82, 92, 86

Three pits were sampled but none was rich in remains. Pits 2083 and 2175 contained a scatter of wheat and barley grains with large grass and vetch seeds in the former, the latter with a fragment of bread wheat chaff and a legume fragment which seem to represent similar domestic waste to the undercroft fill. Pit 2138 sample 86 contained sparse organic fragments so may possibly include some latrine waste.

Pit 2149 with charred grain dump (Phase 8B)

A layer at the base of this pit consisted almost entirely of charred cereal grains and several samples were examined to see if it was a single uniform deposit which seems to be the case. The grains were found to be of free-threshing wheat and rye in about equal proportions, they were both of prime grains being of large size and well formed. The deposit included a large amount of chaff of both cereals identified as bread wheat chaff and rye, with rye chaff more abundant. Fragments of light chaff (awns and glumes which surround the grains) were also numerous and some straw was present. Weed seeds were present in some variety. This may represent a crop of 'maslin', a mixed crop of wheat and rye grown together which is known from documentary records but is an unusual find (Figure 27).

This appears to represent a crop before cleaning for use in the town, both these cereals are free-threshing so would be easily threshed, probably near to where they were grown and the straw and light chaff and small seeds removed by winnowing. This seems that this is the case here. However, many contaminants remain including many rachis fragments so it seems that the cereals were brought to the site before final cleaning for use. If the grain was for consumption as pottage or for milling for bread flour it would have been sieved to remove chaff and seeds. Perhaps, if it was for malting for brewing, the contaminants would not matter so much. Some of the grains were hollow and sunken and were thought to be germinated, but this is difficult to recognize in free-threshing wheat and rye and is a fairly low proportion of the grains. It is therefore possible that this was spoiled grain burnt for disposal. However accidental burning of malt was a common occurrence during roasting in a kiln, and if the germination is underestimated this may be malted grain. Grain was sometimes parched in a kiln to dry it for storage or to facilitate milling so it could have been accidentally burnt during this process, an additional possibility is that grain could have been burnt during storage.

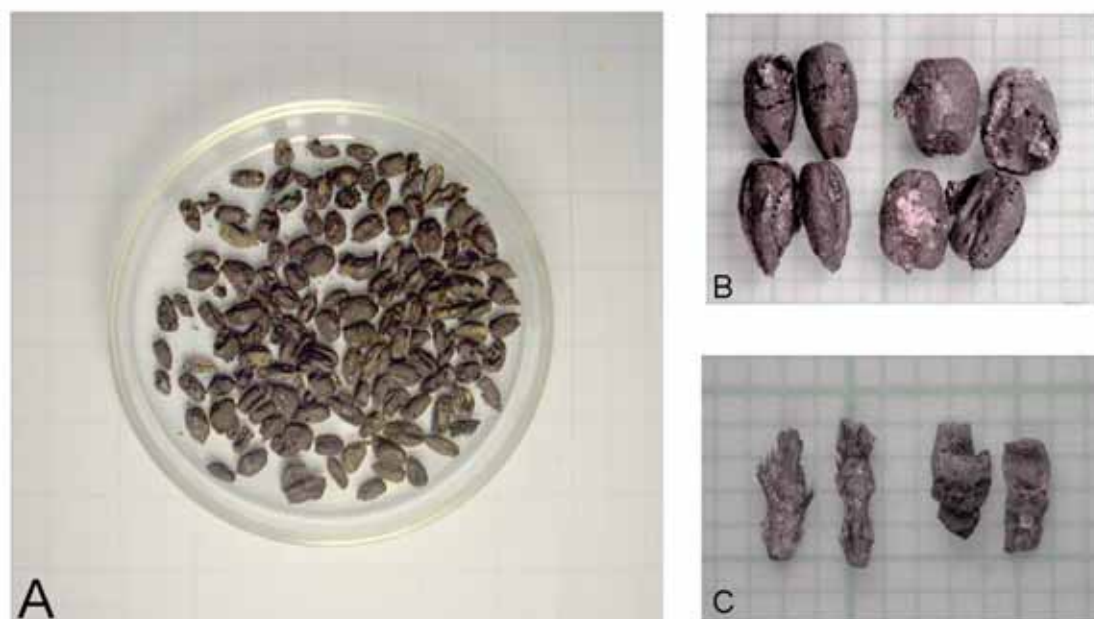


Figure 27 The plant remains: Maslin, mixed wheat and rye as found in pit 2149; B: rye and wheat grains; C: chaff of rye and bread wheat, rachis segments (scale = 1mm squares).

Stone built kiln 525 (Phase 8B)

The kiln had a stone floor and a circular wall which may have supported a superstructure or cover but no evidence survived to indicate how it may have been used. The kiln was sampled at three levels; from the floor, the middle fill, and the upper layer of the fill. Sample 28 from the floor was the richest sample with quite a high density of remains at 43.1 items per litre of soil in a large sample. The cereals found were mostly oats with a little wheat, barley and rye in small numbers. The oats included many germinated grains with about 19% of the grain recognized as germinated, although this is rather low for malted grain many grains were broken and could have been germinated. It should also be remembered that this probably represents smaller grains which have fallen into the fire in the kiln so may not represent the product being roasted in the kiln, but have been left with the spent fuel. The middle fill of the kiln was similar but contained less charred remains in sample 25 (Table 51). The upper fill of the kiln contained a scatter of domestic waste including some fish remains in sample 25 so was probably an accumulation of, or backfill with domestic waste in disuse.

The deposit from the floor of the kiln was not recognized as an 'in situ' burnt deposit so could represent spent fuel from the kiln dumped into the feature from the final uses of the kiln. However, this is possibly waste from malting oats which could have been one of the functions of the kiln. This conclusion is made more possible by comparison with the oven on this site which has an *in situ* burnt deposit of oats (see oven 5487 below), also with burnt germinated oats found at Freeschool Lane from recognizable funnel-shaped malting kilns (Radini 2009). In addition, malting of oats is only recently being recognized in the archaeobotanical record by comparison of a number of sites in the Midlands (W. Smith pers. comm.). The weeds found with the oats are quite numerous and include stinking mayweed, large grasses and vetches all abundant, with scentless mayweed and corn cockle present.

Pit 5006 by undercroft/cellar Phase 8B

This pit was much richer in remains than the previous pits, however, the plant remains are again charred probably domestic waste from food preparation, mainly of free-threshing wheat grains with some weed seeds. Occasional fragments of hazel nutshell and medium sized legumes represent other foods. The deposits contain quite abundant fish remains, mainly scales with a few vertebrae which will be submitted for identification. Some fly puparia are also present which may indicate that latrine waste is present. A few uncharred seeds are not food plants but are probably from the surroundings and include greater celandine (*Chelidonium majus*) which may have been grown as a garden plant, and sun-spurge (*Euphorbia helioscopia*) which has been found in later medieval deposits seen in the city. The pit is contemporary with Undercroft building 5, and pre-dates the Hall Building 7.

Cemetery deposits

Samples from 'charcoal burials'. These samples are considered separately with the human remains.

Phase 9, Early Medieval, (AD 1250-1400)

Domestic oven 5487 with oat grains

This oval to keyhole-shaped feature contained a series of charred deposits and was extensively sampled. An exceptionally rich deposit was found at the base which was seen by the excavators to consist of cereal grains. On examination, sample 206, was found to consist almost entirely of oats, around 2,500 grains in a 0.5 litre sample. Weed seeds were very few including brome grass, a few stinking mayweed and fat hen seeds in a fairly clean crop although oat chaff was still present on some grains and as light fragments in the deposit. Many of the oat grains were germinated, 36.4% were recognized as germinated with many broken grains so this was probably under estimated, hence this was thought to represent malted grain. This was a surprising finding because in modern times oats are not commonly used for malt, however, other medieval deposits including germinated oats are now known. A second sample 205 was analysed and found to be similar adding to the evidence for the oven being used for roasting malted oats. A layer above the grain contained daub fragments thought to represent part of the collapsed superstructure which may have supported the grain while it was being roasted to halt germination before the extraction of sugars for brewing. Other samples 207 and 213 appeared to show successive uses of the kiln, probably representing fuel that had been scraped out which included more weed seeds and chaff probably burnt as waste as part of the fuel. The upper layers represented by sample 106 included a wider range of cereals with chaff and weeds, perhaps as a mixture of cereal processing waste as well as domestic waste accumulated in disuse.

Phase 9 pits, 532, 2019, 2010, and 2093:

Pit 532, samples 20, 21 and 22: contained charred remains in small numbers in the upper sample 20 with charcoal as domestic rubbish. The other samples from (530) were of a white crumbly deposit thought on excavation to be a cesspit deposit of sewage, however, no characteristic cesspit contents such as mineralized seeds, fish remains or fly puparia were found to confirm this.

Pit 2019, samples 77 and 79 (Phase 9A)

This pit also had a pale coloured deposit which on examination consisted of slag or fire ash, with some material with organic impressions. The pit did contain occasional fish remains with charcoal in (2015), and a few cereal grains including wheat with occasional weed seeds probably as waste from a domestic hearth. The pit contains mainly domestic waste.

Cesspit 2010, sample 80(Phase 9A)

This deposit also contained charcoal with a moderate number of cereal grains and a fragment of bread wheat chaff, fish remains were also present including tiny vertebrae. Only a few seeds were mineralized but the presence of some insect remains as well as the fish indicate the presence of latrine waste in the deposit.

All the pits contain domestic waste from food preparation but only the latter appears to contain latrine waste.

Samples 51, 53 and 73 (Phase 9A)

Samples from the floor contain only single numbers of cereal grains including wheat and rye, with a few seeds of weeds such as vetches, and a seed of sun-spurge in sample 73 as found in pit 5006. Charcoal is abundant and fish remains present including a couple of fish vertebrae. Sample 75 from charcoal over the hearth is similar, while sample 61 from charcoal around the hearth includes some coal fragments, and has the same cereals as the previous samples, but is richer in fish scales although none of the fish remains appear to have been burnt. The remains appear to be a scatter of waste accumulated from food preparation and compares with the remains in the pits.

Phase 10, Medieval, (AD 1400 - 1500)*Mud-walled building 8, samples 59, 31 and 32:*

Sample 59 from the tank fill is similar to those above as a scatter of domestic waste including a few fish vertebrae. Sample 31 and 32 contain abundant charcoal with no charred cereals or other plant remains but abundant fish scales and some vertebrae. Eggshell was also present as food remains. Small mammal bones were also abundant which may be of rodent pests of the household. These additional remains will be submitted for identification

Phase 11, Post-Medieval, (AD 1500 -1650)*Mud-walled building 8, sample 45*

This sample of floor trample is similar to the Phase 9 samples from this building with a few wheat grains and a hazel nutshell fragment and a few fish remains as a scatter of domestic waste.

Phase 12, Post-medieval (AD 1650 -1750)*Post-medieval soils, samples 98 and 99*

These contained only charcoal and a few charred cereals and legume fragments probably from the scatter of domestic waste on the site.

Discussion

The medieval plant remains from the two buildings examined (Buildings 6 and 8) and most of the Phase 8 and 9 pits contain a low density of charred cereal grains, with weed seeds and rare chaff fragments, which compare with those from the same period at the Shires and Causeway Lane, all of which probably represent domestic waste as a low density scatter. However, the northern plots on this site differ from the evidence from Causeway Lane in having deposits with abundant cereals from the rich deposits in the kiln, the oven and grain-dump pit, all of which probably represent types of trade waste. Until recently commercial waste has only been found in late- and post-medieval deposits in the southern suburb at Bonners Lane (barley processing), and a deposit of barley at Oxford St which had a low level of germination (either spoiled cereal or possibly malting waste). Recent analysis has found an early medieval deposit within the town from the Undercroft at St Nicholas Place of oats and wheat with some germination (possible brewing waste in a pit). The northern plots at Vaughan Way front onto Causeway Lane, and evidence from plant remains from the Causeway Lane excavation (Monckton 1999) was entirely domestic with a scatter of charred remains but with rich cesspit deposits. This was also the case in medieval deposits from the Shires (Moffett 1994). The plots here have evidence of occupation but the rich deposits of cereals may represent an area of trade activity with brewing and cereal processing to supply the residents of the town.

The kiln and oven have different structures with little evidence surviving of how they were used. The requirements for brewing are the same now as in the past: grain is soaked in water, drained and put in a warm place to germinate because this converts the starch to sugars for food for the growing plant. When the grain has sprouted and the length of the sprout is about equal to the length of the grain, germination is halted by parching or roasting the grain. The grains are then broken up and steeped and boiled in water to dissolve the sugars, the liquid poured off and cooled, then yeast is added to ferment the sugars to alcohol. When the fermentation ceases the liquid is allowed to settle and poured off to be consumed as ale. Various flavourings could be added to the brew before fermentation, sweet gale and alecost were used in ale in the early medieval period; hops were only generally used in England later when beer came into fashion replacing ale. The grains used also changed over time, wheat and oats being favoured in the early medieval period in England; barley being more popular later (Unger 2004). When there were shortages of wheat for bread the other grains are known to have been used for brewing, but oats were favoured for brewing in some areas of England in the medieval period (Dyer 1988).

Here the best evidence for the grains used is from the earth-cut feature of the Phase 9 oven 5487. The *in situ* deposit of almost pure oats with a moderately high germination rate of 34.4% in the oven base is taken as evidence of malting oats for brewing, while the deposit from the Phase 8 kiln 525, mainly of oats with germination 19%, compares with that from the Undercroft at 9 St Nicholas Place as probable brewing waste. There, a similar deposit was from an early medieval pit with a rich deposit of wheat and oat grains, in about equal numbers, with about 20% germination of the oats. This was thought to be brewing waste because deposits with germinated oats have now been found at a number of sites in the midlands suggesting that oats were used to make ale here, usually mixed with other cereals. The kiln deposits are also thought to contain brewing waste.

Early medieval brewing was mainly a domestic process using the equipment available in the home so small scale brewing was carried out, and the ale consumed or sold quickly because ale did not keep well (Dyer 2004). With the development of the towns larger scale brewing developed with specialized equipment, kilns and breweries. Kilns lined with stone were used

to roast the malt and large copper kettles heated over an oven were used to mash the malted grain (Unger 2004). It is difficult to see how the Phase 8 stone-built kiln found here was used, but the phase 9 oven is not unlike Roman corn driers where it is thought that the grain was roasted over the flue supported on a fired clay or organic superstructure. The grain may have been laid on straw over the flue and heated by a fire at the opposite end of the oven. Cereal remains are difficult to interpret from these features because cereal waste was used as fuel and some of the grain product could fall into the fire and mix with the fuel (van der Veen 1989). In addition such ovens were used to parch grain for different reasons: grain could be parched for storage if gathered damp, it could be parched to facilitate milling, malted grain could be parched or roasted for brewing, and other grain products may also have required parching in their preparation. Only the evidence from the last uses of the oven may survive so ovens could be used for a number of purposes, the oven here may have also been used as a bread oven. It seems that the 'in situ' deposit of germinated oats may be remains from preparing malted oats which have fallen into the base of the oven when the superstructure collapsed. The Phase 9 oven fits more with small scale brewing using malted oats to make ale. The Phase 8 stone built kiln may have had various uses but the fill contains probable brewing waste so it is likely that it was associated with brewing. It is possible that it was also used to heat a vessel to boil germinated grain to extract malt for brewing.

The grain dump pit of charred wheat and rye as probable maslin also seems to be waste from cereal processing which was being carried on nearby to supply grain to the town or even to prepare grain for malt. A large quantity has been burnt, presumably as an accident in storage or processing, and fires associated with malting kilns were common. The deposit provides more evidence of trade in this area, and of the supply of grain to the town. Rye has not been found in quantity in any of the villages in Leicestershire and Rutland which have been sampled to date with the possible exception of Coleorton which awaits analysis (Monckton 2004). However, rye has been found in Warwickshire at Cawston (Monckton 2000), and at Shenstone in Staffordshire (W. Smith pers. comm.). The weeds with the cereals include scentless mayweed and cornflower which grow on lighter soils rather than clay soils. Weeds of poorly drained or clay soils such as stinking mayweed are also present but it seems unlikely that this represents two different crops mixed together because both are in the same state. Further investigation of the weeds may suggest where the crop was grown.

The oven or pit 3148 associated with the construction phase of the church also provides evidence of cereal processing, including waste from preparing threshed and only partly cleaned crops, one mainly of oats possibly for brewing, another mainly of bread wheat probably being prepared for consumption. This shows that partly cleaned crops were brought to the town, probably grown in fields near to the town.

Some of the weeds provide evidence of cultivation. The presence of Stinking Mayweed indicated the cultivation of heavy soils such as are found in this area. This was a weed which became more common in medieval times and the increase may have been associated with the use of the mould board plough which enabled the cultivation of heavier soils (Greig 1991, 319). Stinking mayweed was called 'mathes' or 'doggefenell' and was described by Fitzherbert in 1523 as 'the worst weede that is, except terre' (i.e. *Vicia* sp) (Jones 1988, 90). Stinking mayweed is numerous at Bonners Lane as found here where it is present in many of the samples. Other arable weeds included cleavers and corn cockle which are associated with autumn sown cereals such as wheat and rye. Weeds of spring sown and garden crops were well represented, probably associated with the oats which are a spring sown crop. Some weeds of lighter soils are also present and the previous conditions in the town fields may have been of lighter soils from the river gravels, but this needs further investigation as little is known about the town fields. Amongst the seeds greater celandine and sun-spurge are of

note as they have only been found in late medieval deposits and the former may be a garden plant.

Few mineralized remains were found here such as were found in the earlier medieval phases at the Shires and Causeway Lane, medieval pits at York Road, post-medieval phases at Bonners Lane and Bowling Green Yard (summarized in Monckton 2004). Mineralised remains are preserved in cesspits where the minerals in the sewage cause organic remains to become semi-fossilised by phosphate replacement, which can provide evidence of the food consumed and of the domestic occupation. Lime was sometimes added to kill smells and flies adding to the minerals present. In the pits here, fruit remains were sparse but fish remains were present as evidence of additional food (see Nicholson below). Charred remains were also present in the pits suggesting a mixture of waste. Other domestic evidence is from a scatter of charred domestic waste on the site which contrasts with the abundant charred cereals, probably waste from commercial activities in some of the features.

Conclusions

A Roman soil contained only small numbers of charred plant remains, showing a scatter of probably domestic waste with the same cereals as found in other sites of this date in Leicester.

Three features which were exceptionally rich in charred cereals were found on the site; a pit with a dump of charred wheat and rye and a stone built kiln of Phase 8, and an oven of Phase 9. The former was interpreted as a deposit of 'maslin' consisting of almost equal amounts of bread wheat and rye with abundant chaff and weeds. The cereal was probably threshed but only partly cleaned, and burnt during processing or storage. Similar remains mainly of oats and bread wheat were found in an oven associated with the construction phase of the church Phase 8.1 which seems to represent successive uses or dumps of waste. The Phase 9 oven contained an *in situ* deposit of burnt oats, many of which were germinated, perhaps indicating malted oats for brewing which had been burnt during processing in the oven. The oven contained traces of successive uses with cereal waste included in the fuel. There is documentary evidence that oats were favoured for brewing in the medieval period and a number of recent archaeobotanical finds from the Midlands add to this evidence. The deposits in the stone-built kiln, although not *in situ*, also contain oats including less-germinated oats, thought to be brewing waste, although the kiln may have had other functions. These abundant cereal remains are unusual within Leicester and suggest that this was an area of trade activity to supply the residents of the town.

The majority of the remaining early medieval samples from the floors of the mud-walled building, the backfill of the cellar or undercroft, and rubbish pits, generally contained small numbers of charred cereals including free-threshing wheat, rye, barley and oats with arable weed seeds as a scatter of domestic waste. Charred legumes were sparsely present, and gathered plant food was represented by hazel nutshell. More abundant probably domestic waste was present in the upper fills of the kiln and oven as well as in a pit of Phase 9. Few mineralized plant remains were found to indicate sewage disposal, there were a few mineralized weed seeds, although fish remains were recovered from a number of deposits. There was less evidence of domestic occupation than found at previous excavations in the city while the evidence for trade activities was exceptional.

Acknowledgements

I am grateful to Alex Beacock and Anita Radini for processing the samples, and to Anita Radini for analysis of samples 89, 1055 and the industrial samples.

Table 50 The plant remains (A2.2003)

Phase	7	8B	8B	8B	8B	8B	8B	8B	8B	8	
Type	Pit	Kiln			U/C			GD		Pit	
Feature	-	525	525	525	5218	5218	5312	2149	2149	-	
Context	3415	528	527	526	5219	5218	5305	2156	2156	2157	
Sample	1055	28	25	23	281	280	291	88	89	92	
CEREAL GRAINS											
<i>Triticum</i> free-threshing grain	51	25	21	6	1	5	1	146	126	4	Free-threshing Wheat
<i>Triticum</i> sp(p)	8	5	7	-	-	7	1	-	-	-	Wheat grains
<i>Secale cereale</i> L.	9	5	2	-	-	-	-	144	109	-	Rye grains
<i>Hordeum vulgare</i> L.	-	1	3	-	6	1	-	-	-	1	Barley grains
<i>Avena</i> sp.	5	88	22	-	-	7	4	5	-	-	Oat grains
<i>Avena</i> sp. Germinated	1	25	18	-	-	-	-	-	-	-	Oats germinated
Cereal/Poaceae	-	11	27	3	-	3	3	-	-	-	Oat/Grass
Cereal indet	50	49	29	6	7	9	1	301	29	9	Cereal
Cereal embryos		-	-	-	-	-	-	(85)	(14)	-	
CEREAL CHAFF											
<i>Triticum aestivum</i> s l rachis.	-	3	-	-	-	2	-	23	12	1	Bread wheat
<i>Triticum</i> free-threshing rachis	-	-	-	-	-	-	-	9	7	-	Free-threshing Wheat
<i>Triticum turgidum</i> type rachis	-	-	-	-	-	-	-	1?	-	-	Rivet type?
<i>Triticum spelta</i> L. glume base	-	-	-	-	-	-	-	-	1	-	Spelt
<i>Secale cereale</i> L. rachis	-	-	-	-	-	-	1	123	47	-	Rye
<i>Hordeum vulgare</i> L. rachis	-	-	-	-	-	-	-	-	1	-	Barley
<i>Avena</i> sp spikelet	-	+	-	-	-	-	-	-	-	-	Oat spikelet
<i>Avena sativa</i> L. spikelets	-	1	-	-	-	-	-	1	1	-	Cultivated Oat
Cereal rachis fragments	1	-	-	-	-	1	-	32	21	-	Rachis fragments
Cereal light chaff, glumes, awns.	-	+	-	-	-	-	-	+	+	-	Light chaff fragments

Phase	7	8B	8B	8B	8B	8B	8B	8B	8B	8	
Type	Pit	Kiln			U/C			GD		Pit	
Feature	-	525	525	525	5218	5218	5312	2149	2149	-	
Context	3415	528	527	526	5219	5218	5305	2156	2156	2157	
Sample	1055	28	25	23	281	280	291	88	89	92	
Cereal culm nodes	-	-	-	1	1	-	2	14	2	-	Cereal straw
LEGUMES											
Vicia/Pisum	-	2	1	-	-	-	-	-	-	-	Bean/Pea
Vicia sativa/Pisum	-	-	4	1	2	-	-	-	-	1	Vetch/Peas
CULTIVATED / COLLECTED											
Corylus avellana L.	-	-	-	1	6	6	11	-	-	-	Hazel nutshell
ARABLE/ DISTURBED LAND											
Papaver rhoeas L.	-	-	-	-	-	-	-	2	1	-	Common Poppy
Chenopodium sp	3	5	-	-	-	1	-	9	1	-	Goosefoots
Chenopodium album L.	1	-	1	-	-	-	1	-	-	-	Fat-hen
Agrostemma githago L.	-	4	-	-	-	-	1	-	2	-	Corn Cockle
Polygonum aviculare L.	-	-	-	-	-	-	-	8	-	-	Knotgrass
Fallopia convolvulus (L.) A. Love	-	-	-	-	-	-	-	-	-	-	Black bindweed
Rumex sp	-	18	7	-	-	1	-	3	1	-	Docks
Rumex acetosella L.	-	2	1	-	-	-	-	-	3	-	Sheep's sorrel
Brassica sp.	-	-	1	-	-	-	-	-	-	-	Cabbage family
Thlaspi arvense L.	-	-	-	-	-	-	-	-	-	-	Field Penny-cress
Vicia sativa ssp nigra (L) Ehrh	-	-	-	-	-	-	-	1	-	-	Common Vetch
Hyoscyamus niger L. (u)	-	-	-	-	-	4	-	-	-	-	Henbane
Lithospermum arvense L.	1	-	-	-	-	-	-	-	-	-	Field gromwell
Centaurea cyanus L.	-	-	-	-	-	-	-	1	-	-	Cornflower
Anthemis cotula L.	17	43	6	-	-	5	-	32	13	-	Stinking Mayweed
Tripleurospermum inodorum (L.)	1	1	-	-	-	-	-	23	19	-	Scentless Mayweed
Bromus hordeaceus/secalinus	-	3	2	-	-	-	-	9	-	-	Lop-grass/Rye-brome
UNCLASSIFIED											

Phase	7	8B	8B	8B	8B	8B	8B	8B	8B	8	
Type	Pit	Kiln			U/C			GD		Pit	
Feature	-	525	525	525	5218	5218	5312	2149	2149	-	
Context	3415	528	527	526	5219	5218	5305	2156	2156	2157	
Sample	1055	28	25	23	281	280	291	88	89	92	
Cerastium/Stellaria	-	-	-	-	-	1	-	1	-	-	Mouse-ear/Stitchwort
Spargula arvensis L.	-	-	-	-	-	-	-	1	-	-	Corn spurrey
Vicia sp	3	22	4	-	2	3	2	5	4	-	Vetch
Vicia/Lathyrus	-	2	6	2	-	-	-	-	-	1	Tare/Vetch/Vetchling
Medicago/Melilotus/Trifolium	-	-	-	-	-	-	1	-	1	-	Medick/Melilot/Clover
Euphorbia helioscopia L.	-	-	-	2	-	-	-	-	-	-	Sun spurge
Chelidonium majus L.	-	-	-	-	-	-	-	-	-	-	Greater celandine
Apiaceae	-	-	-	-	-	-	-	-	-	-	Carrot family
Plantago lanceolata L.	-	1	-	-	-	-	-	-	-	-	Ribwort plantain
Plantago major L.	-	-	-	-	-	-	-	1	-	-	Greater plantain
Euphrasia/Odontites	-	-	-	-	-	-	-	1	-	-	Eyebright/Bartsia
Sambucus nigra L.	-	-	-	-	-	-	-	-	1	-	Elder
Sambucus nigra L. (u)	-	-	+	+	+	+	+	-	-	+	Elder
Valerianella locusta (L.) Laterr.	-	-	-	-	-	1	-	-	-	-	Cornsalad
Asteraceae	3	1	-	-	-	1	-	9	-	-	Daisy family
Centaurea nigra L.	-	1	-	-	-	-	-	-	2	-	Knapweed
Crepis sp.	-	2	-	-	-	-	-	-	-	-	Hawks-beard
Leontodon sp.	4	-	-	-	-	-	-	-	-	-	Hawkbit
Luzula sp.	-	-	-	-	-	-	1	-	-	-	Wood-rush
Eleocharis palustris/uniglumis	-	-	-	-	-	4	-	-	1	-	Spike-rush
Carex sp (u)	-	-	-	-	-	+	-	-	-	-	Sedges
Carex sp. (charred)	-	4	1	-	-	7	2	3	1	-	Sedges
Poaceae large	7	12	6	-	4	3	-	69	-	5	Grasses
Poaceae small-medium	-	2	-	-	-	3	-	-	-	-	Grasses
Indeterminate seeds (charred)	1	5	-	3	2	6	-	5	4	-	Indeterminate seeds

Phase	7	8B	8B	8B	8B	8B	8B	8B	8B	8	
Type	Pit	Kiln			U/C			GD		Pit	
Feature	-	525	525	525	5218	5218	5312	2149	2149	-	
Context	3415	528	527	526	5219	5218	5305	2156	2156	2157	
Sample	1055	28	25	23	281	280	291	88	89	92	
Uncharred seeds (u)	-	4	2	4	-	12	4	-	-	-	Uncharred seeds
Sample Vol	0.8*	8	9	8	6	6	6	5*	1*	6	Litres
Flot Vol	30	150	150	60	105	175	225	200	75	45	Mls
% sorted	50	all	All	all	all	all	All	6.3%	50%	all	% sorted
Items/litre of soil	344	43	19	3.1	14	3.7	5.1	3100	1000	3.6	Items per litre of soil

Key: Remains are seeds in the broad sense and are charred unless described otherwise.

u = uncharred, m = mineralized, + = present, ++ = abundant, * = part sorted.

U/C = undercroft/cellar building 6, GD = grain dump.

Table 51 The plant remains (A2.2003)

Phase	8A	8B	8B	9	9	9	9	9	9	9A	
Type	Ov	Pit		Ov						Pit	
Feature	3148	5006	5006	5487	5487	5487	5487	5487	5487	2010	
Context	3244	2973	2972	3024	3006	3019	3038	3025	2583	2011	
Sample	1010	243	244	206	205	209	213	207	106	80	
CEREAL GRAINS											
<i>Triticum</i> free-threshing grain	12	29	21	-	4	6	20	-	54	3	Free-threshing Wheat
<i>Triticum</i> sp(p)	-	3	5	-	-	-	16	-	6	-	Wheat grains
<i>Secale cereale</i> L.	9	6	-	-	2	-	-	-	1	6	Rye grains
<i>Hordeum vulgare</i> L.	11	-	-	-	-	1	1	-	21	2	Barley grains
<i>Avena</i> sp.	49	9	5	307	223	23	14	17	28	1	Oat grains
<i>Avena</i> sp. Germinated	22	-	-	176	56	-	-	7	-	-	Oats germinated
Cereal/Poaceae	-	3	4	3	1	4	5	-	-	-	Oat/Grass
Cereal indet	17	29	29	32	9	9	7	-	36	9	Cereal
CEREAL CHAFF											
<i>Triticum aestivum</i> s l rachis.	27	1	1	-	1	1	-	-	1	1	Bread wheat
<i>Triticum</i> free-threshing rachis	10	2	-	-	-	2	3	-	-	-	Free-threshing Wheat
<i>Secale cereale</i> L. rachis	4	-	-	-	-	-	-	-	-	4	Rye
<i>Hordeum vulgare</i> L. rachis	7	-	-	-	-	-	1	-	-	2	Barley
<i>Avena</i> sp spikelet	1	-	-	+	+	-	-	-	-	-	Oat spikelet
<i>Avena sativa</i> L. spikelets	1	-	-	7	1	-	-	-	-	1	Cultivated Oat
Cereal rachis fragments	19	-	-	-	-	-	-	-	-	2	Rachis fragments
Cereal light chaff, glumes, awns.	++	-	-	++	+	+	+	+	+	-	Light chaff fragments
Cereal culm nodes	13	-	-	-	-	-	-	-	2	2	Cereal straw
LEGUMES											
<i>Vicia/Pisum</i>	-	3	-	-	-	-	-	-	2	-	Bean/Pea
<i>Vicia sativa/Pisum</i>	-	4	-	-	2	-	-	-	-	-	Vetch/Peas
CULTIVATED / COLLECTED											
<i>Corylus avellana</i> L.	4	3	2	-	-	-	-	-	-	-	Hazel nutshell

Phase	8A	8B	8B	9	9	9	9	9	9	9A	
Type	Ov	Pit		Ov						Pit	
Feature	3148	5006	5006	5487	5487	5487	5487	5487	5487	2010	
Context	3244	2973	2972	3024	3006	3019	3038	3025	2583	2011	
Sample	1010	243	244	206	205	209	213	207	106	80	
<i>Linum usitatissimum</i> L.	4	-	-	-	-	-	-	-	-	-	Flax/Linseed
ARABLE/ DISTURBED LAND											
<i>Papaver rhoeas</i> L.	15	-	-	-	-	1	-	1	1	-	Common Poppy
<i>Chenopodium</i> sp	84	1	1	-	1	4	5	14	21	-	Goosefoots
<i>Chenopodium album</i> L.	15	-	-	3	2	3	2	3	5	-	Fat-hen
<i>Agrostemma githago</i> L.	26	-	-	-	-	1	2	-	-	-	Corn Cockle
<i>Polygonum aviculare</i> L.	-	-	-	-	-	-	-	1	-	-	Knotgrass
<i>Fallopia convolvulus</i> (L.) A. Love	42	-	-	-	-	-	-	-	1	-	Black bindweed
<i>Rumex</i> sp	7	2	-	-	-	-	1	-	-	-	Docks
<i>Rumex acetosella</i> L.	8	-	-	-	-	1	1	-	-	-	Sheep's sorrel
<i>Brassica</i> sp.	-	-	-	-	-	-	-	-	-	-	Cabbage family
<i>Thlaspi arvense</i> L.	-	-	-	-	-	-	-	1	-	-	Field Penny-cress
<i>Potentilla anserina</i> L.	3	-	-	-	-	-	-	-	-	-	Silverweed
<i>Galium aparine</i> L.	-	-	-	-	-	-	-	1	-	-	Cleavers
<i>Centaurea cyanus</i> L.	-	-	-	-	-	-	-	-	-	1	Cornflower
<i>Anthemis cotula</i> L.	227	-	-	2	1	17	15	3	23	-	Stinking Mayweed
<i>Tripleurospermum inodorum</i> (L.)	2	-	-	-	-	-	-	-	1	-	Scentless Mayweed
<i>Danthonia decumbens</i>	3	-	-	-	-	-	-	-	-	-	Heath grass
<i>Bromus hordeaceus/secalinus</i>	33	-	-	14	3	1	-	-	-	-	Lop-grass/Rye-brome
UNCLASSIFIED											
<i>Atriplex</i> sp	5	-	-	-	-	1	-	-	-	-	Oraches
<i>Cerastium/Stellaria</i>	-	-	-	-	-	-	-	-	-	-	Mouse-ear/Stitchwort
<i>Spergula arvensis</i> L.	-	-	-	-	-	1	-	-	-	-	Corn spurrey
<i>Polygonum</i> sp.	7	-	-	-	-	-	2	-	-	-	Knotweed
<i>Raphanus raphanistrum</i> L.	-	1	-	-	-	-	-	2	-	-	Wild radish

Phase	8A	8B	8B	9	9	9	9	9	9	9A	
Type	Ov	Pit		Ov						Pit	
Feature	3148	5006	5006	5487	5487	5487	5487	5487	5487	2010	
Context	3244	2973	2972	3024	3006	3019	3038	3025	2583	2011	
Sample	1010	243	244	206	205	209	213	207	106	80	
<i>Prunella vulgaris</i> L.	-	-	-	-	-	-	-	1	-	-	Self-heal
<i>Vicia</i> sp	13	7	4	-	2	1	3	1	16	-	Vetch
<i>Vicia/Lathyrus</i>	6	-	3	-	-	1	9	-	10	-	Tare/Vetch/Vetchling
Medicago/Melilotus/Trifolium	-	-	-	-	-	3	-	1	-	-	Medick/Melilot/Clover
<i>Malva</i> sp..	4	-	-	-	-	-	-	-	-	-	Mallow
<i>Euphorbia helioscopia</i> L.	-	1	-	-	-	-	-	-	-	-	Sun spurge
<i>Chelidonium majus</i> L.	-	4u	-	-	-	-	-	-	-	-	Greater celandine
Apiaceae	8	-	-	-	-	-	-	-	3	-	Carrot family
<i>Anagalis/Lysimachia</i>	2	-	-	-	-	-	-	-	-	-	Pimpernels
Lamiaceae	5	-	-	-	-	-	1	-	-	-	Deadnettle family
<i>Plantago lanceolata</i> L.	2	-	-	-	-	-	1	-	1	-	Ribwort plantain
<i>Plantago major</i> L.	-	-	-	-	-	-	-	-	-	-	Greater plantain
<i>Euphrasia/Odontites</i>	-	-	-	-	-	-	-	-	3	-	Eyebright/Bartsia
<i>Sambucus nigra</i> L.	2	1	-	-	-	-	-	-	1	-	Elder
<i>Sambucus nigra</i> L. (u)	-	+	+	-	-	-	-	-	+	+	Elder
<i>Valerianella locusta</i> (L.) Laterr.	2	-	-	-	-	-	-	-	-	-	Cornsalad
Asteraceae	19	-	-	-	-	2	2	1	8	-	Daisy family
<i>Crepis</i> sp.	27	-	-	-	-	1	1	-	4	-	Hawks-beard
<i>Luzula</i> sp.	-	-	-	-	-	-	-	-	2	-	Wood-rush
<i>Eleocharis palustris/uniglumis</i>	8	-	-	-	-	-	-	-	-	-	Spike-rush
<i>Carex</i> sp (u)	-	4u	1u	-	-	-	-	-	-	-	Sedges
<i>Carex</i> sp. (charred)	6	-	-	-	1	-	-	-	4	-	Sedges
Poaceae large	52	3	2	88	4	1	3	2	6	-	Grasses
Poaceae small-medium	-	-	-	-	2	1	2	1	7	-	Grasses
Indeterminate seeds (charred)	12	5	3	-	1	2	1	-	6	-	Indeterminate seeds

Phase	8A	8B	8B	9	9	9	9	9	9	9A	
Type	Ov	Pit		Ov						Pit	
Feature	3148	5006	5006	5487	5487	5487	5487	5487	5487	2010	
Context	3244	2973	2972	3024	3006	3019	3038	3025	2583	2011	
Sample	1010	243	244	206	205	209	213	207	106	80	
Uncharred seeds (u)	-	4	6	-	-	-	-	-	3	4	Indeterminate seeds
Sample Vol	1*	6	4	0.5*	1*	0.35	2	0.25	6	3	Litres
Flot Vol	85	65	100	200	95	10	35	45	30	60	Mls
% flot sorted	25	all	all	25%	25%	all	all	all	all	all	% sorted
Items/litre of soil	3000	19	20	5000	1200	260	56	228	46	11	Items per litre of soil

Key: Remains are seeds in the broad sense and are charred unless described otherwise.

Ov = oven/kiln. u = uncharred, m = mineralized, + = present, ++ = abundant, * = part sorted.

Table 52 The plant remains: occurrence of food plants and weeds in samples by phase

Plants	RB	Ph.5	Ph.7	Ph.8	Ph.9	Ph.10	Ph.11/12
Food:							
Spelt	1	1		1	-		
Wheat	1	1	2	15	10	1	1
Rye			1	8	3		
Barley				8	4		
Oats			1	10	7		
Chaff	1	1		14	6		
Nutshell		1	1	10			1
Legumes	1			8	2		
Weeds:							
Common Poppy				3	3		
Corn cockle				5	2		
Scentless mayweed			1	4	1		
Stinking mayweed			1	9	6		
Cleavers					1		
Cornflower				1	1		
Total Weed spp	2spp	3spp	1spp	42spp	35spp	-	2spp
Total Samples	2	1	1	26	31	3	3

Key: Number of samples with plants present and total number of samples examined per phase (excluding industrial samples from the bell-pit).

Table 53 The plant remains: summary of samples (A2.2003)

Samp	Con	Cut	Cut. Type.	Vol. litres	Gr	Cf	Se Ch	L	Oth	Chc	I/L	Comments
RB												
35	655	-	Soil	7* +7	6	1	3	-	-	+	1.4	Spelt glume, wheat and fr-th wheat, ?mixed deposit.
36	659	-	Soil	6* +8	-	-	-	-	-	fl	0	None
SAX												
227	2801	2786	Grub	6	7	1	4	-	1n	fl	2.2	A spelt glume, fr-th wheat and barley grains.
Ph.7												
84	2088	2086	Pit	5	5	-	1	-	1n	+	1.4	FISH, few organics.
1055	3414		Pit	0.8	124	1	40	-	-	+	344	Scan. Many broken cereal grains and numerous crop weeds, both mayweeds, Lithospermum and others.
Ph.8												
28	528	525	Kiln	8	208	6	128	2L	-	++	43	Oats 19.5% germ.#
27	528	525	Kiln	8								N/s
26	528	525	Kiln	18								N/s
25	527	525	Kiln	9	129	-	39	5L	1n	.	19	Oats and Wheat.#
24	527	525	Kiln	27								N/s
23	526	525	Kiln	8* +17	12	-	12	-	1n	+	3.1	Wheat and weeds.#
33	697	525	Kiln	0.25								Burnt soil from base, not sieved.
88.1	2156	2149	Grain Dump	5**	605	187	183	-	14st	++	3K	Wheat and Rye, grains and chaff. 6.25% sorted. #
88.2	2156	2149	Grain dump	4	++	+	+	-	-	-	++	N/s, as above. (Flot x3)
89	2156	2149	Grain dump	1**	335	89	55	-	4st	++	1K	Wheat and Rye, grains and chaff. 50% sorted.#

Samp	Con	Cut	Cut. Type.	Vol. litres	Gr	Cf	Se Ch	L	Oth	Chc	I/L	Comments
90	2156	2149	Grain dump	8	++	+	+	-	-	++	++	N/s, as above. (Flot x2)
92	2157	-	Pit	6	14	1	6	1L	-	++	3.6	Bread wheat chaff.#
86	2137	2138	Pit	10								N/s, Cesspit?
82	2083	2082	Pit	6	10	-	30	-	-	+	c.8	Scan. Ash/slag.
280	5218	5218	Cellar	6	32	3	43	-	6n	++	14	Bread wheat grains, more seeds.#
281	5219	5218	Cellar	6* +7	14	-	6	2L	6n	++	3.7	Barley, wheat grains, FISH scales few bones.#
287	5220	5218	Cellar	8	6	-	5	-	6n	++	2.1	Barley, wheat.
288	5289	5289	Cellar	9						++		N/s
289	5289	5289	Cellar	4	2	-	3	-	2n	++	2	Barley
291	5305	5312	Cellar	6	10	1	8	-	11n	++	5	Oats and wheat.#
292	5304	5306	Cellar	6	12	1	5	1L	-	+	3	Bread wheat, barley,oats.
242	2974	5006	PIT	6						+		N/s
243	2973	5006	PIT	6	79	3	29	-	3n	+	19	Cereals, seeds, bones, fish, insects.#
244	2972	5006	PIT	4	64	1	13	-	2n	+	20	Cereals, FISH etc.#
OVEN												
1006	3147	3148	Top Centre	1	154	47	62	-	6L	+	250	Wheat, barley, rye and oats, bread wheat chaff, crop weeds.##
1007	3218		West	1	17	1	32	-	-	+	50	Some Si light chaff. Many seeds, few grains##.
1007	3218		East	1	29	1	46	-	15st 1L	+	92	Silicified light chaff, wheat and rye rachis, few grains, many seeds ##.
1008	3129		NE	1								N/s
1008	3129		SW	1								N/s

Samp	Con	Cut	Cut. Type.	Vol. litres	Gr	Cf	Se Ch	L	Oth	Chc	I/L	Comments
1010	3244		NW	1	121	67	571	-	13st	+	3K	Many crop weed seeds, Bread wheat and rye rachis, most oat grains some germd, some wheat and rye ##.
1012	3253		NE	1	-	-	++	-	+	+		Scan, seeds and straw nodes present. N/s
1012	3253		SW	1								N/s
Ph.9												
205	3006	5487	OVEN	1** +!	295	1	19	2L	-	++	1K	Oats, 20.1% germ.#
206	3024	5487	OVEN	0.5**	519	+	107	-	-	++	5K	Oats, 36.4 germ.#
210	3016	5487	OVEN	2	6	1	17	-	1n	+	2	Few remains.
201	3023	5487	OVEN	4	-	++	-	-	-	-	+	Light chaff, silicified.
202	3013	5487	OVEN	5							++	N/s
207	3025	5487	OVEN	0.25	25	-	32	-	-	++	228	Oats + more weeds.#
213	3038	5487	OVEN	2	58	4	51	-	-	++	56	Bread wheat, barley, oats, more weeds.#
208	3017	5487	OVEN	0.75							++	N/s
209	3019	5487	OVEN	0.35	43	3	42	-	-	++	260	Oats, wheat, barley, chaff, more weeds.#
112	3012	5487	OVEN	0.25	-	++	-	-	-	+	+	Light chaff, silicified..
115	3010	5487	OVEN	4								N/s
109	3014	5487	OVEN	5								N/s
110	3021	5487	OVEN	0.5								N/s
111	3015	5487	OVEN	5								N/s
105	2582	5487	OVEN	7	+	-	+	-	-	++	+	Scan, as 106 but more Vetches.
106	2583	5487	OVEN	6* +5	146	1	115	11L	-	++	46	Bread wheat, barley, oats, weeds.#

Samp	Con	Cut	Cut. Type.	Vol. litres	Gr	Cf	Se Ch	L	Oth	Chc	I/L	Comments
107	3009	5487	OVEN	5	c.20	-	c.40	-	-	+	c.8	Scan, as 106 above.
220	3022	-	PH	1						+		N/s, small flot
20	530	532	Pit	7* +7	15	-	10	1L	-	+	4	All charred, prob not cess, test?
21	531	532	Pit	5	10	-	1	-	-	+	2	White deposit, test?
22	531	532	Pit	6	+	-	+	-	-	+	+	As above.
77	2015	2019	Pit	6	3	-	-	-	-	+	0.5	Fish.
79	2025	2019	Pit	7* +7	c.10	-	c.30	-	-	+	c.8	Ash/slag, grass seeds.
80	2011	2010	Pit	3	21	11	1	-	-	+	11	Mostly charred, few un seeds, FISH vertebrae tiny, insect remains, test? #
85	2132	2093	Pit	10								Not seen, skeleton pit.
51	925	Floor	MB8	2	1	-	2	-	-	+	1.5	2 Fish scales.
52	953	Floor	MB8	2	-	-	-	-	-	+	0	Fish, eggshell.
61	988	Hearth	MB8	5* +4	3	-	2	-	-	++	1	FISH x20, Coal.
73	1030	Floor	MB8	4	1	-	1	-	-	+	0.5	Fish few.
75	1040	Hearth	MB8	4	4	-	2	-	-	+	1.5	Mostly coal.
Ph10												
59	990	Tank	MB8	6	2	-	-	-	-	+	0.3	FISH
31	672	Floor	MB8	8* +16	-	-	-	-	-	++	0	FISH, eggshell etc.
32	673	Floor	MB8	8* +16	-	-	-	-	-	++	0	FISH, sm bones, sort more, see residue.
Ph11												

Samp	Con	Cut	Cut. Type.	Vol. litres	Gr	Cf	Se Ch	L	Oth	Chc	I/L	Comments
45	917	Floor	MB8	4	3	-	-	-	ln	+	1	Few fish.
Ph.12												
98	2473	-	Soil	8	1	-	2	-	-	+	0.4	Sun-spurge seed.
99	2231	-	Soil	8	-	-	3	-	-	+	0.4	Sun-spurge seed.
MED												
87	2136	2135	Pit	6	++	+	+	-	-	+	c.20	Good sample, unphased.
236	2878	2877	Pit	9								N/s
237	2880	2879	Pit	6								N/s
INDUS												
1042	3366		Bell m	4								N/s
1095				1								N/s
1032	3297		Fill	7.2	-	-	-	-	-	fl		Scan. Sand with shell fragments, an elder frag uncharred.
1038	3358		Bell m	5	3	-	-	1	-	fl		A few cereal grains and an elder seed un.
1048	3410		Plinth	8	-	-	+	-	-	+		Scan. Sand and mortar with a few grass seeds.
1013				6.8								N/s
1047	3409			3.5	-	-	-	-	-	fl		Sand with flecks of charcoal, nothing.
1063	3396			6	+	-	+	-	-	fl		A few grains and some weed seeds with shell fragments, poor.

Key: Gr = grain, Cf = chaff, Se = seed, ch = charred, un = uncharred, L = large legume, n = hazel nutshell, st = straw, fr-th = free-threshing, Chc = charcoal, +, ++, +++ = present, moderate, abundant amount, N/s = not sorted, MB8 = mud-walled building 8, + volume = additional material processed, * = one part sorted, ** = fraction of flot sorted. # = analysis, detailed in Table 50 and Table 51.

THE CHARCOAL: A CATALOGUE OF IDENTIFIED SPECIES *Graham Morgan*

Species present

Oak	<i>Quercus spec.</i>
Poplar	<i>Populus</i> or <i>Salix spec</i>
Hazel	<i>Corylus avellana</i> or <i>Alnus spec.</i>

Table 54 The charcoal: identified charcoal fragments within Roman contexts

Context	Cut	Sample	Dia.	Rings	Est. Age	Species
2983	2980	254	20	10	10	Hazel
2983	2980	254	80	30	30	Oak
2983	2980	254	80	20	20	Oak
2983	2980	254	60	23	23	Oak
2983	2980	255	20	13	13	Hazel
2983	2980	255	15	4	4	Poplar
2983	2980	255	50	16	16	Oak
2983	2980	255	15	5	5	Oak
3064	3063	224	-	-	-	Oak (mature fragments)
3064	3063	224	80	25	40	Oak
3064	3063	224	60	45	50	Oak (slow grown)
3066	3065	225	100	20	40	Oak
3066	3065	225	160	16	50	Oak
3219	-	1008	80	8	25	Oak
3219	-	1008	30	12	12	Hazel
5135	5132	267	100	26	50	Oak (slow grown)
5135	5132	267	200?	56	100?	Oak
5135	5132	267	200	40	80	Oak
5150	-	270	100	40	50	Oak
5151	-	270	60	10	10	Oak (fast grown)
5155	5156	273	-	-	-	Oak (mature fragments)
5189	5187	274	-	-	-	Oak (fragments)

THE ANIMAL BONE *Jeanette Wooding*

Introduction

The excavations revealed evidence for activity from the prehistoric through to the post-medieval periods. This report will largely focus on the faunal remains associated with the Roman, post-Roman, Saxo-Norman and medieval phases. Unlike the contemporaneous nearby sites such as Vine Street (Higgins & Morris 2009) and Causeway Lane (Connor and Buckley 1999), the Roman phases at Vaughan Way do not indicate extensive domestic occupation. There is little evidence for structural remains and only a small number of isolated pits were identified. In fact, during the Roman period this area appears to have been left exposed and unoccupied, predominantly utilised as a gravel quarry. The post-Roman phases are characterised by the presence of possible grubenhäuser and the medieval phases dominated by the construction of the church of St. Peter and its associated cemetery. In these latter medieval phases, the faunal remains analysed are associated with both an undercroft and later mud building. Only bones from contexts chosen in consultation with the site director and considered to be well-stratified and of interpretative value were selected.

The animal bone recovered from Phases 4-10 at Vaughan Way totalled 3007 bones (Table 55). These consisted most predominantly of the three main domesticates cattle, sheep/goat and pig. Just over a third of these bones (1216 fragments, 36%) were diagnostic enough to be identifiable to species, with the remaining two thirds (2156 fragments, 64%) assigned to the categories of cattle/sheep-size, with a smaller number of fragments attributable to other bird, other mammals or indeterminate.

Table 55 The animal bone: number of bones recorded in Phases 4-10

	Phases					
	4	5	7	8	9	10
Total Number of Fragments Recorded (TNF)	718	444	117	1106	582	40
Percentage Total	24%	15%	4%	37%	19%	1%

Methodology

A total of 3007 animal bones from Phases 4-10 were identified and recorded (Table 55). The recording criteria employed centred upon gaining as much information as possible regarding key factors such as age at death, sex and skeletal element representation. Where possible, epiphyseal fusion was recorded and compared with figures published by Silver (1969) and Reitz and Wing (1999: Table 3.5). Tooth eruption and attrition levels were

similarly recorded utilising Grant's (1982) tooth wear stages for cattle, sheep/goat and pig. Only teeth (dp4, P4, M1-3) that were still anchored within the mandible were assigned tooth wear stages (TWS) and, as a result, mandible wear stages (MWS). Maxillary and loose mandibular teeth, as well as teeth assigned to other species were not recorded in this manner. The MWS results were then translated into age ranges using the reference tables created by Hambleton (1999) and O'Connor's age categories (1988). In instances where one or even two molars were missing and tooth wear was only possible on a single *in situ* tooth, a MWS was estimated utilising data and tooth wear combinations amassed by Grant (1982). As Grant emphasises, this unfortunately often leads to an unacceptably large MWS range for a proposed mandible (Grant 1982, 97). However, by taking into account the frequency of certain wear combinations for the M1, M2 and M3 as highlighted by Grant, a potentially large and unhelpful MWS range can be significantly reduced in size, rendering it far more representative. Therefore, where only a single tooth was allocated a TWS in this analysis, only the most frequent tooth wear combinations were utilised when assigning a MWS range. Armitage (1982a) was also utilised to aid in the age estimation of any sufficiently complete cattle horncores. Boessneck (1969), Armitage and Clutton-Brock (1976), Grigson (1982), Greenfield (2005) and Hillson (2005) were also used to sex some of the fragmentary cattle and sheep/goats pelvises as well as the cattle horncores and pig canines.

The animal bones were identified as far as practicable to genus, species and skeletal element aided by the skeletal reference collection located within the School of Archaeology and Ancient History at the University of Leicester. Schmidt's (1972) 'Atlas of Animal Bones' was also consulted. Where possible, Boessneck (1969) was utilised to differentiate between the species of sheep and goat. However, differentiation of these two species is notoriously difficult, as reflected by the high abundance of sheep/goat identifications as compared to just sheep or goat. Anatomical zones for each skeletal element following those published by Serjeantson (1996) were recorded. Additional zones for elements not included in Serjeantson's method, for example, for the skull followed a simple system created by Browning for the Highcross project, based on identification of left and right premaxillae, upper and lower orbits and occipital condyles. Zoning for the mandible was based upon those used by Dobney and Reilly (1988). Those skeletal elements that were deemed appropriate and where completeness allowed were measured following von den Dreisch (1976), Payne and Bull and Payne (1988) and Greenfield (2005) in order to elicit further information regarding animal size, stature and where possible, sex. There were not many suitable bones for measurement, but those measurements that were taken related specifically to the estimation of sex and the calculation of withers height have been included in the following sections for each phase. The rest of the routine measurements taken have been deposited with the archive. Bone modification as a result of butchery, pathology and other taphonomic agents, such as burning and gnawing were recorded along with the overall condition of each individual bone. The criterion used for recording bone condition was based upon overall preservation, taking into account surface morphology and structural integrity. Categories ranging from 'excellent' down to 'very poor' were utilised. All of this information was entered into an access database.

The results of this analysis are presented and discussed by phase. Within each phase prominent features are highlighted independently to gain a better understanding of their function. NISP and MNI form the primary quantification methods applied to the raw data. Age at death, sex (where possible) and skeletal element representation are presented along with metrical data, butchery patterns and pathology. 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).

As reliable identifications of sheep and goat are few in comparison to the much larger sheep/goat category, these will be amalgamated into the latter. However, positive identification of goat was only made in Phase 9 (1250-1400), and it is therefore assumed that the majority of these animals are in fact, sheep, in keeping with evidence from previously studied Leicester assemblages including Gidney (1999) and Baxter (2004). It is important to note at this stage, that the small size of the assemblages recorded at Vaughan Way unfortunately limits the information that they can provide. Therefore, the analysis of age at death, sex and skeletal element representation in particular, have been presented and interpreted with the necessary caution required when analysing a small pool of data.

Phase 4: Late Roman (4th Century)

The animal bone from Phase 4 had a TNF (Total Number of Fragments) of 718 (21.1% of the entire assemblage) (

Table 55). This was the second largest sample of bones recorded from the excavations at Vaughan Way. The vast majority of bones recorded (96%) were in 'good' condition. Having said this, a high level of fragmentation was also evident. This is illustrated by the substantial differences in NISP (Number of Identified Specimens) and MNI (Minimum Number of Individuals) totals (Table 56 & Table 57) and by the fact that 526 bone fragments were assigned to the general 'cattle/sheep-size' 'other mammal' and 'unidentified' categories, leaving only a fraction of the original assemblage (n=192) identifiable to species and element (Table 56). The animal bones in question were recovered from three features; a pit, a post hole/pit and a linear feature, possibly a gully or small ditch.

Table 56 The animal bone: number of identified specimens: Phase 4

Species	NISP	%
Cattle	125	65
Sheep/Goat	24	13
Sheep	5	3
Pig	29	15
Horse	2	1
Dog	5	3
Domestic fowl	1	0.5
Mouse sp.	1	0.5
Total Identified	192	
Other mammal (Unid.)	4	
Cattle size	218	
Sheep-size	104	
Unidentified	200	
Total No.Fragments	718	

Table 57 The animal bone: Minimum Number of Individuals (MNI) Phase 4

Species	MNI	%
Cattle	3	23
Sheep/Goat	1	8
Sheep	2	15
Pig	3	23

Horse	1	8
Dog	1	8
Domestic fowl	1	8
Mouse sp.	1	8
Total	13	

Species identified: age at death and sex

Cattle

Of the three main domesticates, cattle was the most prolific species identified at 65% (n=125) (Table 56). This dominance is also illustrated by the large assemblage of cattle-size fragments, the majority of which would almost certainly have originated from cattle, with a smaller minority being made up of horse, as reflected in the identified species list (Table 56). A minimum of three individuals were represented from the bones identified (Table 57) indicating, along with the large number of un-specified bones, a high level of fragmentation.

Table 58 The animal bone: cattle epiphyseal fusion based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Bone	Phase 4	Age (months)	Fused	Fusing	Unfused
Pelvis (acet)	Early	7-10			
Scapula D		7-8			
1st Phal P		13-15	6		1
Humerus D		15-18			
Radius P		15-18			
2nd Phal P		18	3		
MetaC D	Middle	24-36	4		1
Tibia D		24-30	3		1
Metat D		27-36	3		
Calc P		36-42			1
Femur P	Late	42			1
Radius D		42-48			2
Ulna P		42-48			
Humerus P		42-48			1
Femur D		42-48			2
Tibia P		42-48			1
vertebral centrum	Final	84-108		3	9
			19	3	20

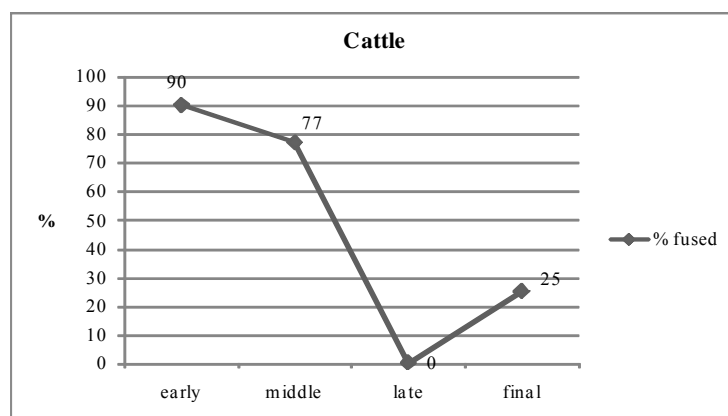


Figure 28 The animal bone: proportion of fused to unfused bones in age categories

Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Table 59 The animal bone: cattle tooth wear

Mandible Wear Stage (MWS) (Grant 1982)	Age Stage (After Halstead 1985)	Suggested Age (After Hambleton 1999)
40	F	Young Adult
17-21	D	18-30 months
20-21	D	18-30 months
17-21	D	18-30 months
20-21	D	18-30 months

The results suggest that a small proportion of cattle were slaughtered between the ages of 2-3 years. However, the majority of unfused bones fall within the age range of 42-48 months possibly suggesting a peak of slaughter at this time (

Table 58). The shape of Figure 28, with the 'bounce' in the late-fusing category is a consequence of a small sample size and illustrates why this type of analysis does not produce a valid mortality profile, an issue highlighted by O'Connor (2003, 166). As the bones will have come from diverse sources, some individuals may be represented by one bone and others by several. Four mandibles belonged to animals at least 18-30 months old at death, defined as 'sub-adult' by O'Connor (1988, 85). A single mandible belonged to an animal aged a minimum of 36 months, defined as a 'young adult' by Hambleton (1999, Table 3, 65) (Table 59). This information complements that of the fusion data presented above, illustrating the slaughter of both sub adults and adult cattle. However, it is important to note that this pattern of mortality is based upon a small pool of data. There is evidence to suggest that older animals were also present within this phase, a cattle skull with both horncores still attached (described below) was estimated to be at least 7 years of age based upon the texture of the horncores (stage 4-5 after Armitage 1982a, 38). Another horn core and skull fragment identified was also deemed to be of the same age with a smaller example identified as

possible sub-adult/adult, representing a minimum of 2-3 years of age. This latter example fits in with the fusion and tooth wear data.

As with all the phases excavated at Vaughan Way, there were only a very small number of potentially sexable bones. Two cattle pelvises were complete enough to assess utilising both Grigson's (1982) criteria and the H1 measurement advocated by Greenfield (2005). Based upon the position of the fossa obturator (see Greenfield 2005, 70), one was deemed possibly female with a H1 measurement of 16.48mm. The other was more problematic; it was more robust and produced a larger H1 measurement of 20.22mm, but the position of the fossa obturator was more feminine being closer to the ventral border. Having said this, upon comparison of the H1 measurements with Greenfield's results, both fall into the male category (Greenfield 2005: fig 14). Therefore, there is the possibility that these pelvis fragments represent gracile males or potentially even castrates. Also within this phase were a number of large and robust adult pig bones, which along with a lower canine were identified as male. A single horned cattle skull located within a linear feature (PC 5311) (possibly a ditch) was suspected of being an adult oxen (Figure 29). The texture of the horn core was comparable with stages 4-5 in Armitage's (1982a) criteria, making this skull a minimum of 7 years of age (Armitage 1982a, 42), indicating the presence of an older animal possibly one that had come to the end of its working life. The horns are not complete and were identified as belonging to either a 'shorthorn' or 'medium horned' animal based upon the minimum outer curve (OC) measurement when compared with published ranges (see Armitage and Clutton-Brock 1976, 331; Armitage 1982a, 43; Sykes and Symmons 2007, Table 1). The right horn is the most complete and produced a minimum OC measurement of 180mm. The decrease in circumference of this horn observed in Figure 29 illustrates that the tip would not have been too far away, illustrating that the length would have been greater than the basal circumference. According to published criteria for the sexing of horn cores, this would indicate that the skull was not a bull (Armitage and Clutton-Brock 1976, 331). The horns appear slightly curved but with little visible torsion, the average basal circumference (BC) for both horn cores was 193.5mm. The BC appears too large for a bull and much too large for a cow when compared with the measurements from a Romano-British bull and cow presented by Armitage and Clutton-Brock (1976, Table 1). Therefore, an ox appears the most plausible identification, however, it must be remembered that an urban settlement would have been supplied beasts from different herds in the local and more distant environs, as emphasised by Sykes and Symmons (2007, 514), making comparison in this way problematic. There was also a smaller horn with a more porous texture that was identified as sub-adult/adult using Armitage's criteria (see above). The morphology of this horn and the fact that it was shorter and more curved pointed towards it being a possible bull.



Figure 29 The animal bone: possible Ox skull (Phase 4: PC5311)

Sheep/Goat

In comparison to cattle, only 29 sheep/goat fragments were identified, representing a minimum of three individuals. Of these, four bones were definitely recorded as sheep utilising Boessneck's (1969) criteria.

Table 60: Epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Sheep Bone		Age (months)	Fused	Fusing	Unfused
Pelv (acet)	Early	6-10			
Scapula D		6-8	1		
Humerus D		10	1		
Radius P		10			
1st Phal P		13-16			
2nd Phal P		13-16			
Metac D	Middle	18-24	2	1	
Tibia D		18-24			1
Metat D		20-28			1
Ulna P		30			1
Femur P	Late	30-36			
Calc P		30-36			
Radius D		36			
Humerus P		36-42			
Femur D		36-42			
Tibia P		36-42			1
Vertebral centrum	Final	48-60		1	6
			4	2	10

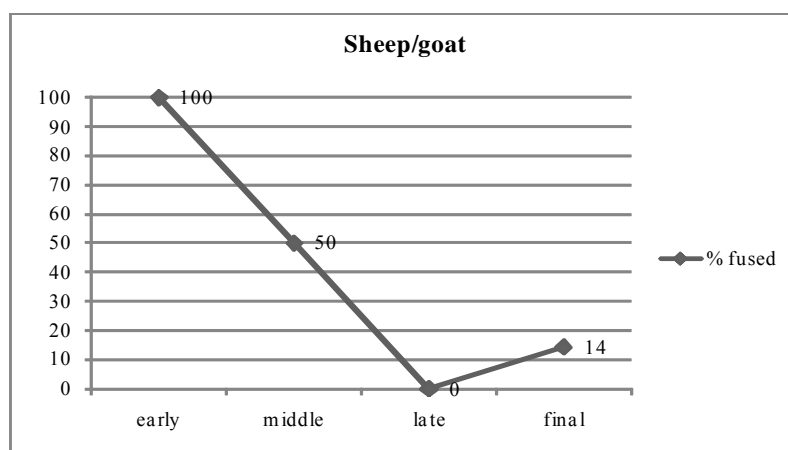


Figure 30 The animal bone: proportion of fused to unfused bones in age categories

Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

Table 61 The animal bone: sheep/goat toothwear

Mandible Wear Stage (MWS) (Grant 1982)	Age Stage (After Payne 1973)	Suggested Age (After Hambleton 1999)
38	F	3-4 years
38	F	3-4 years

More unfused bones were represented than fused bones (

Table 60). With a small sample such as this little can be interpreted other than the fact that sheep/goat were being slaughtered from the age of 18-24 months. This would suggest the utilisation of meat, more likely mutton. Only two mandibles were recovered, each possessing a full row of *in situ* cheek teeth. As the mandibles were retrieved from the same pit and were remarkably similar in terms of morphology and tooth wear, it is strongly assumed that they belonged to the same animal. Both mandibles possessed a MWS of 38 equating to an age at death of 3-4 years (Hambleton 1999, Table 2, 64), defined by O' Connor (1988, 85) as 'adult' (

Table 61). This data suggests that more mature animals were present than depicted by the fusion data alone.

Pig

Pig was identified in equal abundance to sheep/goat (n=29), however, again only 3 individuals were represented.

Table 62 The animal bone: epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Pig					
Bone		Age (months)	Fused	Fusing	Unfused
Scapula D	Early	12	2		
Humerus D		12	2		
Radius P		12			
Pelvis (acet)		12			
2nd Phal P		12			
Metac D	Middle	24			
Tibia D		24	1		
1st Phal P		24			
Calc P		24-30			
Metat D		27			1
Ulna P	Late	36-42		1	
Humerus P		42			1
Radius D		42			1
Femur P		42			
Femur D		42			
Tibia P		42			
Vertebral centrum	Final	48-84			4
			5	1	7

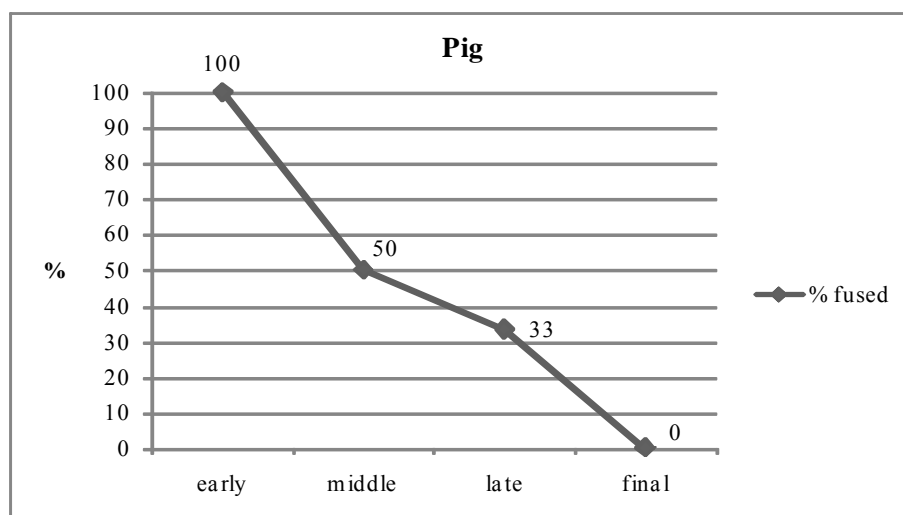


Figure 31 The animal bone: proportion of fused to unfused bones in age categories. Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

As pigs are primarily utilised for their meat, as soon as they reach an adequate weight they are slaughtered. Between the ages of 1-2 years has been documented as producing ‘...*the best porkers and baconers*’ (Albarella 2006, 83). However, Table 62 illustrates a lack of unfused bones in the early age ranges (12-27 months) as may be expected. It has to be remembered that this sample is extremely small and that juvenile pig bones are unlikely to preserve well as emphasised by Hambleton (1999, 31). A pig mandible was identified possessing a dp4 and M1 in wear along with an M2 visible in the crypt but unerupted. Based upon this, a MWS of 9-10 was recorded providing an age at death of between 7-14 months (Hambleton 1999, Table 4), defined as ‘immature’ by O’Connor (1988, 85). Unlike the fusion data, this illustrates the presence of pigs in the younger age bracket. The limited fusion and tooth wear evidence together suggests that the preponderance of pigs were not slaughtered below a year in age but there is no evidence for any animal older than two. This implies that the pigs were allowed to grow to a decent size but were slaughtered while still juvenile.

Cattle and sheep-size

Indeterminate cattle and sheep-size fragments made up the majority of the bone fragments assigned to Phase 4 (n=322 combined). Fragmented elements from all regions of the skeleton were represented with a high proportion of ribs, long bone fragments and vertebrae. The majority of the vertebral fragments for both categories were recorded as unfused with a small proportion listed as fusing supports the notion that the majority of livestock were slaughtered at a young age, which may suggest that they were produced primarily for meat consumption in the town.

Other species

In addition to the three main domesticates, horse, dog, domestic fowl and mouse (sp.) were also identified (Table 56). Five dog bones including a tibia, scapula, a skull (missing the anterior snout) and a cervical and thoracic vertebra were recovered from the same pit. Both the tibia and scapula were from the right side of the body suggesting the possibility that they belonged to a single dog deposited either in segmented parts or in its entirety and only

surviving partially. As no butchery marks were observed the latter is more probable, however, butchery does not always leave marks on the bones. These bones provide a minimum age at death range of between 6-7 months and 1 and ½ years (Silver 1969, 285, Table A). Unfortunately, the tibia was not complete so it was impossible to extrapolate a withers height.

Skeletal element representation

Skeletal element representation for cattle, sheep/goat and pig are presented below. The majority of the cattle skeleton is represented, displaying a high survivorship of all anatomical elements. In contrast, both sheep/goat and pig are represented by fewer anatomical elements. This is most likely due to the contrast in sample size and the fact that cattle bones are bigger, more robust and hence more likely to survive burial and be recovered in higher numbers.

Cattle

The cattle skeleton is well represented, suggesting the presence of the whole carcass (Figure 32). The most frequent elements recorded were horn core fragments and metacarpals. The over representation of these elements may indicate a small deposit of ‘industrial’ waste as was identified at Causeway Lane (Gidney 1999, 310). These remains may have been the waste products of horn working and the tanning of hides or they may simply reflect primary butchery waste as robust parts of the skull, mandible and other less meatier elements such as the phalanges were also present albeit it in lesser numbers. Parts of the skeleton that possess more meat were also represented, for example, the robust distal tibia and distal femur. However, the distal scapula and proximal radius were at the bottom of the rank curve illustration, surprising considering these elements are quite robust and represent the meatier parts of the carcass. This distribution points towards the whole carcass being present and butchered on site, with horn cores and metapodia over represented. The latter potentially indicates the disposal of industrial waste in addition to more general domestic waste.

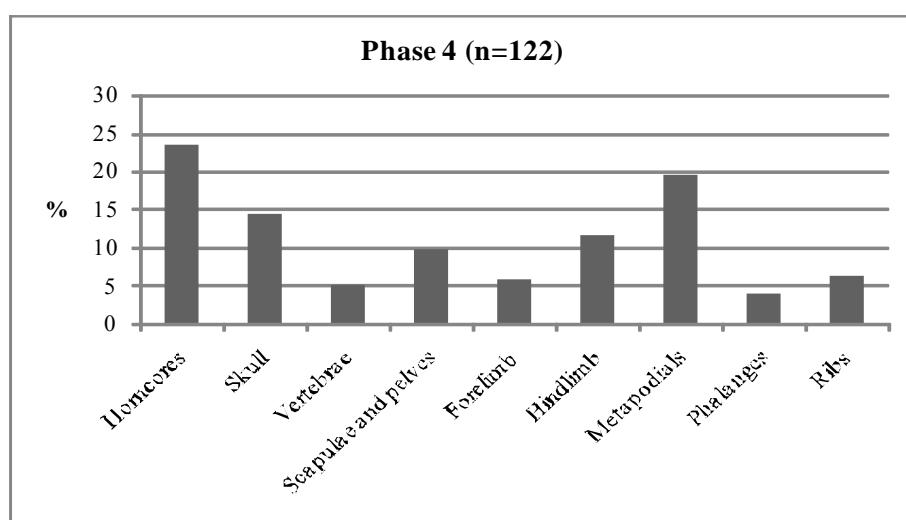


Figure 32 The animal bone: cattle carcass components in Phase 4

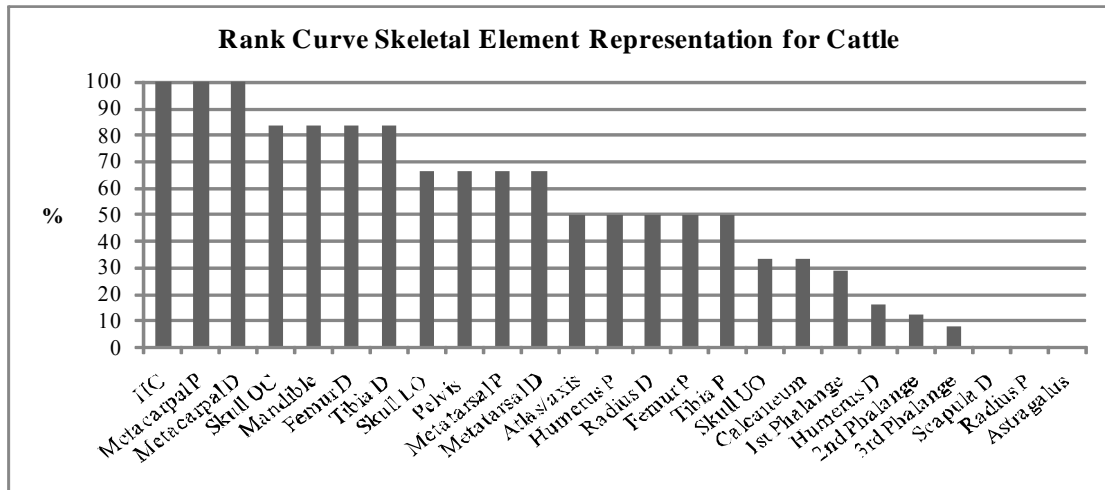


Figure 33 The animal bone: skeletal distribution of elements in rank order

Sheep/Goat

In contrast to cattle, sheep/goat was less well represented with an absence of phalanges and few vertebrae. Figure 35 illustrates an abundance of bones possessing less meat including the radius, metacarpal and distal tibia. These elements are also robust and tend to survive well. Bones possessing more meat such as the distal scapula and proximal humerus are present but in lower frequency. However, there is a complete absence of the femur and pelvis. This may be a reflection of poor preservation, but as the humerus and scapula are present, this seems more likely a consequence of their removal and disposal elsewhere. The complete absence of the phalanges could possibly be a product of poor recovery due to their small size, reflect the retention of the phalanges in removed skins or be due to the fact that only selected cuts of meat were being brought into the area. Whatever the scenario, it has to be emphasised again that this is a very small assemblage and little can be concluded with certainty.

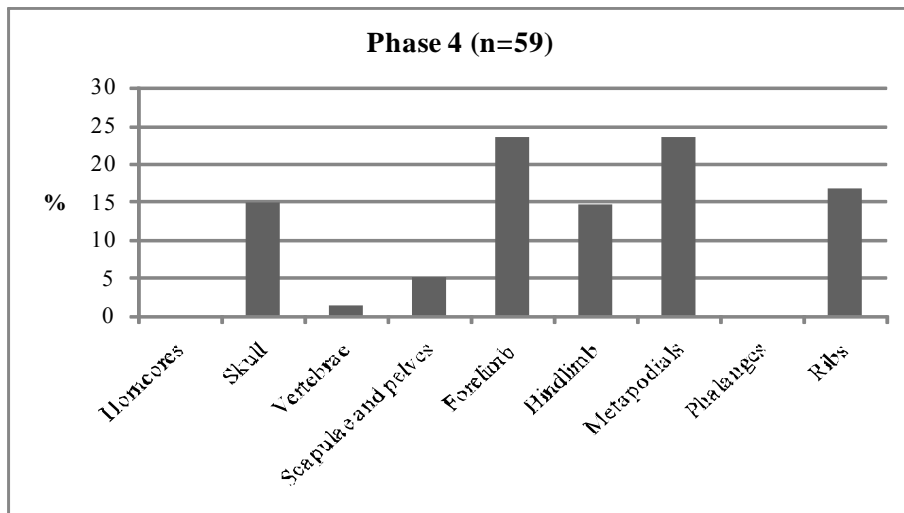


Figure 34 The animal bone: sheep/goat carcass components in Phase 4

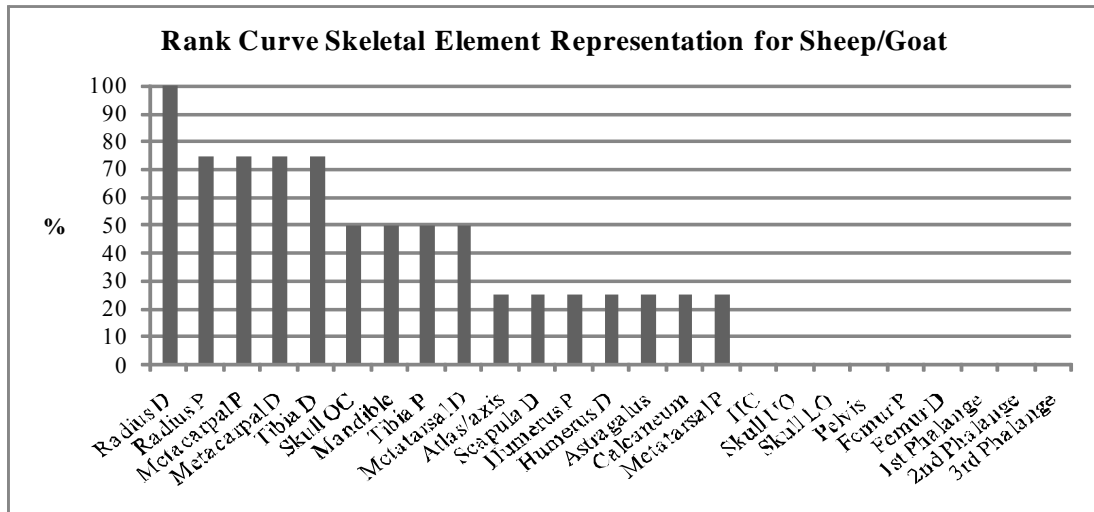


Figure 35 The animal bone: skeletal distribution of elements in rank order

Pig

Pig was the least well represented of the three domesticates. Meatier bones were the most frequent, with distal humerus the most abundant followed by distal scapula and pelvis (Figure 37). Interestingly, the femur was not featured at all, along with the bones of the ankle and foot. As with sheep/goat, these latter elements are small and may have been poorly recovered upon excavation. Having said this, their absence could also point towards the fact that the carcass was brought to site minus the most distal extremities or as selected joints or cuts.

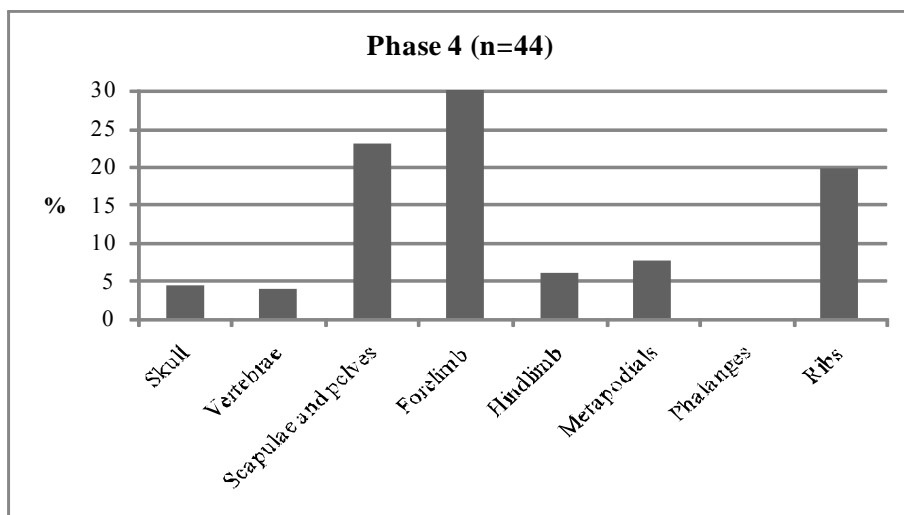


Figure 36 The animal bone: Pig carcass components in Phase 4

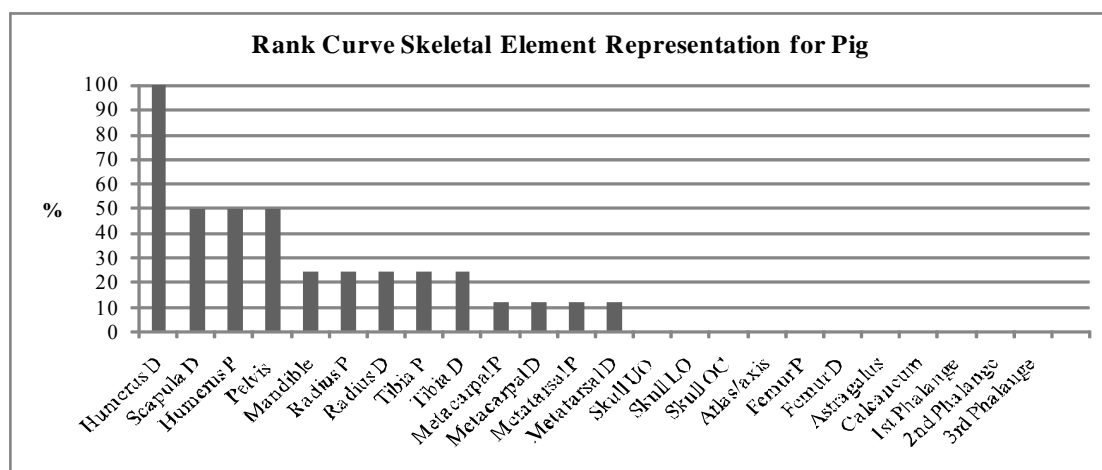


Figure 37 The animal bone: skeletal distribution of elements in rank order

Bone modifications

Butchery

In total there were 85 recorded instances of butchery on 73 bones in Phase 4, equating to 10% of the entire assemblage. Of the three main domesticates, pig displayed the highest frequency of butchery marks with 33% (n=10) of the pig bones identified recorded as butchered. Sheep/goat followed with 21% (n=6) and cattle with 16% (n=20). Sheep and cattle size fragments along with a single horse bone also exhibited butchery evidence.

Chop marks

Chop marks dominated over cut marks for all three domesticates. The majority of the chop marks observed were indeterminate and most likely a result of marrow extraction. However, there were a small number of instances where dismemberment was indicated: a cattle pelvis chopped through the ilium and a pig scapula chopped through the neck. Preparation and division of the carcass for cattle and pig was also identified with the presence of several vertebrae chopped in half more or less down the midline. In addition to this, a number of cattle size proximal rib heads and distal rib bodies were also chopped possibly indicating removal of the 'rib slab' and removal of the brisket (Binford 1981,113).

Cut marks were less prominent than chop marks; however, their location did provide a better indication of the butchery activities being implemented at Vaughan Way (Table 64). From analysing the cut marks independently of the chop marks, skinning, dismemberment and filleting were identified on the three main domesticates on the skull and the long bones of both the fore and hind limb. Skinning, for example, was observed on a cattle skull (see below) and on a distal cattle metacarpal, which possessed characteristic transverse cuts surrounding the distal shaft. A number of cut marks were also observed on the visceral and lateral surfaces of both cattle and sheep-size rib fragments, indicating the removal of meat from the bone. In addition to this, evidence for the removal of the tenderloin was also observed with cut marks on the lateral side of a cattle-size spinous process, as described by Binford (1981,110-12).

Table 63 The animal bone: cut marks: butchery stages

	Skinning	Dismemberment	Filleting	Indeterminate
Cattle	2	2	1	-
Sheep/Goat	-	1	-	-
Pig	-	2	1	1

The cattle skull

The majority of a cattle skull (albeit heavily fragmented) was located in a linear feature (possibly a ditch) (PC 5311). This skull was found to possess numerous cut and chop marks. Fine clusters of cuts on the frontal and nasal bones suggest removal of the skin and possibly removal of the nose, with fine cuts on both left and right maxillae indicative of the dismemberment of the mandible. Characteristic cuts are often found on the maxillae just above the tooth row where the masseter muscle has been cut to facilitate the removal of the mandible from the rest of the skull (Binford 1981, 109). Binford records this particular cut (S-6) as secondary butchery, arising from the removal of the mandible, when the carcass is either stiff or frozen (Binford 1981, 109). There was a suspicion that the skull had been pole-axed due to a number of radiating fractures on the frontal bone. However, this could not be confirmed due to the fragmented nature of the remains. In addition to the multiple cut marks, both occipital condyles had been chopped clean through, indicative of decapitation/removal of the head.

Burning and gnawing

There were three instances of burning: a scorched sheep/goat proximal metacarpal, a sheep-size thoracic vertebra and a blackened sheep-size fragment. This is indicative of table waste, but could equally be the result of accidental burning. On the other hand, it has been reported that bones were sometimes heated to facilitate the extraction of marrow, which may have been the case for the metacarpal (Binford 1981, 152). There were twenty-three instances of gnawing recorded, with cattle bones the most frequently affected. All examples were canid in origin with one specimen exhibiting a heavily eroded surface, possibly having been exposed to stomach acids and partial digestion.

Pathology

Forty-four instances of pathology were recorded on 40 bones, equating to 6% of the entire assemblage. The majority of pathological change was identified as abnormal bone formation on cattle and cattle sized bones (Table 64). The identification and analysis of pathology is well established in the study of archaeological human remains. Unfortunately, the same

cannot yet be said of faunal remains due to the fragmented nature of the assemblages. Having said this, palaeopathology in archaeozoology is a developing field of study with recent research a testament to the time being invested in its better understanding and more standardised recording. Ortner (2003) outlines a series of categories for the grouping of pathological changes in human osteoarchaeology (Ortner 2003, 45). These categories have been used for the purposes of gaining a better understanding of the pathology evident at Vaughan Way.

Table 64 the animal bone: Phase 4: pathology

	Abnormal Bone Formation	Abnormal Bone Loss	Abnormal Bone Shape	Abnormal Bone Size	Combination	Other
Cattle	7	5	1	2	1	1
Sheep/Goat	3	2	-	-	-	-
Pig	2	-	-	-	-	1
Dog	-	-	-	-	-	1
Cattle size	14	3	-	-	-	-
Sheep-size	1	-	-	-	-	-

The majority of the pathology identified involved 'abnormal bone formation'. Bone formation predominantly manifests itself as a periosteal reaction, where new bone is laid down in response to a number of different reasons including trauma, stress and infection. However, bone formation can also be as a result of ossification of a ligament or muscle insertion. In terms of a periosteal reaction, the location of the lesion and the nature of the new bone, whether it is described as 'woven' or 'compact' provides an indication as to whether the lesion was active, healed or healing at death. The majority of the abnormal bone lesions described in Phase 4 were 'woven' and, therefore, active at death. They were located most often on the visceral surface of the ribs indicating the presence of a respiratory infection. The lateral side of the ribs were also affected in a number of cases, possibly reflecting trauma or spread of the lesions from the visceral surface to the outer side. In addition to abnormal bone formation, there was also evidence of abnormal bone loss. Bone loss or resorption of bone manifested as increased porosity was identified within the vertebral foramen of three cattle cervical vertebrae, indicating a possible increase in blood flow, which may have been due to infection. In addition to this, the nasal bones of a cattle skull were observed as being swollen in appearance with evidence of pitting and increased porosity. It is postulated that this may be due to a rhino-maxillary infection or sinusitis.

Also in the bone loss category were a number of roughly circular lesions recorded on the proximal medial (zone 1) metacarpals of both cattle and sheep/goat. This lesion either manifested itself as a localised area of pitting or in more severe cases actually perforated the cortical bone exposing the subchondral bone. This lesion as it appears in dry bone is the end result of osteochondrosis, a 'bone cartilage condition' (Ytrehus *et al.* 2007). This condition primarily affects young animals and humans, whereby there is a failure of a portion of the growth cartilage to ossify and covert to bone (Ytrehus *et al.* 2007, 432). There are three

stages in lesion formation, with the latter two *osteochondrosis manifesta* and *osteochondrosis dissecans* the stages that affect the bone. However, it is very difficult to differentiate between these two stages as they appear in dry bone (see O'Connor 2008 for overview). The causality of this lesion has been postulated as being due to a mixture of aetiologies including accelerated growth and weight gain, genetic inheritance, anatomy and joint shape, diet and finally trauma (Ytrehus 2007, 435-438). The general consensus supports genetic inheritance and anatomy/joint shape as the primary instigators of this defect in the growth cartilage; whilst trauma although not the overall cause of the condition, most likely exacerbates it resulting in its progress to the stage at which the lesion is visible in dry bone (Ytrehus 2007, 442).

Attempting to diagnose specific causes of pathology on fragmented faunal remains is difficult as the whole skeleton is not present for the patterning of lesions to be fully understood. Having said this, there are some instances of localised pathology where the aetiology can be ascertained, such as trauma, for example. Trauma was evident in a dog skull, with a small fissure associated with a bony nodule medial to the right orbit on the frontal bone, assumed to be a traumatic event that had subsequently healed (Figure 38,). This same dog skull also possessed a number of distinct perforations in the occipital bone above the foramen magnum (Figure 40). These were not thought to be taphonomic in origin but can otherwise not be explained. They appear similar to the perforations sometimes evident in the same region of some cattle skulls (Brothwell *et al.* 1996; Llado *et al.* 2008). Another localised pathology included a cattle metacarpal that displayed an 'abnormal shape' with the medial distal condyle shorter than the lateral distal condyle. Bartosiewicz *et al.* (1997) describes this type of asymmetry in cattle metapodia as possibly being related to draft use, stating that body size, loading and sex are all contributing factors (Bartosiewicz *et al.* 1997, 91-94).



Figure 38 The animal bone: Dog skull with trauma



Figure 39 The animal bone: close-up of trauma (Phase 4 PC3254)



Figure 40 The animal bone: occipital perforations

Animal size and shape: metrics

Only ten bones in total were complete, allowing for the calculation of general length (Gl) (Table 65). The average shoulder height for cattle based upon the measurement of the metacarpal and metatarsal is 1.12m, with a range of 1.00-1.19m. The average shoulder height for sheep/goat is 0.58m, with a range of 0.55-0.62m. These withers heights are in keeping with the cattle and sheep/goat at the nearby Causeway Lane (Gidney 1999, 313) and Bonner's Lane (Baxter 2004, 5) multi-period sites.

Table 65 The animal bone: withers height for cattle (after Matolcsi, J., 1970) and sheep/goat (after Teichert 1975)

Species	Element	Gl (mm)	Withers Height (m)
Cattle	Metacarpal	185.00	1.12
		188.00	1.14
		192.00	1.16
		197.00	1.19
Cattle	Metatarsal	190.00	1.00
		208.00	1.10
		220.00	1.16
Sheep/Goat	Metacarpal	113.00	0.55
		116.00	0.57
		127.00	0.62

In addition to these metrics results, there were also a small number of unfused cattle bones, including a femur (Figure 41) and a radius that were much larger than the others present within the assemblage. These bones were retrieved from a secure context and could suggest

the import of improved Roman stock. However, the bones could equally represent the presence of a large bull. As Armitage (1982b:50): emphasised, there is no evidence from archaeological excavations that would point towards the import of a new 'stock' in the Romano-British period. It would, therefore, appear more plausible to interpret these bones not as imported stock but as possible evidence for 'improved' stock. As Jewell stated (1963, cited by Armitage 1982b:50) 'The largest strains of cattle...were encouraged into ascendancy by the Roman organisation of agriculture.'



Figure 41 The animal bone: Phase 4 PC3391

Archaeological features: function

The bones were recovered from a pit, two post-holes/rubbish pits and a ditch.

Pit (PC 3254)

This feature contained 138 bone fragments, 46% cattle, 9% sheep/goat and 7% pig. Twenty-one of the bones recovered (21%) displayed evidence for butchery. All mandible fragments possessing ageable dentition were recovered from this pit. The deposition of the mandibles along with the rest of the bones would appear to indicate the disposal of primary butchery waste. The five identified dog bones were all recovered from this pit, possibly reflecting the use of a nearby rubbish pit for convenient disposal.

Post-hole/pit (PC 3391)

This feature contained 158 bone fragments, 23% cattle, 13% pig and 9% sheep/goat, 32% of the bone recovered was butchered. Both this feature and the previous pit contain a mix of faunal material, however, this feature contains significantly more ribs (32% in total) as compared to pit (PC 3254), which contained just 6%. This feature also contained more horn core fragments as well as some large unfused cattle bones (Figure 33). This distribution may just be random but could represent a large deposit of domestic table waste intermingled with industrial waste from horn working.

Ditch (PC 5311)

This possible ditch contained the fewest number of bones (n=8) but most notably contained a near complete horned cattle skull, suspected of being an ox. This skull displayed signs of having been skinned and dismembered. It is possible that the deposition of this skull represented ritual activity. However, it was an isolated skull and may have been deposited in the linear feature along with a few other pieces of bone out of convenience, as opposed to disposing of it in one of the pits.

Phase 5: Early Anglo-Saxon (c.400/50-650)

The animal bone from Phase 5 had a TNF of 444 fragments (13% of the entire assemblage) (Table 55). The majority of this assemblage (93%) was recorded as being in 'good' condition. However, a high level of fragmentation was also evident. This is illustrated by the substantial differences evident between the NISP and MNI totals (Table 66 and Table 67) and by the fact that 302 bone fragments were assigned to the general categories of cattle/sheep-sized and unidentified, leaving a relatively small proportion of the original assemblage (142 bones) identifiable to species and element. The animal bones in question were recovered from two features believed to be grubenhäuser.

Table 66 The animal bone: number of identified specimens: Phase 5

Species	NISP	%
Cattle	77	54
Sheep/Goat	36	25
Sheep	7	5
Pig	15	11
Horse	1	1
Dog	5	4
Domestic fowl	1	1
Total Identified	142	
Cattle size	225	
Sheep-size	73	
Unidentified	4	

Table 67 The animal bone: Minimum Number of Individuals (MNI): Phase 5

Species	MNI	%
Cattle	2	15
Sheep/Goat	3	23
Sheep	2	15
Pig	2	15
Horse	1	8
Dog	2	15
Domestic fowl	1	8
Total	13	

Species identified: age at death and sex**Cattle**

Cattle were the most prolific species represented (54%), as in Phase 4. Again, a large number of cattle-size fragments were identified (n=225), illustrating the abundance of cattle and also the high level of fragmentation evident. Out of 77 identified fragments, only 2 individuals were represented.

Table 68 The animal bone: epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Bone		Age (months)	Fused	Fusing	Unfused
Pelvis (acet)	Early	7-10			
Scapula D		7-8	2		
1st Phal P		13-15	3		
Humerus D		15-18	1		
Radius P		15-18			
2nd Phal P		18	4		
MetaC D	Middle	24-36	3		
Tibia D		24-30			
Metat D		27-36	1		
Calc P		36-42	1		1
Femur P	Late	42			1
Radius D		42-48		1	
Ulna P		42-48			
Humerus P		42-48			1
Femur D		42-48		1	
Tibia P		42-48			
vertebral centrum	Final	84-108	1	6	16
			16	8	19

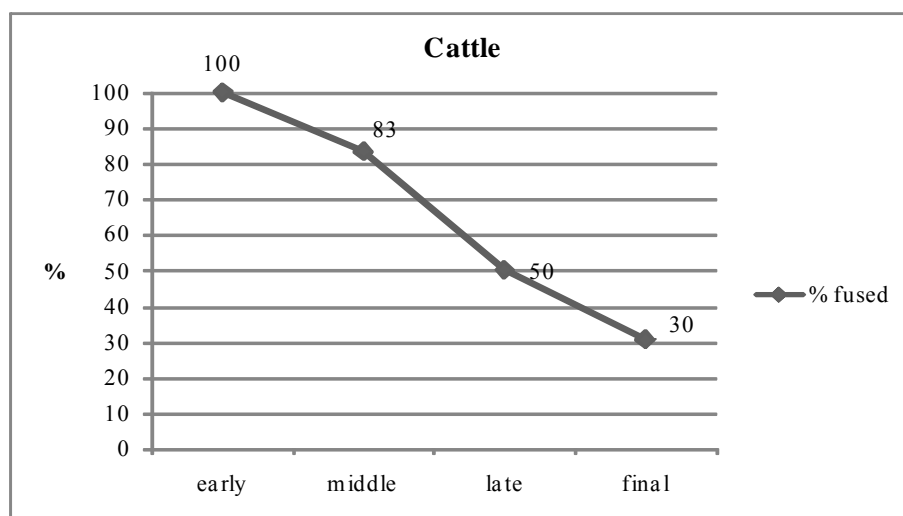


Figure 42 the animal bone: proportion of fused to unfused bones in age categories

Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

There were significantly more fused than unfused bones recovered (Table 68). Although based upon a small pool of data, the unfused bones would appear to indicate that most cattle were slaughtered between the ages of 3 and 4 years. Only two mandible fragments were recovered, each possessing a full row of cheek teeth (Table 69). These mandibles were identical in tooth wear, however, were recovered from different contexts. Both possessed a MWS of 33, which provides an age at death of between 30-36 months (Hambleton 1999, Table 3.65), fitting the criteria of 'adult' as defined by O'Connor (1988, 85). As the P4 on one of the mandibles was not fully erupted, this narrows the age range for this particular animal down to 28-30 months (Silver 1969, 296, Table D). These age ranges fit in well with the fusion data presented above, but also indicates the slaughter of cattle below 3 years of age. A single pelvis fragment was identified as potentially female, based upon reference to Grigson (1982). The fragment, however, was abraded so this identification is tentative at best.

Table 69 The animal bone: cattle toothwear

Mandible (MWS) (Grant 1982)	Wear Stage	Age Stage (After Halstead 1985)	Suggested Age (After Hambleton 1999)
33		E	30-36 months
33		E	30-36 months

Sheep/Goat

Forty-three sheep/goat fragments were identified, representing five individuals. Of these, seven bones were definitely recorded as sheep utilising Boessneck's (1969) criteria. There was a higher proportion of sheep/goat in comparison to Phase 4 however, this was still less than cattle and unfortunately still too small to interpret with confidence.

Table 70 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Sheep Bone		Age (mo)	Fused	Fusing	Unfused
Pelv (acet)	Early	6-10	1		
Scapula D		6-8	4		
Humerus D		10	1		
Radius P		10	1		1
1st Phal P		13-16			
2nd Phal P		13-16			
Metac D	Middle	18-24	2		
Tibia D		18-24	3		
Metat D		20-28			
Ulna P		30			1

Femur P	Late	30-36			
Calc P		30-36			1
Radius D		36			
Humerus P		36-42			
Femur D		36-42	1		
Tibia P		36-42			
Vertebral centrum	Final	48-60	2		6
			15	0	9

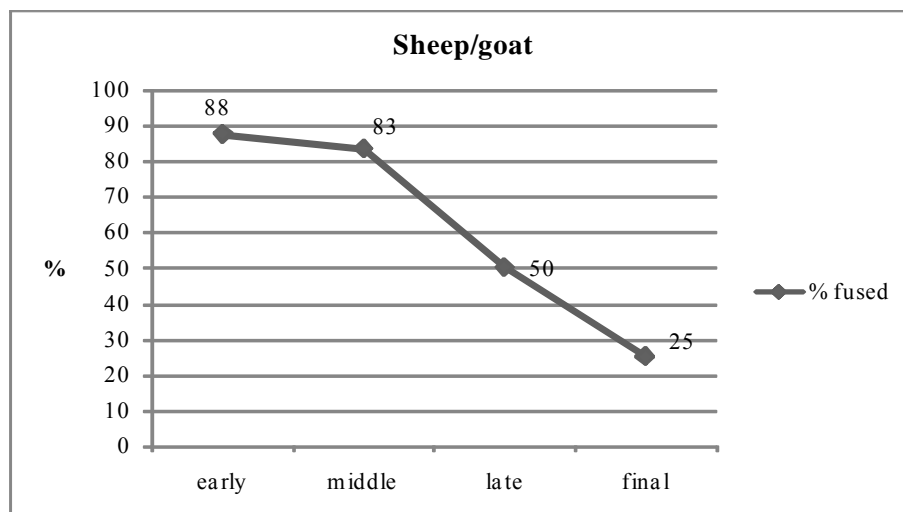


Figure 43 The animal bone: proportion of fused to unfused bones in age categories

Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

The fusion data presented in Table 70 illustrates the greater proportion of fused compared with unfused bones. Only two unfused bones were present, tentatively this could represent two periods of slaughter one favouring sheep/goat aged between 13-16 months and one favouring older sheep/goat at 30-36 months. This indicates the consumption of lamb and mutton. However, it has to be stressed that this is based upon only two bones. Unfortunately, no sheep/goat mandibles were identified with sufficient dentition to gain any further indications of age at death via tooth wear. Three sheep/goat pelvic fragments were identified as being female based upon comparison with the criteria illustrated and described by Boessneck (1969).

Pig

Pig was identified in lesser frequency to sheep/goat (n=15), representing just two individuals.

Table 71 The animal bone: epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Pig Bone		Age (months)	Fused	Fusing	Unfused
Scapula D	Early	12			
Humerus D		12			1
Radius P		12			
Pelvis (acet)		12	1		
2nd Phal P		12			
Metac D	Middle	24			1
Tibia D		24			
1st Phal P		24			
Calc P		24-30			
Metat D		27			1
Ulna P	Late	36-42			1
Humerus P		42			
Radius D		42			1
Femur P		42			1
Femur D		42			1
Tibia P		42			
Vertebral centrum	Final	48-84			
			1	0	7

The majority of pig bones were unfused (

Table 71). As with sheep/goat, there were no mandibles possessing adequate dentition for ageing purposes.

Cattle and Sheep-size

Cattle and sheep-size fragments made up the majority of the bone fragments assigned to Phase 5 (n=298 combined). Rib fragments constitute the greater majority of cattle-size fragments along with vertebral fragments and indeterminate long bone fragments. A pattern closely followed although in lesser quantities by the sheep-size category. Three sheep-size vertebra were recorded as being unfused with a single fused example. This was also the case with the cattle-size fragments, the majority of which were unfused. This provides an age range (albeit unhelpful) of less than 5 years (Silver 1969, Table A) or 7-9 if using the data in Reitz and Wing (1999, table 3.5).

Other species

In addition to the three main domesticates, dog, domestic fowl and horse were also identified (Table 66). Five dog bones representing two individuals were identified. Four of these came from three contexts within grubenhäuser (PC 2786) with the remaining bone from a single context within grubenhäuser (PC 2027). Apart from two bones (left ulna and tibia) which came from the same context, the other bones were not associated and would appear to represent isolated bones incorporated with domestic refuse. The bones provide a range of minimum ages from 8-9 months right through to 18 months (Silver 1969, 285-6, Table A). The single tibia identified was fully fused and belonged to a 'bow-legged' breed of dog (Figure 44). It possessed a withers height of 41.24cm. Bow-legged dogs have been identified in the Roman phases of other sites in Leicester, namely Bonner's Lane (Baxter 2004,5) and Little Lane (Gidney forthcoming), in addition to Vine Street (Browning forthcoming). None were identified in the Roman phase (Phase 4) at Vaughan Way; this example is the only bow-legged canid bone identified on the site. The ulna located within the same context as this tibia was too fragmented to establish if it had the same condition. Having said this, the other dog bones were definitely from straight-legged animals. A single upper tooth in wear, possibly a premolar was the only indication of the presence of horse. Similarly, domestic fowl was represented by a single ulna shaft fragment.



Figure 44 The animal bone: tibia from bow-legged dog (Phase 5 PC2786)

Skeletal element representation

Skeletal element representation for cattle, sheep/goat and pig are presented below. The sample size for the three main domesticates in Phase 5 was small, with pig the least well represented with only a NISP value of 15. Patterns are discernable; however, these must be interpreted with caution.

Cattle

The skeletal element representation for cattle from Phase 5 appears to be focussed largely on those elements that represent primary butchery/industrial waste (Figure 46). The majority of the skeleton is relatively well represented; however, there is an overabundance of atlas/axis vertebrae in comparison to the other elements as demonstrated by the rank curve illustration. Horn cores follow in abundance along with distal metacarpal and pelvis. The pelvis, as highlighted in Maltby's bone categories can be associated with higher quality meat cuts by association with the femur, however, as Maltby also states, this element along with the scapula can be viewed as 'waste material' (Maltby 1979, 7), assuming that it is 'boned out' at an early stage. Those bones that provide the best cuts of meat (humerus and femur) were present but amongst the lowest represented, equal in abundance with the radius, which provides meat of a lesser quality and the 1st phalanx. It is, however, important to acknowledge other agents that may have acted upon this assemblage. Cancellous bones such as the proximal humerus, distal radius and proximal femur may be represented to a lesser degree as a result of carnivore activity. This distribution of elements although small in number may point towards industrial use of the metapodia and horn sheaths deposited with a lower frequency of domestic refuse, similar to Phase 4.

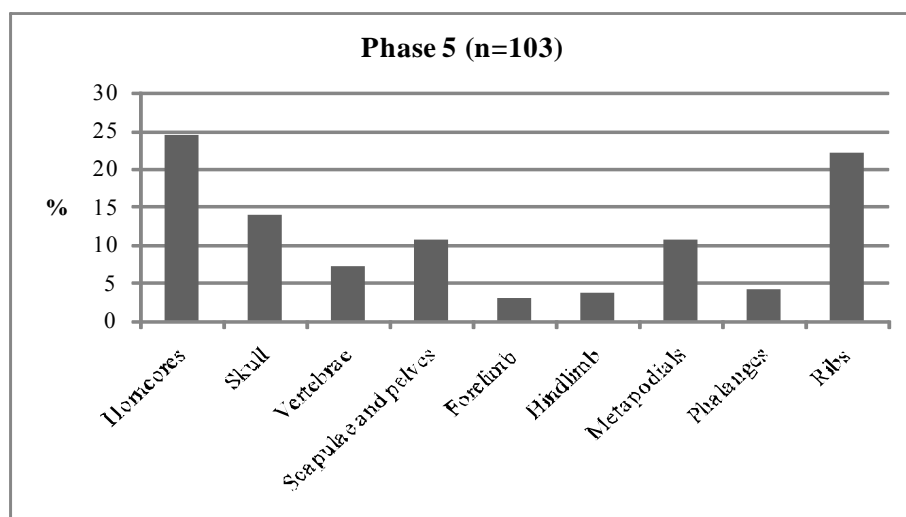


Figure 45 The animal bone: cattle carcass components: Phase 5

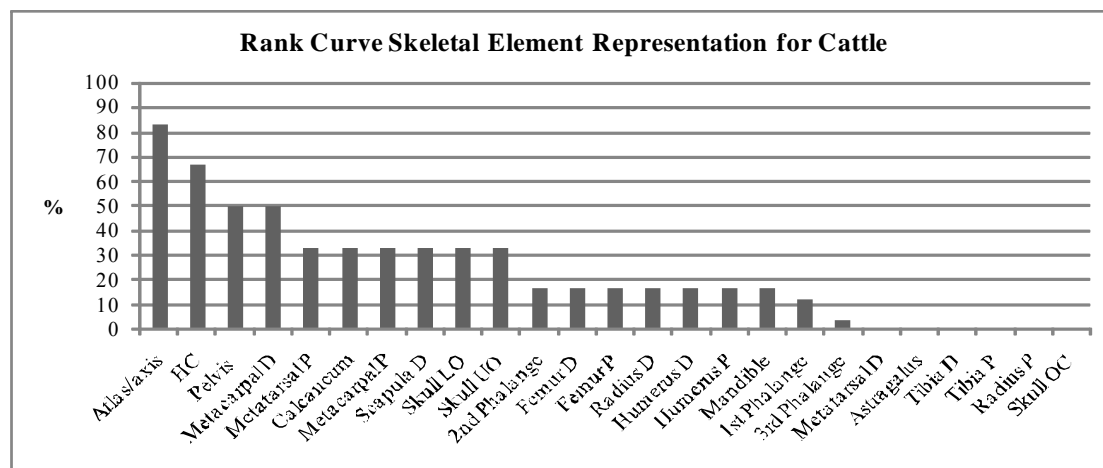


Figure 46 The animal bone: skeletal distribution of elements in rank order

Sheep/Goat

As with cattle, the sheep/goat skeleton is relatively well represented, but in smaller numbers (Figure 47). The pelvis is extremely abundant in comparison to the other elements and actually constitutes the most frequent skeletal element identified. This may reflect ‘boning’ out of this region of the carcass. Following this was the distal scapula along with distal metacarpal and distal tibia. The latter two elements are robust, which may explain their abundance. The complete lack of humeri is unusual as this is one of the meatier bones, especially as the distal scapula is well represented. This lack of the upper forelimb may be related to carnivore/scavenger activity. The additional lack of ankle and foot bones is a possible reflection of poor recovery or the import of selected joints.

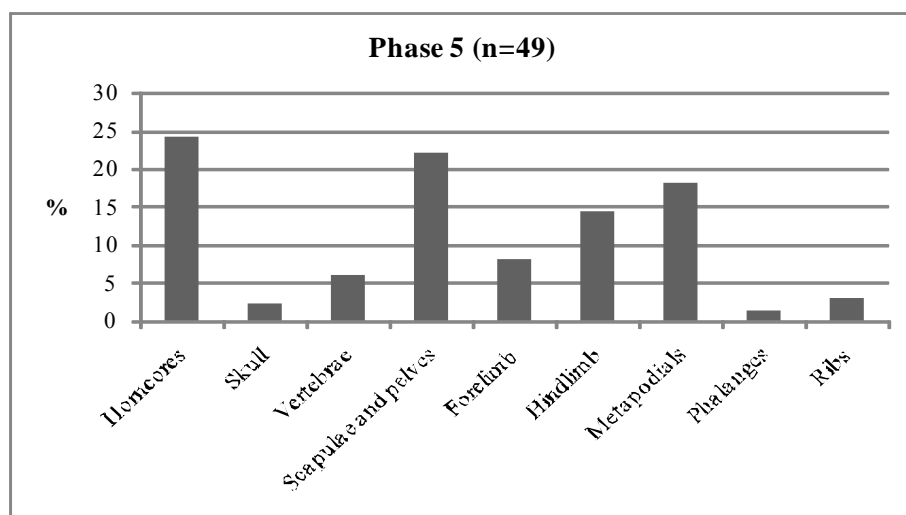


Figure 47 The animal bone: sheep/goat carcass components, Phase 5

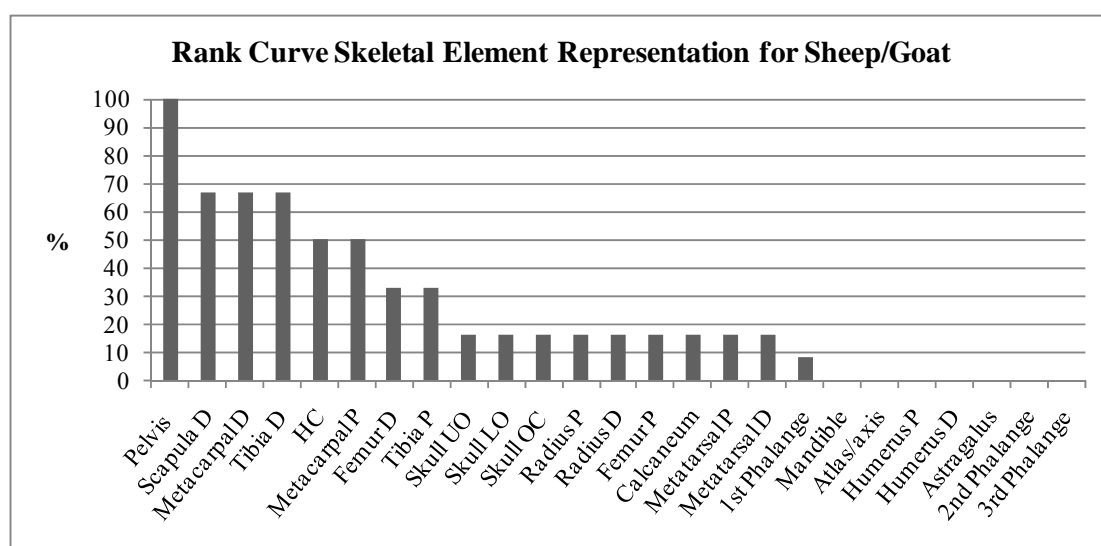


Figure 48 The animal bone: skeletal distribution of elements in rank order

Pig

Pig was the least well represented of the three main domesticates. Even with the sample size so small, it is clear that there is an emphasis on high quality meat bones (Figure 49 and Figure 50). Distal humeri and proximal femora were equal highest, after this there is a significant fall in abundance with the presence of metapodia that represent robust elements alongside the pelvis, distal radius and distal femur. The lack of more cancellous rich bones such as the proximal humerus may attest to the fact that some of the bones were selectively removed by scavengers. Unlike cattle and sheep/goat, there was also a complete lack of ankle and feet bones. This could be explained by poor preservation and/or recovery, the majority of pig bones were recorded as being juvenile and preservation of young bone is often poor (Hambleton 1999, 31). On the other hand, this distribution of elements could imply the supply of the only the best quality cuts and hence a lack of primary butchery waste.

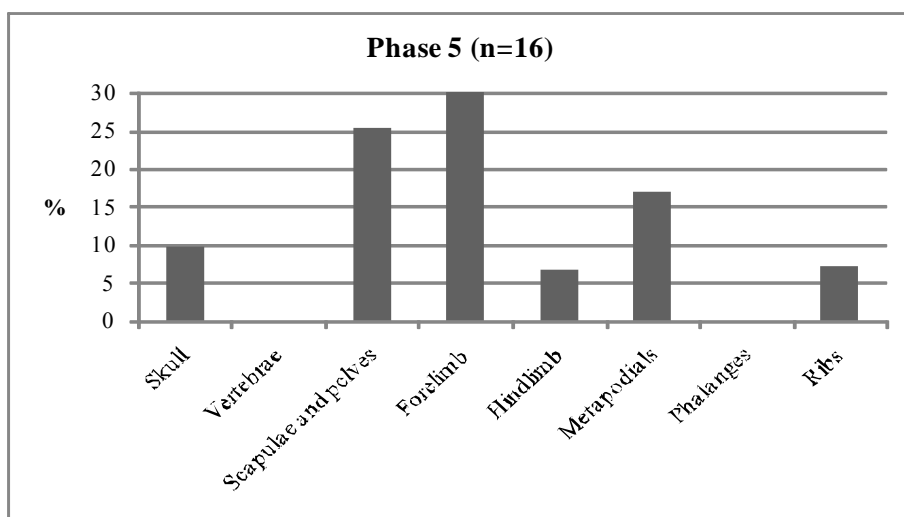


Figure 49 The animal bone: pig carcass components, Phase 5

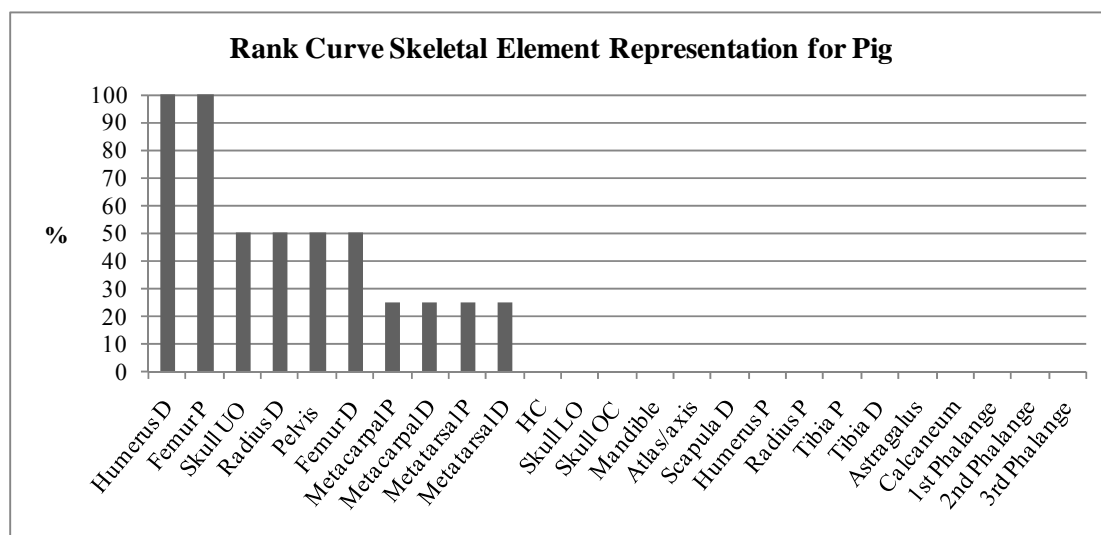


Figure 50 The animal bone: skeletal element distribution in rank order

Bone modifications

Butchery

In total there were 65 recorded instances of butchery on 53 bones in Phase 5 (12% of the entire assemblage). Of the three domesticates, sheep/goat displayed the highest frequency with 30% (n=13) of the bones recovered identified as butchered, followed by cattle at 23% (n=18) and then pig at 13% (n=2). Sheep and cattle-size fragments bone also exhibited butchery evidence.

Chop marks

Of the three main domesticates, both chop and cut marks were dominant. Both types of butchery were recorded in equal abundance for cattle. With chop marks slightly more prominent in sheep/goat and totally dominating pig – although the latter only comprised two specimens. The majority of chop marks for cattle and sheep/goat were indeterminate, most likely the result of marrow extraction. However, some chop marks did indicate specific butchery stages. Two cattle scapulae were chopped through the neck, one diagonally and one parallel to the glenoid fossa, possibly representing either dismemberment and/or portioning of the carcass. In addition to this, splitting of the carcass was illustrated by a cattle lumbar vertebra that had been chopped in half down the midline. A small number of vertebrae (n=5) (one cattle, three cattle-size and a single sheep-size) were also chopped; three sagittally down the midline, one diagonally through the body and the last had the transverse processes trimmed off. This indicates splitting of the carcass and provides an insight into carcass preparation.

Cut marks

Cut marks illustrated the occurrence of both primary and secondary butchery practices for cattle and sheep/goat (Table 72). Dismemberment was evident in a sheep/goat scapula possessing cuts on both the medial and lateral sides of the glenoid fossa along with an ulna possessing cuts on the proximal cranial surface of the olecranon. Fine cuts on the ventral surface of a cattle atlas point towards the removal of the head, with fine cuts on both medial and lateral sides of a mandible most likely reflecting the separation of the jaw from the crania. In addition to this, fine cuts encircling the base of a cattle skull and horn core fragment indicate skinning. There is also evidence for filleting with cuts on the visceral surface of cattle and sheep-size ribs as well as on a cattle-size scapula blade fragment.

Table 72 The animal bone: cut marks: butchery stages

	Skinning	Dismemberment	Filleting	Indeterminate
Cattle	1	6	2	1
Sheep/Goat	-	4	1	-

Burning and gnawing

There were no instances of burning recorded. Five examples of gnawing, all on sheep/goat bones were identified (4% of the entire assemblage). The morphology of the gnawing and the fact that two of the bones possessed sizeable puncture marks suggested that dog was the agent.

Pathology

Thirteen instances of pathology on 11 bones was recorded (2% of the entire assemblage), abnormalities in bone formation, bone loss and bone shape were recorded on cattle, sheep/goat and cattle-size bones (Table 73).

Table 73 The animal bone: Phase 5: Pathology

	Abnormal Bone Formation	Abnormal Bone Loss	Abnormal Bone Shape	Abnormal Bone Size	Other
Cattle	3	-	3	-	-
Sheep/Goat	2	3	-	-	-
Cattle-size	2	-	-	-	-

Osteophytes were recorded on two cattle lumbar and a single thoracic vertebra. Two were located on the spinous process with the last positioned on the transverse process. It is possible that these could reflect the ossification of ligament insertions and be better described as enthesophytes. These could be as a result of activity related trauma – possibly traction or possibly some form of spondyloarthropathy. Periosteal reactions were recorded on a sheep/goat metatarsal as well as on the visceral surface and neck of two cattle-sized ribs – indicating a possible respiratory infection in the latter. Three cases of abnormal bone loss were recorded on two sheep/goat bones. Two instances consisted of either osteochondrosis manifesta/dissecans as described earlier. The last case was a suspected lytic lesion in the neighbouring articulating facet of a sheep/goat proximal metacarpal that also displayed evidence for osteochondrosis. Abnormal bone shape was recorded in cattle only, with asymmetry of the neural arch and articulating facets in two contiguous vertebrae (last thoracic and first lumbar) and an enlarged foramen within a lumbar vertebra. The latter could reflect normal variation, having said this enlarged foramina could also indicate an increase in blood flow as a result of a chronic infective process. Asymmetry of the vertebra may again be normal variation. However, the fact that an osteophyte was also recorded on the same lumbar vertebra in question may indicate that it was the result of an activity related trauma – possibly as a consequence of loading.

Animal size and shape: metrics

Unfortunately, there were only four bones complete enough to provide shoulder heights (Table 74). The average cattle shoulder height is 1.13m. This latter calculation was only based upon two measurements, which differed significantly, possibly reflecting the presence of a male and a female (or castrate). This range fits in well with the later Roman phases at Causeway lane (Gidney 1999, 313). There was only a single complete sheep/goat metacarpal providing a shoulder height of 0.64m, slightly higher than the average of 0.62m at Causeway Lane (Gidney 1999, 313). A single bow-legged dog tibia possessed a shoulder height of 41.24cm (Koudelka (1885) cited by Harcourt 1974, 154). However, as Harcourt's

calculations avoided using the ‘bow-legged’ dogs (Harcourt 1974, 154), it is not clear how accurate or representative this withers height is.

Table 74: Withers heights

Species	Element	GI (mm)	Withers Height (m)
Cattle	Metacarpal	170.00	1.03
		202.00	1.22
Sheep	Metacarpal	131.00	0.64
Dog	Tibia	109.00	0.41

In addition to this, as with Phase 4 there was also a single cattle humerus that was much larger than the others present within the assemblage. This bone may potentially indicate the import of improved stock or reflect a larger breed.

Archaeological features: function

The animal bones were recovered from two shallow features interpreted as grubenhäuser (Sunken Featured Buildings) (PC 2027 and PC 2876). Considerably more faunal material was recovered from PC2786 (n=390), compared with PC 2027 (n=54). Having said this, PC2786 does appear to have been larger in size containing four discernable contexts as opposed to the single context identified in the smaller feature. The proportions of the three main domesticates, however, remains the same for both regardless of size, with cattle the most prominent followed by sheep/goat and pig. A single horse tooth and domestic fowl bone was identified from the fill of the smaller feature, with dog bones recovered from both.

Having analysed the assemblages associated with both suspected grubenhäuser, there appears to be no specific patterning in the deposition of faunal remains between the two. All parts of the carcass with the exception of pig (which is only represented by 15 fragments) are present. It would appear that these two possible grubenhäuser simply reflect the deposits of faunal material related to dwelling and habitation. There is primary and secondary butchery waste along with specific pig joints, presumed to have been imported along with some potential cattle industrial waste.

Phase 7: Saxo-Norman (850-1150AD)

The animal bone from Phase 7 had a TNF of 117 (3.4% of the entire assemblage (Table 55). As with Phases 4 and 5, the majority of this assemblage (91%) was recorded as being in ‘good’ condition. However, only 67 fragments (57%) were identifiable to species, the rest being assigned to cattle and sheep-size (Table 75). This serves to illustrate as with the previous phases, the high level of fragmentation evident, supported by the low numbers of individuals identified (Table 77). These animal bones in their entirety were recovered from a single pit.

Table 75 The animal bone: number of identified specimens: Phase 7

Species	NISP	%
Cattle	31	46
Sheep/Goat	31	46
Pig	5	7
Total Identified	67	
Cattle-size	29	
Sheep-size	21	
Total	117	

Table 76 The animal bone: Minimum Number of Individuals (MNI) Phase 7

Species	MNI	%
Cattle	2	22
Sheep/goat	5	56
Pig	2	22
	Total	

Species identified: age at death and sex

Cattle

Only 31 cattle fragments were identified, representing a minimum of 2 individuals (Table 75 and Table 76). Unfortunately, there were few bones that could provide information as regards epiphyseal fusion (Table 77). The sample is far too small to highlight specific economic patterns other than to say there were more unfused than fused bones present. Based upon the fusion data, the cattle recovered were slaughtered between the ages of 3-4 years. Only one mandible fragment was recovered possessing a single M1 in tooth wear stage 'g' (Table 78). The presence of only one tooth *in situ* unfortunately does not lend itself to a very accurate age at death estimation. A MWS range of 20-32 was extrapolated based upon comparison with Grant's tooth wear combinations (Grant 1982, Table 2). This range was narrowed slightly, when frequency of certain tooth wear combinations was taken into account. A MWS stage range of 20-32 equates to an age at death of between 18-36 months. The narrower range of 20-26 provides an age of 18-30 months (Hambleton 1999, Table 3, 65), indicating the slaughter of younger cattle. In addition to the limited fusion and tooth wear data, there was an incomplete horncore with some skull still attached. Through comparison with Armitage (1982a), the texture of this horncore was assigned to stage 4, which equates to a minimum age of 7 years (Armitage 1982a, 42), illustrating the presence of an older individual. Just a single pelvis fragment was complete enough for sexing purposes. This fragment was identified as female based upon comparison to Grigson's criteria (1982).

Table 77 The animal bone: epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Bone	Phase 7	Age (months)	Fused	Fusing	Unfused
Pelvis (acet)	Early	7-10			
Scapula D		7-8			
1st Phal P		13-15			
Humerus D		15-18			1
Radius P		15-18			
2nd Phal P		18			

MetaC D	Middle	24-36			1
Tibia D		24-30			
Metat D		27-36			
Calc P		36-42			1
Femur P	Late	42			
Radius D		42-48			1
Ulna P		42-48			
Humerus P		42-48			
Femur D		42-48			
Tibia P		42-48		2	3
vertebral centrum	Final	84-108		1	3
			0	3	10

Table 78 The animal bone: Cattle toothwear (*range narrowed based on frequency of tooth wear combinations)

Mandible Wear Stage (MWS) (Grant 1982)	Age Stage (After Halstead 1985)	Suggested Age (After Hambleton 1999)
20-32	D/E	18-36 months
(20-26)*	D	18-30 months

Sheep/Goat

As with cattle, 31 sheep/goat fragments were identified, representing a minimum of 5 individuals (Table 76). Only six bones were suitable for the analysis of epiphyseal fusion (Table 79) and as such little can be extrapolated from the data. As with cattle, there were more unfused than fused bones. However, the fusion data does not provide much information at all. The data potentially suggests the slaughter of sheep/goat from the age of 18 months onwards; although younger animals may also have been targeted and are just not represented in this small sample. Only one mandible was suitable for tooth wear analysis, an MWS of 41 indicating an age at death of 4-6 years (Hambleton 1999, Table 2, 64). This mandible illustrates that more mature adult sheep/goat were also present during Phase 7, suggesting the consumption of mutton.

Table 79 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Sheep Bone		Age (mo)	Fused	Fusing	Unfused
Pelv (acet)	Early	6-10			
Scapula D		6-8			
Humerus D		10			
Radius P		10			
1st Phal P		13-16			

2nd Phal P		13-16			
Metac D	Middle	18-24			
Tibia D		18-24	1		
Metat D		20-28			1
Ulna P		30			
Femur P	Late	30-36		1	
Calc P		30-36			1
Radius D		36	1		
Humerus P		36-42			
Femur D		36-42			
Tibia P		36-42			
Vertebral centrum	Final	48-60	2	1	
			4	2	2

Pig

There were only five pig fragments recovered, representing a minimum of two individuals (Table 76). In addition to this, there were no bones possessing fusion data and no mandibles for tooth wear analysis. Therefore, no information pertaining to age at death was available for interpretation.

Cattle and Sheep-size

Cattle and sheep-size fragments totalled 50. The majority of cattle-size fragments were identified as vertebrae with a smaller number of rib fragments also present. Four of the vertebral fragments were recorded as being unfused, with one lumbar vertebra possessing one fused epiphysis and one fusing epiphysis. This provides an age range of up to 5 years according to Silver (1969, Table A), although other sources note that fusion occurs between the ages of 7 and 9 (Reitz and Wing 1999, Table 3.5). In contrast, the sheep-size bones were more varied, dominated by skull and long bone shaft fragments.

Skeletal element representation

Skeletal element representation for cattle, sheep/goat and pig are presented below. The sample size for each of the three domesticates is small as highlighted earlier, with pig the least well represented as with Phase 5.

Cattle

Cattle are not especially well represented, although the presence of horn cores and ankle bones suggest the whole carcass was present (Figure 51). Meatier bones, such as the humerus, femur and pelvis are fairly frequent in relation to the rest of the sample with the pelvis joint highest along with proximal radius and the calcaneus – the latter two bones not especially known for their meat but are nonetheless robust. The absence of metapodia is a pattern that was not evident in Phases 4 or 5. As these remains were all recovered from a

single pit, it must be considered that the metapodia and possibly the phalanges were either extracted for bone working/glue purposes (Maltby 1979, 7) or for the extraction of oil (Gidney 1999, 310) and not discarded with the rest of the domestic butchery waste, or that they were never present supporting the suggestion that only selected joints were being imported minus the most distal extremities.

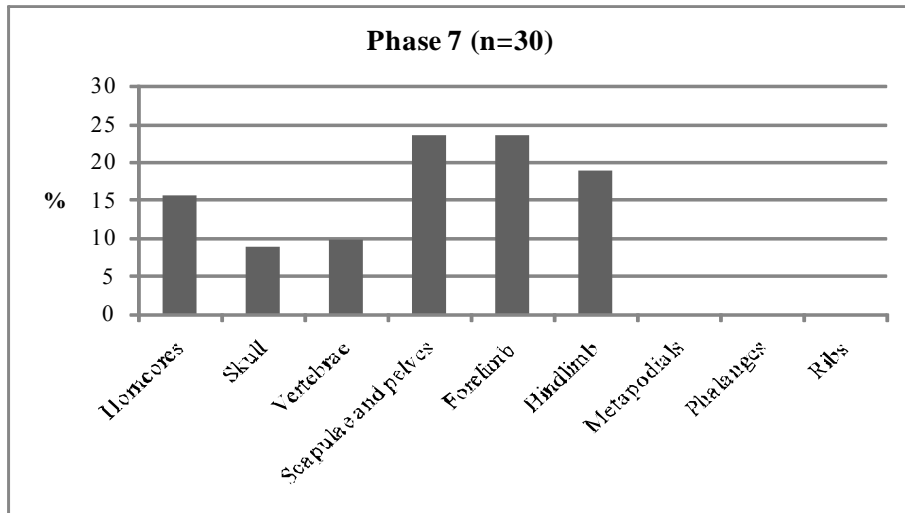


Figure 51 The animal bone: cattle carcass components in Phase 7

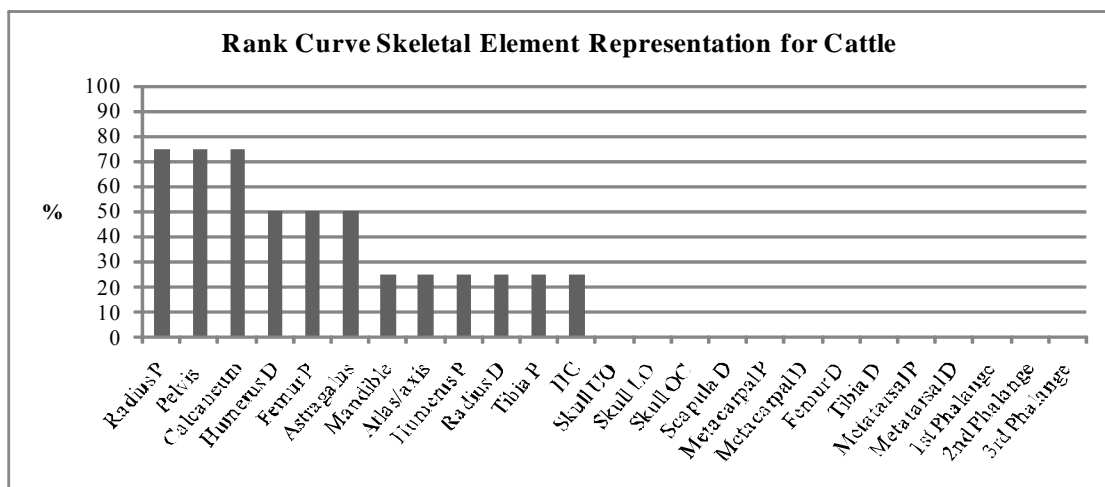


Figure 52 The animal bone: skeletal distribution of elements in rank order

Sheep/Goat

Sheep/goat is better represented than cattle, with only the most distal extremities (phalanges and astragalus) and the scapula absent (Figure 54). The proximal radius was the most prominent element identified (as with cattle) followed by the distal radius and the atlas/axis. The meatier bones were not especially abundant in comparison. The proximal radius may be more prominent as a result of the way in which the carcass was portioned with the proximal radius and distal humerus butchered to form a whole joint of meat. The robust nature of the

proximal radius also makes it more durable than the more cancellous distal epiphysis of the humerus.

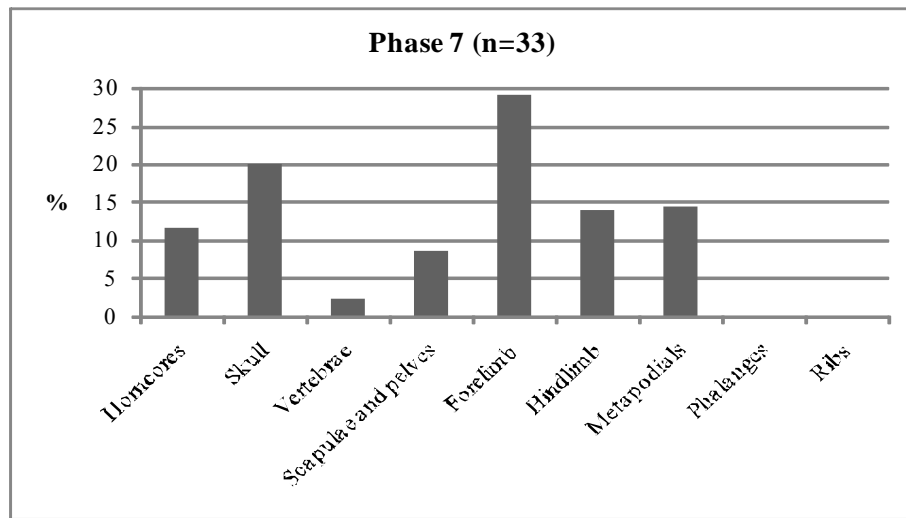


Figure 53 The animal bone: Sheep/goat carcass components in Phase 7

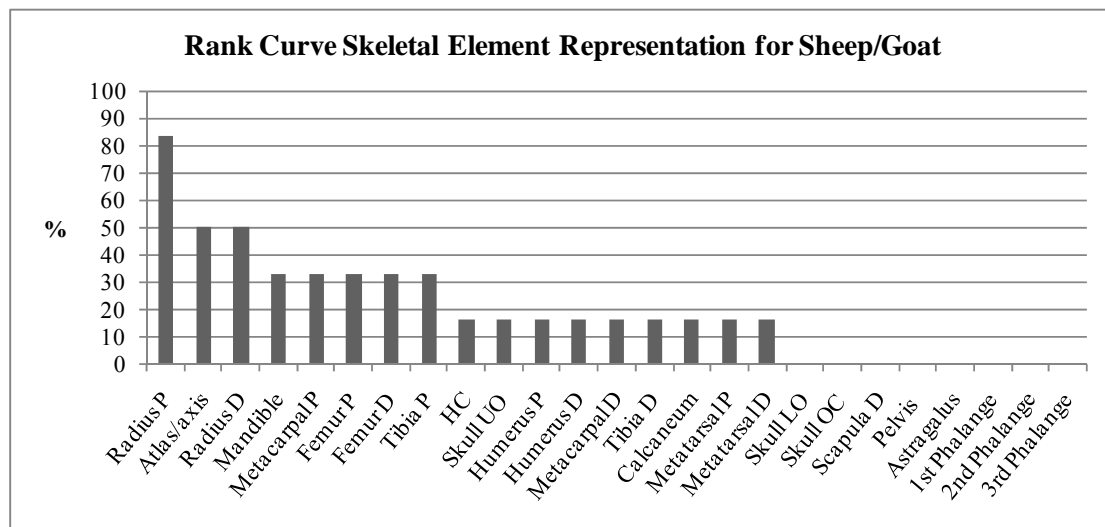


Figure 54 The animal bone: skeletal distribution of elements in rank order

Pig

Pig was the least well represented of the three main domesticates (Figure 55). Distal humerus and distal tibia were the most prominent elements followed by the pelvis, proximal humerus and proximal tibia. However, this information is based upon only five fragments of bone. This small sample may be due to poor preservation of juvenile pig bone or may be the fact that pig were deposited elsewhere as only one pit is represented in this analysis.

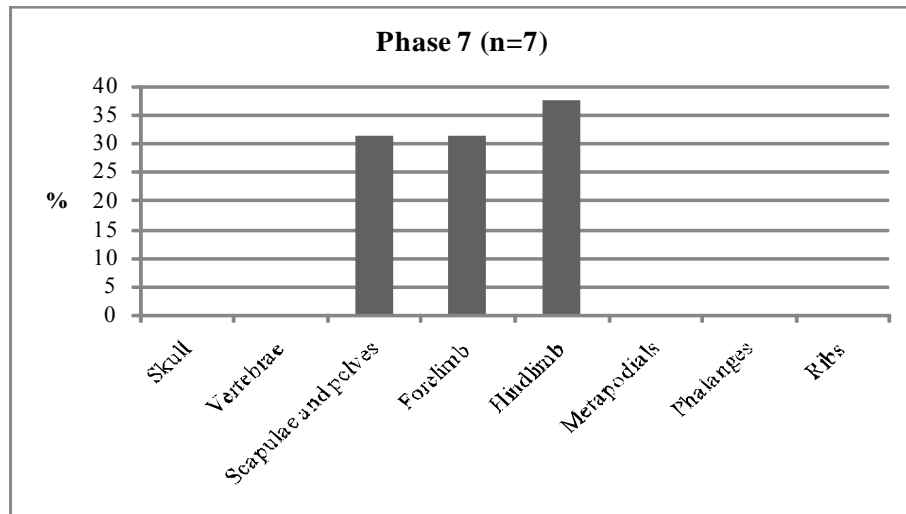


Figure 55 The animal bone: pig carcass components, Phase 7

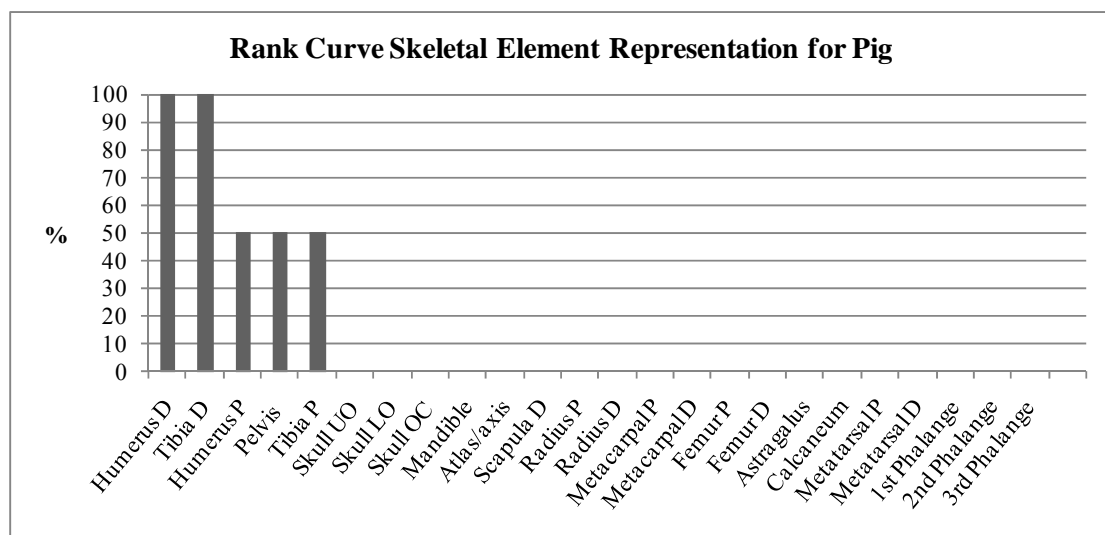


Figure 56 The animal bone: skeletal distribution of elements in rank order

Bone modifications

Butchery

In total there were 44 recorded instances of butchery on 36 bones in Phase 7 (31% of the entire assemblage). Of the three domesticates, cattle displayed the highest frequency with 52% (n=16) of the bones identified recorded as butchered. This was followed by 40% pig (n=2) and 29% sheep/goat (n=9). Cattle-size fragments also exhibited butchery evidence.

Chop marks

Chop marks dominated for cattle, sheep/goat and cattle-size bone fragments. Nine of the 15 recorded examples of chop marks for cattle were indeterminate and largely deemed attributable to marrow extraction, with diagonal and transverse cuts located towards the proximal and distal regions of the long bones possibly related to rough dismemberment. Seven of the eight recorded chop marks for sheep/goat were mostly indeterminate, like cattle, but may also represent rough dismemberment/portioning of the carcass. A cattle atlas chopped completely through diagonally along with a sheep/goat axis chopped sagittally indicates splitting of the carcass. Five cattle pelvis fragments were chopped, two through the acetabulum with the remaining marks targeting the pubic symphysis, the ischium and the ilium all close to the region of the hip joint – presumably as a part of the dismemberment process.

Cut marks

The locations of the cut marks on the three main domesticates point towards filleting and dismemberment (

Table 80). Fine parallel cut marks on a cattle maxilla, just proximal to the upper M1 indicates the dismemberment of the mandible from the rest of the skull (Binford 1981, 109) whilst the removal of the head itself is suggested by the presence of cuts on the dorsal side of both cattle and a sheep/goat atlas. Twelve cut marks recorded on the condyles of a cattle astragalus also indicates dismemberment. Fine cuts were the only butchery marks recorded for pig. However, only two specimens out of a total NISP of 5 displayed butchery. Filleting was identified on the midshaft of a pig tibia, whilst cuts on an ilium indicated dismemberment. Cuts were also recorded on a small number of cattle-size bones including dismemberment cuts on a proximal metacarpal, possible filleting cuts on a pelvis fragment and a fine parallel cut on the spinous process of a cattle-size lumbar vertebra, indicating the removal of meat, most likely the tenderloin (Binford (1981, 110-12).

Table 80 The animal bone: cut marks: butchery Stages

	Skinning	Dismemberment	Filleting	Indeterminate
Cattle	-	3	1	1
Sheep/Goat	-	1	-	-
Pig	-	1	1	-

Burning and gnawing

As with Phase 5, there were no instances of burning recorded. Fourteen examples of gnawing were recorded affecting all three domesticates, most predominantly sheep/goat (12% of the entire assemblage). The gnawing was identified as canid in origin with a cattle-size rib displaying characteristic tooth puncture marks on the proximal head.

Pathology

Seven instances of pathology were recorded with abnormalities in bone formation, bone loss and a combination of bone loss and bone shape observed on cattle, sheep/goat and cattle-size bones (Table 81).

Table 81 The animal bone: Phase 7: pathology

	Abnormal Bone Formation	Abnormal Bone Loss	Abnormal Bone Shape	Abnormal Bone Size	Combination	Other
Cattle	1	2	-	-	-	-
Sheep/Goat	-	3	-	-	-	-
Cattle-size	-	-	-	-	1	-

Extensive new bone was recorded affecting most of the cranial shaft of a cattle radius. This could be due to many different reasons, trauma and infection amongst the differential diagnoses. Porosity was noted in a unfused cattle femoral head, however, the young age of this bone may also explain the increased porosity as would poor preservation in the burial environment. Porosity was also noted in a cattle astragalus, however again, this was uncertain and may just reflect natural variation. Osteochondrosis manifesta/dissecans was noted in the proximal medial epiphyses of two sheep/goat metacarpals, along with bone loss within the vertebral foramen of a sheep/goat atlas. This latter porosity is indicative of an increase in blood flow, suggestive of a possible infective process. Finally, an enlarged foramen within

the vertebral body of a cattle-size lumbar vertebra associated with a space-occupying lesion also possibly indicates the presence of a chronic infective process.

Animal size and shape: metrics

Just a single sheep/goat radius was complete enough for the calculation of a shoulder height (Table 82), resulting in 0.54m. This fits within the ranges presented for the Roman and Medieval phases at both Causeway Lane (Gidney 1999) and Bonner's Lane (Baxter 2004). However, as it is only a single measurement, its representation of sheep/goat for Phase 7 as a whole is somewhat limited.

Table 82 The animal bone: Withers height

Species	Element	G1 (mm)	Withers Height (m)
Sheep/Goat	Radius	135.00	0.54

Archaeological features: function

The animal bones were recovered from a single pit. There appears to have been at least six partially excavated pits – however, only the faunal remains from one (PC 2008) are considered here. There was no pattern to the location of the pits that would indicate that they were associated with any specific property boundary and whilst not located close to the church of St. Peter, this does not preclude that they may have been somehow connected to its use.

The pit, assumed to have functioned as a disposal area contained the bones of cattle, sheep/goat and pig. There was an absence of metapodia and phalanges, which may indicate that these bones were extracted for either bone working or the production of glue or oil. However, they may also in turn have been deposited in another pit or as the pit was only partially excavated, simply not recovered.

Phase 8 Earlier Medieval (1100-1250)

The animal bone from Phase 8 had a TNF of 1106 (37% of the entire assemblage), the largest of all the phases recorded (

Table 55). As with Phases 4, 5 and 7 the majority of this assemblage was recorded as being in 'good' condition (89%). However, only 355 fragments (32%), a third of the assemblage was identifiable to species, the rest being assigned to cattle/sheep-size, other bird, other mammal and unidentified (Table 85). The animal bones were recovered from several different contexts: a possible hearth/oven feature located within the boundaries of the St. Peter's Church cemetery, contexts associated with the remodelling and disuse of 'building 6' – a suspected undercroft/cellar and two isolated pits, possibly linked to the use of 'building 7' – a mud building, possibly the predecessor to a vicarage listed in a deed as being located to the north of St. Peter's Church.

Table 83 The animal bone: number of identified specimens: Phase 8

Species	NISP	%
Cattle	103	29
Sheep/Goat	113	32
Sheep	6	1.6
Pig	82	23
Horse	1	0.2
Dog	4	1
Cat	4	1
Roe deer	1	1
Domestic fowl	24	6.7
Goose	16	4.5
Domestic pigeon	1	1
Total identified	355	
Indeterminate bird	19	
Unidentified wader	1	
Cattle-size	221	
Sheep-size	331	
Indeterminate small mammal)	4	
Indeterminate	108	
	1106	

Table 84 The animal bone: Minimum Number of Individuals (MNI): Phase 8

Species	MNI	%
Cattle	2	9
Sheep/Goat	5	23
Sheep	2	9
Pig	2	9
Horse	1	5
Dog	1	5
Cat	1	5
Roe deer	1	5
Domestic fowl	4	19
Goose	1	5
Domestic pigeon	1	5
Total	21	

Species identified: age at death and sex

Cattle

Cattle were the second most frequently identified species at 29% (n=103), and do not dominate this assemblage as in the earlier Roman and Post-Roman phases. Phase 8 at Vaughan Way is the first point at which sheep/goat outnumber cattle, both in terms of identifiable elements and in the cattle and sheep-size categories. Only a minimum of 2 individuals was represented (Table 85). This again highlights the high level of fragmentation, a pattern also evident in the preceding phases. Table 85 illustrates an almost equal proportion

of fused and unfused bones. A small number were slaughtered at little over a year of age. The majority of fused bones are clustered within the 13-18 months age bracket. This is most likely a reflection of good preservation due to the robusticity of these early fusing elements. Unfortunately, there were no cattle mandibles with *in situ* teeth available for tooth wear analysis. A single cattle pelvis fragment was identified as female, according to criteria outlined in Grigson (1982).

Table 85 The animal bone: Epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Bone		Age (months)	Fused	Fusing	Unfused
Pelvis (acet)	Early	7-10			
Scapula D		7-8	1		
1st Phal P		13-15	3	1	1
Humerus D		15-18	1		
Radius P		15-18			
2nd Phal P		18	1		
MetaC D	Middle	24-36			1
Tibia D		24-30			
Metat D		27-36			
Calc P		36-42	1		
Femur P	Late	42			
Radius D		42-48	1		
Ulna P		42-48			
Humerus P		42-48			
Femur D		42-48	1		
Tibia P		42-48			1
vertebral centrum	Final	84-108	1	1	6
			10	2	9

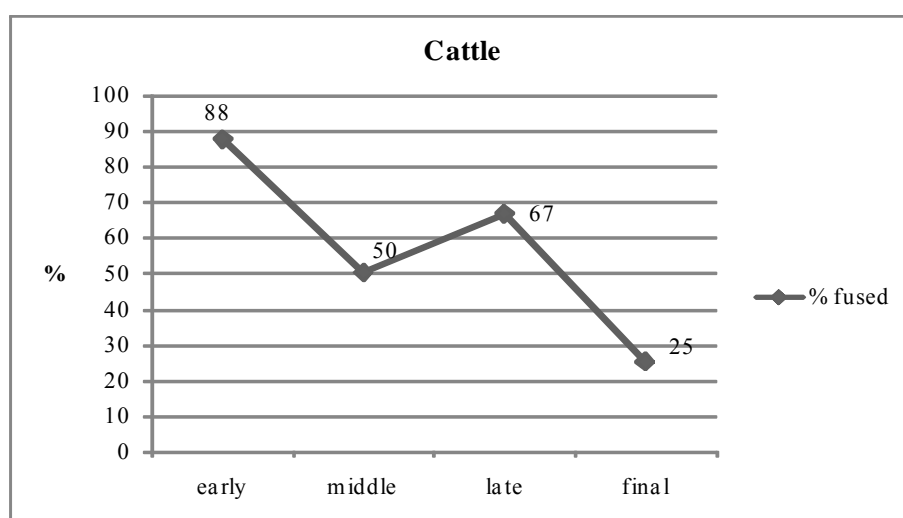


Figure 57 The animal bone: proportion of fused to unfused bones in age categories

Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Sheep/Goat

In total, Phase 8 comprised 113 sheep/goat fragments representing a minimum of 5 individuals (Table 85). Of these, 6 bones were definitely recorded as sheep utilising Boessneck's (1969) criteria. Following a similar pattern to the cattle fusion data, the majority of bones recovered were fused (Table 95). The unfused bones span the age ranges not favouring any particular age category. This suggests that sheep/goat of all ages were being slaughtered from very young lambs to older prime mutton animals. Three mandibles were included in the tooth wear analysis (Table 87). Unfortunately, only a single mandible was able to provide a narrow age range of 6-12 months (Hambleton 1999, Table 2). The remaining mandibles, spanned age ranges with one providing wear combinations that equated to a minimum age of 6 months and a maximum of 3-4 years. The unacceptably large age range of this latter case was narrowed down slightly by utilising the most population tooth wear combinations (after Grant 1982). These adjusted ranges can be seen in italics in Table 87. These tooth wear results indicate the presence of both juvenile and more mature sheep/goat, complementing the fusion data presented. In total, four sheep/goat pelvis fragments were suitable for sexing. Three were identified as female according to the criteria outlined in Boessneck (1969) and another that was more fragmented was also a possible female. Two of these pelvis fragments were intact enough for the H1 measurement to be taken, 3.52mm and 5.46mm. These results, when compared to Greenfield's results fit into the female category, with the measurement of 5.46mm just on the borderline between male and female (Greenfield 2005, fig 14).

Table 86 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Sheep					
Bone		Age (months)	Fused	Fusing	Unfused
Pelv (acet)	Early	6-10	1		
Scapula D		6-8	1		1
Humerus D		10			
Radius P		10			
1st Phal P		13-16	5	1	
2nd Phal P		13-16			
Metac D	Middle	18-24	1		
Tibia D		18-24	1		1
Metat D		20-28			
Ulna P		30			1
Femur P	Late	30-36		1	1
Calc P		30-36			
Radius D		36			
Humerus P		36-42			
Femur D		36-42	1		
Tibia P		36-42			1
Vertebral centrum	Final	48-60	2	1	5
			12	3	10

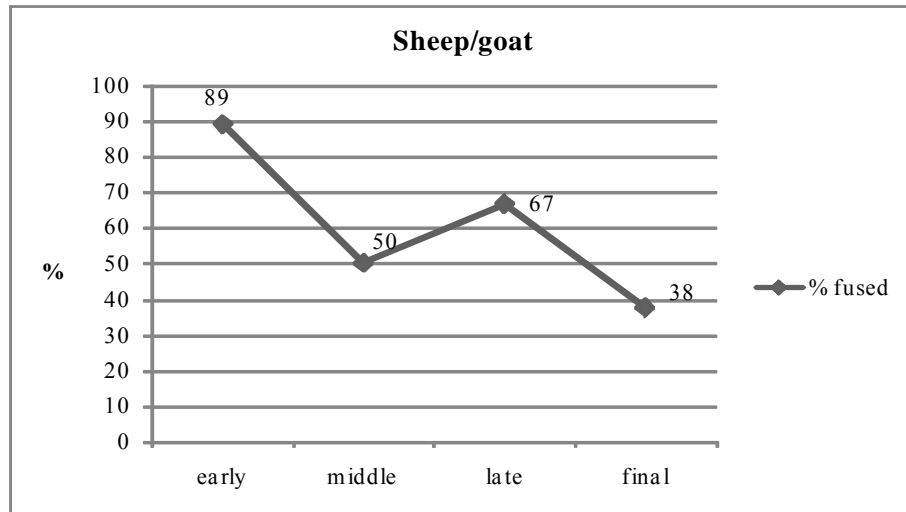


Figure 58 The animal bone: proportion of fused to unfused bones in age categories, Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

Table 87 The animal bone: Sheep/goat toothwear

	Mandible Wear Stage (MWS) (Grant 1982)	Age Stage (After Payne 1973)	Suggested Age (After Hambleton 1999)
1	13-14	C	6-12 months
2	29-34	E/F	2-3 years – 3-4 years
3	14-36	C-F	6-12 months – 3-4 years
	(29-34)	E/F	2-3 years – 3-4 years

Pig

There were 82 (19%) pig fragments representing a minimum of 2 individuals (

Table 83 and Table 84). The epiphyseal fusion data presented contrasts with cattle and sheep/goat, with the majority of bones unfused, as expected with pig (Table 90). The unfused bones illustrate that pigs were being slaughtered at all ages with a peak of slaughter evident between the ages of 12-27 months. No toothwear data was available for pigs in this phase. The only sexable bones identified were an upper and lower canine. Upon comparison with Hillson (2005, 131), these were found to be male.

Table 88 The animal bone: epiphysal fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Bone		Age (months)	Fused	Fusing	Unfused
Scapula D	Early	12	1		
Humerus D		12	1		
Radius P		12			
Pelvis (acet)		12			
2nd Phal P		12	1		1
Metac D	Middle	24		1	1
Tibia D		24			1
1st Phal P		24			1
Calc P		24-30			
Metat D		27			1
Ulna P	Late	36-42			
Humerus P		42			1
Radius D		42			
Femur P		42			
Femur D		42			
Tibia P		42			1
Vertebral centrum	Final	48-84			6
			3	1	13

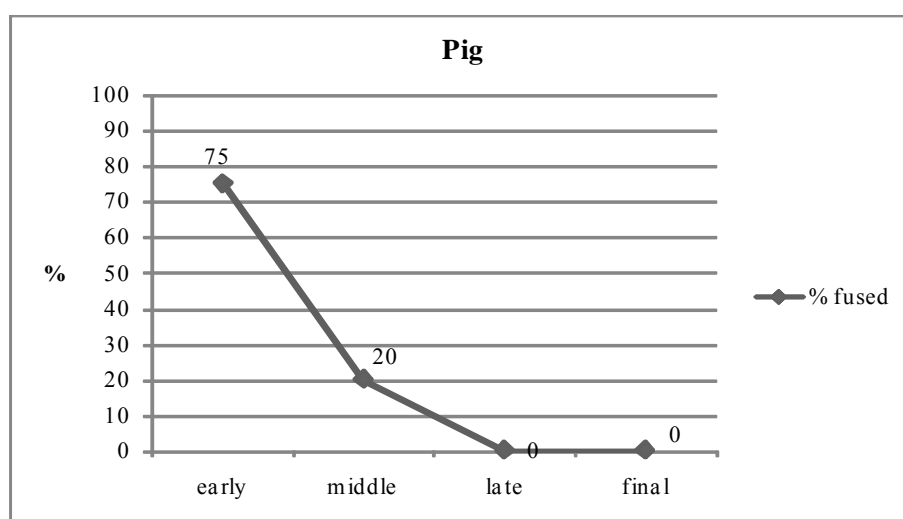


Figure 59 The animal bone: proportion of fused to unfused bones in age categories, Key: Early=<12 months; Middle=12-27 months; Late=36-42 months; Late=48-84 months

Cattle- and Sheep-size

Cattle- and sheep-size fragments totalled 552. The majority of these comprised less diagnostic rib and vertebral fragments along with indeterminate long bone shaft fragments. The vertebral fragments for both were predominantly recorded as being unfused apart from a small number that were either recorded as fused or fusing. As the epiphyses fuse to the vertebral body at around 5 years of age (Silver 1969, Table A), although other sources

suggest this to have taken place between 7 and 9 years (Reitz and Wing 1999, Table 3.5), this fits well with the age at death information already presented. This also indicates that a small number of mature adults were being utilised for food, indicating that they were not bred solely for meat.

Other species

In addition to the three main domesticates, roe deer, horse, dog, cat, domestic fowl, goose, pigeon and fish, were also identified (

Table 83). A proximal first phalanx of horse provided an age at death of at least 13-15 months. Four dog bones included a distal fused tibia providing a minimum age at death of 13-16 months (Silver 1969, Table A). These dog bones were recovered from different contexts, therefore, most likely represent random incorporation with domestic refuse as opposed to the deposition of articulated remains or 'special' deposits. Twenty four domestic fowl along with 16 goose bones were also identified, predominantly comprising fused long bones of the fore and hind limb. A single domestic pigeon bone (sp. *Columbia livia*) was also recovered. In addition to this, four cat bones were identified along with a roe deer pelvis fragment, fish and indeterminate bird and small mammal fragments.

Skeletal element representation

Skeletal element representation for cattle, sheep/goat and pig are presented below. The sample size for each of the three domesticates are larger than many of the phases recorded at Vaughan Way. However, these are still small assemblages and must be interpreted as such.

Cattle

Cattle were well represented, with all regions of the skeleton identified (Figure 60). Distal radius and proximal metatarsal are the most frequent skeletal elements, followed by the proximal radius, distal metacarpal and calcaneum (Figure 61). The bones that provide better cuts of meat such as the humerus, femur and pelvis are also present but not in as high abundance as the less 'meatier' more robust bones. This distribution of elements suggests that the whole carcass was present on site with all parts of the animal being utilised. The assemblage appears to combine primary butchery waste, with more domestic household waste with an over-representation of the more robust elements.

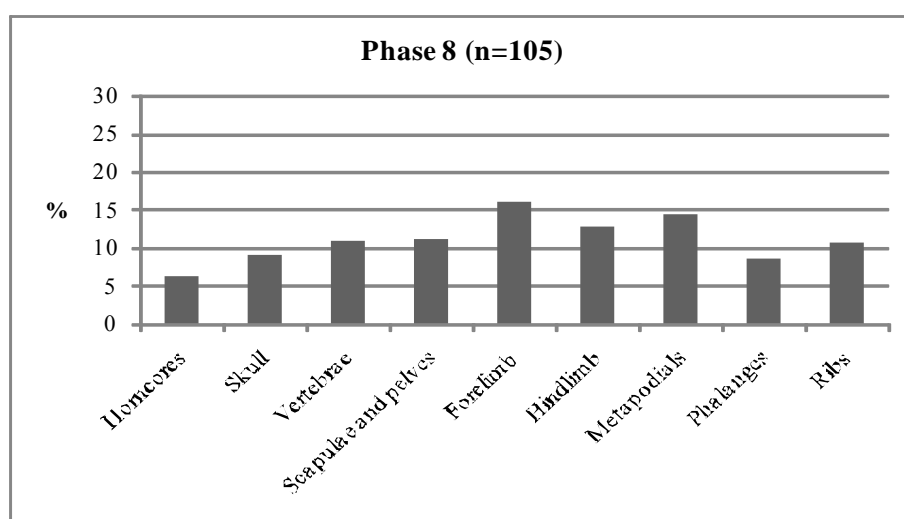


Figure 60 The animal bone: cattle carcass distribution, Phase 8

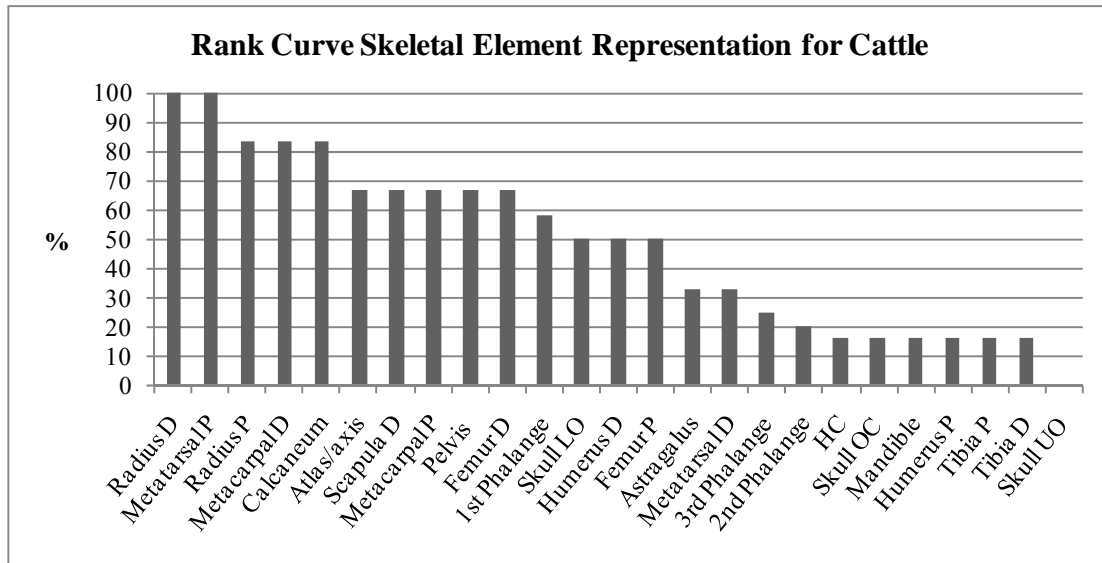


Figure 61 The animal bone: skeletal element distribution in rank order

Sheep/Goat

The majority of the sheep/goat skeleton is represented (Figure 62). The distribution of anatomical elements is similar to cattle, however, pelvis was the most frequent element identified with the tibiae (both proximal and distal) more prominent in sheep/goat than cattle. The mandible was also more common, presumably due to the robust nature of its structure. As with cattle, those bones providing better cuts of meat were present, however, bones of a lesser quality were equally as abundant (i.e. tibia and proximal radius), in some cases more so. Therefore, this mixed distribution indicates that the whole carcass was present on site, with some more robust elements better represented. The high frequency of pelvis fragments may indicate the ‘boning out’ of this element during the secondary butchery.

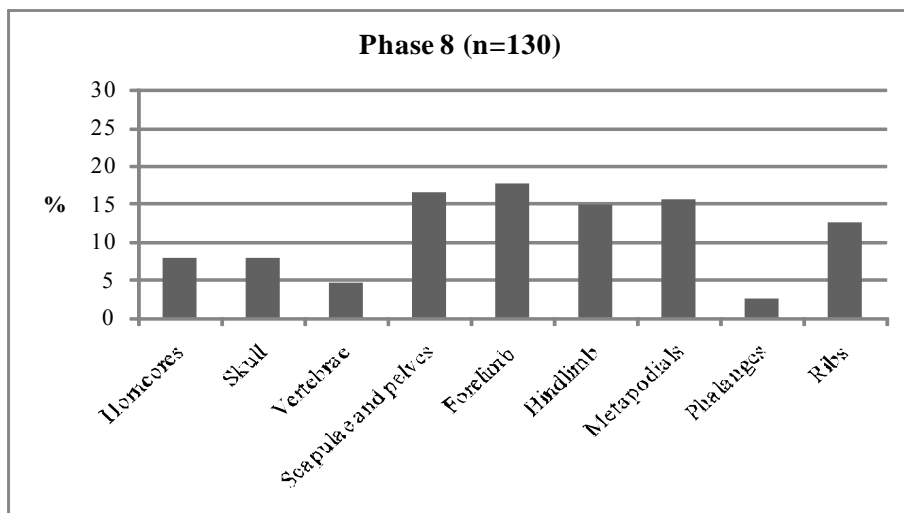


Figure 62 The animal bone: Sheep/goat carcass components, Phase 8

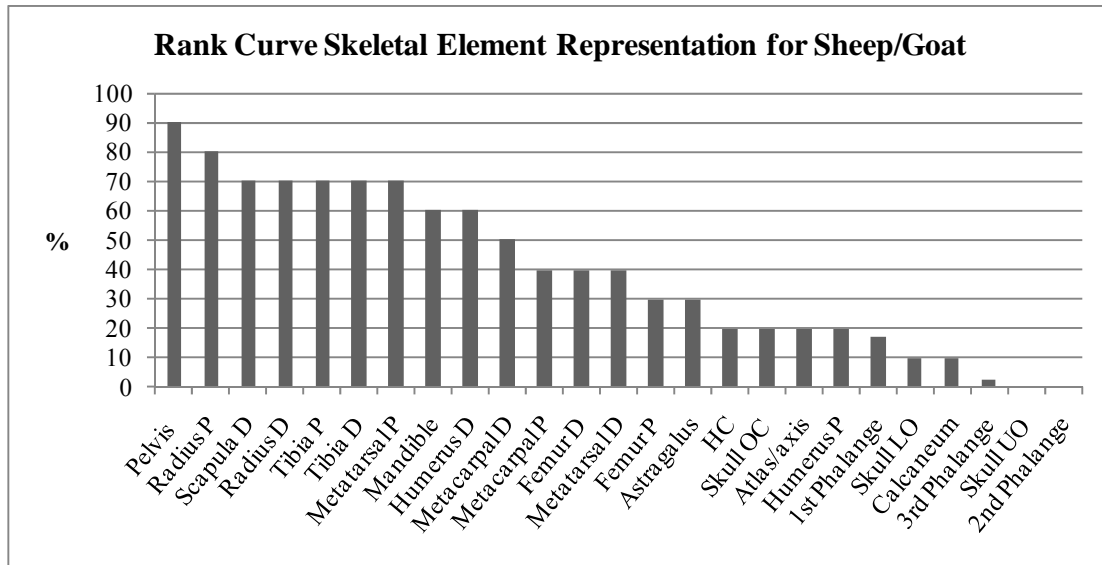


Figure 63 The animal bone: skeletal distribution of elements in rank order

Pig

Of all the phases analysed, Phase 8 has produced the most complete representation of pig (Figure 64). This is undoubtedly due in part to the larger assemblage associated with the medieval phases at Vaughan Way. Although more of the skeleton is present, the frequency of anatomical elements is not especially high. The most common elements are the proximal and distal metatarsal, followed by the proximal radius and distal humerus, both robust and early fusing elements. The preponderance of metapodia here may just be a reflection of good recovery and their robust nature or they could potentially indicate the utilisation of pig skin or the consumption of pig's trotters. As this distribution has not been mirrored in the preceding phases, this may well reflect a change in dietary preference or the fact that pigs were being kept in stalls and butchered on site rather than imported as selected cuts.

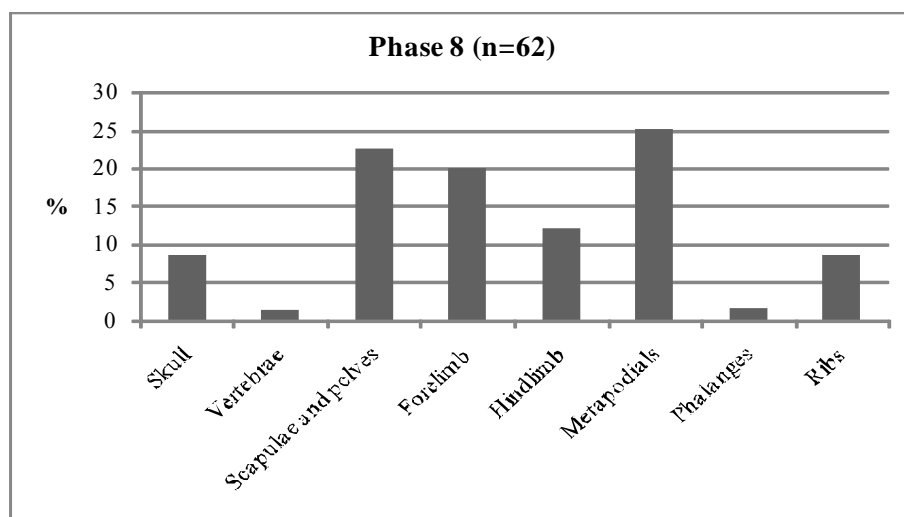


Figure 64 The animal bone: pig carcass components, Phase 8

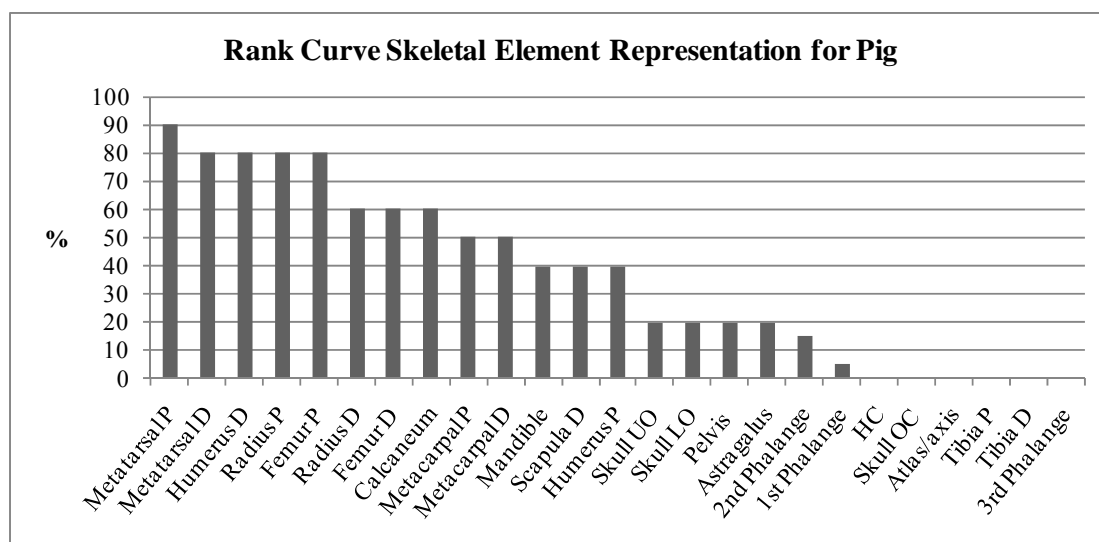


Figure 65 The animal bone: Skeletal element distribution in rank order

Bone modifications

Butchery

In total there were 220 recorded instances of butchery on 115 bones in Phase 8 (15% of the entire assemblage). Of the three main domesticates, sheep/goat displayed the highest frequency with butchery evident on 32% (n=48) of the bones recovered. This was followed by pig at 24% (n=25) and cattle at 21% (n=34). A number of cattle and sheep-size fragments also exhibited butchery evidence along with a single domestic fowl and pigeon bone.

Chop marks

Chop marks dominated for sheep/goat, cattle and pig fragments. Chop and cut marks were more evenly distributed for the cattle and sheep-size categories with 'roughly broken' bones and bones displaying evidence for heavy cuts/chops also represented, but in much smaller numbers. The majority of the chop marks were indeterminate with those on the proximal and distal regions of the long bones (particularly cattle, sheep/goat and cattle/sheep-size) possibly related to rough dismemberment of the carcass as well as bone breakage for the extraction of marrow. However, the location and morphology of some of the chop marks did provide evidence for more specific butchery activities such as dismemberment, splitting and portioning of the carcass. For example, the ischium of a cattle pelvis and the ilium of a pig and several sheep/goat pelvises around the region of the acetabulum were chopped indicating dismemberment. In addition to this, several scapulae of all three main domesticates were chopped through the glenoid fossa, spine and blade. A chop mark at the base of a sheep/goat horncore also indicates dismemberment and removal of the horn from the skull. Splitting of the carcass is shown in sheep/goat, pig and cattle/sheep-size fragments with the sagittal chopping of the vertebrae, most frequently recorded in the pig remains (Figure 66). This indicates the presence of facilities and equipment capable of hoisting and hanging the animal carcass. Transverse processes were also recorded as having been trimmed off. Interestingly, a cattle rib chopped/broken just below the proximal head and neck region (zone 4) may reflect the removal of the 'rib slab' as described by Binford (1981, 147). Following on from this, a

number of cattle/sheep-size ribs were also found to be chopped through (zone 7) (RS-2), some possessing heavy cut marks also (chop/cut category) indicating the removal of the distal ends of the ribs from the brisket (Binford 1981, 147).



Figure 66 The animal bone: pig lumbar vertebra chopped in half down the midline (PC5006)

Cut marks

Cut marks are far more diagnostic, their location and direction enabling specific butchery stages to be identified. It is important to note, however, that a carcass can be butchered without leaving any trace on the bones at all. Table 89 presents the butchery stages identified from the cut marks identified on the three main domesticates. Binford's butchery codes and illustrations were used where possible to categorise the marks (Binford 1981, 87-182). Those listed as 'indeterminate' were marks that were not described or illustrated by Binford. These include cuts marks on the dorsal and visceral surfaces of the ribs and on two pig lumbar vertebra, the latter possibly indicating removal of the tenderloin (Binford 1981, 113). The majority of the cattle and sheep-size bone fragments consisted of these particular cut marks. In addition to cattle, sheep/goat and pig, a domestic fowl and domestic pigeon femur also possessed cut marks. Those just below the trochanter major on the domestic fowl femur are suggestive of dismemberment, whilst those on the proximal neck of the domestic pigeon femur could be either dismemberment or filleting – however, considering the small size of this species of bird, the former is the favoured interpretation. These butchered remains most likely represent table waste. Overall for Phase 8, there is evidence for both primary and secondary butchery of the three main domesticates as well as domestic fowl and bird. Dismemberment/disarticulation formed the most frequent marks recorded. However, filleting was also well represented, especially if the indeterminate cuts and cattle and sheep-size categories are also considered.

Table 89 The animal bone: Cut marks

	Slaughter	Skinning	Dismemberment	Filleting	Indeterminate
Cattle	-	-	4	3	1

Sheep/Goat	-	-	6	-	-
Pig	-	-	2	-	6

Burning and gnawing

One hundred and twenty three fragments (11%) were recorded as being altered by burning. The great majority of which (n=99) were unsurprisingly recovered from a hearth/oven feature. Figure 67 displays the proportions and type of burning recorded. Of the three main domesticates, blackened bone fragments were most frequently recorded with a smaller number recorded as being scorched. In the cattle and sheep-size categories, the reverse was evident with scorching recorded in higher numbers as well as a few cases where the bone fragments were completely calcined suggestive of extremely high temperatures.

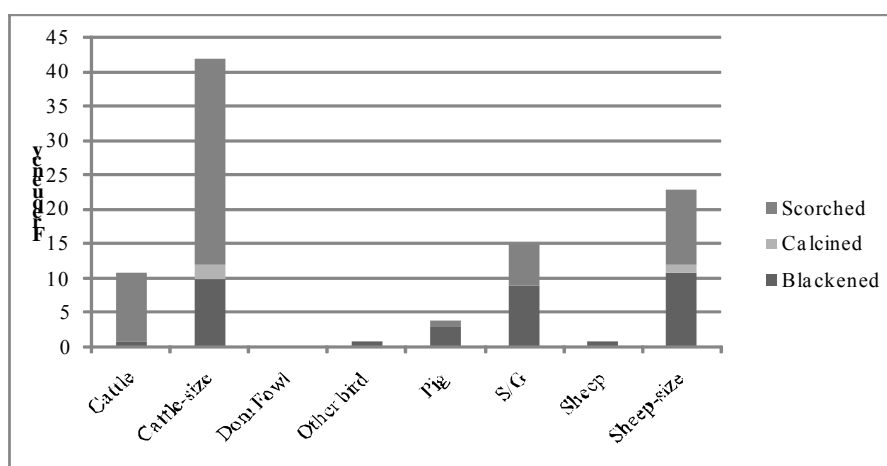


Figure 67 The animal bone: burning types

Twenty-one instances of gnawing were recorded in total (2% of the entire assemblage). Cattle, sheep/goat and pig were all affected with sheep/goat the most frequently affected. The majority of the marks were canid in origin, with two cases of possible digestion (most likely by a carnivore) (Figure 68, Figure 69) as well as a single example of rodent gnawing on the neck of a cattle scapula.



Figure 68 The animal bone: sheep/goat pelvis



Figure 69 The animal bone: close-up view of surface degradation due to possible digestion (Phase 8: PC5289)

Pathology

Thirty-two instances of pathology were recorded on 30 bones (3% of the entire assemblage). Abnormalities in bone formation, bone loss and bone shape were recorded on the three main domesticates along with dog, goose, other mammal and cattle/sheep-size fragments (Table 90).

Table 90 The animal bone: Phase 8 Pathologies

	Abnormal Bone Formation	Abnormal Bone Loss	Abnormal Bone Shape	Abnormal Bone Size	Combination	Other
Cattle	2	3	3	-	-	2
Sheep/Goat	1	1	-	-	-	1
Pig	2	2	-	-	-	-
Dog	-	-	-	-	-	1
Goose	1	-	-	-	-	-
Cattle-size	5	-	-	-	-	-
Sheep-size	3	1	1	-	-	2
Other mammal	-	1	-	-	-	-

Periosteal reaction resulting in the presence of either new ‘woven’ or healed ‘compact’ bone formation was identified on cattle, pig, goose and both cattle and sheep-size fragments. The most common type identified was ‘woven’ bone located on the visceral surface of cattle-size rib fragments, thus indicating the presence of an active respiratory infection at death. A single goose posterior phalanx displayed evidence of remodelled compact new bone formation. This appeared to encase the original bone cortex, possibly representing an exceptionally well healed involucrum associated with osteomyelitis or osteopetrosis – ‘marble bone’ a disease commonly known to affect bird, where new bone is deposited resulting in extremely swollen and denser bones (Baker and Brothwell 1980, 61). Another example of abnormal bone formation was the presence of osteophytes on a distal cattle phalanx and ‘lipping’, the latter affecting the proximal margins of the epiphyses in two cattle phalanges. The ‘lipping’ was also associated with an extension of the articular surface (abnormal bone shape) suggestive of degenerative joint disease (DJD), possibly as a result of traction/activity related trauma (see Bartosiewicz *et al.* 1997). One of a number of criteria for the identification of osteoarthritis is eburnation, the characteristic polishing effect visible on bone as a result of bone to bone contact. This was recorded within two cattle acetabulae, potentially pointing towards traction, or work/activity related trauma as a result of over rotation of the hip (Bartosiewicz *et al.* 1997). Alternatively, this could also be age-related degeneration.

Bone loss was the second most frequent pathological category identified with osteochondrosis manifesta/dissecans recorded in a sheep/goat metacarpal as described in previous phases. The remainder of the bone loss was predominantly associated with lytic lesions and bone resorption affecting the vertebral bodies and a single proximal rib head. Bone loss in this manner may reflect an infective process. An interesting case was identified within the vertebral foramen of a cattle lumbar vertebra (although this context has not been formally included in the analysis). A remodelled space occupying lesion possessing smooth rounded edges and marked sclerosis (on the radiograph) was recorded. This lesion could be

indicative of a number of different infective organisms, with bovine tuberculosis and brucellosis amongst the list of possible differential diagnoses (Figure 70, Figure 71, Figure 72). Examples of pathology that did not fit into the pre-defined categories included those obviously associated with trauma. A dog fibula was found to be distally fused to the tibia, possibly as a result of trauma. In addition to this, two sheep-sized costal cartilage fragments were found to possess multiple micro-fractures. It is difficult to interpret the aetiology of these cartilage microfractures but presumably they are due to trauma of some kind, with a possibility being a 'butting' injury. Another pathological alteration recorded in the 'other' category included the roots of a sheep/goat tooth, which were found to be bulbous and the very ends of the roots splayed and best described as resembling 'straw' (hyper-cementosis). This was described by Baker and Brothwell (1980) as potentially reflecting a chronic periodontal infection (Baker and Brothwell 1980, 150).

Figure 70 The animal bone: Cattle lumbar vertebrae displaying space-occupying lesion (Phase 8: PC2766)



Figure 71 The animal bone: close-up of space occupying lesion

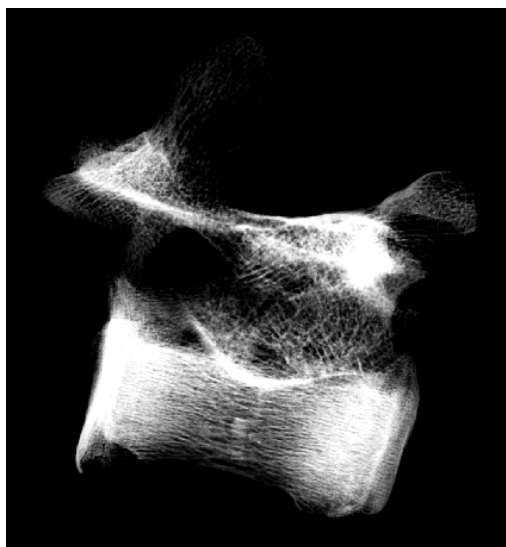


Figure 72 The animal bone: X-Ray showing marked sclerosis at the margins of the lesion (X-Ray taken by Dr. Jo Buckberry, University of Bradford)

Animal size and shape: metrics

Only one bone was complete enough for the calculation of shoulder height and unfortunately none were available for cattle. Shoulder height for sheep/goat is based solely on a complete metatarsal providing an estimate of 0.59m (GL=130mm) (factors after Teichert 1975); with only a single measurement it is impossible to know if this is a good reflection of the stature of sheep/goat during this early medieval phase. The average for the later phases at Causeway lane was 0.58m (Gidney 1999, 323), at Bonner's Lane, 56.5m (Baxter 2004, 10) and at the Old Shires site, 0.57m (Gidney *forthcoming*). Therefore, this single measurement is clearly in keeping with the evidence from the surrounding sites of the same period.

Archaeological features: function

The animal bones were recovered from several different features associated with Phase 8C, 8B and 8C, dating to the 12th and 13th centuries.

Phase 8A: PC 3148 –Oven/Hearth

A shallow linear feature containing alternating layers of sandy clay and charcoal dating to the early 12th Century was excavated within the boundaries of St. Peter's cemetery. It is uncertain as to whether this feature, thought to represent a hearth or oven is contemporaneous with the church or predates it. Several fills were excavated comprising a total of 294 bone fragments. Of these, 18% were sheep/goat, 16% cattle and 5% pig. Dog, domestic fowl and roe deer were also recovered along with both sheep and cattle-size bones, the latter forming the largest frequency (39%). All parts of the skeleton from the skull down to the phalanges were identified with the cattle-size bone most predominantly comprising long bone and rib fragments. 22% of the bones recovered were butchered.

In total 29% (n=91) of the bones recovered from this feature were noticeably heat-affected, with the majority recorded as 'blackened', followed closely by 'scorched' with a small number (n=3) 'calcined'. Context 3242 (n=149) possessed the highest number of heat affected bones (n=43), the majority of which were scorched. This latter context also

accounted for the vast majority of butchered bones (n=35). From the bone evidence, this feature would indeed appear to have functioned as some form of oven/hearth as just under a third of the bones identified were heat affected. The majority of bones identified were fragmented apart from an intact cattle radius and the smaller bones of the ankle and foot. There were no specific patterns evident in terms of body part or species represented. A mix of both was recorded illustrating that this feature most likely represented a large cooking facility. The bone remnants representing food debris possibly being left behind after cleaning out of the debris (if an oven) or discarded after consumption (if an open hearth area).

Phase 8B and 8C: Building 6 – PC 5306, 5312, 2557, 5128, 5218, 5289, 5328

Building 6 was a sunken-floored structure with its origins in the Late Saxon period (Phase 7). This structure, thought to be an undercroft, possibly functioned as a timber-walled cellar primarily for storage. In the medieval period (Phase 8B), this structure was remodelled with the addition of a ramp (PC 5312). Later in Phase 8C this structure went into disuse, signified with the presence of numerous dump layers backfilling the area. It is from these contexts that the majority of the faunal remains were extracted.

Phase 8B Building 6 – remodelling

PC 5306 – Gully

A shallow gully was identified at the base of ramp (PC 5312) within building 6. It is unclear as to whether this gully was in any related to the ramp or whether it was actually a slot for a joist/beam slot. The fill of this feature only contained four bones, two sheep-size fragments, a pig rib and interestingly a butchered domestic pigeon femur – the only identified pigeon bone from the bones analysed at Vaughan Way.

PC 5312 – Ramp

During remodelling of building 6, a ramp was added. This ramp possessed a crushed mortar surface where 14 bones were recovered. These consisted of sheep/goat (n=2), pig (n=2), cattle/sheep-size, fish and ‘other bird’ bones, all of which were fragmented. The latter is unsurprising considering the bones were recovered from a trampled surface.

PC 5218

This dump layer possessed a higher quantity of bone (n=59) and a mixture of species. The three main domesticates were present, of which sheep/goat were the most frequent (n=5). In addition, domestic fowl, fish and some indeterminate small mammal fragments were also identified. These bones would appear to represent general waste along with possible residual material.

Phase 8C: Building 6 – disuse

This building went into disuse and was backfilled in the mid 12th – early 13th centuries. The contexts from which bones were analysed are primarily dump layers and represent the

backfill of the structure and a number of robber trenches. The information extractable from the bones is therefore limited as a certain number will almost certainly have been residual.

PC 5128

During the disuse of building 6, material was deposited over the ramp (PC 5312) leading down into the undercroft. From this material, 16 bones were recovered including cattle (n=2), sheep/goat (n=2), dog (n=1), domestic fowl (n=1) and cattle and sheep-size fragments.

PC 2557 and PC 5328

The backfill of these two robber cuts contained very small amounts of bone, 14 in total.

PC 5289

This dump layer contained a higher quantity of bone (n=110) with a variety of species. Pig was the most common of the three main domesticates (n=10). Cat, goose, domestic fowl, fish and some small mammal fragments were also identified. These bones could represent general domestic waste but the assemblage may also include residual material from earlier phases.

Phase 8B: Pits

The animal bones from two isolated pits were also analysed. These pits may have been associated with the use of building 7, or at least contemporaneous with it (a potential predecessor to a vicarage listed in a deed as being located to the north of St. Peter's Church) however, this is not confirmed as the sequencing of the pits and their relationship to building 7 is unclear, although they may pre-date the building.

PC 2301

This small pit only contained a small number of sheep-size and unidentified bone fragments (n=30) and most likely represents the disposal of food debris.

PC 5006

A total of 562 bone fragments were recovered from this pit. A mix of species including cattle (n=50), sheep/goat (n=48), pig (n=47), horse (n=1), cat (n=2), dog (n=2), fish (n=63), goose (n=13) and domestic fowl (n=15) along with both cattle-size (n=81) and sheep-size (n=189) remains were identified. Eighty-eight (16%) of the bone fragments were recorded as being butchered and only five recorded as being heat affected. There were no specific patterns discernable concerning the skeletal element representation of the three main domesticates. Parts of the whole skeleton for each species were identified and 53% of these were observed as being butchered, the majority of which was chopping. Sheep/goat displayed the highest frequency, possibly indicating kitchen waste. The pit was described as containing a series of ash and burnt fills, which were presumed to be a reflection of either *in situ* burning or a dump of burnt material. Only five bone fragments were identified as being heat affected. If these layers do constitute a dump of burnt material then it was most likely not related to the cooking of food as one would expect more burnt bones. These bone fragments were therefore

most likely accidentally burnt possibly during a period of *in situ* burning. Overall this pit would appear to represent a general disposal area containing a mix of butchery waste and food debris.

This single pit contains the largest bone assemblage of the features analysed from Phase 8 at Vaughan Way. Along with the possible oven/hearth (PC 3148), these are the only features that can provide a more accurate reflection of the utilisation of animals during this period in time (1100-1250). A mix of species, including most predominantly the three main domesticates, were being utilised. Prime meat cattle below the age of three years were represented by the fusion data of the bones in the pit. This was the same pattern for pig, whereas a single lamb bone and slightly older mutton animals were represented by the sheep/goat bones. The three main domesticates were obviously being supplemented by domestic fowl, domestic pigeon, goose, fish and wild species such as duck and roe deer.

Phase 9 Medieval (1250-1400AD)

The animal bone from Phase 9 had a TNF of 582 (17.1% of the entire assemblage). As with Phases 4, 5, 7 and 8, almost all of this assemblage (97%) was recorded as being in a 'good' condition. However, less than half of the assemblage (276 fragments, 47%), were identifiable to species, the rest being assigned to cattle/sheep-size, unidentified bird and mammal and completely unidentified (Table 91). As with the previous phases, fragmentation is high. The animal bone was recovered from several different contexts and features, most notably contexts from both inside and outside a mud-walled building (Building 8) and two pits.

Table 91 The animal bone: number of identified specimens: Phase 9

Species	NISP	%
Cattle	60	22
Sheep/Goat	101	38
Sheep	10	4
Goat	1	0.3
Pig	28	10
Dog	5	2
Cat	2	1
Domestic fowl	31	12
Goose	31	12
Total Identified	269	
Other mammal (Unid)	5	
Other bird (Unid)	11	
Fish	7	
Cattle-size	95	
Sheep-size	143	
Unidentified	52	
Total	582	

Table 92 The animal bone: Minimum Number of Individuals (MNI): Phase 9

Species	MNI	%
Cattle	1	5
Sheep/Goat	6	32
Sheep	2	11
Goat	1	5
Pig	2	11
Dog	1	5
Cat	1	5
Domestic fowl	3	16
Goose	2	11
Total	19	

*Species identified: age at death and sex**Cattle*

Sixty cattle fragments were identified representing 22%, however, only a single individual was represented (

Table 92). Once again cattle bones are outnumbered by sheep. The assemblage is unfortunately restricted in size but there would appear to be a change in preference evident. As in the previous phases, there is a high level of fragmentation. More fused (74%) than unfused bones were present (Table 97). Animals of all ages were being slaughtered; however, a potential peak is apparent in the 13-18 month age range. Only a single mandible was suitable for tooth wear analysis (Table 94), however, due to its fragmented nature only a broad age range could be assigned, utilising Grant's tooth wear stage combinations (Grant 1982). The tooth wear analysis indicates the presence of an animal aged at least 30 months at death. When compared with Table 93, this age range is clearly in keeping with the fusion data.

Table 93: Epiphysial fusion of cattle bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Bone		Age (months)	Fused	Fusing	Unfused
Pelvis (acet)	Early	7-10			
Scapula D		7-8	1		1
1st Phal P		13-15	11		2
Humerus D		15-18			
Radius P		15-18			
2nd Phal P		18	1		1
MetaC D	Middle	24-36	3		
Tibia D		24-30			1
Metat D		27-36			
Calc P		36-42			
Femur P	Late	42	1		
Radius D		42-48			1
Ulna P		42-48			
Humerus P		42-48			
Femur D		42-48			
Tibia P		42-48			
vertebral centrum	Final	84-108		1	2
			17	1	8

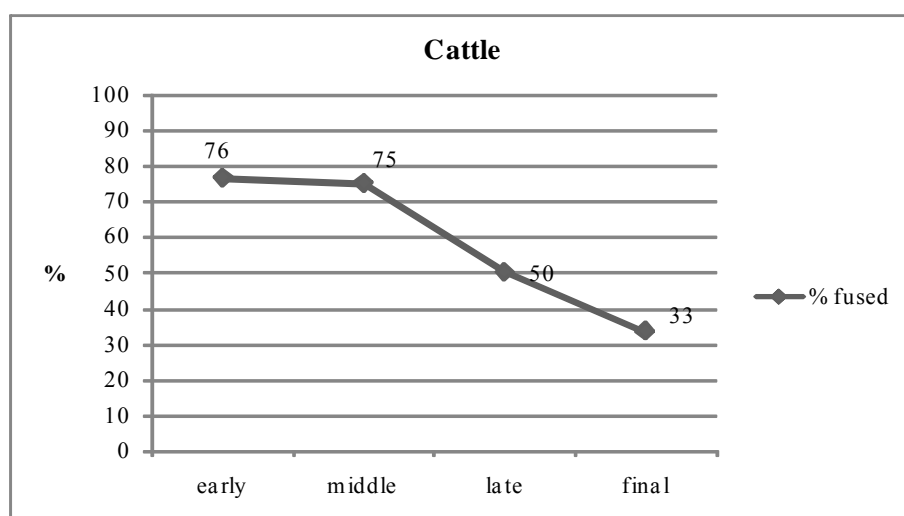


Figure 73 The animal bone: proportion of fused to unfused bones in age categories

Key: Early: <18 months; Middle: 24-36 months; Late: 42-48 months; Final: 84-104 months

Table 94 The animal bone: cattle toothwear

Mandible Wear Stage (MWS) (Grant 1982)	Age Stage (After Halstead 1985)	Suggested Age (After Hambleton 1999)
34-44	E-G	30 months - Adult

Sheep/Goat

Sheep/goat were the most frequent species identified in Phase 9 (n=112) with nine individuals represented in total (Table 91 and

Table 92). As with Phase 8, ten of these bones were definitely recorded as sheep utilising Boessneck's (1969) criteria along with a single goat scapula (Table 95). Just over half (62%) of the bones represented were fused (Table 99). The data suggests that sheep/goat were being slaughtered from at least the age of 18-28 months, with the age range of 30-36 months being marginally favoured in this dataset. This would appear to indicate the consumption of mutton. Seven mandibles were recorded for tooth wear analysis (

Table 96). The results of the analysis indicated the majority were at least 1-2 years of age at death, with the presence of older individuals aged between 3-4 years and 6-8 years respectively. The MNI of the recovered mandibles is six illustrating that these results are a fair representation of the age at death according to tooth wear of sheep/goat in Phase 9 at Vaughan Way. These results complement the fusion data presented in Table 95, illustrating the presence of more mature animals beyond the limits of the fusion data. Just two pelvis fragments were complete enough to be sexed. Based upon comparison with Boessneck's (1969) criteria, these were identified as female. The H1 measurement as outlined by Greenfield (2005) was also recorded these (4.47mm and 5.46mm) fitted into the female category when compared to Greenfield's results (Greenfield 2005, fig 14), but the latter was on the female/male borderline.

Table 95 The animal bone: epiphysial fusion of sheep/goat bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, table 3.5)

Sheep					
Bone		Age (months)	Fused	Fusing	Unfused
Pelv (acet)	Early	6-10			
Scapula D		6-8	1		
Humerus D		10	4		
Radius P		10			
1st Phal P		13-16	4		
2nd Phal P		13-16			
Metac D	Middle	18-24			2
Tibia D		18-24	6		2
Metat D		20-28	7		1
Ulna P		30			1
Femur P	Late	30-36		2	2
Calc P		30-36	1		
Radius D		36	1		2
Humerus P		36-42			
Femur D		36-42	1		2
Tibia P		36-42		1	1
Vertebral centrum	Final	48-60	3	8	10
			28	11	23

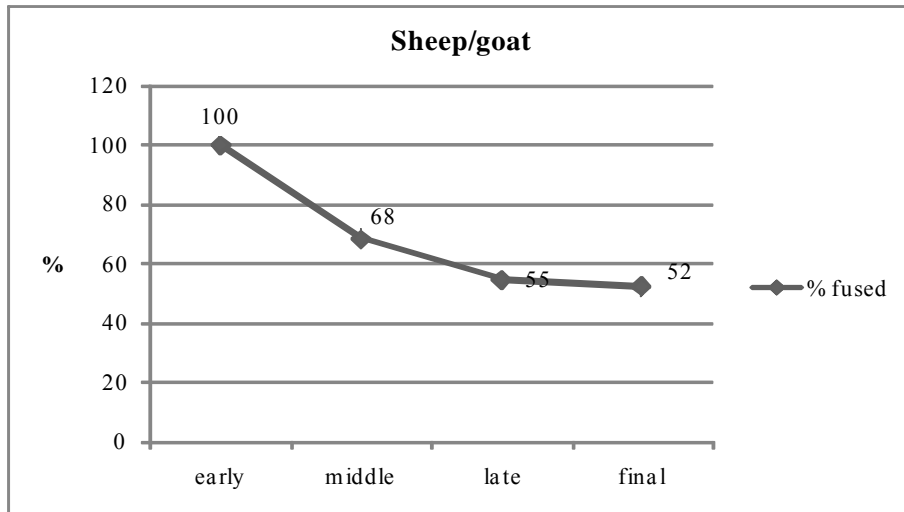


Figure 74 The animal bone: proportion of fused to unfused bones in age categories,
Key: Early: <16 months; Middle: 18-30 months; Late 30-42 months, Final 48-60 months

Table 96 The animal bone: sheep/goat toothwear

	Mandible Wear Stage (MWS) (Grant 1982)	Age Stage (After Payne 1973)	Suggested Age (After Hambleton 1999)
1	24	D	1-2 yrs
2	25	D	1-2 yrs
3	26	D	1-2 yrs
4	27	D	1-2 yrs
5	37	F	3-4 yrs
6	42-43	H	6-8 yrs
7	44	H	6-8 yrs

Pig

Twenty-eight pig fragments representing a minimum of two individuals were identified (Table 91 and

Table 92). However, the presence of bones possessing proximal and distal epiphyses was extremely poor with few bones providing ageable information (Table 97). This data is unfortunately not representative. A single mandible identified as possessing both a M1 and M2 in wear was recorded. A MWS of 18-20 was calculated, which equated to an age at death of at least 14-21 months (Hambleton 1999, Table 4). This age range indicates the presence of a sub-adult and fits into the age range of prime meat production, i.e. 1-2 years (Albarella 2006, 83).

Table 97: Epiphysial fusion of pig bones based on closure ages quoted in Silver (1969) and Reitz and Wing (1999, Table 3.5)

Pig					
Bone		Age (months)	Fused	Fusing	Unfused
Scapula D	Early	12			
Humerus D		12			
Radius P		12			
Pelvis (acet)		12			
2nd Phal P		12			
Metac D	Middle	24		2	
Tibia D		24			
1st Phal P		24			
Calc P		24-30			
Metat D		27			
Ulna P	Late	36-42			
Humerus P		42			
Radius D		42			1
Femur P		42			
Femur D		42			
Tibia P		42			
Vertebral centrum	Final	48-84			5
			0	2	6

Cattle and Sheep-size

Cattle and sheep-size fragments totalled 238 (41%). The majority of these comprised the less diagnostic rib and vertebral fragments along with indeterminate long bone shaft fragments. A small number of the vertebral fragments for both were recorded as being unfused with a minority recorded as fusing. This provides a very broad age at death of less than 5 years (Silver 1969, Table A).

Other species

In addition to the three main domesticates, dog, cat, domestic fowl, goose, fish, unidentified bird and small mammal were also identified (Table 95). Two cat bones were identified, a mandible possessing P3, P4 and M1 (minimum 5-6 months) (Silver 1969, Table I) and a single humerus fused distally but unfused proximally, suggesting an age of between 9 and 15 months at death (Silver 1969, Table A). Five dog bones including a distally fused metacarpal (at least 8 months), a distally fused metatarsal (at least 10 months) and a distally fused tibia (at least 13-16 months) (Silver 1969, Table A) were also recovered. Four of the five dog

bones were recovered from the same context, a dump layer (PC 2304). It is presumed that they were incorporated into this dump layer rather than being deliberately deposited. Thirty one domestic fowl and the same number of goose bones were also identified, comprising the majority of the skeleton but most predominantly the long bones. The greater majority of these bones were fused at death.

Skeletal element representation

Skeletal element representation for cattle, sheep/goat and pig are presented below. The sample size for the three main domesticates is small and therefore any patterns apparent must be interpreted with caution as emphasised in previous phases.

Cattle

The cattle carcass is relatively well represented, with all regions, apart from the cranium and pelvis, identified. The 1st phalanx and the distal metacarpal were the most frequent skeletal elements, followed by the scapula, distal humerus, distal radius, tibia and astragalus (Figure 76). High quality and lesser quality meat bearing bones are present (humerus, scapula, femur, tibia, radius) in more or less equal abundance but not in any great frequency. This distribution of elements suggests that the majority of the cattle carcass was present on site with most parts being utilised. The relative abundance of phalanges may be a result of good preservation, or may point towards their retention for the production of glue (Maltby 1979, 7) or association with retained cattle hides. Similarly the high frequency of distal metacarpals may indicate their use in bone working. This indicates that this assemblage is a mixture of butchery and domestic refuse as well, but also incorporating evidence for small scale industrial activity.

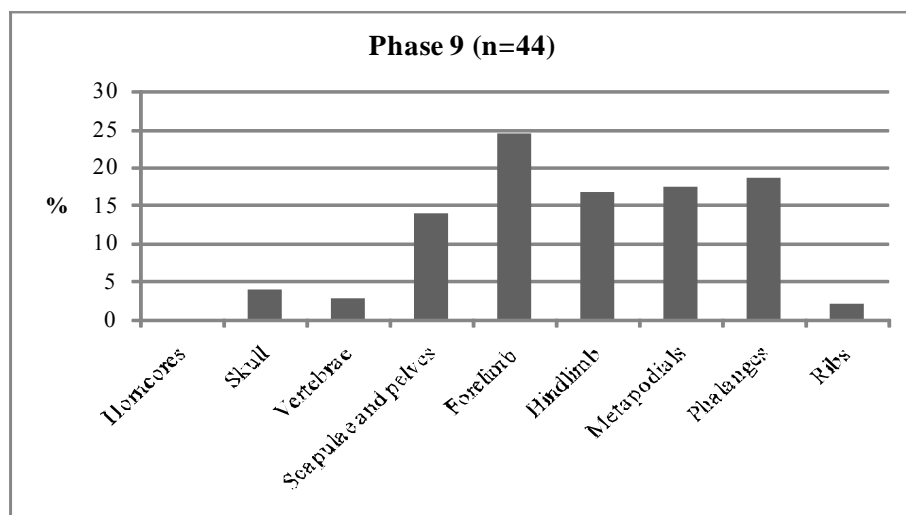


Figure 75 The animal bone: cattle carcass components, Phase 9

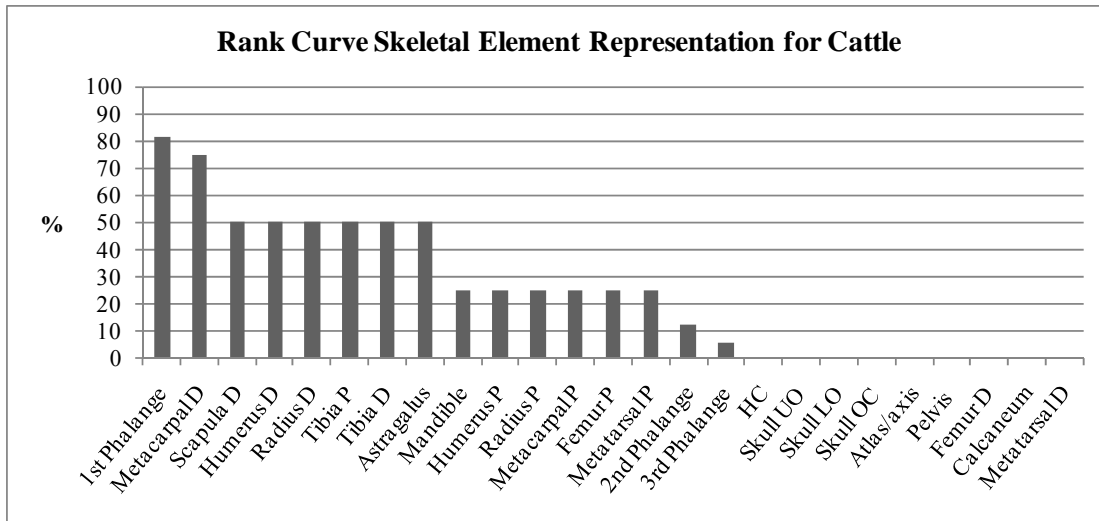


Figure 76 The animal bone: skeletal element distribution in rank order

Sheep/Goat

The sheep/goat carcass is well represented. This is perhaps not surprising considering it was the most frequent specie identified. All elements from the skull down to the extremities are present with the most frequent being the distal tibia followed by both the proximal and distal metatarsal. These bones are not considered to be high quality meat bearing bones but they do tend to survive well due to their robust nature. The bones possessing more meat (femur, humerus, scapula and pelvis) were also present but in lesser quantities. The mandible is well represented but this is also a robust skeletal element as are the smaller bones of the extremities, which although not abundant are nonetheless present. The distribution of sheep/goat elements points towards the presence of the whole carcass, with the possible retention of bones such as the metatarsals for the extraction of bone marrow and for the purposes of bone working.

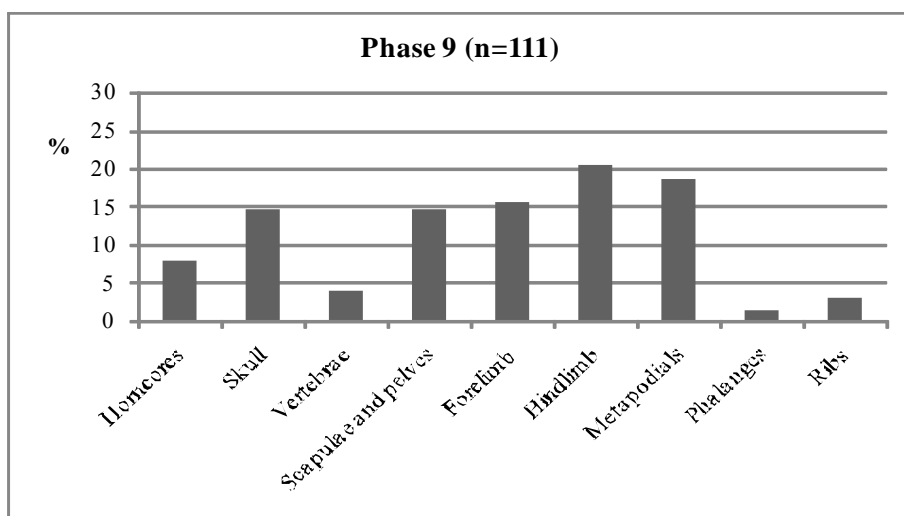


Figure 77 The animal bone: sheep/goat carcass components, Phase 9

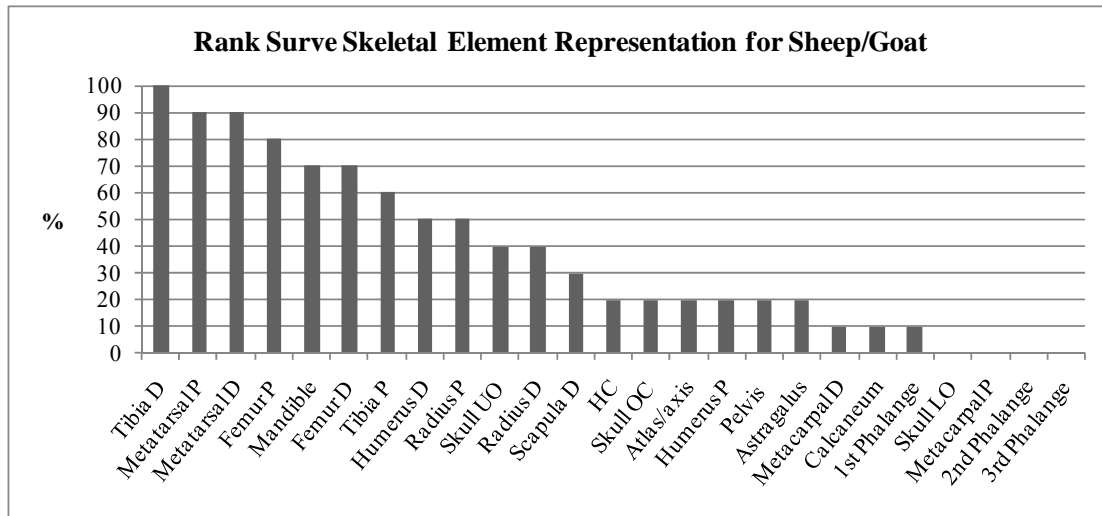


Figure 78 The animal bone: skeletal distribution of elements in rank order

Pig

The skeletal element representation for pig in Phase 9 illustrates a lack of skull fragments and a general lack of extremities (Figure 80). Those elements that are present are the long bones and the robust mandible and atlas/axis vertebrae. The most frequent element identified was the tibia, radius and metacarpal. As in the preceding phase, the presence of pig metapodia may indicate a change in dietary preference (from the earlier Roman and post-Roman phases) with the consumption of pig’s trotters. Those bones bearing more meat were also present but in lesser quantity. This distribution potentially reflects the fact that primary butchery was taking place elsewhere or that pigs were not being kept on the site but imported in as joints and cuts of meat. However, it has to be emphasised that the assemblage only consisted of 28 fragments, so the overall pattern evident may also be a product of poor representation.

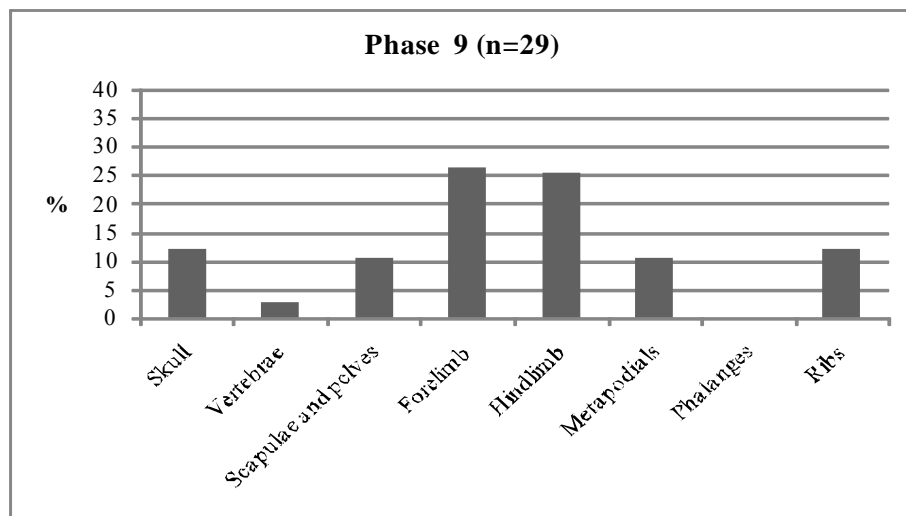


Figure 79 The animal bone: pig carcass components, Phase 9

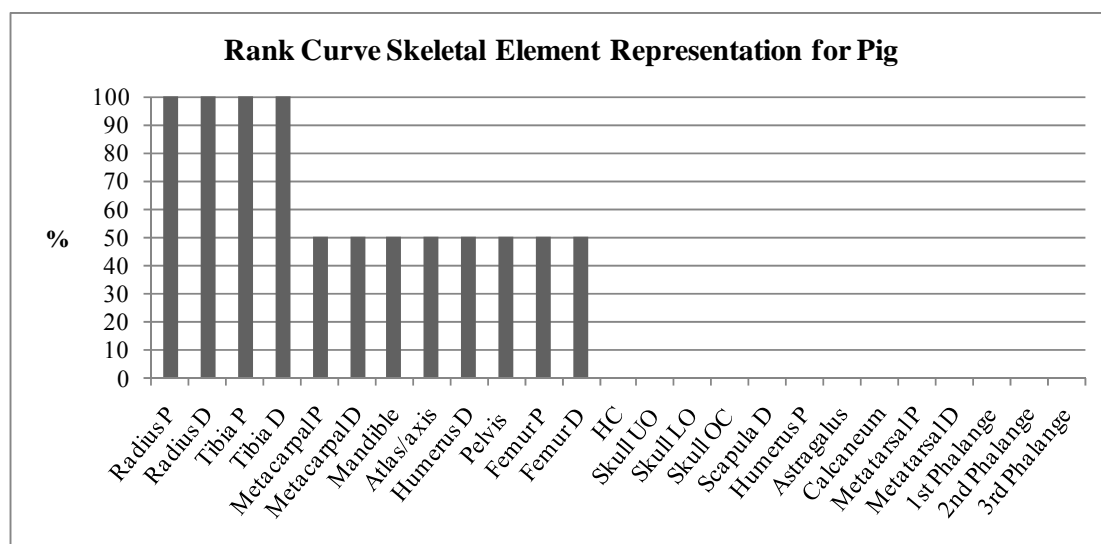


Figure 80 The animal bone: skeletal distribution of elements in rank order

Bone modifications

Butchery

In total there were 185 recorded instances of butchery on 151 bones in Phase 9 (26% of the entire assemblage). Of the three main domesticates, sheep/goat displayed the highest frequency with 54% of bones butchered (n=61), followed by cattle at 37% (n=22) and pig at 36% (n=10). In addition to this, a number of cattle and sheep-size fragments along with a single goose bone were also butchered.

As in Phase 8, sheep/goat displayed the most butchery evidence of the three main domesticates. Chop marks dominated for sheep/goat and cattle, whereas pig displayed more cut marks than chop marks. Sheep-size fragments possessed a higher frequency of cuts marks as compared to cattle-size fragments, where chop marks dominated. Bones described as 'roughly broken' and those exhibiting heavy chops in close association with cuts were also identified in a small number of sheep/goat and pig bones.

Chop marks

For sheep/goat, over half (64%) of the chop marks recorded were located on long bones and classed as indeterminate. Those located at the proximal and distal regions possibly related to rough dismemberment or secondary butchery of the carcass, with those that split the bone diagonally or longitudinally more likely evidence for the extraction of marrow. Pig followed with 50% indeterminate long bone chop marks and cattle with 48%.

The rest of the chop marks for the three main domesticates point towards more specific butchery processes such as dismemberment, splitting and portioning of the carcass. For example, a sheep/goat skull was split lateral to the midline removing a small part of the left occipital condyle. This same skull also had a horn that had been removed through chopping (Figure 81, Figure 82). Thus could potentially reflect rough removal of the brain. A cattle astragalus represents removal of the extremities along with two mandible fragments (the ramus and the condyle) displaying chop marks presumably to aid the removal of the mandible

from the skull. Three sheep/goat, one pig and one cattle-size pelvis fragment were all chopped through the ilium. Only the pig pelvis was chopped close to the acetabulum with the other chop marks more cranially positioned at the top of the ilium (zone 1). These chops are presumed to be part of the dismemberment/boning out process of the leg. Three cattle and five sheep/goat scapulae were chopped, all towards the distal region of the bone (glenoid fossa, neck and blade), possibly representing trimming of this particular bone during either primary or secondary butchery. Twelve cattle-size ribs were chopped distally indicating the removal of the distal ends from the brisket (Binford 1981, 147). Splitting of the carcass is also attested to in cattle (n=1), sheep/goat (n=6) and pig (n=2) as well as in both cattle-size (n=4) and sheep-size (n=2) fragments by the presence of cervical, thoracic and lumbar vertebrae chopped in half more or less sagittally down the midline. As with Phase 8, this indicates the presence of facilities and equipment capable of hoisting and hanging a carcass. Evidence for the removal of the transverse processes is also displayed in a number of sheep/goat (n=4) and cattle-sized (n=2) cervical and lumbar vertebrae.



Figure 81 The animal bone: butchered sheep skull



Figure 82 The animal bone: close up of cut marks (Phase 9: PC 2019)

Cut marks

Nine cut marks were recorded in total for cattle, ten for sheep/goat and eight for pig. These cuts indicate that skinning, dismemberment and filleting were being undertaken at Vaughan Way (Table 98). Skinning in cattle was represented by fine clusters of cut marks on two first phalanges. The dismemberment and filleting marks for cattle and sheep/goat predominantly took the form of characteristic cuts at the proximal and distal articulations of long bones

(humerus, femur, radius, metapodials) for dismemberment activities and on the shafts of the bone for the filleting of meat cuts. Dismemberment of the mandible was also in evidence on a sheep-size skull fragment, where cuts were observed just beneath the auditory meatus. In addition to this, filleting cuts were observed on a sheep-size scapula blade fragment. Dismemberment cuts for pig were displayed not on the long bones but on a single atlas showing two sets of cuts on both caudal and ventral surfaces (recorded as two separate instances in Table 98) and on an ischium (pelvis). Cut marks on the visceral surfaces of the ribs, around the transverse processes of the vertebrae and on the vertebral body itself for sheep/goat and pig were classed as 'indeterminate' but are presumably associated with removal of the tenderloin (Binford 1981, 113) and filleting. Regarding the latter, nine cattle-size fragments (seven ribs, two vertebrae) and thirteen sheep-size fragments (all ribs) also displayed cuts most likely associated with filleting. In addition to the three main domesticates, a single goose ulna also displayed dismemberment cuts around the proximal articulation and was presumably table waste.

Table 98 The animal bone: cut marks: butchery stages

	Slaughter	Skinning	Dismemberment	Filleting	Indeterminate
Cattle	-	2	3	4	-
Sheep/Goat	-	-	1	7	1
Pig	-	-	3	-	5

Burning and gnawing

Only four fragments (two cattle-size and two sheep-size) representing 1% of the entire assemblage were heat-affected. One cattle-size and one sheep-size fragment were recorded as being blackened with the remaining cattle and sheep-size fragments recorded as being calcined. Only one of these fragments (a blackened sheep-size sesamoid) was associated with a hearth (PC 1043), the others were recovered from two pits. Fourteen instances of gnawing (2%) were recorded in total. Cattle (n=1), sheep/goat (n=5) and pig (n=4) were all affected along with a number of cattle (n=2) and sheep-size (n=2) fragments. Eleven of the recorded instances were canid in origin, with eight displaying characteristic tooth puncture marks. The remaining gnawing marks consisted of a single case of rodent gnawing, and two possible cases of cat gnawing.

Pathology

Fifty-two instances of pathology were recorded on 44 bones (8% of the entire assemblage). Abnormalities in bone formation and bone loss were recorded along with combinations of different pathologies on the same bone and pathologies that did not fit into the predefined categories. Pathological change was observed on the three main domesticates, cattle and sheep-size fragments and a single domestic fowl bone (Table 99).

Table 99 The animal bone: Phase 9: pathology

	Abnormal Bone Formation	Abnormal Bone Loss	Abnormal Bone Shape	Abnormal Bone Size	Combination	Other
Cattle	7	2	-	-	3	1
Sheep/Goat	5	2	-	-	3	3
Pig	6	-	-	-	-	-
Dom Fowl	1	-	-	-	-	-
Cattle-size	3	-	-	-	-	-
Sheep-size	5	-	-	-	1	2

Periosteal reactions in cattle, sheep/goat, pig and cattle/sheep-size bones resulting in the observation of new 'woven' bone formation were observed on several bones. This new bone could be as a result of any number of insults to the body of the animal, including infection or trauma. A number of ribs possessed new bone on their visceral surfaces suggesting the presence of respiratory infection. One sheep/goat metatarsal displayed evidence for an insult to the bone (whether it be trauma or infection) that had subsequently healed with the presence of compact bone. A second sheep/goat metatarsal possessed a combination of woven and compact bone. As the compact and woven bone were in close association, this could illustrate that the bone was in the process of healing at death or that the problem had re-activated. A sheep/goat skull fragment was identified that possessed an ossified external auditory meatus. There was no hole or perforation, it appears to have become closed or never fully developed. The aetiology of this abnormality is unknown, but it may have been caused by a chronic ear infection which had subsequently healed, a congenital defect or healed trauma. Three cattle phalanges (1st) displayed characteristic signs of degenerative change as outlined by Bartosiewicz *et al.* (1997). One phalanx possessed bony exostoses around the distal portion of the bone. The other two showed a combination of osteoblastic (bone forming) and osteoclastic (bone loss) activity. Both exhibited extension of the proximal articular surface coupled with 'lipping' of the epiphyseal border and the presence of bony exostoses. Bone loss took the form of a small lytic lesion located on the proximal epiphysis of one and bone loss in association with bone formation on the shaft of another. The latter phalanx also possessed evidence of possible osteochondrosis manifesta/dissecans (where a small piece of bone is removed from the epiphyseal surface by the attached cartilage). However, in this case the piece of bone that had become detached appears to have subsequently reattached itself, leaving a bony nodule as evidence for its original detachment (Figure 83). The changes on these phalanges are suggestive of traction or work related pathology.



Figure 83: Phalanx displaying extension of the articular surface, lipping and possible associated OCM/OCD (Phase 9: PC2019)

Bone loss was evident on a smaller number of cattle and sheep/goat bones. A cattle metacarpal displayed signs of osteochondrosis manifesta/dissecans on its medial facet and a cattle metatarsal possessing a larger than normal hole between the proximal facets were also recorded. The latter may just represent normal variation or taphonomic damage. Bone loss was also noted in two sheep/goat tibiae exhibiting lytic lesions on their distal diaphyses, one of which may have been a cloaca indicating possible infection of the medullary cavity or osteomyelitis. A sheep/goat cervical vertebra also displayed bone loss, with two remodelled and well rounded space occupying lesions, one affecting the proximal epiphysis and one affecting the caudal body of the vertebra. These lesions are suggestive of infection.

Pathology of the mandible along with abnormal dentition was also recorded in sheep/goat and cattle. A sheep/goat mandible displayed a protrusion/swelling below the tooth row in association with a small lytic focus (possibly a cloaca). This most likely represents an infective abscess. One sheep/goat maxilla possessed a P3 that had erupted more medially than the rest of the tooth row and had subsequently impacted on the neighbouring P4 (intradental attrition). A second maxilla possessed an unusually small M1 and M2 and exhibited uneven wear. One particular sheep/goat mandible displayed an extreme wear pattern where the M1 and M2 had been worn into a distinctive 'U' shape. Unfortunately, the other half or the corresponding maxilla were not present for comparison, but this may have manifested as a result of ante-mortem tooth loss. In addition to this, the roots of a single cattle tooth were found to resemble 'straw' (hyper-cementosis). This was described by Baker and Brothwell (1980) as potentially reflecting a chronic periodontal infection (Baker and Brothwell 1980, 151). Finally trauma was evident through the observation of a microfracture in a sheep-size costal cartilage fragment.

Animal size and shape: metrics

Six bones were complete enough for the calculation of shoulder height (Table 100). One cattle shoulder height was calculated at 1.13m. The average shoulder height at Causeway Lane (Gidney 1999, 321) and the Old Shires site (Gidney *forthcoming*) was 1.11m for cattle. The average shoulder height for sheep/goat is 0.56m, with a range of 0.53-0.58m. The average for the later phases at Causeway lane as indicated in Phase 8 were 0.58m (Gidney 1999, 323), 56.5m at Bonner's Lane (Baxter 2004, 10) and 0.57m at the Old Shires site (Gidney *forthcoming*). The measurements from Vaughan Way are clearly within the same range of comparable animals at three nearby sites.

Table 100 The animal bone: withers heights

Species	Element	Gl (mm)	Withers Height (m)
Sheep/Goat	Metatarsal	116.50	0.53
		128.00	0.58
		125.00	0.57
		126.00	0.57
		119.00	0.54
Cattle	Metacarpal	187.00	1.13

Archaeological features: function

The bones analysed in Phase 9 were recovered from several different contexts and features. The main feature of Phase 8 other than the church and associated graveyard of St. Peter was building 8 – the mud-walled building. The origins of this building date to the later 13th Century and may actually represent the vicarage to the church of St. Peter. This building post-dates Buildings 6 and 7 of the preceding Phase 8 and was actually constructed over the ruins of these structures. The building started life as a post-built structure located to the north with a separate set of rooms located to the south. The posts of this northerly structure were infilled with mud, which at a later stage was replaced with stone and possibly joined with the other southerly rooms. At the centre of this range of rooms was a suspected kitchen with the presence of two hearths and a drain. The function of the other rooms is not clear at this stage. A number of bones analysed were associated with contexts excavated from within and around this building. However, the greater majority of bone appears to have been recovered from two pits and a series of dump layers and soil accumulations, some of which originated in the preceding Phase 8.

Dumps

There are several dump layers (PC 2304, PC 734, PC 5004) associated with Phase 9. Some are associated with the disuse of building 6 (PC 5004) in Phase 8 and others that appear to be soil accumulations. When combined a total of 127 bone fragments were recovered from these contexts and as they represent dump layers and soil accumulations there is a good possibility that they contain residual material and hence are not that useful in trying to understand economic trends in this later medieval phase.

Building 8: Mud-walled building

A number of contexts were analysed that were either directly or indirectly associated with the building 8. Some of these were outside the building and some inside as indicated below.

Outside

PC 968 and PC1048 – External Surfaces and PC 923 - Post Hole

PC 968 represents a crushed sandstone surface dating to the mid-late 13th Century. It would appear that this surface comprised a levelling layer for the depression that was left by the disuse of building 6. Only six bones were recovered. PC 1048 comprises another surface located to the north of room 6, dating to the mid 13th-14th centuries. Only two bones were recovered. In addition to these surfaces, two bones were also recovered from the fill of a post hole (PC 923).

PC 636 - Gully

This gully, interpreted as a possible drain is located to the north of the mud-walled building and included only three bones within its fill (including a fish bone), which may help confirm its use as an outlay for debris, including food waste.

Inside

PC 987 – Hearth

This hearth was located within Room 2, which is presumed to have functioned as a kitchen. The hearth was sealed by a charcoal layer (988), which contained the bones in question. Unfortunately, only a small number of bones were recovered (n=16), possibly indicating that the area was kept clean. These bones a single sheep/goat tarsal, three fish fragments, three cattle/sheep-size long bone shaft fragments as well as unidentified bird long bone shaft fragments and unidentified small mammal fragments, suspected of being mouse. The latter may be intrusive, with the former most likely representing food debris.

PC 970 - Floor

This floor layer was located within Room 4 and comprised a series of compacted earth layers. Only 14 bones were recovered from this floor context. This is not surprising, the floors of a room in use would be expected to be kept clean and tidy, with smaller bones becoming trampled and covered over with new layers. Those bones recovered were for the most part undiagnostic cattle/sheep-size bones and unidentifiable fragments. The only identifiable specimen being a broken sheep/goat molar fragment.

PC 1043 - Hearth and PC 1030 Dump layer over hearth (1014)

This hearth (PC 1043) and the dump layer (PC 1014) associated with hearth (1014) contained very little bone. Eight fragments were recovered from (PC 1043) including 6 unidentifiable bones and a single cattle and sheep-size bone fragment. Ten bones were recovered from dump layer (PC 1030) including pig (n=1), goose (n=2), sheep-size (n=3) and unidentifiable bird (n=4).

Pits

These two pits were amongst a number of pits in Phase 9 that may represent property boundaries and a more open landscape. However, this interpretation is yet to be confirmed.

However, these pits essentially reflect household rubbish and therefore help to fill the gaps in our understanding concerning the economy during this time and possibly also the functions of some of the surrounding buildings such as building 8.

Pc 2019 - Pit

This pit contained the largest assemblage of bone recorded from Phase 9. The bones comprised a mixture of species including cattle (n=23), sheep/goat (n=72), pig (n=5) along with domestic fowl, goose and cattle/sheep-size bone fragments. Of these, 84 bones were butchered (30%) and three found to be heat affected. There were no specific patterns associated with the skeletal element representation of the bones contained within this pit. Therefore, it would appear to represent a general disposal pit filled with household debris and butchery waste associated with those living in the immediate vicinity.

PC 2093 - Pit

Ninety-five bones were recovered from this second pit, comprising cattle (n=21), sheep/goat (n=19) and pig (n=10) as well as cat, dog, domestic fowl, goose and cattle/sheep-size bone fragments. Of these, 39 were butchered (41%) and only a single bone recorded as being heat affected. Interestingly, when looking at the skeletal element representation for this assemblage, cattle appears to be predominantly comprised of bones associated with primary butchery waste i.e. maxilla, loose teeth, mandible, phalanges, carpals astragalus and distal tibia. This collection of skeletal elements would suggest the removal of the head and distal extremities during the primary dismemberment stages of the butchery process. Sheep/goat and pig also appear to favour bones associated with both the primary and secondary stages of butchery. Therefore, butchery was taking place within the nearby vicinity, which is not surprising considering the existence of structures such as building 8 with evidence for a substantial kitchen with hearths.

PC 675- Gully

This gully thought to be associated with the use of building 8 contained just 3 bones.

Phase 10: Later Medieval (1400 – 1550AD)

The animal bone from Phase 9 had a TNF of 40 (1% of the entire assemblage); by far the smallest assemblage analysed from Vaughan Way. As a consequence this assemblage is too limited to provide a representative interpretation of this later phase of activity. The majority of fragments (91%) were recorded as being in a 'good' condition. Phase 10 represents the only phase from Vaughan Way where the bones identified to specific species outnumber those assigned to the cattle/sheep-size and unidentified categories. Thirty-two (74%) out of a total of 43 fragments were speciated (Figure 79). Fragmentation was not overly problematic in this phase, although the sample was very small which probably accounts for this. The animal bones were recovered from several different contexts including two pits, a floor layer, a gully and a series of dump and backfill layers associated with the continued use of Building 8, the mud-walled building.

Table 101 The animal bone: Phase 10: NISP

Species	NISP	%
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Cattle	12	38
Sheep/Goat	15	47
Pig	1	3
Red deer	1	3
Domestic fowl	1	3
Toad	1	3
Fish	1	3
Total Identified	32	
Other bird (Unid.)	1	
Cattle-size	5	
Sheep-size	4	
Unidentified	1	
Total	43	

Table 102 The animal bone: Phase 10 MNI

Species	MNI	%
Cattle	2	25
Sheep/Goat	2	25
Pig	1	12.5
Red deer	1	12.5
Domestic fowl	1	12.5
Toad	1	12.5
Fish	-	-
Total	8	

Species identified: age at death and sex***Cattle***

Only 12 cattle fragments were identified representing a minimum of two individuals (Table 101). Unfortunately, only three bones possessed fusion data, all of which were fused. In addition to this, there were no sexable elements.

Sheep/Goat

Fifteen sheep/goat fragments were identified representing a minimum of two individuals (Table 101 and Table 102). As with the cattle assemblage, the small size of identified fragments means that there is little fusion data available. Figure 82 illustrates that seven of the eight bones present (87.5%) were fused. A single unfused bone indicates slaughter of an animal no more than 30 months of age – however, this is only a single bone. A mandible possessing all three lower molars was recorded, providing an MWS of 36, equating to an age at death of 27-36 months (Hambleton 1999, Table 4). This age range falls within the category of ‘Adult’ as defined by O’Connor (1988, 85). By comparison with the fusion data, the age at death suggested by this mandible fits in well with the single unfused bone suggesting the slaughter of sheep/goat prior to the age of around 2 ½ years. As with the cattle data, there was no sexing evidence available.

Pig

Only one pig bone was recovered from this phase (a distal humerus shaft). Therefore, unfortunately no age at death information based upon epiphyseal fusion or tooth wear was available for pig.

Cattle and Sheep-size

Cattle and sheep-size fragments totalled 9 (21%). These consisted of vertebrae, ribs, skull, mandible and long bone shaft fragments. All of the vertebral fragments represented (n=3) were unfused both cranially and caudally, thus providing a very broad age at death of less than 5 years (Silver 1969, Table A).

Other species

In addition to the three main domesticates, red deer, domestic fowl, fish, toad (*sp. Bufo bufo*), and unidentified bird were also recovered (Figure 79). A distally fused red deer metacarpal was recovered. In addition to this, a proximally fused domestic fowl tarsometatarsus was identified along with a domestic fowl size long bone shaft fragment and the hindlimb of a toad. The latter two fragments were recovered from an environmental sample.

Skeletal element representation

Skeletal element representation for cattle and sheep/goat are presented in Figure 84 and Figure 85. Only a single pig was recovered, this was not included in the analysis of skeletal element representation. The sample size for both cattle and sheep/goat as emphasised earlier is extremely small.

Cattle and Sheep/Goat

Although the assemblages for cattle and sheep/goat are sparse, Figure 84 and Figure 85 illustrate the presence of bones from the cranial region down to the distal extremities. The most prominent element for cattle is the proximal metatarsal, whereas the proximal tibia and proximal radius were the most frequently identified elements for sheep/goat. Proximal tibiae are cancellous bones that tend not to survive as well as the distal ends. The fact that they are well represented here may indicate their presence for purely economic reasons. Having said this, other meat bearing bones are not present at all. With such a small sample, little interpretation of the patterns evident can be made.

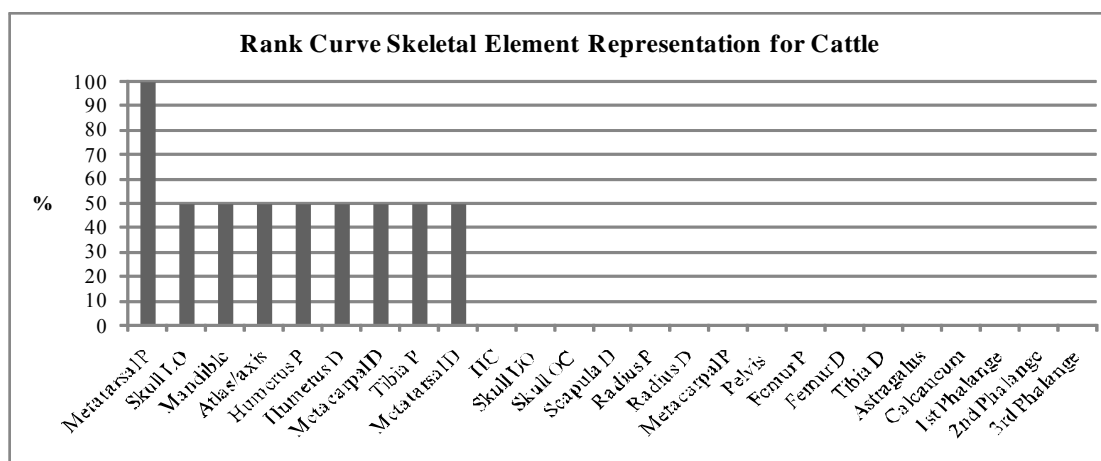


Figure 84 The animal bone: skeletal distribution of elements in rank order

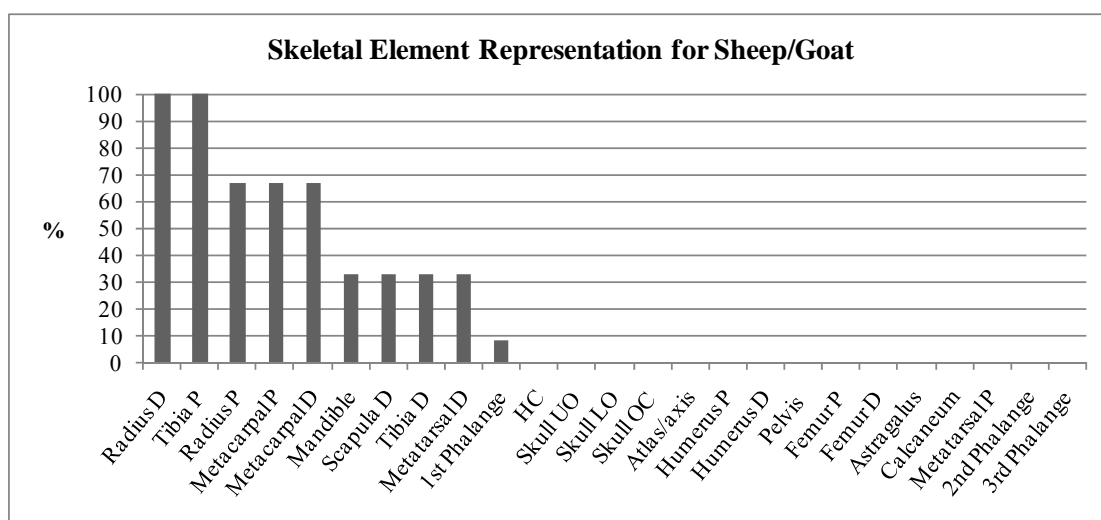


Figure 85 The animal bone: skeletal distribution of elements in rank order

Bone modifications

Butchery

In total there were 29 recorded instances of butchery on 21 bones (49%) in Phase 10. 53% of sheep/goat bones (n=8) were butchered along with 50% cattle (n=6). A single pig bone was recorded as being butchered or 'roughly broken'. In addition to cattle, sheep/goat and pig, a single red deer metacarpal was also recorded as being butchered.

Chop marks dominate for cattle and cattle-size fragments, whereas more sheep/goat bones were recorded as being 'roughly broken' than chopped. The only cut marks recorded was observed on a single sheep/goat and cattle-size bone.

Chop marks

Eight of the nine cattle chop marks, all of the sheep/goat chop marks (n=4) and two chop marks recorded on a single red deer all affected the long bones and were presumably aimed at extracting the marrow. Of these bones, a cattle distal humerus condyle was also chopped off, illustrating that dismemberment was also conducted using large cleavers/axes as opposed to smaller knives. A single cattle axis along with two cattle and two sheep-size vertebrae were recorded as having been chopped in half sagittally. This demonstrates that the carcass was split and presumably hung, indicating that the facilities were present for this level of carcass preparation.

Cut marks

Two cut marks were observed on the lateral and caudal proximal shaft of a sheep/goat tibia, representing filleting. A single heavy cut was also present on the coronoid process of a cattle-size mandible, illustrating the dismemberment of the jaw from the skull.

Burning and gnawing

No burning was recording in Phase 10 and only five instances of gnawing were observed on four sheep/goat bones (12%). All bones affected were long bones, with the majority of marks caused by a canid. A single case was thought to represent rodent gnawing.

Pathology

Seven instances of pathology were recorded (16% of the entire assemblage). Abnormalities in bone formation and bone shape were recorded in three sheep/goat and four cattle bones. Five of the seven pathological bones possessed new 'woven' bone formation on their cortical surfaces illustrating a periosteal reaction. One particular example included new bone formation on the visceral surface of a sheep/goat rib fragment, thus demonstrating the presence of a respiratory infection at death. A cattle cervical vertebra displayed an enthesophyte or ossification at the ligament insertion. This could be related to trauma or be a possible consequence of a work related trauma i.e. traction. Abnormal bone shape was identified on a cattle metatarsal. The distal portion of the bone including the condyles appeared asymmetrical and generally dysplastic. This could be due to an extremely well healed fracture or be the result of a traction or work related pathology, as outlined by Bartosiewicz *et al.* (1997)

Animal size and shape: metrics

Only a single cattle bone was complete enough for the calculation of shoulder height (Figure 84). A complete metatarsal with a greatest length of 202mm, belonged to an animal 1.07m at the shoulder. The average cattle shoulder height at Causeway Lane (Gidney 1999, 321) and the Old Shires site (Gidney *forthcoming*) was 1.11m for cattle in the medieval phases. This measurement is below this average, but it is only a single bone and may reflect the lower end of a size range that unfortunately has not been made available to us.

Archaeological features: function

The bones associated with Phase 10 were recovered from several different contexts including two pits, a floor layer, a gully and a series of dump and backfill layers. As the assemblage was so small, not much information can be inferred from them. Building 8, the mud-walled building continued in use during this phase with the addition of alterations. However, only one context was analysed from within the building (Room 2) and therefore contemporary with its use. The rest were either outside or associated with its disuse.

Pits

PC 605 and PC 629

These two pits produced a combined total of 29 bones, representing the majority of the entire assemblage analysed for this phase. PC 605 contained 15 bones, the most frequent of which was sheep/goat (n=8). PC 629 contained 14 bones including cattle (n=7) and red deer (n=1). Both assemblages displayed butchery and consisted of a mix of elements, most predominantly the long bones. These pits reflect the deposition of food debris.

Building 8 – Room 2

PC 973 - Floor

This floor layer located within room 2 contained only two bones. For a floor layer, this lack of bone material is not surprising as the floors would be expected to be kept relatively clean whilst in use

Disuse

PC 633 and PC 990 – Dump and Backfill

These dump and backfill layers produced a very small quantity of bone (n=8 combined). PC 990 represents the backfill of a stone tank; amongst the 4 bones recovered from this context was the hindlimb of a toad (*Bufo bufo*). As this context is backfill, this bone is assumed to be either an accidental modern inclusion or residual. However, toads are known to have been present in the Middle Ages, seen by some to possess medicinal properties (Miller *n.d.*) (<http://www.livingunderworld.org/folklore/>).

Summary and discussion

A total of 3007 animal bones from Phases 4-10, spanning the Roman to the late medieval period were recorded. It is clear from the archaeological evidence that this area of land was in use over several centuries; however, it is not until the medieval period (Phases 8-10) that any substantial evidence for settlement is identified. This makes the interpretation of this area of land prior to the medieval period problematic. Unlike other sites in the vicinity (for example, Vine Street) there is no direct evidence for settlement in the later Roman period (Phase 4). In fact the area at this time appears to have been left exposed and largely unoccupied, having been extensively quarried in the later 1st century. Even when settlement is identified in the later Phase 5 (post-Roman), it consists of only two suspected grubenhäuser and a very small assemblage of bone. The evidence from the medieval phases is more promising but still only consists of three isolated structures most likely associated with the church of St. Peter as opposed to the cluster of street frontages excavated at surrounding sites such as Causeway Lane, St. Peter's and Little Lane and most recently Freeschool Lane. The different use of this

area of land provides an interesting contrast to the higher-density settlement surrounding it. The botanical evidence suggests a mix of domestic refuse and trade refuse in the medieval phases, with the latter particularly unusual for a site located within the city (Monkton above). The bones from this area of land largely represent domestic refuse, associated predominantly with the disuse of the medieval structures. However, there is also some potential evidence for some small scale industrial waste, a pattern which may complement the results of the botanical analysis. The following discussion will summarise the findings of the faunal analysis at Vaughan Way, focusing heavily on the bones retrieved from the later medieval phases.

The overwhelming majority of animal bone from Vaughan Way was recorded as being in a 'good' condition. This category of preservation covers the general integrity of the bones recorded as well as their surface appearance. Despite the good preservation of the bones, fragmentation was high, therefore, inhibiting to a certain degree the level of information extractable from the assemblage. This fragmentation is well attested to by the difference in the NISP and MNI totals and by the fact that there were a high number of bones assigned to the cattle and sheep-size categories. Fragmentation that had an obvious anthropogenic origin (i.e. displayed evidence for chop and cuts marks) accounted for 17% of the entire assemblage, the rest was presumably taphonomic in origin occurring either prior to deposition (trampling, gnawing etc) or after deposition. However, with the exception of Phases 4, 8 and potentially 9, the post-Roman, Saxo-Norman and later medieval phases (5, 7 and 10) produced too little bone from which to extrapolate any viable conclusions. Only Phase 8 (early medieval) produced in excess of 1000 fragments. Having said this, Hambleton's research criteria questions the validity of assemblages with a combined (cattle, sheep/goat and pig) NISP total of less than 300 and a combined MNI total of less than 30 (Hambleton 1999, 40). Phase 8 has a combined NISP total of 304 but only a combined MNI total of 9. This serves to illustrate the high level of fragmentation evident in this phase but unfortunately does not make the assemblage completely representative.

The three main stock domestic species; cattle, sheep/goat and pig were identified in all phases. Cattle were dominant in the later Roman (65%) and post-Roman (54%) phases comprising over half of the identified bones. This was also found to be the case at Causeway Lane (Gidney 1999, 310), St. Peter's and Little Lane (Gidney *forthcoming*) and Bonner's Lane (Baxter 2004). However, the data indicates a pattern of change from the Saxo-Norman period onwards with sheep/goat more or less on equal terms with cattle until the medieval phases (8, 9 and 10) when they dominate over cattle. This change in proportion is not completely matched at nearby sites apart from Phase 10 at Bonner's Lane (Baxter 2004, 11), which also shows a higher ratio of sheep/goat, although higher levels of sheep/goat have also been noted in Phase 8 at both Freeschool Lane and Vine Street (Browning *forthcoming*). This apparent change would therefore appear more reliable in the later medieval phases at Vaughan Way, with the post-Roman and Saxo-Norman phases more likely a product of sample size. Pig is consistently the least identified of the three stock domesticates, apart from in the later Roman period (Phase 4) when it is equally as abundant as sheep/goat at 15%. This latter fact is against the norm, as at other sites within the city walls, sheep/goat outnumber pig. For example, in Phase 4 at Causeway Lane sheep/goat comprise 34% and pig 19% (Gidney 1999, 310), similarly at St. Peter's and Little Lane the Roman phases combined indicate 28-40% of bones were sheep/goat and 12-21% pig (Gidney *forthcoming*). The difference evident at Vaughan Way is therefore likely to be as a result of the small assemblage coupled with high fragmentation. If the sheep-size category is taken into account, then a higher proportion of sheep/goat appear to have been present than is shown in the NISP calculations. Pigs appear to remain generally consistent in their abundance relative to the

sample size of the assemblages they came from, with the exception of Phase 8 when they appear slightly more frequent at 19% of the entire assemblage. This compares with 6% for the same period at Bonner's Lane (Baxter 2004, 9) and a maximum of 15% in area 3 at Causeway Lane (Gidney 1999, 319). As Albarella highlights, even though pigs are often third in the hierarchy of the three stock domesticates, in terms of weight and the amount of meat provided they are actually second only to cattle and therefore more important than the statistics give them credit for (Albarella 2006, 73).

Cattle and sheep/goat in all phases at Vaughan Way fit within the size range exhibited at the surrounding sites as illustrated in each result section. The sample size again precludes more detailed analysis, as in some phases only a single bone was complete enough for measurement. A single horned cattle skull was recovered from a later Roman period (Phase 4) gully/ditch (PC5311) and was identified as either a 'shorthorn' or 'medium horned' ox. This was one of only a handful of skeletal element that was able to be sexed with any degree of certainty. Other sporadic identifications of horn core fragments or skull fragments with partial horn cores still attached for both cattle and sheep would appear to suggest that the horned variety predominated. In the Roman and medieval phases at St. Peter's and Little Lane and Causeway Lane both horned and polled sheep were identified. As there were a number of indeterminate sheep-size skull fragments also recovered at Vaughan Way, the presence of a polled variety of sheep cannot be ruled out.

In addition to the three main domesticates, a number of other species were also identified, with the most varied species list belonging predictably to Phase 8, dating to the early medieval period (1100-1250). In this phase, roe deer, goose, duck, domestic pigeon and fish appear indicating a more varied diet and utilisation of wild resources. Cat (presumed to be domestic) is also identified for the first time in Phase 8 and is similarly identified in Phase 9. The presence of cat is to be expected in a medieval town, especially as the increase in population during this period coupled with the storage of food would have led to an increase in vermin. The skins of cats were also utilised during this period (Baxter 2004, 10) but no butchery marks were identified on the bones from Vaughan Way. The fact that cat was not identified in the earlier phases is most likely a product of sample size coupled with the general lack of evidence for substantial settlement during this time. Cat bones have been identified within the Roman and post Roman phases at other Leicester sites such as Bonner's Lane (Baxter 2004), Little Lane (Gidney *forthcoming*) and Causeway Lane (Gidney 1999).

The three species (other than the main stock domesticates) that were identified across the majority of the phases albeit sporadically were domestic fowl, dog and horse. Domestic fowl was identified in all phases apart from Phase 7 (Saxo-Norman) comprising 2% of the entire assemblage. The bones were predominantly fused and therefore came from skeletally mature birds. Domestic fowl were most abundant in the early-mid medieval phases, where goose was also being utilised. Dog was also identified apart from in the two smallest, Phases 7 (Saxo-Norman) and 10 (later medieval). Dog bones comprised only 0.5% of the entire assemblage and were comprised of largely disarticulated remains. The manner and location of these deposits were not deemed particularly significant, with the bones interpreted as residual inclusions in the primary deposits. A single bow-legged dog tibia was identified in Phase 5. These have been identified in earlier phases elsewhere (see Baxter 2004; Gidney *forthcoming*; Gidney 1999). There were no butcher marks on these bones, therefore, it is presumed they were used as companion animals or hunting dogs. The presence of dog is also attested to by the identification of canid gnawing in all phases. Horse was identified in Phases 4, 5 and 8 but only in very small numbers (n=4), unfortunately the only measurable bone was a 1st phalanx, so no withers heights could be calculated. There was a suspicion of butchery on a horse humerus from the later Roman Phase 4. However, this may have been a

taphonomic break and horse meat appears to have been eaten only rarely in the Roman period (Grant 1989, 145).

As the fusion and tooth wear data was so limited, the only potential slaughter patterns identified for cattle were associated with the later Roman and early medieval phases (4 and 8). In both of these cases sub-adult and young adult cattle were present; with a peak of slaughter in the 3rd and 4th years. A smaller number of cattle appear to have been slaughtered prior to this, but the greater majority were from the older age bracket. This age range is comparable with Causeway Lane, St. Peters and Little Lane and Bonner's Lane suggesting as Baxter highlights that cattle were potentially utilised for breeding, milk or draught purposes prior to being brought into the city for slaughter (Baxter 2004, 5). Not all the cattle were within this age bracket though. The horned cattle ox skull highlighted previously possessed a texture of horn comparable with stages 4-5 in Armitage's (1982a) criteria, thus making this skull a minimum of 7 years of age (Armitage 1982a, 42). Another horncore fragment from this phase and also from Phase 7 was similarly more mature in age. The fact that this skull was also extensively butchered and potentially pole-axed again reiterates the slaughter of older more mature cattle in the later Roman period at Vaughan Way, in this case possibly one that had come to the end of its working life.

As with cattle, little fusion data was available for sheep/goat, Phases 8 and 9 corresponding to early-mid medieval period provide the best indication of slaughter patterns as well as a better representation of tooth wear. The sheep/goat in Phase 8, appear to have been slaughtered at all ages indicating the consumption of both lamb and mutton. The tooth wear data for this phase is similarly mixed with the maximum age represented being 3-4 years. Phase 9, although smaller in number did not possess any firm evidence for the utilisation of lamb with slaughter appearing to occur from the age of 18-28 months onwards. This slaughter pattern is supported by the corresponding tooth wear dataset indicating the presence of more mature sheep/goat, predominantly prime mutton. At Causeway Lane, a different pattern is evident in the medieval phases with a much larger presence of young lambs and yearlings (Gidney 1999, 323). The contexts excavated at Vaughan Way in the medieval phases appear to have comprised mainly domestic refuse from the surrounding area; the absence of young lambs therefore may represent a status difference in this area or even dietary preference. On the other hand, sample size and poor preservation must also be considered a possible factor.

Only Phase 8 (early medieval) possessed an adequate number of bones to gain any insight into the slaughter patterns of pig at Vaughan Way. As pigs are reared solely for their meat, as soon as they reach an adequate weight they are slaughtered. The age of 1-2 years has been documented as producing '*...the best porkers and baconers*' (Albarella 2006, 83). The data at Vaughan Way indicates that pigs were being slaughtered at all ages with a possible peak of slaughter evident between the ages of 24-30 months. As with the sheep/goat data, the nearby Causeway Lane displays a higher abundance of immature pig bones in the medieval phases. Again this is potentially a product of the larger sample size at this site but could also be a reflection of the different usage of the Vaughan Way area as emphasised previously. Pigs may have been bred at Causeway Lane accounting for the high proportion of juvenile and neonatal remains (Albarella 2006, 79).

In terms of skeletal element representation, Phases 4 (later Roman), 8 and 9 (early-mid medieval) provide the most reliable data for cattle, sheep/goat and pig, albeit still small in comparison to the other sites nearby. In the later Roman Phase 4, the distribution of cattle bones suggests that the whole carcass was present on site, but a peak in frequency of horn cores and metapodia points towards the possibility that some small scale industrial activities such as horn working or the tanning of hides were taking place in the nearby vicinity. The ox

skull found in a gully/ditch demonstrated skinning marks on the crania. This pattern is again observed in the post-Roman period although the sample size was much smaller and may have therefore masked any real patterning in distribution. By the early medieval Phase 8, the distribution of cattle is far more mixed and appears to indicate that all parts of the carcass was being utilised. The assemblage combines primary butchery waste, with more domestic household waste with an over representation of the more robust elements. As the majority of bones from this phase were recovered from domestic refuse contexts and a possible oven feature, the presence of bones indicative of domestic refuse and kitchen/table waste is to be expected. In the later medieval Phase 9, however, there appears to be a slight change with an emphasis placed upon the 1st phalanx. This may reflect skinning activities or the retention of the phalanges for the purposes of glue making (Maltby 1979, 7).

Sheep/goat were not as well represented as cattle in the later Roman Phase 4, the main meat-bearing bones were present but no phalanges were recovered. Although, this sample is small, the lack of phalanges could indicate that only selected joints of meat were present on site, that the sheep/goat were skinned and the phalanges were retained within the skins and transported elsewhere or that they simply were not recovered or were consumed by scavengers due to their small size. In the early medieval Phase 8, the whole carcass was represented as with cattle and a high proportion of pelvis fragments as well as metapodia were recovered. Metapodia are again well represented in Phase 9, which emphasises their retention during the medieval phases at Vaughan Way, potentially indicating an increased utilisation of marrow during this period. Phase 8 provided the most reliable distribution of pig remains from Vaughan Way. The whole carcass was present but there was a definite over abundance of metapodia, potentially indicating the fact that a number of pigs were being kept in stalls and butchered on site rather than being imported as selected cuts. The presence of metapodia could also indicate that pig skins were being utilised, maybe supplying the nearby St. Peters Church with vellum to cover books (Serjeantson 1989, 129). In addition to this, the metapodia may just represent the consumption of pig's trotters. As this distribution has not been mirrored or even suggested in the preceding phases, this may well reflect a change in dietary preference.

The butchery evidence from Vaughan Way is relatively consistent throughout the phases, with both chop and cut marks represented. The chop marks are abundant and appear to comprise a high number of indeterminate marks coupled with others that reflect definite patterns of dismemberment, for example, a common theme through the phases was the chopping of the scapula either through the glenoid fossa or through the neck and in the later phases the chopping of the pelvis close to the acetabulum. The cuts marks are less in number but reflect to a greater degree more specific butchery processes, of which a mixture represent both primary and secondary butchery. These include skinning, dismemberment and filleting, with the latter two categories the most frequently identified. In the later Roman phase 4, pig were the most frequently butchered bones identified, in Phase 5 it was cattle and in all the remaining phases it was sheep/goat, potentially supporting the earlier trend of an increase in sheep/goat relative to cattle. In total, cattle, the largest, most abundant species (on the whole) represented on site appears to display the least amount of butchery. This may simply be a reflection of the fact that the majority of the cattle carcasses were butchered using heavy cleavers, resulting in a high number of bone fragments. Whereas, the smaller animals were butchered using smaller knives and were less likely to be heavily fragmented when deposited. Splitting/portioning of the carcass of all three stock domesticates is demonstrated in the majority of the phases. There is the potential suggestion that larger animals were being butchered on the ground in at least the later Roman period as the majority of vertebrae are not split exactly down the midline but slightly to the left or right of the midline or diagonally

across the body of the vertebrae (Grant 1987, 56). In the medieval phases more accuracy is seen indicating that facilities were available for the hoisting of carcasses so that they could be butchered off the ground. Also, in the medieval phases, a sheep/goat skull has been partially split indicating the possible removal of the brain – again potentially indicating a change in dietary preference during this time along with the consumption of pig's trotters and more marrow. In addition to this, a domestic fowl bone possessed cut marks along with a domestic pigeon femur, indicating table waste.

Bones from all phases were found to exhibit some form of pathology with cattle the most heavily affected. This may be because they were slaughtered at an older age as opposed to sheep/goat and pig or that they were more susceptible to infection and disease. The majority of the pathology identified was associated with abnormal bone formation and bone loss. Periosteal new bone formation on the visceral surface of the ribs of predominantly cattle identified in the majority of phases indicates some form of respiratory infection. There are many possibilities as to the aetiology of these lesions but bovine tuberculosis would be on the list of differential diagnoses, amongst others. In addition to this, there was also evidence for activity related (possibly traction) pathologies and arthropathies, supporting the interpretation that cattle were being slaughtered after being used for draught purposes, as opposed to being solely bred for their meat. The presence of older animals also supports this. Bone loss was identified throughout the phases in both cattle and sheep/goat, predominantly comprising the cartilage formation disorder known as osteochondrosis manifesta/ dissecans. However, other forms of bone loss pointed towards more serious infections/diseases. Enlargement of the foramen on the ventral side of the vertebral body was noted on several occasions along with resorption of bone within the vertebral foramen/spinal canal itself. This could indicate the presence of a chronic infective process, with any number of diseases including brucellosis and bovine tuberculosis possible instigators. A smaller number of traumatic pathologies were noted, in particular, a dog skull from the later Roman Phase 4, which had sustained a substantial blow to the head that had subsequently healed. Could this indicate poor treatment of the dog in the later Roman period? In addition to this, there was also a series of microfractures of sheep-size costal cartilage, potentially indicating a butting injury. This could be a reflection of the higher number of sheep/goat being kept together in the more rural areas during the medieval period, prior to be brought into the town.

The faunal assemblage from Vaughan Way may be severely limited by size, but the assemblage provides an interesting insight in an area of land within the city walls of Leicester that had a very different function to those sites surrounding it. The area does not appear to have been densely settled at any point from the later Roman period to the later medieval period. The early medieval period (Phase 8) is the best represented of the phases and illustrates the presence of a small number of structures most probably associated with the Church of St. Peter. Little in the way of faunal information was retrieved from the primary deposits within these structures, with the majority of information being retrieved from features in the surrounding area and most notably dump and disuse layers. Apart from a possible oven which produced in excess of 200 bones of which 29% were burnt, little else was available to get a direct idea of the exact usage of this site. The botanical evidence suggested that this area of land was possibly used for trade in the medieval phases, including both brewing and cereal production. There is no firm evidence for anything similar occurring with animals, for example, there is no evidence to suggest that the slaughter of animals was occurring on any large scale or that any craft activities were occurring. In Phase 9, there were hints that skinning or glue production was occurring but only on a small-scale. Apart from the potential keeping of pigs, which was not uncommon in the middle-ages, the rest of the meat appears to have arrived on site in the medieval phases at least either as selected cuts or

as carcasses. Phase 8 displayed a much more varied diet incorporating wild resources such as roe deer. In addition to this, goose and domestic pigeon were also identified. Overall, the faunal assemblage particularly associated with Phase 8 and 9 at Vaughan Way would appear to reflect domestic refuse associated with the buildings surrounding the Church of St. Peter.

THE FISH REMAINS *Rebecca A. Nicholson*

Introduction

Three, relatively small assemblages of fish remains were recovered from Freeschool Lane, Vine Street and Vaughan Way from 95 of the sieved soil samples (1-11L) and by hand collection. While many of the identified bones and scales were from features and deposits dated to Phase 7 (Saxo-Norman, AD 850-1100) and Phases 8-10 (Medieval, AD 1100-1500) many of the identified remains from Vine Street came from deposits associated with the various phases of Roman occupation (2nd-4th century AD). The great majority of approximately 1400 fragments submitted for analysis came from soil sample flots, which is unusual in British archaeology and is likely to be a reflection of the light, sandy nature of the sediments together with the partial sorting of sample residues from two of the sites. While all residues have been sorted from Freeschool Lane, only a small selection from Vine Street and none of the residues from Vaughan Way were sorted (A. 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 67. Identifications are to species where possible but otherwise to genus or family. Bones which were not identified but which were considered potentially identifiable (i.e. could be identified to skeletal element) are recorded as unidentified while fragments of bones and scales considered not to be potentially identifiable are recorded as indeterminate. Where large numbers of tiny indeterminate fragments were present their numbers have been estimated. Nomenclature for taxa follows Wheeler (1978). Bone condition was recorded as "poor", "fair" or "good" and other aspects of bone condition (eg. 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

A total of soil 72 samples were processed from selected features from Vaughan Way, however only the flots and residues >4mm were sorted (A. Monckton 2008 and pers. comm.). Of approximately 674 fragments exclusively recovered from flots during sorting for plant remains, only 132 were identified. No bones were hand retrieved on site. The unidentified and indeterminate material mostly comprised tiny bone and, particularly, scale fragments, a

large proportion of which were recovered from samples 31 and 32 (contexts 672 and 673) taken from a medieval floor within Building 8.

Only twelve identified bones and scales were identified from deposits dating to the Anglo-Saxon and Saxo-Norman phases. Most came from Saxo-Norman cess deposit 2088 and included eels (*Anguilla anguilla*), tiny cyprinids (Cyprinidae) and three-spined stickleback (*Gasterosteus aculeatus*). Similar fish were also represented in the medieval samples, together with herring (*Clupea harengus*) and, in later medieval samples flatfish and a single indeterminate gadid (Gadidae). Medieval cess deposit (2011) contained numerous bones from the three-spined stickleback, many of which appeared chewed and encrusted with cess. Small perch (*Perca fluviatilis*), cyprinid, eel and pike (*Esox lucius*) were also represented in this deposit, the last only by tiny scales.

Table 103: The fish remains: numbers of fish bones and scales (in brackets) from soil samples taken from excavations at Vaughan Way (A2.2003)

SPECIES	Early Anglo-Saxon	Saxo-Norman	Earlier Medieval	Medieval	Late medieval	Grand Total
Clupeidae – herring fam.			3(1sc)	2	6	12
Clupea harengus-herring			10	3	17	30
Anguilla anguilla-eel		4		4		8
Cyprinidae – carp fam.	(1sc)	5		6(2sc)	1(7sc)	22
Gadidae – cod fam.					1	1
Perca fluviatilis –perch			1(3sc)	1(1sc)	3(1sc)	10
Percidae – perch/ruffe				8		8
cf. Perca fluviatilis					1	1
Esox lucius-pike			(6sc)	1		7
Gasterosteus aculeatus- 3 spined stickleback		2		30		32
Pleuronectidae – R. eyed flatfish					1	1
Indeterminate			146(31sc)	49(15sc)	276	517
Unidentified		5		20		25
Grand Total	(1sc)	16	160 (41sc)	124(18sc)	306 (8sc)	674

Note that numbers of scales (sc) excludes many indeterminate fragments.

Discussion

While this assemblage is small and somewhat biased by the collection method, it nevertheless again demonstrates the consumption of tiny fish which would now be considered inedible, both in the Saxo-Norman and in the medieval period. Without full residue sorting, the significance of larger fish at the site can not be certainly established but based on evidence from elsewhere in the city (Nicholson 1993a, 1999) it is very likely that herring, flatfish and gadids would have been proportionally more common. It is possible, however, that fish remains are simply not very abundant at this site; the archaeobotanical evidence indicates less evidence for domestic occupation here than at excavations elsewhere in Leicester (Monckton 2008).

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