

Appendix 3: Catalogues and technical results

Prehistoric pottery

- A3.1 **Vessel 1 (Fig A56a)** *Context 283, Phase 1: Rim Diam 340mm, Base Diam 170mm, Wall Thickness up to 21mm.* Some 87 sherds, supposedly from this vessel, were recorded. All showed little sign of abrasion. The writer saw the material after conservation.
- A3.2 This is a large, thick-walled vessel (up to 21mm) with a T shaped, square-sectioned, everted, and internally bevelled rim. It has a well-defined, curving, undecorated neck and a pronounced, almost carinated shoulder. The vessel had a flat base. The fabric shows oxidised inner and outer surfaces. These range in colour from buff to red/brown to dark brown on the external face, and from grey/buff to black on the inner face. The vessel core is grey/buff in colour. Large fragments of broken and crushed rock are included in the fabric. These are probably igneous, fine-grained, dolerite particles and range in size up to 10mm. Vertical smoothing lines are visible on the interior of the vessel. Carbonised residues survived on the inner and outer faces, and a sample from the inner face of the vessel was taken for radiocarbon dating. The resulting date is discussed below.
- A3.3 Apart from the curving neck area, the vessel has been decorated with bands of cord impressions in a herringbone design. This technique has been used on the whole rim of the vessel, above the neck and into the internal bevel. On the rim and the upper part of the body, the decoration has been executed with great care, but the impressions themselves and the arrangement of the banding become less regular on the lower half of the vessel. The possibility must be entertained that we may have the remains of more than one vessel, decorated in a similar style. The herringbone motif continues right down to the base of the vessel, where it appears to have been executed in as controlled a way as the bands visible around the rim.
- A3.4 It has not been possible to reconstruct the height of the vessel.
- Parallels and dating*
- A3.5 This vessel was initially identified at assessment as a Food Vessel or Food Vessel Urn. Extensive research has failed to turn up any parallels within these two traditions for the concave, highly developed neck, devoid of decoration, and the markedly carinated shoulder visible on the vessel. The rim diameter of around 340mm would also place it outside the general range of Food Vessel sizes and towards the upper limit for Food Vessel Urns (Cowie 1978, 23). Rather, it is thought that the best parallels for overall vessel shape, decoration, the T-shaped, square-sectioned rim and flat base, lie within the northern Later Neolithic Peterborough Ware Tradition, particularly the Rudston Ware and Ford variants (Manby 1975; Manby, King and Vyner 2003; Longworth 1969).
- A3.6 The sherds from Red Scar Bridge, Crookhaven, near Ford in Northumberland, show decorated rims and plain, markedly concave necks (Longworth 1969, fig. 1, 1-5; see also Kinnes and Longworth 1985, 135 and Northumberland UN 18). Broadly similar rim forms are visible in the series of finds now termed Rudston Ware, reported by Manby (1975) from various locations on the Yorkshire Wolds. Special mention should be made of those vessels from the following find spots:

Site name	Reference
Rudston Wold, West Reservoir, Site 5	Manby 1975, 34, 37, fig 10, Nos 2 and 3
Rudston Wold, Corner Field, Site 7	Manby 1975, 34, 36, fig 8, No 1
Boynton, Carnaby Top, Site 11	Manby 1975, 41, fig 8, No 17
North Carnaby Temple, Field 3, Site 5	Manby 1975, 44, fig 11, Nos 1 and 2

- A3.7 These finds were made in pit deposits, isolated by ploughing, and all show similar rim forms to Vessel 1 from Quarry Farm. The decoration is differently applied, however, with all examples, except Vessel 2 from Rudston Wold West Reservoir Site 5, being decorated with incised line motifs and lines of impressed decoration made with bird bones. Vessel 2 from this site exhibits comb like impressions on the rim bevel and below the shoulder, with diagonal cord impressions on the outside of the everted rim.
- A3.8 A large sherd assemblage from Boltby Scar Camp in eastern Yorkshire should also be noted here. These vessels are illustrated by Manby, King and Vyner (2003, 50, fig. 18, Nos 1-11) and exhibit a range of rim forms, all with a marked concave neck and shoulder and decorative traits that include herringbone motifs and the use of twisted cord.
- A3.9 Manby, King and Vyner (2003, 53) points out that medium sized bowls and jar forms within the Northern Peterborough Tradition often have traces of external sooting and internal carbonised residues. This certainly occurred on Vessel 1 from Quarry Farm and material from the deposits was sampled for radiocarbon assay. The resulting date is 2290-2020 cal BC (95% confidence; GrA-33524; 3745+/- 45 BP). This is a very interesting date and may place the vessel's manufacture and subsequent use towards the end of the Later Neolithic, almost at the Neolithic/Bronze Age transition.
- A3.10 Peterborough Ware styles have a general radiocarbon range in the south of England of 4700-3900BP, 3400-2500 cal BC (Garwood 1999, 159). Pit-associated Rudston style material from Burton Agnes Pit 1234 (RCD -2101) has been radiocarbon dated to 4320+/-80 BP; 3320-2695 cal BC, and associated Rudston and Fengate jars among the Marton-le-Moor pit groups have a date range of 3650-2700 cal BC (Manby, King and Vyner 2003, 55).
- A3.11 Thus the date from Quarry Farm would appear to be very late in the sequence and may give some enhanced credence to the notion that late Rudston Ware might be regarded as being a 'proto-food vessel' form (Gibson and Woods 1997, 165).
- A3.12 **Vessel 2 (Fig A56b)** *Context 283, Phase 1: maximum dimensions 74mm x 49mm, Rim Diam 240mm, Wall Thickness 15mm.* This is represented by a single sherd, weighing 66gms.
- A3.13 The vessel has a slack, almost jar-like profile with a marked but rounded internal rim bevel.
- A3.14 The fabric shows oxidised inner and outer surfaces and both are red-brown/buff in colour. The core is dark grey. The fabric appears hard fired with some infrequent hard, igneous rock inclusions, and it has a soapy feel to the touch.

A3.15 The sherd is decorated on the inside of the rim with a band of twisted cord impressed herringbone motifs. This decoration extends some 30mm below the rounded internal bevel of the lip of the rim. On the external face, a band of similar herringbone decoration is also visible. Each individual cord impression, making up the herringbone design, is around 10-11mm in length.

A3.16 This may be part of a Food Vessel or a Food Vessel Urn (*see* Gibson 1978; Cowie 1978), and is possibly of Early Bronze Age date.

Parallels and dating

A3.17 The rim does not show a marked bevel but is more rounded, and the vessel has a 'slack' almost jar-like feel to it. Parallels for the rim can be found in north-eastern English Food Vessels from Amble, Northumberland (Gibson 1978, 56, vessel 65, 116), Simonside, Northumberland (*ibid*, 75, vessel 68, 117) and Hasting Hill, Tyne and Wear (*ibid*, 65, vessel 65, 116).

A3.18 Kinnes and Longworth have also recorded a Food Vessel with a similar rim from Warkworth, Northumberland (1985, 130, Barrow 296, burial 9).

A3.19 The decorative motifs and techniques on the Quarry Farm Vessel 2 sherd would be comparable to those on many Food Vessels from the northern region. Direct radiocarbon dates for Food Vessels are still scarce, although nationally Needham (1996) has suggested that this ceramic type did not occur before 2050 cal BC. Dates for vessels from Yorkshire suggest a range from around 2020 cal BC-1435 cal BC (*see* dates from Garton Slack 7, and Gnipe Howe, cited by Manby, King and Vyner 2003, 62).

A3.20 **Vessel 3 (Fig A56c)** *Context 283, Phase 1: Wall Thickness up to 25mm.* This is represented by 18 body sherds of various sizes, of which 4 have been conjoined. A fifth possible conjoining sherd was identified by the writer. It has proved impossible to estimate vessel diameter, but the walls are very thick. The curvature of the conjoined pieces suggests that the vessel was a very thick walled bowl.

A3.21 The fabric exhibits an oxidised exterior surface, ranging from light buff to red-brown in colour, while the inner face is buff-grey. The core is distinctly red-reddish brown in colour. Large fragments of crushed igneous rock, possibly dolerite, and quartz have been included in the fabric as opening agents. These are up to 10mm in size.

A3.22 The vessel has been decorated, seemingly over the whole of the outer surface, by rows of circular and oval bird bone impressions. The circular impressions are up to 4mm in diameter, but on at least one sherd the impressions are roughly 'L' shaped and some horizontal incised lines are also visible on one piece.

A3.23 In the initial assessment of the prehistoric pottery from the site, it was suggested that this vessel was of Food Vessel or Food Vessel Urn type (Gibson 1978; Cowie 1978). This suggestion seems unlikely on the basis of wall thickness and the suggested curvature of the vessel. It may be that Vessel 3 should be seen as Later Neolithic in date and part of the Northern Peterborough Ware Tradition. This point is discussed further below.

Parallels and dating

- A3.24 The decoration on this fragmentary vessel can be paralleled on a range of finds from Peterborough Ware contexts on the Yorkshire Wolds, e.g. Rudston Wold Corner Field Site 2, Vessel No 7. This is a portion of a round-bottomed bowl with a slight shoulder (Manby 1975, 33 and 35, fig. 7, No 7).
- A3.25 A further example comes from Boynton, Carnaby Top Site 11 (Manby 1975, 41, fig. 8, No 17). This is a bowl in a reddish brown fabric with a grey core and flint tempering. It is decorated with horizontal lines of bird bone impressions.
- A3.26 Similar decoration occurs on a large Peterborough Ware bowl (around 290mm in diam.) recovered from excavations along the line of the Caythorpe gas pipeline in North Humberside. The vessel has a broad out-turned rim with a deep neck above a sharp shoulder angle, and a hemispherical body. It carries rows of bird bone impressions along the rim interior and lip, with further impressions arranged in horizontal rows below the neck (Manby 1996, 35, vessel 3; 36, fig. 15, No 3).
- A3.27 It has proved impossible to find closer parallels to these sherds, as detailed information on rim or base forms was not available.
- A3.28 **Vessel 4 (Fig A56d)** *Context 721, Phase 1: Rim Diam 130mm, Base Diam 40-50mm, Vessel Height around 204mm, Wall Thickness around 5mm thickening to 11mm at base which is slightly dished.* The initial assessment of the prehistoric pottery from the site recorded some 122 sherds from this vessel. The present writer saw it in a semi-reconstructed state. Around two thirds of the rim of this All-Over Cord Decorated Beaker survives (Clarke 1970, 52-68).
- A3.29 This is an excellent example of Clarke's All-over Cord Decorated style of Beaker (AOC), with a classic bell shape, a rounded carination at around 100mm below the rim and a slightly everted, rounded rim.
- A3.30 The fabric exhibits oxidised, red-brown interior and exterior surfaces, with a black core which might indicate a short firing time. The fabric is hard and well-fired, with fragments of crushed, fine grained igneous rock, ranging from 2-4mm dimension, included as opening agents. Under a hand lens it is obvious that small grog pellets have also been included in the fabric, a point returned to in the discussion below.
- A3.31 The decoration consists of seemingly continuous cord impressed lines around the body of the vessel. The spacing is regular, with around 4 lines per cm of body, and the cord itself is very fine, around 1-2mm thick with around 6 twists per cm.

Parallels and dating

- A3.32 Recent studies of Beaker pottery have produced three most currently used systems of classification and phasing:
- i) Stylistic group typologies; early styles of Continental origin followed by later indigenous developments (Clarke 1970)
 - ii) Indigenous stepped development (Lanting and van der Waals 1972)
 - iii) Summary stylistic regional groupings related to wider north west European traditions (Case 1993) (after Manby, King and Vyner 2003, 58-59)

- A3.33 The earliest Beakers are Clarke's AOC cord impressed Beakers (1970, 52-68) and his European Beakers (E-Beakers). Both forms are assigned to a combined Step 1/2 for their Yorkshire focus area by Lanting and van der Waals (1972, 39-40, fig. 3). AOC Beakers form the major component in Case's Group C, which has a core distribution from the Wash to northern Scotland and a general chronological range around 2500-2000 cal BC.
- A3.34 AOC Beakers are rare north of the Tees, in Durham and Northumberland, and in 1970 Clarke could only document 24 locations in Durham, Cumbria, Northumberland and Yorkshire which had produced one or more of these Beaker types (1970, 528-529). He distinguished three forms of AOC Beaker (*ibid*, 52):
- i) The typical bell beaker shape, a low bell shaped vessel, almost as wide as its own height, with a balanced curvilinear or slightly carinated profile. The lip of the everted rim is usually almost the same diameter as the belly, and the neck diameter about the same as the base. The base is normally nicely dished, scarcely thickening at the centre.
 - ii) The second form differs from the first only in so far as the diameter across the mouth is less than the belly diameter.
 - iii) The third variant can have the shape of either of the other forms but in addition has a cordoned or collared rim.
- A3.35 Vessel 4 from Quarry Farm would appear to be of type ii. Clarke also notes that AOC vessels are usually below 200mm in height.
- A3.36 Tait (1965, 12-13 and 35, Nos 1-11) notes that during the period 1924-1927 some 200 beaker sherds were recovered from an old land surface in the dune area of Ross Links in Northumberland. His re-examination of this material has shown the presence of at least 25 separate Beaker vessels. Of these, eleven examples are probably from AOC Beakers similar to Quarry Farm Vessel 4. The Ross Links site may well be one of the rare examples of a 'Beaker domestic context' in the north east of England.
- A3.37 Manby has shown that AOC Beakers from Rudston Wold, Cottam Warren, Heselton and Barnaby Howes, all in Yorkshire, have all come from domestic contexts (Manby, King and Vyner 2003, 59), and that a small number of single grave, crouched inhumations, associated with AOC Beakers, have been recorded on the Yorkshire Wolds and at Grassington (Gilks 1973, 175).
- A3.38 The Quarry Farm pit, Context 721, may qualify here as a domestic context of deposition.
- A3.39 An AOC Beaker with close parallels, in terms of vessel morphology, would seem to be the much crushed, but restored, example from Kirkhaugh in Northumberland. This was excavated from a cairn in the 1930s and was associated with a sheet gold earring, barbed and tanged arrowhead, flint scraper, flint flakes and a whetstone (Maryon, 1936; Tait, 1965, 16, No. 31; Cowen, 1966; Clarke, 1970, 281, fig. 3, AOC 65).
- A3.40 A smaller vessel from Rudston 67 in Yorkshire (Clarke 1970, 282, fig. 10, AOC 1376) and an elegant beaker of seemingly similar proportions to QF Vessel 4, from Grassington, (*ibid*, 284, fig. 30, AOC 1317) would also offer close parallels.

- A3.41 Smith records a beaker of similar shape to QF Vessel 4, but slightly smaller at 150mm high, from a barrow site at Barnby Howes East in north-east Yorkshire, excavated in 1956 (1994, 89, NYM 60, fig. 48, 2). The vessel is decorated with twisted cord and was classified as an AOC Beaker by Clarke (1970, Corpus 1235, 506). The decoration, however, continues over the lip of the rim and into the vessel interior.
- A3.42 In terms of general dating we have already remarked on the fact that AOC Beakers form part of Case's Regional Beaker Group C (Case 1993, 260, fig. 15). Manby highlights the fact that the Group C ceramic range is best represented by a debris spread beneath the extension to the Callis Wold Barrow 275 excavated by Coombs (1976). This has associated radiocarbon dates of 3800 \pm 70 (BM-1169) 3680 \pm 70 (BM-1448) and 3480 \pm 80 (BM-1169) BP (Manby, King and Vyner 2003, 59).
- A3.43 **Vessel 5 (Fig A56e)** *Context 722/723, Phase 1: Rim Diam 140mm, Base Diam around 89mm and flat, Wall Thickness 3-3.5mm.* Some 119 sherds of this vessel were identified during the conservation of the prehistoric pottery from the site. The present writer saw the vessel in a semi-reconstructed state. It is a rare example of one of Clarke's All Over Comb Decorated, European Bell Beakers (Clarke 1970).
- A3.44 An estimate of total vessel height was not possible, but the body can be part-reconstructed to show that the vessel stood to at least 122mm. There is also a slightly rounded carination visible some 60mm above the base.
- A3.45 The vessel exhibits buff-red brown interior and exterior surfaces with a dark grey core. Inclusions are not prominent, but some small crushed, igneous rock fragments and mica are present. The external face in the lower portion of the body and the base show signs of abrasion, but not the edge of the base itself.
- A3.46 The decoration is in the All Over Comb impressed style typical of Clarke's European Bell Beakers. It has been executed with a small toothed comb, in sections which overlap across the body of the vessel. The comb length would seem to be around 34mm, but it is difficult to get an accurate measurement because of the breakage pattern of the vessel. The teeth (and impressions) vary from rectangular to square in shape with maximum dimensions of 1.5mm x 1mm and the teeth are spaced around 1mm apart. The comb type used would be classified as fine to medium (Clarke, 1970, 433).
- A3.47 If the measurement of comb length-based on the overlapping sections of impressed decoration on the vessel-is correct, then the Quarry Farm comb would fall within the general range of comb lengths identified by Clarke (1970, 433). He shows that British Beaker combs vary between 10-54mm in length, with about 70% falling between 30-42mm (*ibid*, 9). The end of a polished rib bone impressing a nine-toothed line 17mm long, from Gwithian in Cornwall (Megaw, 1976, 61), is an example of a comb from a Beaker context which may have been used for pottery decoration. Other possible examples come from Northton on Harris (Simpson 1976, 230, fig. 12.6), and Bishops Canning Down and Dean Bottom, both in Wiltshire (Gingell 1980, 217).

Parallels and dating

- A3.48 European Bell Beakers (E-Beakers) are extremely rare in northern Britain (Clarke, 1970, 69-83). Together with Wessex/Middle Rhine Beakers, Northern/Middle Rhine

Beakers, and Northern/North Rhine Beakers, they make up Case's Regional Beaker Group D (Case, 1993).

- A3.49 Clarke showed that their overall distribution was very similar to that of AOC Beakers (1970, 75), but with some interesting differences in concentration. Sixty percent of find spots were within 50 miles of eastern and southern coastal tidal waters (*ibid*, 75), and he identified a specific Yorkshire group within the general distribution pattern.
- A3.50 Clarke was at pains to stress the connections between AOC and All-Over Comb Decorated Beakers (*ibid*, 70). The firing and fabric of vessels in the latter group, he thought, was very similar to the AOC fabrics and firing techniques (*ibid*, 70), and he pointed out the fact that a great variety of toothed combs or *spatulae* were used for impressing the designs, mainly with rectangular teeth on a medium to fine spatula. Compared with later comb-impressed beaker groups that he identified, the European Bell Beakers had a higher proportion of fine combs used, with square as opposed to rectangular teeth dominating the designs (*ibid*, 70).
- A3.51 Direct parallels within the northern region for All-Over Comb Decorated Vessels are rare. One of the few known examples comes from Raindale in Yorkshire, near Pickering, on No Man's Land Riggs, Barrow 36. The rim on this vessel is slightly different to that on QF Vessel 5 (*ibid*, 229, fig. 88; Corpus 1362).
- A3.52 The general date range would seem to be similar to that for AOC Beakers discussed above.
- A3.53 **Vessel 6 (Fig A56f)** *Context 722, Phase 1: Rim Diam around 140mm (only one rim sherd was identified), Base Diam around 76-80mm and flat, Wall Thickness 3-5mm, thickening to around 10mm towards the base. The base itself is around 15-16.5mm in thickness.* 112 sherds from this vessel were identified when the prehistoric pottery from the site was conserved. It is an All-Over Cord Decorated Beaker.
- A3.54 The rim has a slightly flattened top with rounded, bevelled interior.
- A3.55 The vessel exhibits oxidised, red-brown, interior and exterior surfaces, with a black, reduced core. Grog pellets up to 1mm in length are visible within the fabric matrix, along with some quartz, igneous rock and mica.
- A3.56 Decoration consists of seemingly continuous cord-impressed lines around the body of the vessel. The spacing is regular as in Vessel 4 with around 4 lines per cm of vessel body, and the cord is fine around 1mm thick with around 5 twists per cm.
- Parallels and dating*
- A3.57 See discussion of Vessel 4 above.
- A3.58 **Vessel 7** *Context 898, Phase 1: Base Diam around 90mm, Wall Thickness 3-5mm, thickening towards the base to 6-7mm.* A possible Beaker of indeterminate form, 25 sherds of this vessel survive, seven from the base and the remainder from the body. Total weight: 76gms.
- A3.59 The fabric is very vesicular and exhibits yellow brown oxidised interior and exterior surfaces. The core of the vessel is dark grey. Some fine mica is visible, but crushed

rock additions to the fabric (up to 2.5mm in longest dimension) occur only sparingly. As Willis noted in the initial assessment of this vessel, the sherds do show continuous, probably twisted cord decoration over their exterior surfaces, but this was indistinct due to poor definition and the application of insufficient pressure to leave a clear mark when the decoration was executed. Around the base, however, it does seem that there were at least four lines of twisted cord decoration present. These were spaced at three lines per 10mm, and the cord was around 1mm thick. It was impossible, however, to discern how many twists per centimetre were visible.

Parallels and dating

A3.60 No parallels obvious. Dating difficult

Roman pottery

Class A, Amphorae, 0.7%

A3.61 Some 15 sherds of amphorae were recovered from the site, all from Baetican Dressel 20 oil amphorae. Amphora sherds are rare from basic level rural sites, generally below 0.3% by sherd count. They are usually of Dressel 20 form. Levels here are relatively high for a basic level rural site, at 0.7%, perhaps reflecting a slightly greater use of amphorae on this villa site. In terms of occurrence by phase Dressel 20 sherds are common, at 4.2% by count, in Phase 3a, generally declining after that, although they peak at 7.6% in Phase 5c. The general decline after Phase 3a might be expected given the cessation of importation of the type early in the 3rd century.

Class B, Black Burnished wares, 2.2% (Fig A57; Table A4.10)

A3.62 BB1 and BB2 are both present on the site in small quantities. BB1 is by far the commoner at 42 sherds to just four of BB2, despite the site being in the north-east, combined BB1 and BB2 amount to just 2.2% of the entire assemblage. BB1 is much commoner on military sites in the region, as is BB2 in the vicinity of South

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
1	B01	J1.1	LC3-MC4	A jar with an everted beaded rim. Gillam (1976) nos 9-12.	1	19	18	57b
2	B01	J1.2	230-270	A jar with a strongly everted rim not as wide as body.	1	67	18	57d
3	B01	J1.3	220-250	A jar with a cavetto rim.	1	8	20	
4	B01	D2.1	MC2	A flanged rimmed dish with pointed arc decoration.	1	16	16	
5	B01	D1.2	Hadrianic - Antonine	A curving walled dish with a grooved rim.	1	5	20	
6	B01	D1.1	180+	A dish with a simple rim decorated with intersecting arcs.	1	5	21	
7	B10	J1.1	LC2-eC3	A jar with a horizontal grooved rim. Gillam (1970) type 151, Mucking.	1	4	20	57a
8	B10	B1.1	160-200	A BB2 grooved rim bowl, with wavy line on wall.	1	8	21	
9	B10	B2.1	150-200	A bead rim bowl.	1	7	23	
10	B10	D1.1	150-200	A curving walled dish with a triangularly sectioned rim.	1	10	20	57c

Shields and the east end of Hadrian's Wall. In terms of date distribution the BB1 is evenly balanced between 2nd century vessels and 3rd-early 4th century ones, whilst the BB2 forms are Antonine types. The one unusual vessel is No 7 [J1.1] a BB2 associated type, probably from Mucking (Bidwell and Speak 1994, 228), of later 2nd-early 3rd century date.

- A3.63 BB2 first appears in Phase 3b at 1.1% by count, but BB1 does not appear stratified until Phase 3c, although several of the types present are much earlier than this and it is commonest in Phase 4, at 21.3% by count. BB1 forms consist of four dishes and seven jars, whilst the BB2 comprises four bowls and two dishes. The emphasis on tablewares amongst the BB2 is usual, amongst the BB1 bowls/dishes and jars generally are fairly evenly balanced.

Class C, shell-tempered wares 0.8% (Fig A57)

- A3.64 Shell-tempered wares are another minor element in the supply to the site, none-the-less they are highly unusual.
- A3.65 The most expected is C12, Dalesware, (Loughlin 1977, cf. Evans 1985) of which there are five sherds. However, the three rimsherds in this fabric are in the late 4th century lid-seated form rather than the classic Dalesware (C12 J1.1; No 12). This form is uncommon outside Lincolnshire, although there are examples from Binchester (Evans and Rátkai 2010 type G10.1), South Shields (Bidwell and Speak 1994), and at Wellington Row, York (Monaghan 1997). They occur in phases 5a and 5b which is consistent with their dating.
- A3.66 The origin of the wheelmade C11 group is uncertain, although it may well be as C13. The C13 group is of Southern-Shell tempered ware and is fairly certainly attributable to Harrold in Bedfordshire (Brown 1994). All the forms are of late Roman date and the evidence from Binchester suggests it arrived there after AD 360. These fabrics have been recorded in small quantities at York (Wellington Row: Monaghan 1997, nos 3243-4), Piercebridge (pers. inspection; Evans 1985), Catterick (Wilson 2002) and South Shields (Bidwell and Speak 1994, no 98) but are unexpected on a rural site, although there is an example from the villa at Beadlam (Evans 1996a, type G11.1). The proximity of the Tees and access to markets at Piercebridge may explain the presence of this fabric here, for this material is certainly evidence of the later 4th century continuation of the East Coast trade (as are most of the northern examples of Hadham ware). Fabric C13 only occurs in the late 4th century phases, peaking in Phase 5a at 1.1% as might be expected. Fabric C11 also occurs in Phase 5a at 0.22% by count and peaks in 5d at 1.4% suggesting it may well belong with the Southern Shell-Tempered ware (C13).
- A3.67 Forms represented in fabric C13 are two typical Harrold flange rim bowls and three jars. In fabric C11 there is a single lid.

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
11	C11	L1.1	Romano-British	A lid with a slightly everted rim.	1	32	16	
12	C12	J1.1	350-420	A late Dalesware form. An everted rimmed jar with a lid-seating groove on the top of the rim.	3	55	14.33	
No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
13	C13	J1.1	360+	A necked jar with an everted, slightly undercut rim.	1	19	19	57g
14	C13	J1.2	360+	A shouldered jar with a triangularly-sectioned undercut beaded rim.	2	23	19	
15	C13	B1.1	350-420	A concave flanged curving wall bowl, a Harrold form (Brown 1994).	2	18	20.5	

Class F, Colour-coated wares, 1.5% (Fig A57)

- A3.68 Colour-coated wares are not at all well represented in the assemblage comprising only 1.5% of it by count. By far the commonest fabrics are Nene Valley colour-coats (F01 and F02) at 59% by count and 88% by weight of the finewares. Both the forms in these fabrics are of late 4th century date, as probably are most of the sherds. Fabric F01 first appears in Phase 3a at 4.2% by count and the other peak of the Nene Valley colour-coats is in Phase 5d at 4.2% by count. The second commonest group is sherds of Central Gaulish ‘Rhenish’ ware (F06) dating to the later 2nd century, amounting to 15.6% by count and 3.3% by weight. In the sequence the fabric first appears residually in Phase 5b at 0.9% by count and peaks in Phase 5d at 2.8%.
- A3.69 Surprisingly the third commonest colour-coated ware is Oxfordshire red colour-coated with four sherds, at 12.5% by count and 3.3% by weight. These include two rim fragment from Young (1977) type C51 bowls, dated AD 240-400+. These sherds are most unlikely to have reached the site before the late 4th century; they appear at Binchester from phase 8a onwards (Evans and Rátkai 2010). Oxfordshire colour-coats are far from unknown in the north-east but they are rare and it is unexpected to find them in so small an assemblage from a rural site. It is of note that they are associated with Southern-Shell Tempered ware at other sites, as here, and are presumably arriving on the East Coast trade. Oxfordshire sherds first appear in Phase 4.
- A3.70 There are two early oxidised colour-coated fabrics, F05, at 3.1% and F11, a clay pellet roughcast fabric at 9.4% of colour-coats. These both probably date to the later 1st-mid 2nd century. They first appear residually in phases 5b and 5a respectively.
- A3.71 Crambeck parchment ware (fabric W03) is also rare on the site, with only four sherds in non-mortaria forms.

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
16	F01	F1.1	350-420	A ring necked flagon, cf. Howe <i>et al.</i> (1980) No 67, 4 th century.	1	100	2	57l
17	F01	D1.1	C3-4, prob LC4	A curved wall dish with a simple rim	1	9	13	
18	F11	BK1.1	LC1-MC2	An oxidised clay pellet roughcast beaker with a slightly everted, thickened rim	1	10	15	57k
19	F21	B1.1	240+	A Dr38 bowl, Young (1977) type C51, AD 240+	2	9	19.5	

Class G, Gritted wares, 64.3% (Figs A58 and A59)

A3.72 Gritted wares form the bulk of the Quarry Farm assemblage, over 64% by count.

A3.73 The commonest group are East Yorkshire calcite gritted wares, fabric G01, amounting to 23.5% of the entire assemblage by count and 40.7% of all the gritted wares. The earliest type in the assemblage is No 20 (J4.1), probably a Knapton type and of 3rd century date of which there are two examples residual from phases 4 and 6. There are only two examples of this form. Early 4th century S-bend type rims are absent, but there are six examples of mid 4th century proto-Huntcliff types, No 22, (J1.1). As usual calcite gritted wares are a major part of the late 4th century assemblage with 19 examples of Huntcliff type jars No 21 (J3.1) and five of a variant No 23 (J3.2) along with a double grooved Huntcliff type storage jar (No 25 (SJ1.1)), three storage jars of Huntcliff type rim form (No 24 (SJ1.2)) and six examples of the wide-mouthed jar or bowl of Huntcliff form (No 26 (WMJ1.1)). The beaded and flanged bowl (No 27 (B1.1)) and the simple rimmed dish (No 28 (D1.1)) are also probably of later 4th century date, although the latter type particularly can be earlier. As usual the vast majority of the types are jars (Table A4.11), used as cooking pots as the sooting evidence demonstrates (Evans 1993), with an occasional dish or bowl and, more commonly, some storage jars and wide-mouthed jars.

A3.74 In terms of the distribution of calcite gritted ware by phase Table A4.8 shows the occurrence of the commonest types. Calcite gritted wares occur throughout the sequence at the 20-30% level, before peaking in the later 4th century; the latter is usual on northern sites. The former is rather less usual on rural sites outside East Yorkshire. If these sherds are not intrusive it suggests strong links with East Yorkshire throughout the site's history.

A3.75 The dominance of calcite gritted wares in the supply to sites in the north, north of the Humber-Mersey line, has been discussed by Evans elsewhere (1985). The distribution patterns sketched out then and their explanation would still seem to hold now after the accumulation of much more data.

A3.76 Fabric G02 is a sandy handmade fabric with some calcite tempering (Evans (1985) fabric 007/168), also of East Yorkshire origin. It amounts to 2.7% of the whole assemblage by count and 4.6% of the gritted wares. It seems to first emerge in East Yorkshire around the middle of the 4th century. Forms consist of five proto-Huntcliff type jars (No 30 (J1.1)), two Huntcliff types (No 31 (J2.1)) and a barrel jar (No 33 (J3.1) Gillam (1970) type 155), the latter being a very typical form in this fabric. All of this material is likely to have reached the site in the later 4th century. Table A4.8 shows it occurs first in Phase 4 and expands in Phase 5 here.

- A3.77 Fabric G03 is a handmade fine calcite gritted ware, probably also of East Yorkshire origin, represented by a single rimsherd of Dales type form (No 33 (J1.1)). It is likely to be of 4th century date.
- A3.78 Fabric G11 is a handmade gritty fabric with common sub-rounded quartz c. 0.3-0.5mm and some very fine gold mica. It is probably of very local origin, not apparently appearing at other sites in the region except Piercebridge (see Vince below A3.116). It amounts to 25.0% of the entire assemblage and 43.3% of all the gritted wares. This fabric is probably similar to a series of local gritted wares, generally of 1st-2nd century date seen on rural sites in the northern Vale of York (Evans forthcoming b, c and d), probably made very near to the site and not used much beyond it.
- A3.79 Forms consist largely of jars with everted rims; there are a few dishes and two possible crucible fragments. Forms are in an 'Iron Age tradition' although probably of earlier Roman date. Table A4.12 shows a functional analysis of this fabric.
- A3.80 Most of the forms are jars as is general with gritted wares, although there are rather more dishes than might be expected, and some other forms.
- A3.81 Table A4.13 shows the occurrence of the fabric by phase. It emerges at around 37.5% by count in Phase 3a and peaks at 58% in Phase 3c and then falls consistently until Phase 5c, suggesting it was probably residual by Phase 5.
- A3.82 Fabric G41 is probably closely related to fabric G11. It is a wheelmade fabric with common angular quartz c. 0.5-1mm and some fine gold mica. It is probably very local to the site and would appear to be essentially a wheelthrown version of G11. It amounts to 5.9% of the entire assemblage and 10.2% of the gritted wares.
- A3.83 All the eleven rimsherds in this fabric are from jars. Forms consist of everted rimmed jars, shouldered jars and lid-seated shouldered jars. The latter are of later 3rd-4th century date, probably ending by around the mid 4th century if they follow the many other vessels of similar form from the region. It is tempting, therefore to suggest that this fabric is the 3rd-4th century continuation of fabric G11, which seems to be of earlier Roman date.
- A3.84 Table A4.14 shows occurrence by phase. The fabric seems to appear at a low level from Phase 3a; although it is not clear if the Phase 3 examples are not intrusive, it certainly seems to have emerged by Phase 4 and peaks in Phase 5c at 10.1%.
- A3.85 Fabric G13 is another handmade fabric with some coarse angular quartz c. 1-2mm in a 'clean' matrix and some fine gold mica. It is probably a variant on G11 and local. It amounts to 0.3% of the site assemblage by count and 0.6% of the gritted wares.
- A3.86 Fabric G15 is a handmade fabric with abundant organic temper voids especially on the surface with carbonised organic voids c. 0.5-1mm in length in a matrix with common fine sand c. 0.1mm. It is represented by a single rimsherd in the form of an everted rimmed jar, No 48. It is presumably of earlier Roman date.
- A3.87 Fabric G31 is a handmade fabric with some quartz c. 0.2-0.5mm and some black and white granitic inclusions c. 2mm and some fine gold mica. There are only four

sherds in this fabric, 0.2% of the site assemblage and 0.3% of the gritted wares. It is presumably fairly local.

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
20	G01	J4.1	C3	A Knapton type jar rim.	2	42	13.5	
21	G01	J3.1	350-420	A Huntcliff type lid seated jar with a hooked rim.	19	269	18.58	
22	G01	J1.1	340-360	A proto-Huntcliff type jar rim.	6	40	19	
23	G01	J3.2	350-420	A Huntcliff type jar variant with a rising rim and internal groove.	5	49	20	58q
24	G01	SJ1.2	350-420	A storage jar with Huntcliff type rim with internal groove	3	56	28.67	
25	G01	SJ1.1	350-420	A storage jar with internal double groove	1	9	32	58m
No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
26	G01	WMJ1.1	350-420	A wide mouth jar with an internal groove/ lid seating	6	75	27.83	
27	G01	B1.1	C4	A developed beaded and flanged bowl.	1	9	23	59i
28	G01	D1.1	C3-C4	A straight sided dish with a simple rim	1	11	21	
29	G02	J1.1	M-LC4	A proto Huntcliff type jar with hooked rim and pronounced shoulder.	5	93	14.6	
30	G02	J2.1	350-420	A Huntcliff type rim.	2	41	17.5	
31	G02	J3.1	350-420	A barrel jar. Gillam (1970) type 155.	2	13	18.5	58n
32	G03	J1.1	C3-C4	A necked jar with a thickened everted lid-seated rim of Dales type form.	1	12	20	58a&b
33	G11	J1.2	Romano-British	A jar with an insloping neck with a triangularly sectioned beaded rim.	3	18	18.33	58g
34	G11	J3.2	Romano-British	A jar with a straight, everted, rising rim beaded on the tip.	4	63	18.75	58d
35	G11	J3.1	Romano-British	A jar with an everted thickened triangular rim	8	51	18.88	
36	G11	J2.1	Romano-British	A jar with an everted rim, straight and squared at the tip.	2	21	20.5	58s
37	G11	J1.1	Romano-British	A handmade jar with an everted, rising, straight rim.	3	109	22.33	
38	G11	D1.1	Romano-British	A dish with a simple, squared rim.	6	39	18	
39	G11	D1.2	Romano-British	A simple rimmed dish.	1	5	15	59c
40	G11	O1.1	Romano-British	A crucible?	1	12	20	58k
41	G11	O2.1	Romano-British	A lamp or more likely crucible.	1	30	6	58l
42	G41	J2.1	LC3-EC4	A shouldered jar with an everted, lid-seated rim.	5	104	14.2	
43	G41	J2.2	LC3-EC4	A necked jar with lid-seated rim everted with internal groove beneath.	2	11	15	59b
44	G41	J1.1	LC3-EC4	A shouldered jar with a groove above the shoulder and everted rim.	2	97	17	58r

45	G41	J5.1	Romano-British	A jar with an everted, squared rim.	1	4	20	58i
46	G41	D1.1	Romano-British	A simple rimmed dish.	1	9	18	59a

Class M, Mortaria, 0.8% (Fig A60; Table A4.15)

- A3.88 Mortaria are also relatively poorly represented in the Quarry Farm assemblage at 0.8% by count, which compares with an urban level of perhaps 3-5%. The principal fabrics represented are Crambeck wares (M01 and M02) representing 46.3% of the mortaria by count. It is of note that the late parchment ware mortaria fabric (M01) outnumbers the late 3rd to early 4th century sandy fabric (M02) by 2.5 times.
- A3.89 The second commonest mortarium fabric is fabric M04 from Mancetter-Hartshill at 25.9% of the mortaria by count. The six rimsherds date from the late 2nd century up to the mid 4th, with four dating to the late 2nd-early 3rd century. Mancetter vessels do not become common in the region until c. AD160, after which they are probably the commonest type until the end of the 3rd century, these and the Crambeck material suggesting possibly some diminution in mortaria use on the site in the later 3rd to mid 4th century.
- A3.90 The third commonest mortarium fabric on the site was M12, a Cantley tradition fabric of later 3rd to mid 4th century date from Piercebridge or Catterick, possibly the former as the brown fabric does not match the Catterick products well. Fabric M21 in contrast is fairly certainly a Catterick product of the Catterick Cantley tradition industry, although the rim form of this sherd is quite similar to a Crambeck (Corder 1936) type 6 mortarium. This latter is not surprising as the Cantley tradition industry at Catterick seems to have worked close-by another producing vessels in the Crambeck tradition (Wilson 2002).
- A3.91 Other fabrics represented by single sherds include M03, a whiteware with common moderate sand probably of 2nd century date; M05, an imported beaded and flanged mortarium of later 1st or early 2nd century date from Noyon, Oise (No 58); M22, an oxidised white-slipped mortarium with some sand c. 0.3-0.5mm in a 'clean' matrix, probably of later 1st or 2nd century date; M23 a white slipped 2nd century oxidised beaded and flanged mortarium (No 62) with some common sand c. 0.3-0.5mm and occasional brown ironstone c. 0.5mm in a 'clean' matrix with angular white quartz trituration grits of north-eastern origin, possibly Catterick; and M11, an oxidised mortarium fabric with some fine vegetable(?) temper voids c. 0.3-1mm, occasional brown ironstone inclusions c. 0.5-0.7mm, trituration grits of angular white quartz and feldspar 2-4mm, and some large gold mica, which was probably made very locally.

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
47	M01	M1.3	350-400+	A parrot beak mortaria, Corder (1936) type 8.	1	7	18	60i
48	M01	M2.1	350-60	A bead and flange mortarium, Corder (1936) type 6 variant.	1	8	20	
49	M01	M1.1	350-400+	A wall-sided mortarium with a groove at top. Corder (1936) type 7	6	104	20.5	
50	M02	M1.1	285-350/60	A Corder (1936) type 6 flanged mortarium.	5	46	25.8	
51	M04	M1.2	200-220	A hammerhead mortaria with	1	33	23	60h

				cordons on rim and distal end.				
52	M04	M1.1	220-350	A reeded hammerhead mortarium.	1	16	25	60f
53	M04	M1.3	160-200	A mortarium with a beaded rim and straight, downsloping flange.	2	20	25	60l
54	M04	M1.4	200-250	A beaded hammerhead mortarium with reeded flange.	1	8	30	60b
55	M05	M1.1	LC1-EC2	A mortarium flange from a hook flanged beaded and flanged mortarium.	1	9	15	60k
56	M12	M1.1	LC3-EC4	A beaded and flanged mortarium	1	32	25	60d
57	M12	M2.1	250-350	A concave reeded hammerhead mortarium in the Cantley tradition.	1	9	28	60c
No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
58	M21	M1.1	LC3-EC4	A beaded and flanged mortarium in the Catterick Cantley tradition, similar to Corder (1936) type 6.	1	12	20	60j
59	M23	M1.1	C2	A white slipped mortarium with a bead and flange rim.	1	14	17	60a

Class O, Oxidised wares, 0.8% (Fig A60)

A3.92 Oxidised wares are rare in the Quarry Farm assemblage at only 0.8% by count. All are likely to be of 1st-2nd century date, although most only occur residually in later phases. Oxidised wares are not common in the region except on early military and military associated sites. Levels here are particularly low as gritted wares clearly provided most of the early Roman assemblage. Forms consist of a few tablewares.

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
60	O01	B1.1	Romano-British	A bowl with a lid-seated rim	1	7	19	
61	O12	F1.1	LC1-MC2	A bead rimmed flagon rim	1	21	6	60m
62	O13	D1.1	Romano-British	A simple rim dish.	1	15	1	

Class Q, White slip wares, less than 0.1%

A3.93 White-slipped oxidised flagon fabrics are very rare here, at less than 0.1%. Only two fabrics are represented, Q01 and Q02. They will almost certainly date to the 1st or 2nd century.

Class R, Greywares, 18.0% (Figs A61 and A62)

A3.94 Greywares form a reasonably substantial proportion of the entire assemblage at 18.0% by count. The largest single group within these is the Crambeck greywares that account for 30.6% of greywares and 5.4% of the entire assemblage. Table A4.16 shows a functional analysis of the Crambeck greywares.

A3.95 As usual the Crambeck greywares are predominantly in tableware forms, unlike most other greywares where jars are the dominant forms. This is a typical pattern for Crambeck greywares (cf. Evans 1989).

- A3.96 The second commonest greywares is R11, a greyware with common sand c. 0.2-0.3mm, comprising 2.7% of the whole assemblage and 14% of the greywares by count. The majority of the forms date to the 2nd century. Table A4.17 shows a functional analysis in this fabric, unusually, as with Crambeck greyware, the majority of vessels, in this admittedly small sample, are tablewares.
- A3.97 Fabric R12 is a greyware with a ‘crisp’ fracture; with common angular quartz sand c. 0.3-0.4mm and some black ironstone c. 0.2-0.4mm. Forms in this fabric, a bowl a beaker, two jars and two storage jars, are of later 1st-2nd century date and include some rustic decorated bodysherds. It amounts to 2.2% of the entire assemblage and 12.2% of the greywares.
- A3.98 Fabric R13 is a greyware with abundant fine sand c. 0.1mm and occasional black rounded ironstone up to 0.3mm. It amounts to 2.6% of the entire assemblage and 14.8% of the greyware assemblage. Forms include a developed beaded and flanged bowl that must date to the later 3rd or early 4th century. The forms are predominantly tablewares with a bowl, a beaker, two constricted-necked jars and four dishes.
- A3.99 Fabric R21 is a gritted greyware with some sand c. 0.3-0.5mm in a ‘clean’ matrix and occasional large angular quartz up to 2mm, also some fine silver mica. It comprises 2.0% of the entire assemblage and 11.1% of the greywares. Forms (Nos 91 and 92) consist of lid-seated and sub Dales-type jars that must be of later 3rd-early 4th century date.
- A3.100 Fabric R22 is a hard greyware with common fine sand c. 0.1mm. It amounts to 1.6% of the entire assemblage and 9.1% of the greywares. Forms include a trefoil mouthed jug (No 93), a constricted-necked jar and three jars.
- A3.101 Fabric R23 is a ‘soapy’ and ‘clean’ greyware with common fine silver mica. It amounts to 1.0% of the entire assemblage and 5.4% of the greywares. Forms include a Dr 38 copy bowl of 2nd century (or later) date (No 101).

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
63	R09	J1.1	285+	A small jar with stubby everted rim, Corder (1936) type 11.	1	17	7	61c
64	R09	B3.1	285+	A Dr 38 copy, Corder (1936) type 5a.	2	20	20	
65	R09	B1.1	285-400+	A developed beaded and flanged bowl, Corder (1936) type 1.	14	222	20.79	
66	R09	B1.3	285-400+	Flanged bowl with internal burnished wavy line. Corder (1936) type 1b.	1	24	25	62k
67	R09	D1.1	285+	A beaded and flanged dish, Corder (1936) type 1a.	1	16	19	61b
68	R09	D2.1	285+	A straight-sided dish with groove below rim, Corder (1936) type 2a.	2	23	20.5	61o
69	R09	D2.2	285+	A dish with a plain rim with external burnished wavy line, Corder (1936) type 2.	2	10	20.5	
70	R09	D3.1	350-400	A straight-sided dish, Corder (1936) type 10a.	1	11	31	61p

71	R11	J2.1	Romano-British	A shouldered jar with an everted hooked rim MISSING	1	24	14	62g
72	R11	B1.2	Hadrianic - Antonine	A flange rimmed bowl.	1	15	20	61l
73	R11	B1.1	150-200	A bowl with a bead rim, a BB2 copy.	2	18	24	61h
74	R11	D1.1	Romano-British	A dish with a simple rim	2	8	18.5	
75	R11	D2.1	Romano-British	A flange rim from a segmental or beaded and flanged bowl.	1	6	20	
76	R11	D1.2	Romano-British	A groove rimmed dish with a chamfered base.	1	2	21	61n
77	R11	D3.1	C2+	A dish with a triangularly flanged rim and chamfered base	1	12	21	61e
78	R12	J1.1	LC1-MC2	A globular jar with an everted stubby rim.	1	65	7	62i
No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
79	R12	J1.2	C2+	A jar with an everted thickened rim	1	17	14	61k
80	R12	SJ1.1	Romano-British	A shouldered storage jar with a thickening everted rim with a piecrust cordon below rim.	2	70	19	62b
81	R12	BK1.1	Romano-British	A small globular beaker with a sub-cornice rim with acute lattice decoration	1	11	12	62h
82	R12	B1.1	LC1-EC2	Segmental bowl	1	7	25	61r
83	R13	CJ1.1	Romano-British	A constricted neck jar with a thickened square rim with groove on upper part of the rim.	2	45	12	
84	R13	J1.1	LC2-EC3?	A necked jar with an everted rim, perhaps A BB copy jar.	2	50	15	
85	R13	BK1.1	Romano-British	A beaker with an insloping wall and beaded rim.	1	9	15	62d
86	R13	B1.1	270+	A developed beaded and flanged bowl.	1	12	20	61a
87	R13	D2.1	Romano-British	A simple rimmed dish cut from a jar base.	1	15	11	62n
88	R13	D1.1	C2+	A curving walled dish rim with beaded rim.	2	17	17	61f
89	R13	D2.2	Romano-British	A simple rim dish.	1	3	20	
90	R15	J1.1	Romano-British	A necked jar with an everted triangularly-sectioned undercut rim.	1	12	15	61g
91	R21	J1.1	Romano-British	A necked jar with a strongly everted thickened rim with lid seating.	1	48	14	62c
92	R21	J1.3	LC3-C4	A sub Dales jar.	1	42	14	62p
93	R22	F1.1	C1-C2	A trefoil flagon rim.	1	100	9	61m
94	R22	CJ1.1	Romano-British	A constricted neck jar with a thickening, rising rim.	1	100	10	61d
95	R22	J1.2	Romano-British	A jar or constricted-necked jar with a stubby horizontal rim with a cordon below.	1	24	11	62q
96	R22	J2.3	Romano-British	A jar with an everted rim	2	26	11.5	61i
97	R22	J3.1	Romano-	A necked jar with an everted	1	15	17	62m

			British	thickened rim with cordon on rim.				
98	R23	CJ1.1	Romano-British	A necked constricted-necked jar with a sub-beaded rim.	1	9	10	62j
99	R23	J2.2	Romano-British	A necked jar with a beaded rim.	1	11	12	62e
100	R23	B1.1	Romano-British	A curving walled carinated bowl with a small everted rim.	1	35	12	61q
101	R23	B2.1	C2+	A Dr 38 copy bowl.	1	25	15	62s
102	R25	D1.1	Hadrianic-Antonine	A groove rimmed dish with a chamfered base.	1	7	19	62f
103	R26	B1.1	Hadrianic-Antonine	A flange rimmed bowl.	1	26	24	61j

Class S, Samian wares, 1.6%

A3.102 The samian assemblage is discussed separately (A3.137 - 165).

Class W, whitewares, 0.7% (Fig A63)

A3.103 Whitewares amount to only 0.7% of the whole assemblage by count. Three fabrics are represented. W01 and W02 are probably of 1st or 2nd century date. W03 is Crambeck parchment ware (Evans 1989) in which a single form is represented, a bowl of Corder's (1936) type 9.

Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
104	W03	B1.1	350-420	A reeded collared bowl, Corder (1936) type 9.	1	15	20	63a

Class Z, Anglian pottery (Fig A63)

A3.104 Form catalogue

No	Fabric	Form	Period	Description	MV	RE	RD Avg	Fig.
105	Z11	J5.2	C5-C7	A jar/ bowl with a vertical rim and carinated sides	1	22	12	63g
106	Z11	J5.1	C5-C7	A barrel jar with a simple rim	10	54	17.1	
107	Z11	J3.2	C5-C7	A jar with an everted stubby straight rim.	4	27	18.5	
108	Z11	J1.1	C5-C7	A jar with an insloping wall and rising near vertical rim.	7	40	18.71	
109	Z11	J2.1	C5-C7	A jar with an everted outturning rim	7	33	18.86	
110	Z11	J3.1	C5-C7	A jar with an everted cordoned rim	1	4	19	
111	Z11	J6.1	C5-C7	A jar with a simple fairly vertical tapering rim	1	4	20	63i
112	Z11	J4.1	C5-C7	A jar/bowl with a hooked rim	1	9	24	63d
113	Z11	B1.1	C5-C7	A simple rimmed bowl or dish	1	7	18	63e

Anglian pottery stamps

A3.105 'Die' means the actual piece of carved bone, wood, (possibly) chalk or metal used to make the impression. Where stamps are described as 'like', it means they have been made with the same die. A closing bracket after size and pot type definition indicates the presence of more than one stamp motif.

A3.106 The site has produced sherds displaying nine different motifs as listed in the

catalogue.

A3.107 **Category A** includes all circular stamps. These are by far the most common stamps from the Early Medieval Period, representing well over half the total identified motifs.

A 1bi describes a negative ring. This is a very common stamp with a very wide distribution and, as such, is completely undiagnostic. There are two local examples: one from Scorton (7 x 6mm) and one of the two sub-variations of this stamp has been found at Catterick.

A 1ci describes a simple positive circle. This is a common stamp with over a hundred examples in the Archive, and with a very wide distribution. As such, it is of little use for diagnostic purposes. Locally, Myers illustrates a pot from Catterick with an A 1ci stamp (estimated 7.5 x 7.5mm), but the Archive has not managed to obtain a cast of it. Otherwise, there are no local examples.

A 2bi describes a positive dot-in-circle where the dot is smaller than in the A 2ai category. This is a very common stamp, with a very wide distribution. As such, it is of little use for diagnostic purposes. Locally there appears to be an example on a pot (IB04 / 268A) from High Leven, which lies to the south of Ingleby Barwick, but only photos of this pot have been examined and no cast of the stamps has been made.

A 3ai describes a negative grid of 3 x 3 squares. It is common (102 examples in the Archive), and is widely distributed, including examples from the continent. As such, it is of little use for diagnostic purposes. However, in my opinion, both these stamps were made by the same die – it is unusual to be able to identify dies for this motif, but this one has sufficiently clear characteristics for me to be prepared to identify them as the same.

A 4ai describes the ‘hot-cross-bun’ stamp, which is the most common of all Anglo-Saxon motifs. This is an extremely common stamp and has an extremely wide distribution. As such, it is of very little use for diagnostic purposes. Locally there appears to be two different examples on a pot (IB04 / 268A) from High Leven, which lies to the south of Ingleby Barwick proper, but only photos of this pot have been examined and no cast of the stamps has been made. There are also examples from Scorton and Catterick.

A3.108 The **A 5a** type comprises the rosette stamps which are one of the most common groups.

A 5aiii describes a circular positive rosette stamp. There are 36 examples in the Archive, making it an uncommon stamp. Most of these come from East Anglia or around Cambridge, but they are found as far north as Sancton, Yorks, and also on the continent. There are no local examples.

A3.109 **Category D** covers the oval stamps. This is a small category and comparatively unusual.

D 1bi describes a negative oval divided down the centre by a positive bar. It is an uncommon stamp with only 27 examples recorded in the Archive, but with a wide

distribution. The motif has a definite connection to Lincolnshire and the Trent Valley with 14 examples recorded from four sites, including eight from Loveden Hill, Lincs. There appear to be four examples from South Elkington, Lincs, but this is based on identification from publications, not from casts. Other examples come from Sancton, Yorks (3); Spong Hill, Norfolk (4); West Stow, Suffolk (2); Girton, Cambs (1); Manor Farm, Harmondsworth, Middlesex (1); Long Wittenham, Berks (1); and Lechlade, Glos. (1).

- A3.110 **Category H** covers the ‘S’, ‘Z’ and figure-of-eight stamps (left-facing refers to what can be seen on the pot, so the die would be right-facing, and vice versa). It should be noted that left- and right-facing stamps must be made by different dies; they cannot be made by turning the die upside-down.

The **H 1b** type comprises the outlined ‘S’ and ‘Z’ shapes. **H 1biii** describes an open-ended, left-facing S-shape, characterised by somewhat more curved angles on the bends. There are only 20 stamps recorded in this variety, making it a rare stamp. The closest in style come from Newark, Notts (9 x 6mm) and two from Spong Hill (9 x 5mm). There are also two stamps from different sites in Northamptonshire (Kettering and Barton Seagrave) that show similar characteristics. The closest in location comes from The Mount in York, but is a quite different design to this stamp. The High Leven pot (see A 4ai above) has an H stamp, but it is an H 1bii% and is quite different to this stamp.

- A3.111 **Category O** covers all indecipherable stamps, which are, of their nature, undiagnostic. It is sometimes possible to make a guess at what the stamp might have been, but not with this example.

Catalogue of stamp types indentified from the Quarry Farm assemblage

Briscoe Type	Size in mm	Pot Type	Archive Number	Fig.
A 1bi	5.5 x 5	Sherd	001	64l
A 1bi	10 x 9.5?	Sherds x 2	002	64j
A 1ci	5 x 5.5	Sherds x 2	003	64c
A 2bi	13? x 12	Sherd	004	64h
A 3ai	7 x 7.5	Rim sherd	005	64k
A 3ai	7 x 7.5	Sherd	006	64a
A 4ai	10 x 10	Sherd/small biconical?	007	
A 5aiii	6.5 x 6	Sherd	008	64d
D 1bi	8 x 5.5	Sherd	009	64b
H 1biii	6 x 11	Sherd	010	64e
O	6 x 5.5	Sherd	011	64f

Characterisation Studies of some Romano-British and Anglo-Saxon Pottery

Thin Section Analysis

- A3.112 Thin sections of each sample were produced by Steve Caldwell, University of Manchester, and stained using Dickson’s method (Dickson 1965).

Fabric G11 (V4008 and V4009)

- A3.113 The two sections show a fabric containing ill-sorted inclusions varying in type, size and roundness. The following inclusion types were noted:

Quartz Abundant grains ranging from about 0.2mm to 1.0mm across. The majority are between about 0.2mm and 0.3mm across and are subangular. Sparse well-rounded grains ranging from about 0.2mm to 1.0mm across are present and the majority of these have a high sphericity. Grains with one or more straight faces, indicative of overgrowth are also present but sparse and range from about 0.3mm to 1.0mm across.

Sandstone Moderate angular and subangular fragments, ranging from about 0.3mm to 4.0mm across. The inclusions are well-sorted, about 0.2mm to 0.3mm, and consist of quartz with a small quantity of fresh plagioclase feldspar and muscovite laths up to 0.3mm long and about 0.05mm wide. The grains are mostly interlocking with no visible cement but pores within the rock are partially filled with kaolinite. The remainder of the pore is either a void or filled with brown clay minerals, possibly after burial.

Muscovite Sparse laths up to 0.3mm long and 0.05mm wide.

Clay/iron Sparse rounded dark brown to opaque inclusionless grains up to 1.0mm long.

Chert Sparse rounded grains up to 0.5mm across.

Igneous rock Moderate rounded grains varying in composition but mostly of basic igneous character. One consists of a dark brown amorphous groundmass and euhedral plagioclase laths up to 0.2mm long. Another consists of interlocking altered plagioclase feldspar and sparse quartz grains and several consist of a groundmass of plagioclase laths up to 0.1mm long and altered glass.

Plagioclase feldspar Sparse fresh angular grains up to 0.5mm long.

Siltstone Sparse rounded grains up to 1.0mm across consisting of quartz and amorphous brown grains in a silica cement.

Organics Sparse carbonised inclusions up to 1.5mm long and 0.2mm wide.

A3.114 The groundmass consists of optically anisotropic baked clay minerals, sparse angular quartz up to 0.1mm across and sparse muscovite laths up to 0.1mm long.

A3.115 The inclusions clearly include detrital grains, such as the coarser overgrown quartz and chert (both probably from Carboniferous sources), rounded quartz (Permo-Triassic) and igneous rock (Erratics of glacial origin). However, the majority of the inclusions are probably derived from the sandstone. The lack of rounding of some of the sandstone fragments and the frequency of these inclusions suggests that this rock was closest to the source of the fabric. A fluvio-glacial source is evident and this places the source of the sand or boulder clay to the south or west of the Permian outcrop. All of these features could be found in the local boulder clay.

A3.116 A similar fabric has been recorded in the Roman period at Piercebridge, where it was used in the 3rd century to produce coarse handmade jars (Cooper and Vince 2008, Nos. 7 and 12, Samples V1459 and V1461).

Fabric G41 (V4010 and V4011)

A3.117 The two samples of Fabric G41 have the same ill-sorted texture as Fabric G11 but the inclusions are clear different. The following inclusion types were noted:

Quartz Abundant subangular grains, ranging from about 0.1mm to 1.0mm across. The finer grains are extremely angular.

Feldspar Sparse microcline and perthite ranging from about 0.2mm to 0.5mm across.

Chert Sparse rounded grains ranging from about 0.1mm to 1.0mm across.

Sandstone Sparse subangular fragments of sandstone, ranging from about 0.3mm to 1.5mm across. The sandstones vary in texture but including some with a similar texture to the dominant type in G11 as well as coarser-grained sandstones with an ill-sorted sand and a mixture of amorphous brown cement and kaolinite.

Muscovite Sparse laths up to 0.2mm long.

Siltstone Sparse rounded fragments varying in texture and having a brown fine-grained groundmass and abundant angular quartz silt. Examples with mean grain sizes of about 0.05mm and about 0.1mm are present.

Voids Sparse subangular voids, probably originally holding calcareous inclusions.

Organics Sparse carbonised inclusions up to 1.0mm long and about 0.2mm wide.

- A3.118 The groundmass consists of optically anisotropic baked clay minerals, mostly masked by carbon except at the oxidized margins, sparse angular quartz and sparse dark brown clay/iron grains up to 0.1mm across. Isotropic pale brown phosphate fills some laminae and voids (including probably pores within some of the sandstone fragments) and is probably a post-burial concretion.
- A3.119 As with Fabric G11, the inclusions in this fabric are probably from a detrital sand of fluvio-glacial origin. There are numerous differences in the suite of rocks and minerals present and in particular no rounded igneous erratic grains. The sandstone and siltstones include examples which are probably of Coal Measures origin but the coarser quartz grains and feldspars are probably from the Millstone Grit. The lack of obvious Permo-Triassic quartz means that a source north or west of the Permian outcrop is possible, although many of the coarse gravel-tempered samples found in the Vale of York, and probably made in that area, also contain no Permo-Triassic quartz, or at best rare grains.
- A3.120 The petrographic composition of the fabric therefore distinguishes it from Fabric G11 and is less clearly tied to the Tees valley area. Nevertheless, a local source is still possible.

Fabric Z11 (V4012-15)

- A3.121 Two fabrics are present in the four thin sections. The first (V4012, V4013 and V4015) contains abundant angular quartzose sand with the majority of grains ranging from about 1.0mm to about 3.0mm across whilst the other, V4014, contains a fine quartz sand with sparse larger subangular and rounded inclusions.

Subfabric 1 (V4012, V4013 and V4015)

- A3.122 The following inclusion types were noted:
- Quartz/Sandstone. Moderate subangular grains ranging from about 0.3mm to 2.0mm across. Several are polycrystalline and strained. Most have one or more straight facets and several have kaolinite cement adhering.
- Feldspar. Sparse altered feldspar, similar in size and character to the quartz grains described above.
- Acid igneous rock A single angular fragment 0.5mm across composed of an opaque accessory mineral, biotite and quartz. Also some rock fragments consisting of quartz and altered feldspar, of similar size and shape to the quartz/sandstone grains described above.
- Quartz Moderate subangular to rounded grains about 0.1mm to 0.2mm across.
- Chert Sparse light brown angular grains up 1.0mm across.
- Muscovite Sparse laths up to 0.3mm long.

Biotite Sparse laths up to 0.3mm long, partially altered to a dark brown/opaque material around the edges.

Organics Sparse carbonised inclusions up to 1.0mm long and 0.2mm wide.

A3.123 The groundmass consists of optically anisotropic baked clay, mostly obscured by carbon except at the oxidised surfaces, abundant angular quartz up to 0.1mm across, moderate muscovite laths up to 0.1mm long.

A3.124 These three sections have a very similar composition to early Anglo-Saxon vessels from various sites in the Vale of York, ranging from Piercebridge in the north to Heslington Hill, near York, in the south. It is suggested that the texture is due to the use of a late glacial/post-glacial lacustrine silt with coarse fluvio-glacial gravel added. The larger inclusions probably all originated to the north and west of the Vale of York: the sandstone is probably an arkose (feldspathic sandstone) whilst the biotite and acid igneous rock fragment is probably from southwest Scotland or the Lake District, brought south by ice crossing the Stainmore gap.

A3.125 Very similar fabrics occur from sites at the northern and southern extremes of this distribution and thin sectioning cannot determine whether they come from a single source or were made in several centres.

Subfabric 2 (V4014)

A3.126 The following inclusions were noted:

Basic igneous rock Moderate subangular fragments ranging from about 0.3mm to 2.0mm across. The fragments all have a similar texture and lithology and include light green, slightly pleiochroic pyroxene crystals up to 1.0mm long in a groundmass of laths of plagioclase feldspar, euhedral opaque grains and amorphous brown material.

Quartz Abundant angular to subangular grains ranging from about 0.05mm to 0.2mm across.

Clay/iron Sparse rounded dark brown grains up to 1.0mm across.

A3.127 The groundmass consists of optically anisotropic dark brown baked clay minerals and sparse angular quartz up to 0.1mm across.

A3.128 Unlike basic igneous rock-tempered vessels of prehistoric and early Roman date, the basic rock inclusions in this fabric are clearly weathered, albeit only slightly, and are therefore detrital grains. Such rocks occur as erratics in boulder clays throughout the Vale of York and even occur in isolated patches of boulder clay in the Trent valley. Nevertheless, they are more common on sites in the Tees valley, Vale of Pickering and East Yorkshire and have not been noted on early Anglo-Saxon sites in the Vale of York south of Catterick where fabrics similar to Subfabric 1 predominate.

Chemical analysis

A3.129 Off-cuts of about 1-2gm were taken from each submitted vessel and the outer surfaces mechanically removed. The remainder of the sample was crushed to a fine powder and submitted to Royal Holloway College, London, where the chemical composition was determined using Inductively-Coupled Plasma Spectroscopy (ICPS). A range of major elements was measured and expressed in percent oxides (Table A4.48) and a range of minor and trace elements was measured and expressed as parts per million (Table A4.49). Silica was estimated by subtracting the total percent oxides from 100%. The various fabric groups have mean silica contents

ranging from 72.9% (Z11 subfabric 2) to 74.8% (Z11 subfabric 1) but all are within the 95% confidence level of the mean value, 73.78 \pm 0.98%.

- A3.130 The elemental data was then normalised to aluminium and the various fabric groups compared. The normalised data were then examined visually and in eleven cases there are differences in the ranges of the elements between fabric groups. However, with no more than 3 samples in any group, and only one in one group, such differences would be expected if the samples all came from the same statistical population with element values having a normal distribution within that group. It may be for this reason that Z11 subfabric 2, with only one sample, has the greatest number of differences between its composition and the remainder.
- A3.131 The data were then examined using factor analysis, omitting calcium, phosphorous and strontium, all of which are affected by leaching and post-burial concretion. The analysis was carried out using WinStat for Excel (Fitch 2001) and five factors with eigenvalues over 1.0 were found. A bi-plot of the first two factors (Table A4.41) indicates that the F2 score of Z11 subfabric 2 distinguishes it from the remainder whilst there is no difference in either F1 or F2 scores between the other fabrics. A bi-plot of the F3 and F4 scores (not illustrated) shows no differences between the various groups. Factor 5 separates Z11 subfabric 1 from Z11 subfabric 2 and both of these groups from G11 and G41. Table A4.43 shows the weightings of the various elements contributing to the F2 and F5 scores. This factor analysis therefore confirms the distinctive character of the Z11 subfabric 1 sample and suggests that Z11 subfabric 1, Z11 subfabric 2 and G11/G41 were made from different raw materials.
- A3.132 The Ingleby Barwick samples were then compared with the two Piercebridge Roman “native ware” samples that contain similar sandstone inclusions to those in G11. Again, factor analysis found 5 significant factors, but bi-plots of F1 against F2, and F3 against F4 showed no obvious patterning. Factor 5, however, distinguished the Z11 subfabric 2 sample from the remainder. This analysis is consistent with the Piercebridge and Ingleby Barwick G11 samples coming from the same source (or at least exploiting chemically indistinguishable raw materials).
- A3.133 The Ingleby Barwick data were finally compared with a series of analyses of sandstone-sand tempered early Anglo-Saxon vessels of similar character to Z11 subfabric 1 (Table A4.40). Factor analysis found five significant factors and a bi-plot of the first two factors (Table A4.46) indicates that the F2 scores separate a group of Piercebridge vessels from the remainder and that three of the Ingleby Barwick samples also have high F2 scores. However, in general the Piercebridge samples are so variable in composition that they mask any other detail. Consequently the analysis was repeated omitting the Piercebridge data.
- A3.134 Factor analysis again found five significant factors, none of which clearly separated any of the groups apart from Z11 subfabric 2, which has a higher F3 score than any of the remainder. In bi-plots of F1 against F2, and F3 against F4 and F3 against F5 (of which the latter is published here, Table A4.46), the Ingleby Barwick samples mainly occupy the same areas of the plot, indicating that the Roman and Anglo-Saxon Ingleby Barwick sherds are more similar to each other than to the early Anglo-Saxon sandstone-tempered sherds from other sites. Examination of Table A4.46, suggests that the West Lilling, Catterick and Scorton samples have discrete sources whilst the Norton samples have similar scores to Scorton. However, in this

graph the various Ingleby Barwick samples fall centrally, an area of the graph occupied by samples from York and Scorton.

Ceramic artefacts

- A3.135 **SF 225 (Fig A64m)** *Context 977, Phase 3b: D 53, T 24mm.* Irregular bi-conical ceramic spindle whorl, D-shaped in section. The upper surface is thicker and more conical than the lower, with finger impressions remaining from manufacture particularly on the lower surface. The central perforation may have been produced by forming the object around a cylindrical rod (D 11.5mm).
- A3.136 **SF 226 (Fig A64n)** *Unstratified: D 45, T 7.5mm.* Flat disc-shaped spindle whorl made from a reused Roman potsherd; white gritty fabric with blue-grey surfaces. Central biconical perforation (7-12mm D).

Samian

Catalogue (Fig A65)

- A3.137 The catalogue lists all samian sherds from the excavations. The catalogue adheres to a consistent format. Sherds are listed in context number order, then the following data are given: the number of sherds and their type (ie. whether a sherd is from the rim, base (footring) or body of a vessel), the source of the item (Central Gaulish is abbreviated to CG and East Gaulish to EG), the vessel form (where identifiable), the weight of the sherds in grams, the percentage of any extant rim (ie. the RE figure, where 1.00 would represent a complete circumference) or base (ie. the BE figure) and the rim and base diameters, and an estimate of the date of the sherd in terms of calendar years (this being the date range of deposits with which like pieces are normally associated). Any decoration is then described. The presence of other features such as burning, repair, trimming and wear was also looked for and is noted where observed.
- A3.138 In order to arrive at reliable dates for samian sherds it is necessary to record and consider all aspects of their typology (eg. fabric, form, vessel size, decoration, gloss surface, etc.). Since these aspects are essential elements, and were recorded in ascertaining the dates of individual sherds, these data are recorded fully here in the catalogue.

Context 2 (Fig A65b)

- A3.139 Body, EG Rheinzabern, Drag. 31, 16g, about AD 165-240. The underside of the vessel floor, within the area of the now absent footring is worn suggesting that this vessel had had a second use, inverted, following an original breakage. A stamp occurs reading 'QVARTINVSF' being a stamp of Quartinus of Rheinzabern, specifically an example of his Die 1a in the Leeds Corpus. Two examples of this stamp occur amongst the late samian from New Fresh Wharf (St Magnus House), both on Drag. 31 (Dickinson 1986, 194).

Context 3

- A3.140 Body, CG Lezoux, form not identifiable, 1g, about AD 120-200.

Context 63

- A3.141 Base, CG Lezoux, Curle 23, 29g, BE: 0.20, Diam. 100mm, about AD 140-200. The footring is worn, while the interior floor of the vessel also appears somewhat worn.

Context 129

- A3.142 Base, CG Lezoux, Drag. 31, 20g, BE: 0.20, Diam. 90mm, about AD 150-200. Worn base. This item has been trimmed round at the junction of the vessel floor and the (outer) footring with the circumference of the break having been smoothed.

Context 221

- A3.143 Body, CG Lezoux, form not identifiable, 1g, about AD 120-200. A part of an abraded and unidentifiable stamp is represented apparently reading: 'V[^o].

Context 233 (Fig A65a)

- A3.144 Body, EG Rheinzabern, Drag. 37, 2g, about AD 180-250. A small area of decoration occurs. Three sherds from the same vessel were present in context 236 and further description is given under context 236 heading.

Context 236 (Fig A65a)

- A3.145 Body, CG Lezoux, Drag. 37, 6g, about AD 120-200. A small area of undiagnostic decoration is present from low down on the decorated band; above a plain band border defining the decorated zone are the tail and hind legs of an apparent dog running to the left (cf. O.1914B (Oswald 1936-7) but to left) to the right of the dog a part of an abraded leaf occurs, seemingly a fragment from a larger motif of Rogers' H series (Rogers 1974).

Body, CG Lezoux, from a dish or bowl, 9g, about AD 120-200.

Three body sherds, all same vessel, EG Rheinzabern, Drag. 37, 28g, about AD 180-250. A further sherd from the same vessel occurs in context 233. The decoration (along with that occurring on the sherd from context 233) indicates a bowl of the 'Ware mit Eirstab E.25.26' style (Ricken and Fisher 1963; cf. Ricken and Ludowici 1948, Taf. 114, Nos 13-7); part of the ovolo band occurs and although not particularly distinct appears to be LRF. E26; the decorative scheme includes vertical arrangements of the poppy-head LRF.P116 with a cuneiform leaf as lower terminal and of the bifid leaf LRF.P145; the latter is also employed to define a basal wreath.

Context 264

- A3.146 Body, CG Lezoux, form not identifiable, 1g, about AD 120-200.

Context 271

- A3.147 Body, CG Lezoux, Drag. 31, 2g, about AD 150-200.

Context 287

- A3.148 Rim, CG Lezoux, Drag. 33, 1g, RE: 0.08, Diam. 130mm, about AD 120-200.
Body, CG Lezoux, probably Drag. 31R, 8g, about AD 160-200.

Context 294

- A3.149 Rim, CG Lezoux, Drag. 37, 15g, RE: 0.07, Diam. 210mm, about AD 120-200. No decoration is represented.

Context 419

- A3.150 Rim, CG Lezoux, Drag. 31, 17g, RE: 0.07, Diam. 190mm, about AD 150-200. The rim is worn.

Context 492

- A3.151 Rim, CG Lezoux, Drag. 33, 14g, RE: 0.20, Diam. 110mm, about AD 120-200. (The rim has a bevelled exterior edge as occasionally occurs with this form, in contrast with the standard plain rounded terminal).
Rim, CG Lezoux, Drag. 37, 13g, RE: 0.07, Diam. 180mm, about AD 140-200. Part of the ovolo band occurs; this is poorly defined but resembles Rogers B162 (Rogers 1974) or perhaps Cinnamus II's ovolo type 3 (Stanfield and Simpson 1958, fig. 47 No. 3) with a double border, central projection, and straight, square ended tongue.
Body, CG Lezoux, Drag. 31, 1g, about AD 150-200.
Base, CG Lezoux, Drag. 31R, 32g, BE: 0.21, Diam. 100mm, about AD 160-200.
Worn base. Has evidently been clipped round at the junction of the footring and the vessel floor.
Rim, EG Rheinzabern, Ludowici Ti', 12g, RE: about 0.04, Diam. ? about 210mm; about AD 220-260.

Context 570

- A3.152 Body, CG Lezoux, Drag. 31, 1g, about AD 150-200.

Context 668

- A3.153 Rim, CG Lezoux, probably Drag. 31R, 4g, RE: about 0.03, Diam. uncertain, about AD 160-200. The rim is worn.

Context 703

- A3.154 Base, CG Lezoux, Drag. 37, 27g, BE: 0.18, Diam. 100mm, about AD 120-200. The footring is worn. No decoration is represented.
Body, CG Lezoux, Drag. 31, 8g, about AD 150-200.
Body, probably EG Rheinzabern, Drag. 33, 7g, about AD 160-230.

Context 763

- A3.155 Body, CG Lezoux, Drag. 18/31, 5g, about AD 120-150. Has been trimmed round at the junction of the vessel floor and wall, with the break consistently smoothed.

Context 806

- A3.156 Body, CG Lezoux, probably Drag. 31, 1g, about AD 150-200.

Context 822

- A3.157 Base, CG Lezoux, Drag. 33, 2g, BE: about 0.01, Diam. uncertain, about AD 120-200.

Context 841

- A3.158 Body, CG Lezoux, Drag. 18/31, 5g, about AD 120-140.

Context 882

- A3.159 Rim, CG Lezoux, Drag. 31, 6g, RE: about 0.03, Diam. uncertain, about AD 150-200.

Context 927

- A3.160 Rim, EG Rheinzabern, Drag. 31, 10g, RE: 0.06, Diam. 190mm; about AD 160-230.

Context 977

- A3.161 Body, CG Lezoux, Drag. 31, 11g, about AD 170-200.

Context 1195

A3.162 Body, CG Lezoux, Drag. 31R, 25g, about AD 160-200.

Context 1314

A3.163 Body, CG Lezoux, from a bowl or dish, 4g, about AD 120-200.

Context 1416

A3.164 Body, CG Lezoux, Drag. 37, 27g, about AD 120-200. A small area of decoration is represented; the lower margin of the decorated band is defined by a plain ridge and above occurs a large double ring medallion; no other details are extant.

Unstratified

A3.165 Body, CG Lezoux, large Drag. 33, 5g, about AD 120-200.

Body (flange fragment), CG Lezoux, Drag. 38, 7g, about AD 130-200.

Base, CG Lezoux, Drag. 30, 81g, BE: 0.43, Diam. 90mm, about AD 140-200. Not stamped; no decoration is represented. The footring is worn.

Rim, CG Lezoux, Drag. 33, 2g, RE: about 0.06, Diam. about 110mm, about AD 140-200.

Body (essentially a chip from a comparatively large vessel), CG Lezoux, form not identifiable, 1g, about AD 140-200.

Base, CG Lezoux, Drag. 31, 71g, BE: 0.36, Diam. 90mm, about AD 150-200. Part of a retrograde stamp occurs reading 'JVS' (but retrograde). The footring is worn.

Body, EG Rheinzabern, Drag. 31, 4g, about AD 160-230.

Coins

A3.166 **Coin 1 (SF 40)** *Context 1447, Phase 5a, MDF, XR 5134*

Ruler: Trajan

Denomination: Sestertius

Catalogue ref: RIC 663

Obverse: IMP CAES NER TRAIANO OPTIMO AVG GER DAC PARTHICO PM
TRP COS VI PP

Reverse: [PROVIDENTIA AVGVSTI] SC

Date of issue: AD 114-17

Mint: Rome

Condition: W/VW

Diameter: 34 mm

Weight: 21.6 g

Die-axis: 6

A3.167 **Coin 2** *unstrat, MDF N, XR 5134*

Ruler: Septimius Severus

Denomination: Denarius

Catalogue ref: RIC 86

Obverse: L SEPT SEV PE-RT [AVG IMPVIII]

Reverse: [PM TRP] IIII COS II PP Victory advancing l.

Date of issue: AD 196-97

Mint: Rome

Condition: SW/W

Diameter: 17.5 mm

Weight: 2.4 g

Die-axis: 12

- A3.168 **Coin 3** *unstrat, MDF P, XR 5134*
Ruler: Claudius II
Denomination: 'Antoninianus'
Catalogue ref: RIC 14/15
Obverse: [IMP(C) CLAV]DIVS AVG
Reverse: [AEQVITAS] AVG
Date of issue: AD 268-70
Mint: Rome
Condition: W/SW
Diameter: 18 mm
Weight: 1.6 g
Die-axis: 6
- A3.169 **Coin 4** *unstrat, MDF K, XR 5134*
Ruler: Victorinus
Denomination: 'Antoninianus'
Catalogue ref: RIC 71
Obverse: [IMP C VICTO]RINVS PF AVG
Reverse: SALVS [AVG]
Date of issue: 268-70
Condition: SW/W
Diameter: 17 mm
Weight: 2.7 g
Die-axis: 7
- A3.170 **Coin 5** *Context 492, Phase 7, XR 5135*
Ruler: 'Tetricus I'
Denomination: 'Antoninianus'
Catalogue ref: c. as RIC 68 etc.
Obverse: [I]MP C T[ETRICVS..AVG]
Reverse: -
Date of issue: AD '270-73'
Condition: SW/C
Diameter: 17.5 mm
Weight: 1.6 g
Die-axis: ?
- A3.171 **Coin 6** *unstrat, MDF M, XR 5134*
Ruler: Constantine I
Denomination: 'Follis'
Catalogue ref: RIC 6 LN 265
Obverse: CONSTANTINVS [PF AVG]
Reverse: PRINCIPI IVVENTVTIS
Mint-mark: [*]/[PLN]
Date of issue: AD late 312/313
Mint: London
Condition: VW/VW
Diameter: 23 mm
Weight: 4.3 g
Die-axis: 6

- A3.172 **Coin 7** *Context 1461, Phase 5b, MDF R, XR 5134*
Ruler: Constantine I
Denomination: -
Catalogue ref: RIC 7 LN 156
Obverse: IMP CONSTANTI-NVS AVG
Reverse: VICTORIAE LAETAE PRINC PERP VOT/PR
Mint-mark: PLN
Date of issue: AD 319
Mint: London
Condition: W/SW
Diameter: 18 mm
Weight: 2.1g
Die-axis: 6
- A3.173 **Coin 8** *Context 562 (fill of pit F698), Phase 5d, XR 5134*
Ruler: Constantine I
Denomination: -
Catalogue ref: RIC 7 LG 242, HK 184
Obverse: VRB[S ROMA]
Reverse: Wolf and Twins
Mint-mark: PLG
Date of issue: AD 330-31
Mint: Lyon
Condition: ?W/W
Diameter: 15.5 mm
Weight: 0.9 g
Die-axis: 12
- A3.174 **Coin 9** *unstrat, MDF Q, XR 5134*
Ruler: Constantine I
Denomination: -
Catalogue ref: RIC 7 TR 548, HK 71
Obverse: CONSTAN-[T]INOPOLIS
Reverse: Victory on prow
Mint-mark: TRP*
Date of issue: AD 332-33
Mint: Trier
Condition: W/W
Diameter: 18 mm
Weight: 1.6g
Die-axis: 12
- A3.175 **Coin 10** *unstrat, MDF J, XR 5134*
Ruler: Magnentius
Denomination: -
Catalogue ref: as RIC 8 AM 41, CK 20
Obverse: [DN MAGNENT-TIVS PF AVG] (legends and edges abraded away)
Reverse: [SALVS DD NN AVG ET CAES]
Mint-mark: -
Date of issue: AD 353
Mint: -
Condition: SW/SW

Diameter: 25.5 mm
Weight: 2.9 g
Die-axis: 12

A3.176 **Coin 11:** *Context 238, Phase 5b, SF 2, XR 5135*

Ruler: 'Constantius II'
Denomination: -
Catalogue ref: c. as RIC 8 TR 359, CK 76
Obverse: [DN CONSTANTIVS PF AVG]
Reverse: [FEL TEMP REPARATIO] FH3
Date of issue: AD '353-58'
Condition: SW/SW
Diameter: 13 mm
Weight: 0.6 g
Die-axis: 6

A3.177 **Coin 12** *Context 369, Phase 5a, XR 5135*

Ruler: 'Constantius II'
Denomination: -
Catalogue ref: c. as RIC 8 TR 359, CK 76
Obverse: [DN CONSTANTIVS PFAVG]
Reverse: [FEL TEMP REPARATIO] FH3
Date of issue: AD '353-58'
Condition: SW/C
Diameter: 9.5 mm
Weight: 0.5 g
Die-axis: 6?

A3.178 **Coin 13** *unstrat, MDF T, XR 5134*

Ruler: probably 'Constantius II'
Denomination: -
Catalogue ref: c. as RIC 8 TR 359, CK 76
Obverse: [DN CONSTANTIVS PF AVG]
Reverse: [FEL TEMP REPARATIO] FH3
Date of issue: 4th century AD, probably '353-58'
Condition: C/C
Diameter: 13.5 mm
Weight: 0.7 g
Die-axis: 12?

A3.179 **Coin 14** *Context 273, Phase 5a, XR 5135*

Ruler: Valentinian I
Denomination: -
Catalogue ref: as CK 484
Obverse: [DN VALENTINI]-ANVS PFAVG
Reverse: [GL]ORIA RO-MANORVM
Mint-mark: OF/III/[CON-]
Date of issue: AD 364-75
Mint: Arles
Condition: SW/SW
Diameter: 17.5 mm
Weight: 1.8 g

Die-axis: 11

- A3.180 **Coin 15** *unstrat, MDF U, XR 5134*
Ruler: Gratian
Denomination: -
Catalogue ref: CK 505/529
Obverse: [DN GRATIANVS AVGG AVG]
Reverse: [GLORIA NO-VI SAECVLI]
Mint-mark: [PCON-]
Date of issue: AD 367-75
Mint: Arles
Condition: W/W and edges abraded
Diameter: 14.5 mm
Weight: 1.5 g
Die-axis: 12
- A3.181 **Coin 16** *unstrat, MDF S, XR 5134*
Ruler: Theodosius I
Denomination: -
Catalogue ref: as CK 565
Obverse: [DN THE]ODO-[SIVS PF AVG]
Reverse: [VICTORIA AVGGG]
Mint-mark: -
Date of issue: AD 388-95
Mint: -
Condition: W/W
Diameter: 12 mm
Weight: 0.9 g
Die-axis: 6
- A3.182 **Coin 17 (SF 6)** *Context 236, Phase 5d, , XR 5135*
Ruler: House of Theodosius
Denomination: -
Catalogue ref: as CK 1107
Obverse: -
Reverse: [SALVS REIPV]BLI[CAE]
Mint-mark: AQP
Date of issue: AD 388-402
Mint: Aquileia
Condition: SW/SW
Diameter: 12 mm
Weight: 1.0 g
Die-axis: 6
- A3.183 **Coin 18** *unstrat, MDF V, XR 5134*
Ruler: House of Theodosius
Denomination: -
Catalogue ref: as CK 797
Obverse: -
Reverse: SALVS REIPVBLICAE (2)
Mint-mark: -
Date of issue: AD 388-402

Mint: -
Condition: W/W
Diameter: 11.5 mm
Weight: 1.0 g
Die-axis: 12

A3.184 **Coin 19** *unstrat, MDF W, XR 5134*

Ruler: Henry III (AD 1216-73)
Denomination: Long cross penny (type produced AD 1247-79)
Catalogue ref: North 991, type 5a
Obverse: HENRICUS REX III Crowned head facing, sceptre in left hand
Reverse: HENRI ON LUNDE Long cross voided, 3 pellets in each angle
Moneyer: Henri
Date of issue: 1251-72
Mint: London
Condition: W/W
Diameter: 17.5 mm
Weight: 1.3 g

A3.185 **Coin 20** *unstrat, MDF L, XR 5134*

Identification: A small copper alloy disc: a button or similar.
Diameter: 19mm
Weight: 2.9 g

A3.186 **Coin 21** *unstrat, MDF O, XR 5134*

Identification: A heavily-leaded patterned disk: a button or similar.
Diameter: 22 mm
Weight: 4.3 g

Non-ferrous metalwork

- A3.187 All Roman-period and Anglo-Saxon copper alloys were analysed by Andrea Hamilton and Lore Troalen using semi-quantitative surface X-ray fluorescence analysis; while this is affected by corrosion of the surface, it gives a good indication of the general alloy type. Some objects were also examined by scanning electron microscope; observations from this are incorporated in the descriptions. Technical observations made during conservation by Jennifer Jones are also incorporated in the descriptions, marked by her initials (JAJ). All dimensions are in millimetres. With finds not from a secure context, only those identifiable on typological grounds as likely to be medieval or earlier are included. Items coded 'MDF' for their context are metal-detecting finds. Illustrated items are marked with an asterisk.

Copper Alloy

Ornaments

- A3.188 **SF 1 (Fig A66a)** *Context 1461=1273, Phase 5b: L 69 (with headloop), W 25, H 27mm.* Headstud brooch, with integral one-piece spring, separate headstud, foot and head loop; intact apart from recent damage. Plain flat bow with slight central channel; three steps on the arms; tang on foot (L 6, D 3mm) to hold a lost terminal, presumably similar to the headstud. This is separately riveted, with enamelled decoration of a central dot (?yellow) and surrounding ring of red; the edge of the stud has a bipartite moulding. The eight-coil spring has a rolled sheet cylindrical axis and an external chord held by a ribbed hook. The headloop is inserted into the

spring, and clamped by a triple-ribbed collar (10.5 x 4.5 x 6mm). Later 1st-2nd century AD. Alloy: all components bronze with minor Pb and Zn, apart from the spring (gunmetal, minor lead); the headstud had a notably higher tin level. Enamels: high Pb levels for the red enamel indicate the colourant was a lead-rich cuprous oxide, while the enhanced Sb levels of the yellow suggest an antimonate colourant.

- A3.189 **SF 45 (Fig A66b)** *Context 361, Phase 3a: T 3.5-4; wire D about 0.8; surviving L 50mm. Diameter cannot be accurately estimated.* Three non-joining fragments of a twisted wire bangle, with copper alloy and iron strands (in a 5:1 ratio) in an S-spiral over an iron rod core (2.5mm D). No surviving terminals. Webster (2003, 322) notes that, although there are earlier antecedents, such twisted cable bracelets are predominantly a later Roman phenomenon, as at 4th-century Lankhills (Clarke 1979, 302-3, type A); Johns (1996, 118) mentions types which combine copper alloy and iron. Alloy: bronze (minor Pb); corrosion has obscured any differences between different wires.
- A3.190 **SF 91 (Fig A66e; Plate 6)** *Context 763, Phase 6: L 96, W 45.5, H 33mm.* Late Roman gilt copper alloy crossbow brooch of Keller's type 6 (Keller 1971, 52). Somewhat distorted; pin and left terminal knob lost, head knob damaged. The brooch is a complex composite construction with twelve separate components, two of which are now lost. The hollow hexagonal-section arms have integral triple-stepped mouldings butting the arch of the bow. The right end is capped with a ?separate collared hexagonal onion knob; its missing equivalent on the left end would have been removable, to fit the axis for the hinged pin. A third hollow-cast knob is fitted to a spike on the head. The bow is high-arched, hollow and triangular in section, formed of a base plate and a separate ridge-piece; a separate beaded wire fits round the ridge where it curves to join the foot. This is a hollow-cast slightly oval cylinder which the pin would have slotted into; two symmetrical openwork plates are soldered to either side, with a plug in the end to hold them together. Each plate has two outward-facing knob-terminal lunulae flanked by a curved bar at the base and a notched square at the top (arch end). Traces of fine mineralised thread, possibly wool, by the pin hole (JAJ) may suggest an attempt to reuse the brooch, stitched to a fabric, perhaps specifically for its deposition because it was distorted and could not function normally. It was associated with the burial of a dog, and was perhaps a grave good, fastening a blanket or shroud.
- A3.191 The construction was as follows. The two parts of the bow were soldered together and slotted into the stepped moulding of the arms, with a fixing apparently bent through the hole for the pin. The head knob was slotted onto the spike, whose end was burred to retain it, and one knob (if separate) was soldered to the arm. The beaded wire was soldered into a groove near the base of the arch. The arch and openwork plates were soldered to the foot cylinder, with a small winged plug fitted into the end of the foot and along the ends of the plates, presumably to stabilise the construction. The (lost) pin was fitted into the cylinder of the foot, and its hinged end held by the lost knob, which would have had a screw-fitting (cf. Hattatt 1985, 135; Deppert-Lippitz 1995, fig. 19). Alloy: leaded brass (minor Sn), mercury-gilded.
- A3.192 The type 6 crossbows, with their complex construction and openwork decoration, are some of the finest of the crossbow series; they are usefully discussed by Keller (1971, 52), Clarke (1979, 258, 261-3), Riha (1979, 169-171, 176-7), Pröttel (1988, 368-72), Bayley & Butcher (2004, 183-5), and most recently and most thoroughly by Swift (2000, 13-88), who would distinguish this as her type 6(ii). Pröttel's review

of the dating gives a range of about 390-460 for type 6. This is consistent with the Quarry Farm brooch, which was deposited after some considerable use with a dog skeleton dated to AD 340-540 (2 sigma). This suggests the presence of a significant late Roman official in the vicinity, around or after the conventional end-date of the Roman occupation, although it must be cautioned that the brooch was rather battered when deposited, and may have come to the site late in its life.

- A3.193 Crossbows are characterised by their wide distribution and uniformity of style across large areas, with a strong concentration in frontier provinces; this particular type shows a stronger connection to the western Empire than others (Swift 2000, 70, figs. 12 & 83). Both Swift (2000, 70, figs. 84-5) and Bayley & Butcher (2004, 259) note that this type is less strongly linked to the *Limes* than other forms, although this example is markedly more northern than the other examples from Roman Britain. The type 6(ii) is found in both gilt copper alloy and gold, and Swift (2000, 81) suggests their rarity and less military distribution indicates these are much more status items than other forms of crossbows; this is reflected in examples found beyond the Empire, with two Scottish finds (Kent & Painter 1977, 28; Curle 1932, 370-1). Close parallels for the Quarry Farm find across the western Empire are listed by Swift (2000, 287).
- A3.194 **SF 93 (Fig A66c)** *Context 994, Phase 5d: Surviving L 126, W 1.5-2.5, D about 80mm.* Seven non-joining fragments of a bangle made from a loosely-twisted oval rod, hammered in places to create a sub-square section. The terminals are lost, but the taper on one fragment and the flattening and slight upturn on another suggest there was probably a simple hook system. The twists are somewhat irregular, but are around 50mm long. A well-attested 4th century type; type B2 in the Lankhills classification (Clarke 1979, 303-4), type 15 at South Shields (Allason-Jones & Miket 1984, 128, nos 3.277-283). Alloy: bronze (high Sn).
- A3.195 **SF 166 (Fig A66d)** *MDF H, Unstratified Area I: Setting 14.5 x 12. L 29.5, W 16, H 21mm.* Finger ring, intact apart from gem, of Henig type II/Guiraud type 2e. The type dates from the later 1st to the early 3rd century; Guiraud suggests a later 2nd – early 3rd century date for this subtype (Henig 1978, 36, fig 1; Guiraud 1988, 79). Oval, broad bezel, large shoulders, tapered D-sectioned hoop. Alloy: gunmetal (minor Pb). Finial SF 167 was stuck in the hoop of the ring (discussed below).
- Fittings*
- A3.196 **SF 3** *Context 491, Phase 3b: L 78, W 8, T 6mm.* Length of C-sectioned sheet edge binding, very fragmentary. A flat leather fragment (16 x 15 x 2mm) preserved in adjacent soil is not in direct association. Alloy: bronze.
- A3.197 **SF 42** *Context 668, Phase 6: 11.5 x 9.5 x about 0.5mm.* Slightly bent sheet fragment, no original edges. Alloy: low-tin bronze, with probable traces of a lead-tin solder on one side.
- A3.198 **SF 47 (Fig A67a)** *Context 1242, Phase 5a: H 21, D 16.5, shank D 4mm.* Flat disc-headed stud with circular-sectioned shank, the tip lost. Alloy: leaded bronze.
- A3.199 **SF 50 (Fig A67b)** *Context 1100, Phase 5a: Original L 51, W 4, T 1mm.* Fine, slightly tapered rectangular-sectioned strip, distorted, both ends lost. Unidentified – perhaps inlay? Alloy: bronze.

- A3.200 **SF 51 (Fig A67c)** *Context 1016, Phase 5b: 17.5 x 10 x 9.5mm.* Fragment of a bridge mount for a strap, perhaps a scabbard runner (cf. Bishop & Coulston 2006, figs 78, 99; Allason-Jones & Miket 1984, no 3.644). A raised rectangular bar (to accommodate the strap) steps down into a fastening tang with a plano-convex section. Alloy: leaded bronze (minor Zn).
- A3.201 **SF 52** *Context 1242, Phase 5a: L 34, W 29, T about 0.3mm.* Sheet mount fragment, somewhat damaged and crumpled at one edge; one original straight edge, fine hammer-marks visible. The holes are corrosion effects. Alloy: bronze (minor Pb, Zn).
- A3.202 **SF 53 (Fig A67d)** *Context 1289, Phase 5a: L 52, W 16, T 0.3mm.* Sheet fragment with one original edge; slightly curved; bent at one end, perhaps from removal. All the holes appear to be corrosion effects. Alloy: bronze (minor Pb).
- A3.203 **SF 92 (Fig A67e)** *Context 1083, Phase 5a: 26 x 12, 16.5 x 12.5, T 0.3mm.* Two non-joining fragments of a sheet strip decorated with marginal lines of small embossed dots. The upper surface has polishing scratches. Original ends lost; slight bend at one end, perhaps from removal. The hole on one edge is due to corrosion. Alloy: bronze (minor Zn, Pb).
- A3.204 **SF 96** *Unstratified: Undiagnostic - need not be Roman, Rivet L 5, head D 3.5-5; mount L min 43, W 17, T about 0.6mm.* Two fragments of a sheet mount with the remains of a leather strap. Damage obscures details, but it seems to be rectangular with rounded corners; a row of at least five solid rivets ran along each edge. Alloy: leaded bronze.
- A3.205 **SF 139** *Context 491, Phase 3b: L 30, W 7, H 5, T 0.5mm.* U-shaped binding strip fragment (two non-joining fragments). Alloy: leaded bronze.
- A3.206 **SF 167 (Fig A67f)** *MDF H, Unstratified Area I: H (excluding shank) 14, D 18, base D 10, shank W 5mm. Found stuck in the loop of finger ring SF 166.* Bell-shaped stud, the cylindrical base flaring into dished terminal with central knob. Remains of square-sectioned iron shank on underside. This well-attested type was a furniture decoration, probably from boxes (Allason-Jones & Miket 1984, 238-244; Allason-Jones & McKay 1985, 30-32). Alloy: leaded bronze (minor Zn).

Vessels

- A3.207 **SF 72** *Context 668, Phase 6: Sheet T about 0.3mm.* Cauldron fragments. Nine non-joining fragments from a sheet vessel, comprising parts of a vertical seam (given the lack of curvature); thus most likely from the broad upper body section of a vertical-sided cauldron. The outer sheet preserves an original, slightly irregular edge about 5mm from the rivet line; the original edge of the inner sheet is lost. There are remains of a thin layer of leather, presumably caulking material, between the two sheets. The fragments represent at least 130mm of the seam, with rivets every 8-9mm; these are rolled sheet cylinders with the heads flattened and ends burred (shank D about 3mm). Only seam fragments are present, which indicates that this is waste material from recycling the vessel, the heavily-distorted seam being discarded when the rest of the sheet metal was reused. Alloy: bronze (minor Pb); rivet, bronze (high Sn, perhaps a corrosion effect; minor Pb).

A3.208 **SF 94 (Fig A67i)** *Context 1050, Phase 5a: L 124, handle section 25 x 3.5, terminal W 37.5mm.* Handle of a late Roman dipper or strainer. Straight-sided, with a flared end; rectangular section with slightly flanged edges, the upper surface slightly concave, the lower convex. Part of the horizontal rim survives (W 7.5mm), slightly thickened at the edge. The vessel was cast and then hammered to shape, with extensive hammer-marks on the underside to make the flanges and the expanded terminal; faint hammer-marks on the upper surface are largely polished away. Alloy: leaded bronze (minor Zn).

A3.209 These late Roman dippers and strainers (of later 3rd-4th century date) are significantly less common than the earlier, 1st-2nd century forms (Eggers 1951, types 160 and 161). Examples are known from hoards at Knaresborough (Yorks), Irchester (Northants), Burwell (Cambs) and from the hillfort of Traprain Law (E Lothian; Kennett 1968, 32-5, fig 9; Gregory 1976, 74, fig 5 no 15; Eggers 1966, Abb 41 no 4; Curle 1915, 196, fig 44 no 6; Burley 1956, no 444; for Continental parallels, den Boesterd 1956, no 60).

Working evidence

A3.210 **SF 43** *Context 1007, Phase 5a: 25 x 23 x 9.5mm; T about 0.4mm.* Packet of folded sheet metal, probably prepared for recycling. Alignments suggest three separate pieces: 1, folded in half and then folded again; 2, with the ends folded under; 3, a single folded layer with the end rather crumpled. Alloy: one piece was brass (minor Pb).

A3.211 **SF 95 (Fig A67h)** *Context 1016, Phase 5b: 21.5 x 17.5 x 4.5mm.* Sub-circular flat piece of casting waste. Alloy: leaded bronze.

A3.212 **SF 168** *MDF AC, Unstratified - not necessarily Roman: 25 x 22 x 4mm.* Unidentified fragment. Two irregular parallel edges, other edges broken; the irregular surface suggests it may be casting waste. Lines (perhaps modelling lines) run in different directions on the two faces. Alloy: copper.

Other/unidentified

A3.213 **SF 69** *Context 1367, Phase 3b: 15.5 x 14.5, 13 x 7.5; T 0.8mm.* Two non-joining sheet fragments, somewhat curved, distorted and cracked; no original edges. Alloy: leaded bronze (minor Zn).

A3.214 **SF 97 (Fig A67g)** *Context 1245, Phase 3c: H 44, W 37.5, T 1.5mm.* Cast fragment preserving three sides of a ?hexagonal hollow tapering casting, distorted at the broad end (from removal?); no original edges. Square attachment hole (W 6mm) on one face. Perhaps a fitting or casing? Alloy: leaded bronze.

A3.215 **SF 114 (Fig A67j)** *Unstratified: L 51, wall T 1.5mm.* Cast funnel, both ends lost. Cylindrical tube flaring from 14.5 to 28mm diameter. Both surfaces have been polished after casting, the outer more carefully, with predominantly longitudinal scratches (and some diagonal and transverse). The interior has a slight longitudinal ridge, presumably from the core, and what seems to be a sub-square patch to repair a casting flaw (which did not affect the exterior). The one-piece construction and careful finish suggest this may be the bell of a musical instrument; the evidence of repair on the inner (non-visible) side would support this, as this would smooth the surface to ensure a better air flow. However, in its fragmentary condition and out of context, its date and function remain uncertain. Alloy: leaded gunmetal.

A3.216 **SF 169 (Fig A67k)** *MDF A, Unstratified Area I: L 32, W 23.5, T 2mm*. Flat animal figure – perhaps a post-medieval toy? Lacks head and legs; angular hump (or saddle) on back above front leg. Incised decoration on both sides: vertical stripes on body, circle or curve at hump, muscle scroll above front leg. The incised decoration initially suggested an Anglo-Saxon date, but no parallels have been found so far, and it seems rather more simplistically zoomorphic than would be normal; a post-medieval date is suspected, although parallels have yet to be located.

The Bronze Age punch or chisel by Trevor Cowie

A3.217 **SF 144 (Fig A67I)** *MDF AD, Unstratified: Length: 49.2mm; dimensions of shaft: 'business end' 6.8 x 6.4mm; mid-point 6.8 x 6.8mm; 'tang' 7.1 x 7.6mm. Weight: 10.1g*. Small, heavily corroded bar of high-tin bronze, tapering from the square-sectioned mid-point to a rectangular section which terminates in a flattish area (6.3 x 5.3mm), probably representing the working-face; it may have been modified by use, and might originally have tapered to a flatter chisel-like edge. The working-face apart, most of the original surface of the tapered portion is missing due to corrosion. The surface of the other end has survived better if patchily; the edge angles have been rounded off, resulting in a sub-square section. Although slightly thicker beyond the midpoint, this portion of the bar draws in at the end to form a blunt rounded tip, now corroded and missing the original surface but possibly without significant loss of the original outline. Some crosswise striations are visible under magnification on the area of intact surface just above the mid-point (around 20mm from the rounded end): their significance is uncertain but if this end of the tool functioned as a tang and was set in an organic handle or knob, one explanation might be crosswise cleaning or polishing of the shaft at its junction with the handle.

A3.218 The general form of this tool invites comparison with a range of small bronze punches and chisels known from Middle and Late Bronze Age contexts and usually interpreted as metalworker's tools. There is some variation in form, but typically such artefacts consist of square- to rectangular-sectioned bronze bars with one rounded and one flattened end, as in the Quarry Farm specimen. As noted above it is possible that the business-end of the punch from Quarry Farm has been modified by use and it may originally have tapered to a flatter chisel-like edge (though probably still intended for use as a punch rather than as a true 'cutting chisel'). As suggested by Coles (1964, 117), it is likely that the rounded ends would have been set into an organic handle or knob which would have received the hammer blows. Although corrosion might partly account for the high percentage of tin revealed by analysis the additional hardness resulting from high-tin composition might have had a functional advantage.

A3.219 Close parallels can be found among the range of punches and chisels from the excavations at Traprain Law, East Lothian. Whilst from a tool of slightly more robust proportions, the Quarry Farm example compares reasonably well with Burley's (1956) catalogue numbers T14 and T15 (see also T24 & T26 which may represent broken fragments of a single punch).

A3.220 The Quarry Farm specimen was found in the course of systematic detecting as part of a supervised archaeological project. It is therefore tempting to speculate whether further examples of these simple, relatively undistinguished tools – particularly if prone to corrosion - may be lying unrecognised among metal detectorists' boxes of 'scrap'.

Medieval finds by Stuart Campbell

- A3.221 **SF 170 (Fig A67m)** *MDF C, Unstratified: L 21, H 22.5, T 9, width of pin bar 9.5mm.* Cast copper alloy strap end buckle or strap loop bearing traces of heavy tinning. Some features of this object mitigate against it working as a simple buckle, not least the absence of a pin rest – although this may have been removed by corrosion – and the unusual thickness of the buckle which would have made it difficult to fasten. It is as likely that the object was part of a collection of ensuite strap loops and costume fittings designed in the same style as the main belt buckle and strap end fitting. Its general appearance, and the mouldings on the pin bar terminal, might suggest late Romanesque influence as much as mainstream European leanings, and a date of late 11th to 13th century seems appropriate.
- A3.222 **SF 171 (Fig A67n)** *MDF F, Unstratified: L 41.5, W at frame (external/internal) 15/10mm.* Cast copper alloy strap end buckle with an integral forked spacer, still tinned overall. These were intended to be attached to a belt or strap via sheet plates soldered to either face of the spacer; the design was widespread from the mid 14th until the early 15th century. Intriguingly this example has been cast as a blank with the slot for the pin gouged out of the metal after casting. This is unusual as other examples of the type invariably have this slot cast integrally. A logical explanation for this anomaly is that the mould was intended to do double duty, producing frames for the similar class of strap-ends with integral forked spacer plates which were in use throughout the 14th century. An almost identical example can be seen in Egan and Pritchard (1991, 141).

Silver

- A3.223 **SF 64** *From MDF Z, Unstratified: 13 x 10.5 x 6mm.* Nodular casting debris. Alloy: silver, alloyed with gold and copper.
- A3.224 **SF 172 (Fig A68a)** *MDF I, Unstratified: L 21.5, W 16.5, H 12.5mm.* Roman silver finger ring, lentoid-sectioned hoop broken, minimal shoulders, gem lost. The oval bezel is mostly occupied by a large oval setting (16 x 13mm), the base roughened to hold the lost gem. Henig type V/Guiraud type 2d; 2nd-3rd century date (Henig 1978, figs 1, 37-8; Guiraud 1988, 79).

Lead & pewter

Weights

- A3.225 **SF 115 (Fig A68b)** *Part of MDF AL, Unstratified: H 35 (excluding hook), D 41-42; hook L 18, W 3mm; m 281.3g.* Squat acorn-shaped weight, the tip flattened and upper surface slightly rounded, with a squashed iron suspension hook embedded centrally.
- A3.226 **SF 116 (Fig A68c)** *Part of MDF AL, Unstratified: H 45 (with iron), 39 (lead only); D 33-34; iron W 2-3mm; m 120.5g.* Biconical weight, with broken iron suspension loops at both ends. The ends of the loops protrude from the side, suggesting they were formed from a coil of iron.
- A3.227 **SF 121 (Fig A68d)** *Context 719, Phase 5a: H 33 (35.5 with iron), D 38.5-40; iron rod D 4mm; m 195.4g.* Biconical weight, one end near-hemispherical, the other slightly extended into a truncated cone; remains of broken iron loops at both ends.

- A3.228 **SF 122 (Fig A68e)** Part of MDF AA, Unstratified: H 39.5 (48.5 with iron), D 44-46mm; m 303.5g. Biconical weight with broken iron loop at one end.
- A3.229 **SF 159 (Fig A68g)** Part of MDF AD, Unstratified: 40 x 26 x 4.5mm, 15.9g. Weight; flat, kite-shaped with perforated expanded sub-circular head for suspension at narrow tip. Incomplete (recent damage).

Repairs and patches

- A3.230 **SF 118 (Fig A68f)** Context 668, Phase 6: 89 x 60 x 6mm; m 144.7g. Oval object, slightly plano-convex in section, the rounded side uneven from casting. Part of edge lost. Two cylindrical perforations (D 6-8mm; pierced from rounded face), near centre of long edge and corner; two indents on the rounded surface, near the ends, suggest other attempts at perforations. Probably a patch.
- A3.231 **SF 158 (Fig A68h)** Context 751, Phase 6: L 53, W 12, T 7; cups D 38, T 11mm. Patch, with central bar terminating in perpendicular conical cups, one now detached. This would be cast *in situ*, to repair an object about 14mm thick.
- A3.232 **SF 173 (Fig A68i)** Context 273, Phase 5a: L (bent) 19, shank 3-6, head 8 x 7mm; repaired object 11mm thick. Rivet with irregular flat head tapering into irregular cylindrical body; turned through 90° into a fine regular tip. Probably cast *in situ* (e.g. to repair a pot), leading to the irregularity, with the exterior parts better finished.
- A3.233 **SF 174 (Fig A68j)** Context 534, Phase 7: L 22, W 13, T 5.5mm. Sheet fragment, one end flared to an irregular edge, the other lifted and curled into a C-shape. Perhaps an expedient patch.
- A3.234 **SF 175** MDF X, Unstratified - could be Roman: H 10, D 13 x 14.5mm. Dumb-bell shaped repair plug.
- A3.235 **SF 176** MDF AD, Unstratified - could be Roman: 40 x 36 x 7.5mm. Cast patch? Sub-circular flanged fragment, probably cast into a hole.
- A3.236 **SF 177 (Fig A68k)** MDF AK, Unstratified: 22.5 x 14.5 x H 10.5mm. Patch fragment. Elongated flat head, raised at one end, other broken, with a tang on the underside, the end turned to retain a material 5mm thick. Its irregularity implies it was cast *in situ*.
- A3.237 **SF 178** MDF AK, Unstratified: 18.5 x 9 x T 5mm. Patch; rectangular strip with two fairly irregular blunt tangs on the underside, their form indicating it was cast *in situ* into the holes.

Other artefacts

- A3.238 **SF 179 (Fig A68l)** MDF G, Unstratified: D 28.5, perforation D 12, H 10mm, m 40.56g. Annular whorl, D-sectioned, with cylindrical perforation and very worn decoration comprising alternating recessed equilateral triangles round the margin of each face. Medieval.

Rolled strip cylinders

- A3.239 Four cylinders formed from small rolls or coils were recovered from contexts, three from Phase 3 and one Phase 5; a further seventeen (catalogued in the archive) came from metal-detecting. With the exception of two larger ones (weighing 16.5 and

44.2 g), they form a consistent group, weighing 2.92-7.69 g with an average of 5.76 g; there is no clustering around particular values. They could be small weights, perhaps sewn into an organic medium to hold it down, or represent a convenient way of storing small quantities of lead. The contexted examples (described below) point to a Romano-British date; for a parallel, cf. Carmarthen (James 2003, 341-2, fig 8.13 no 10).

A3.240 **SF 182 (Fig A68n)** *Context 121, Phase 3d: L 18.5, D 9, sheet T 1.5mm; mass 5.61g.* Rolled-strip cylinder (single turn).

A3.241 **SF 183** *Context 223, Phase 3a: L 15mm, D 7 x 8.5mm, sheet T 0.5-1mm, mass 3.79g.* Slightly irregular tightly-coiled strip of fine sheet (about 2 turns).

A3.242 **SF 184 (Fig A68o)** *Context 352, Phase 5c: L 23, D 9 x 10, sheet T 2mm; mass 7.69g.* Rolled-strip cylinder, coiled in a spiral of 1.5 turns.

A3.243 **SF 185 (Fig A68p)** *Context 1168, Phase 3a: L 33.5, D 11 x 13, sheet T 2.5mm; mass 16.50g.* Rolled-strip cylinder with butted edges.

Working evidence / molten waste

A3.244 **SF 4** *Context 491. Phase 3b: 26.5 x 15.5 x 5.5mm.* Casting waste? Flat, rounded fragment.

A3.245 **SF 119 (Fig A68m)** *Context 668, Phase 6: W 46, L 42, T 8.5mm.* Discoidal or oval ?ingot, broken; plano-convex section, the rounded side roughened from casting.

A3.246 **SF 180** *Context 286b, Phase 4: 14.5 x 13 x 6.5mm.* Offcut from plano-convex bar, chopped at both ends.

A3.247 **SF 181 (Fig A68q)** *Unstratified: L 64.5, W 10, H 9mm; mass 34.90g.* Bar ingot, boat-shaped with angular D-section, broadest at the top. The original end is slightly angled to ease removal from the mould; the other has been chopped off. Analysis indicated this was a pewter with a lead : tin ratio of around 1:1.

A3.248 In addition, metal-detecting produced 16 pieces of nodular casting waste and two offcuts. None is demonstrably Roman, but it seems likely they relate to the working (or accidental melting) of lead on the site, and given the relative lack of medieval material a Roman date is likely.

Unidentified

A3.249 **SF 117** *Context 877, Phase 3b: Largest fragment 29 x 17.5 x 5mm.* Ten non-joining, heavily-corroded fragments. Original form unclear; only one curved edge is original.

A3.250 **SF 120** *Context 668, Phase 6: L 28, W 18, T 1.5-2mm.* Flat strip, both ends broken; remains of oval perforation (3 x min 7mm) at one end.

A3.251 **SF 186** *Context 286a, Phase 4: 32 x 18 x 11mm.* Amorphous fragment.

Ferrous metalwork (excluding the hoard)

Tools

Knives (types refer to Manning 1985a, 108-120)

- A3.252 **SF 44** *Context 672, Phase 5d: L 51.5; tang L 22.5; blade H 9, T 2.5mm.* Fragment of a small knife. Unusual broad, tapering tang with blunt end, which expands directly into a parallel-sided broken blade; slight step at blade/tang junction on one face.
- A3.253 **SF 46 (Fig A69a)** *Context 233, Phase 5d: L 56, H 19, T 4mm.* Fragment of a fine knife with an oval iron hilt plate (18 x 10mm). Near-parallel blade, with straight back and slowly-tapering edge; tip lost. Central rectangular-sectioned tang (section 6 x 3mm); most of handle lost.
- A3.254 **SF 104 (Fig A69b)** *Context 1242, Phase 5a: L 126; tang L 50, section 9 x 4.5; blade L 76, W 4.5, H 34mm.* Intact knife (type 11a). Tang aligned on back, angled slightly downwards; convex blade, with edge stepping down square from tang; slightly upturned tip. Traces of mineralised hardwood on the tang, probably from the handle, and discontinuous leather traces on the surface, probably from a sheath (JAJ).
- A3.255 **SF 109 (Fig A69c)** *Context 994 (found with SF 110, 111), Phase 5d: L 134 (including handle); tang L 43 x 8 x 3, blade L 83, H 32.5, T 3; handle D 17 x 15mm.* Intact knife (type 11a) with a broad triangular blade, the cutting edge convex. Tang aligned on the back and slightly angled down, tapering to a rounded tip, with remains of a cylindrical handle, probably of antler, squared at the end.
- A3.256 **SF 135 (Fig A69d)** *Context 660, Phase 5d: L 111, H 27, tang L 84 x 6.5 x 5mm.* Knife fragment, the rectangular-sectioned tang aligned on the straight back with a step down to the edge, which is parallel to the back over its short surviving length; it has broken recently. The end of the tang is flattened and curled horizontally into a flattened loop to retain the handle.
- A3.257 **SF 146 (Fig A69e)** *Context 668, Phase 6: L 54, W 21, T 4mm.* Knife blade, the tang lost; crescentic blade with straight back and rounded tip, the tang apparently aligned on the back. Its crescentic shape suggests a role in leather-working.

Craft tools

- A3.258 **SF 110 (Fig A69g)** *Context 994, Phase 5d: L 92, tang W 7.5, shank 5.5 x 6, tip D 2.5; handle D 18mm.* Awl. Square-sectioned shank tapering to a round section and a fine, slightly damaged, asymmetrical tip; the tang tapers slightly to a squared end, with remains of a wooden cylindrical handle with a squared end, part of the original surface surviving; identified (JAJ) as a diffuse porous hardwood, possibly a fruitwood.
- A3.259 **SF 124 (Fig A69k)** *Context 236, Phase 5d: L 220, shank 14 x 16 (head), 11 x 18 (by tip); head L 41, W 18, H 16mm.* T-headed mortice chisel with sturdy rectangular-sectioned shaft, the end broadened and tapered into a wedge-shaped tip, asymmetrical in profile. T-shaped head with stubby squared arms, the long edges slightly bowed from striking. The sides have a crescentic channel, carried slightly onto the shank on one side, perhaps a decorative feature. The lack of heavy burring suggests use with a wooden mallet; the weight of the chisel and the heavy head suggest it is most likely for masonry rather than wood.

A3.260 **SF 141 (Fig A69f)** *Context 3, Phase 6: L 53, shank 4-7, head 10mm.* Punch. Tapering square-sectioned bar with slightly expanded, burred head; tip damaged, probably from corrosion. Probably for metal-working, its shortness implying it was for cold-working non-ferrous metals.

A3.261 **SF 145 (Fig A69i)** *Context 668, Phase 6: L 38, W 3mm.* Point, probably an awl. Short square-sectioned fine shank, slightly curved, tapering to a fine pyramidal tip at one end, the tang end rounded. Its fineness suggests it was a leather-working tool, probably an awl.

A3.262 **SF 148 (Fig A69j)** *Context 747, Phase 5a: L 55, W 15, T 11mm.* Fine chisel, the head slightly burred and damaged, the tip symmetrical.

Agriculture

A3.263 **SF 99 (Fig A69h)** *Context 1245, Phase 3c: H 38.5m,* Ox goad with solid point, curving slightly forwards (tip lost; L 27, section 3.5 x 4.5mm). The base is flattened into tapering wings (11.5mm H), folded round to form a penannular loop (externally 21 x 19mm); an apparent flange down the side and at the base is a corrosion effect. H 38.5mm.

A3.264 **SF 106 (Fig A69m)** *Context 220, Phase 5b: L 147, W 45, T 6.5mm.* Scythe fragment with characteristic thick-backed L-shaped section, the curve indicating it comes from near the handle; ends broken.

Other

A3.265 **SF 49 (Fig A69l)** *Context 747, Phase 5a: L 93, W 20, T 8mm.* Tool fragment. Tapering rectangular-sectioned bar curving to a rounded and damaged tip; probably from a tool such as a small pick, broken in use.

A3.266 **SF 105 (Fig A69n)** *Context 3, Phase 6: L 88.5; tang L 33.5, section 5 x 2; point L 55, D 5.5mm.* Stylus; a simple form (Manning 1985a, 85, type 1), comprising a circular-sectioned rod, bent from recent damage, slightly swollen in the centre, with a blunt tip at one end and a flat shoulder-less eraser at the other.

Weapons

A3.267 **SF 18 (Fig A70a)** *Context 695, Phase 5b: L 70.5; blade L 40, W 14; socket L 30.5, D 7.5 (internal D 5mm).* Leaf-shaped socketed arrowhead with blunt tip (flattened from damage) and closed, slightly damaged socket with traces of mineralised wood.

Domestic

A3.268 **SF 65 (Fig A70b)** *Context 10, Phase 6: L 151, W 16.5, T (bar) 4mm.* Padlock key. Slightly tapered rectangular-sectioned bar, turned at one end into a suspension loop (D 13.5mm); the other end curves through 90°, with the remains of a perforation in the plate. Cf. Manning 1985a, 96-7.

A3.269 **SF 113a (Fig A70c)** *Context 668, Phase 6: L 73.5; arm L 24, W 14.5; bar 7 x 4; barbs surviving L 22.5mm.* Bolt of a barb-spring padlock. Fine bar with rounded barbed tip (the barbs clear on X-ray but mostly lost subsequently). The bar steps into a thicker L-shaped terminal, perforated on both arms; that on the long side is countersunk on the inner face; the other, positioned very close to the angle, is countersunk on the outer face, and would have held the tang of the padlock.

A3.270 **SF 128 (Fig A70e)** *Context 1399, Phase 4: L 15; head D 21, H 23; shank W 10-17, T 4; prongs W 4.5, T 3mm.* Padlock key. Tapered flat bar, the narrower end turned into a carrying loop with out-turned spiral terminal, the broader turned through 90° with a broken perforated end. Cf. Manning 1985a, 96-7.

Fittings

- A3.271 **SF 1 (Fig A70d)** *Context 668, Phase 6: Loop D 29 (internal 19.5), L 71mm.* Double-spiked loop, the everted ends giving a wood thickness of c. 38mm.
- A3.272 **SF 7 (Fig A70f)** *Context 236, Phase 5d: L 151, W 44, T 5mm.* Strapping / fitting fragment. Heavy rectangular-sectioned bar, tapering to the tip, which is rounded and slightly expanded with a square perforation (W 6mm); other end broken.
- A3.273 **SF 13 (Fig A70g)** *Context 545, Phase 5c: Original L 235mm, shank W 10mm, arms L 62mm.* T-clamp; one arm damaged, shaft bent in two places.
- A3.274 **SF 17 (Fig A70h)** *Context 805, Phase 3c: L 52, body 10 x 3, H 16.5mm.* Joiner's dog, lacking one arm, the other clenched and the tip twisted, giving a wood thickness of 10mm. Rectangular-sectioned body, swollen in the centre.
- A3.275 **SF 37 (Fig A70i)** *Context 1090, Phase 5a: L 325; tang W 12 (square), 13-14 x 6-9 (rectangular); loop external D 99, internal 78mm.* Large loop-headed fitting. The broken square-sectioned tang flattens into a rectangular section as it forms a penannular loop with an open spiral terminal (internal D 5mm).
- A3.276 **SF 38** *Context 1202, Phase 3d: L 75, W 8.5, H 21 (body and arms 8.5 x 4mm).* Joiner's dog, distorted; one arm lost, other broken.
- A3.277 **SF 48 (Fig A71a)** *MDF, Unstratified: H 84, W 52mm.* Hook with transverse circular suspension eye (D internal 9.5, external 17.5mm); rectangular-sectioned body (8 x 4mm), becoming rounder as it curves towards lost tip.
- A3.278 **SF 67 (Fig A71b)** *Ex MDF 2, Unstratified: Body section 6 x 10.5, arm section 3.5 x 11; L 52.5mm.* Joiner's dog, body swollen in centre; one arm lost, other incomplete. There is a cut-mark at the arm-body junction from attempts to detach the fitting.
- A3.279 **SF 68 (Fig A71e)** *Context 719, Phase 5a: L 153, disc D 47mm.* Terminal of a heavy fitting, perhaps a large handle. Slightly curving rectangular-sectioned bar (17 x 9mm), one end cut off, the other flattened into an irregular disc which tapers to a spike. The disc is crudely pierced with a central square nail hole (partly corroded; originally 9 x 10.5mm). The bar-disc junction on the inside is slightly stepped to fit snugly to a wooden object.
- A3.280 **SF 70 (Fig A71c)** *Context 1083, Phase 5a: L 67, W 21, section 13.5 x 5 and 9 x 4.5mm.* Fragmentary rectangular loop with rounded ends, probably a clamp. Rectangular section, one face broader than the other.
- A3.281 **SF 98 (Fig A71d)** *Context 1245, Phase 3c: 50 x 23 x 3.5mm.* Flat bar fragment, slightly curved along its length, no original ends. Strapping?
- A3.282 **SF 103 (Fig A71f)** *Context 1245, Phase 3c: 23 x 21 x 2mm.* Irregular pentagonal washer with near-central perforation (D 6mm).

- A3.283 **SF 107 (Fig A71g)** *Context 1100, Phase 5a: L 52.5, W 27.5mm.* Terminal of a fitting, possibly a handle. Rectangular-sectioned bar (16 x 7.5mm), the upper face slightly rounded. Discoid terminal, thinned on one face to fit better against the wood, with a central sub-circular perforation (D 8mm); spare metal from piercing is flattened against the inside face.
- A3.284 **SF 127 (Fig A71j)** *Context 720, Phase 6: L 165; loop D 113, section 16 x 6-8; shank 16 x 10mm at fracture.* Looped fitting, with large closed rectangular-sectioned loop and tapering shank, the end apparently cut off. Weld line visible at head-shank junction.
- A3.285 **SF 129 (Fig A71h)** *Context 747, Phase 5a: L 34, head 17 x 16.5, T 2; sub-circular perforation 5 x 6; bar W 11mm.* Flat bar with expanded, rather irregular, perforated terminal, the end squared and the shank broken.
- A3.286 **SF 130 (Fig A71i)** *Context 747, Phase 5a: Flange D 48.5, W 10, T 3-5.5; cylinder H 29, internal D 30-33, external D 40mm.* Flanged cylinder, the rim everted and squared. The external cylinder surface bears circumferential ribs, the lower ones rounded, the upper more angular. Details are unclear as it is only partly cleaned, but the ribs appear irregular, with five in one area and six in another. This suggests they are functional rather than decorative, probably to retain the collar within an organic pipe.
- A3.287 **SF 136** *Context 660, Phase 5d: L 41, W 10-11, T 3mm.* Fitting. Fine plano-convex bar, both ends broken.
- A3.288 **SF 150** *Context 747, Phase 5a: L 37.5, W 8, T 4mm.* Flattened loop fitting? Bar with wedge-shaped tip, bifurcating into two oval-sectioned arms; these are broken, but probably represent a squashed loop.
- A3.289 **SF 155 (Fig A72a)** *Context 720, Phase 6: L 340, original L 690, bar W 37, T 6; disc terminal W 53, other terminal W 55; perforation W 10mm.* Bar fitting, intact but bent back on itself, one end curved outwards and slightly distorted. One end has a disc terminal with a central square perforation; the other is slightly expanded with a rounded tip.
- A3.290 **SF 156 (Fig A72b)** *Context 720, Phase 6: L 430, bar (head) 39 x 7, arms W 27, terminals W 39; perforation W 7. Nail L 58, shank 8, head 14; set in wood about 46mm thick.* Large U-shaped staple, its symmetry implying this is its original shape. Formed from a rectangular bar, the arms tapering with expanded perforated disc terminals; there are also opposed perforations some 150-170mm from the ends, one with a bent nail still *in situ*. This implies it had been removed, although there are wood traces at the terminals and intermittently up the arms as far as the second perforation. The head of the staple is angled at c. 45°, presumably to fit over something.
- A3.291 **SF 157 (Fig A72c)** *Context 720, Phase 6: Original L 540, W 29-34, T 9-10.5mm.* Plano-convex bar bent back on itself, one end cut square, the other with a rounded tip, slightly flattened from damage. The tip indicates this is not a damaged tyre; function uncertain.

- A3.292 **SF 164 (Fig A71k)** Context 751, Phase 6: L 32, W 12, T 3, loop L 16mm. Handle terminal; slightly curved flat bar fragment, one end lost in recent break, the other looped into an S.
- A3.293 **SF 187 (Fig A73a)** Context F301 hot room, Phase 3a: L 93, shank W 8, head 55 x 15mm. T-clamp, tip lost, arms with rounded ends.
- A3.294 **SF 188 (Fig A73b)** Context F301 hot room, Phase 3a: L 85, shank W 6.5, head 26 x 12mm. Small T-clamp with thin rectangular head.
- A3.295 **SF 189 (Fig A71I)** Context 732, Phase 3b: L 100; links L 49, W 28.5, rod D 3.5-4mm. Three joined chain links, each a figure-of-eight, not quite touching in the centre.

Nails, tacks and hobnails

- A3.296 The majority of nails are fragmentary, with only 16 intact examples. Intact lengths range from 40-78.5mm (average 56.5mm), heads measure from 6-27mm in width (average 14.5) and 2-4mm in thickness, while shank widths range from 3-8.5mm (average 5.5mm).
- A3.297 Romano-British nails are categorised by their shape and size; the wide range of sizes reflects variation in function, although most fall into the 40-70mm length range. The majority of the Quarry Farm assemblage conforms to this type, Manning's Group 1B (or Inchtuthil type E; 1985a, 134; 1985b, 289). Manning suggests these were used to attach cladding to structural frames, and were present in great quantities where timber buildings were used (as at Inchtuthil; Manning 1985b, 291). The small number of iron nails from Quarry Farm suggests timber was not heavily used for structural elements at the site. While this is consistent with the number of stone buildings, the quantities are still surprisingly small, as discussed below.
- A3.298 The very small proportion of large nails (3 examples) over 70mm in length is typical, as these were more likely to be removed and reused (Manning 1985a, 134-5) and are often under-represented in the archaeological record. 22 fragments are bent, including over 60% (12) of the intact examples. The majority are curved and distorted as the result of use or removal, but three examples were clenched, indicating they were discarded while in the timber.
- A3.299 The finds were recovered from 30 contexts across the site from Phase 3 to 6, the majority relating to Romano-British activity. All appear to be in secondary contexts, with a scatter from ditch fills, drains, ovens and wall footings. The majority (22) were recovered from pit and posthole features relating to Phase 3 and 5. There are few marked concentrations, but seven were recovered from a Phase 3 pit fill (context 882), four from the wall footing of a structure of the same period (context 268), four from a gully fill (context 747) and four from a pit fill (context 330) relating to Phase 5 activity.

Other nails

- A3.300 Although dominated by group 1B nails, some less common nail types are also present. These have been catalogued separately below. Two (SF 111 & 123) are small T-headed nails and one (SF 126) has a flattened triangular-shaped head with

marked shoulders; both were also used in timberwork. One (SF 53.2) is a small tack probably used in upholstery (Manning 1985a, 135).

- A3.301 **SF 53.2** *Context 1289, Phase 3c: L 20, head 3, shank 2mm.* Intact tack, Manning type 8 (1985a, 135).
- A3.302 **SF 111 (Fig A73c)** *Context 994, Phase 5c: L 41, head 16 x 9 x 3, shank W 7mm.* T-headed nail, the tip lost, one arm much shorter than the other. Manning type 3 (1985a, 135).
- A3.303 **SF 123 (Fig A73d)** *Context 1245, Phase 3c: L 37, shank 7.5-13 x 6-8, head 19 x 7.5mm.* T-headed nail with rectangular-sectioned shank, the tip and part of one arm lost; channel from forging on one side. Manning type 3 (1985a, 135).
- A3.304 **SF 126 (Fig A73e)** *Context 1090, Phase 5a: L 82, head 18 x 13 x 8.5; shank W 9mm.* Complete nail with expanded angular head (a truncated triangle in form); conforms to Manning type 2 (1985a, 135, fig. 32.2). The top of the head has been flattened by hammering. Shank has a sinuous double-bend, suggesting removal; tip lost.

Hobnails

- A3.305 *Context 641, Phase 3d: Dome-headed; typical L 10-14mm, dome D 7.5-11mm, shank D 2mm.* Only eleven hobnails were recovered. These derived from one context within the fill of a ditch, corroded together in small groups with organic traces, implying that they were still in a shoe sole when deposited.

Blacksmithing evidence

- A3.306 **SF 44.2** *Context 672, Phase 5d: L 50, D 4.5 x 5mm.* Twisted oval-sectioned rod, one end flattened, the other broken. Perhaps an offcut.
- A3.307 **SF 100** *Context 1245. Phase 3c: L 60.5, W 9, T 7.5mm.* Twisted bar fragment, broken at both ends. The twist is rather irregular and thin in places, suggesting it is an offcut which was twisted to remove it.
- A3.308 **SF 102** *Context 1245, Phase 3c: 29 x 13 x 9.5mm.* Fragment of waste iron from blacksmithing, contorted and irregular with surface porosity.
- A3.309 **SF 125 (Fig A73f)** *Context 668, Phase 6: Overall 51 x 41 x 24; bar W 16-38, T 4, total L 256mm.* Recycled bar, folded into a square packet with five folds. One end of the broad, flat bar is slightly tapered and tucked under; at about half its length, it continues at half width, with a strip apparently cut from one edge; this end is also tucked under.
- A3.310 **SF 131 (Fig A73g)** *Context 747, Phase 5a: W 28, L 29.5, T 6, notch 5 x min 7mm.* Offcut from a bar with a perforation or off-centre notch on the cut edge.
- A3.311 **SF 132 (Fig A73h)** *Context 747, Phase 5a: L 54, W 22-23 (arms), 29 (overall), T 3.5; perforations 5 x 6.5, 5 x min 7mm.* Offcut from repair or reuse of an object. L-shaped bar, cut at both ends and bent, with the corner thinned and damaged. Cut

across a perforation on the longer arm, with a second towards the corner, offset to the long edge. Probably from the same object as SF 131.

- A3.312 **SF 138 (Fig A73i)** *Context 882, Phase 3c: H 38.5, W 36.5, bar T 12mm.* Offcut from hooked handle terminal, with an angled cut to detach it. Flat, rectangular-sectioned bar, thickening and curving to form a hook with thinned and out-turned tip. Probably discarded following reuse of the flat bar portion.
- A3.313 **SF 143** *Context 1007, Phase 5a: L 30, W 19-24, T 12.5mm.* Offcut from the end of a squared bar.
- A3.314 **SF 147** *Context 747, Phase 5a: L 56, W 35, T 15 (bar T 6mm).* Offcut. Folded bar fragment, one end cut, the other squared by folding under the tip and flattening.
- A3.315 **SF 149 (Fig A73j)** *Context 747, Phase 5a: 45 x 17 x 19mm.* Offcut from the end of a square-sectioned bar, one end rounded and irregular, the other cut.
- A3.316 **SF 151 (Fig A73k)** *Context 668, Phase 6: L 49, W 30, T 3.5-4; perf 12mm.* Offcut from a bucket mount; rectangular bar with the end perforated and expanded from wear; transverse cut marks from unsuccessful detachment at cut end.
- A3.317 **SF 152** *Context 668, Phase 6: W 35-39, L 37.5, T 3.5-4mm.* Offcut from slightly flared bar; cut across a perforation (W 7.5).
- A3.318 **SF 153** *Context 668, Phase 6: L 32, W 15, T 7mm.* ?Offcut from tool, with diamond-sectioned ?tang curved into a thick ?blade, cut at an angle.

The metalwork hoard

Wood-working tools

- A3.319 **SF 112.1 (Fig A74a)** *L 213; hammer L 43 x 23 x 18; socket D 19, H 36, wedge L 26; blade L 140, W 64mm.* Adze-hammer (Manning 1985a, 17-18). Circular shaft-hole with cylindrical socket on underside; the upper side of the perforation has two opposed marks, perhaps from welds during manufacture. Short, sub-square hammer with a slight dish on the underside, the face lost to corrosion. The broad adze blade has a slight concave curve, and ends in a symmetrical edge with no sign of damage. There is no wood in the socket.
- A3.320 **SF 112.2 (Fig A74b)** *D 92-95, disc T max 11; collar D 45, H 25; perforation D 19 (oval 21 x 25mm).* Discoidal adze? Disc, slightly curved in section, with collared socket at the edge. The disc has a thick, slightly rounded edge near the socket but tapers to a much finer edge around half of its circumference, suggesting it was a blade; its form would be appropriate for a specialist hollowing tool. The collar protrudes slightly beyond the line of the disc. The tapering perforation is angled slightly off the perpendicular, and is circular on the collar side and oval on the other; the collar is also angled slightly to the disc, indicating the handle was at an angle. The interpretation is based on the visible features; no parallels have yet been found.
- A3.321 **SF 112.3 (Fig A74c)** *L 140, W 14, H 26; blade T 6-10; tang L 22mm.* Carpenter's float, the wide spacing of the teeth typical for use on wood (Manning 1985a, 28-9; there is a close parallel from Beadlem (Neal 1996a, fig. 40)). Rectangular-sectioned blade with slightly rounded tip, perhaps damaged in one area. The blade carries 22

symmetrical teeth, slightly rounded as they survive, spaced at 2.1 cm⁻¹ (counted from the X-ray, as the surface was not fully cleaned). The teeth start some 10mm from the tip and finish where the tang steps up into the offset handle. The tang was short, with a squared end; remains of a cylindrical wooden handle survive, identified as a ring-porous hardwood, probably ash (JAJ).

- A3.322 **SF 112.4 (Fig A74d)** *L 148; blade W 14-21, T 6; tang max 11 x 6mm*. Paring chisel. The tapering rectangular-sectioned tang with pointed tip has traces of a handle of a semi-ring-porous hard wood, possibly alder (JAJ). The tang expands gradually into the blade with a slight shoulder; it ends in a very slightly curved edge, symmetrical in section. Its relatively light construction, handle and splayed edge identify this as a paring chisel (Manning 1985a, 21-2).
- A3.323 **SF 112.5 (Fig A74e)** *L 106; tang L c. 30, section 7 x 7.5; blade W 15.5, H 10.5mm*. Spoon-bit (Manning 1985a, 26), the broken oval-sectioned tang expanding into a long blade with a deep U-section, the tip lost to corrosion.
- A3.324 **SF 112.6 (Fig A74f; Plate 9)** *L 66; tang L 47, W 7; blade W 50mm*. Cooper's croze, with square-sectioned central tang and crescentic blade, the ends rounded off. The outer edge has a series of V-shaped teeth (probably eighteen, giving a density of 3cm⁻¹); they are c. 2mm in height and width. Discolouration of the tang suggests a lost wooden handle. There are areas of individual fibres on the blade, but with no evidence of twisting (JAJ). For the type see Hedges & Wait 1987; Salaman 1975, 319-321, fig. 235b.
- A3.325 **SF 112.7 (Fig A74h)** *L 77; tang L 53, W 9; blade W 55.5mm*. Cooper's croze, the tang tip spalled and the teeth in poor condition. Square-sectioned tang, tapering in thickness as it joins the blade. A series of triangular teeth, probably originally eighteen, line the outer curve. No trace of a handle.
- A3.326 **SF 112.8 (Fig A74i)** *L 84, W 8, T 6mm*. Bradawl? The rectangular-sectioned bar tapers to the (slightly spalled) squared tang and tip, which tapers and thins to a rounded point; the other end is lost. No surviving handle traces. See Manning 1985a, 28, although this example is rather smaller.
- A3.327 **SF 112.9 (Fig A75a)** *L 176, shank W 8, tip 7.5 x 3.5mm*. Bradawl? Slightly tapered square-sectioned tang with irregularly squared end and remains of a bone handle. The square-sectioned shank tapers and thins gradually to the rounded spatulate tip. It lacks a sharp edge as it survives, but resembles a bradawl; the handle of bone rather than wood argues against it being an auger, unless the bone was a collar which slotted into a wooden cross-piece.

Leather-working tools

- A3.328 **SF 112.10 (Fig A75b)** *L 39 (47 with handle), D 4*. Small awl, circular section, tapering to fine point, the tang tapering to a squared end. Remains of a wooden handle (species unidentifiable) cover the last 12mm of the tang and extend a little beyond. The fine point suggests this is a leatherworker's awl rather than a woodworker's bradawl (Manning 1985a, 28, 39-41).
- A3.329 **SF 112.11 (Fig A75c)** *L 100, D 8.5, max W 13, tip D 6.5 x 8mm*. Circular punch, the square-sectioned tang with remains of a handle of diffuse porous hardwood, possibly fruitwood (JAJ). The tang expands into a sub-circular shank, flattened into

a kite-shaped end which was curled tightly into a slightly closed C-shaped tip, forming about two-thirds of a circle and thinned to the cutting edge. Manning (1985a, 42) discusses this type, although the examples he illustrates have solid shanks; they were used to cut discs out of leather.

A3.330 **SF 112.12 (Fig A75d)** *L 133, surviving handle L 30, shank W 4.5-7.5mm*. Large awl or punch? Square-sectioned tang, tapering to squared end, with traces of a wooden handle (species unidentifiable); the sub-circular shank tapers to the tip, its very end lost, which inhibits identification. It seems too large for a bradawl, suggesting it was an awl or punch used with hand pressure (and thus most likely for leather-working).

A3.331 **SF 112.13 (Fig A75e)** *L 117, tang W 9, shank W 5-8.5mm*. Large awl or punch? The tapered square-sectioned shank becomes circular in section towards the lost tip; end of tapered square-sectioned tang also lost. Remains of a wooden handle of ring porous hardwood, possibly ash (JAJ) cover 46mm of the tang. It is very similar to 12.

Metal-working tools

A3.332 **SF 112.14 (Fig A75f)** *L 222, W 20, H 10, tang c. 8 x 6mm*. Flat file (Gaitzsch 1980, 54-6). Blunt, rectangular-sectioned tang (with traces of a cylindrical bone handle, D 21mm), expanding smoothly into a rectangular-sectioned body, which tapers gradually to the lost tip. The form is that of a file, although no traces of teeth survive.

A3.333 **SF 112.15 (Fig A75g)** *L 220; tang L 33, W 9; blade W 20, T 4-9 mm*. Half-round file (Gaitzsch 1980, 59-60). Tapered tang, square-sectioned and squared end, with the remains of a cylindrical bone handle (D 25mm) with a square end, stopping short of the shoulders. Sloping shoulders and plano-convex section, with the blade thickest near the shoulders and tapering to the tip. The shape implies it is a file; no trace of teeth survives.

A3.334 **SF 112.16 (Fig A75k)** *L 143, W 10, T 4; tang L 25, section 5 x 5.5-8.5mm*. Fine half-round file. Plano-convex blade, tapering to the tip and the short rectangular-sectioned tang, its end squared; fragments of an unidentified wooden handle survive. There are no surviving signs of teeth, but the section form and taper are consistent with identification as a file (e.g. Gaitzsch 1980, Abb 6, Taf 12).

Other tools

A3.335 **SF 112.17 (Fig A75h)** *L 143; blade H 17, T 2.4; tang section 6 x 8mm*. Knife, type 18b (Manning 1985a, 117). Square-sectioned tang aligned on the blade's back, with remains of a horn handle (JAJ). It expands into a slender blade with a gently convex back and straight blade edge curved gently to the tip. The handle does not cover the start of the tang.

A3.336 **SF 112.18 (Fig A75l)** *L 104, W 55, handle L 50, blade W 15, tang section 5 x 10mm*. Pruning hook, type Ia (Rees 1979, 461-3, fig. 192), the tightly-curved blade expanding smoothly from the socket and ending in a rounded tip; the full extent of the cutting edge is unclear as it is obscured by corrosion. The socket comprises a flat tang which tapers to a fine tip, the end turned through a little under 90° to retain the handle. At the top of the tang are two wings, curved to form a handle socket of internal D 12.5mm.

Vehicle fittings

- A3.337 **SF 112.19 (Fig A76b; Plate 8)** *D 193, H 41-43; rim W 14, H 13-14; body W 3mm.* Nave hoop, with thick, square, protruding rim and thin body, tapered in places to an edge. Visible joint where edges of the hoop were lapped on a slight diagonal and welded; a slightly irregular oval hole (10 x 2mm) beside this is probably an accidental perforation. The thickened outer rim is a recognised Roman form (see Manning 1985a, 71, esp. H34).
- A3.338 **SF 112.20 (Fig A76a)** *D 132, H 42, W 4.5-8; wing W 5.5, L 18.5, H 13mm.* Nave lining (also known as an axle box). Penannular ring, the butting ends slightly offset. Tapered rectangle in section, thicker to the front, where a rectangular round-ended wing survives, 15mm back from the butt-joint. This would retain the lining in the axle; the other wing is lost. See Manning 1985a, 71-2.
- A3.339 **SF 112.21 (Fig A76d)** *D 135, H 43, W 5-10.5, wing H 15mm.* Nave lining. Penannular ring, slightly tapered at the ends which are upturned and slightly curved back to form retaining wings (both damaged, one largely lost). Tapering rectangular section, the front edge noticeably flattened.
- A3.340 **SF 112.22 (Fig A76c)** *H 50, max T 3.5-5, D 130; wing L 33, H 5mm.* Nave lining fragment. Around two-thirds of the lining is present, ending in an old, angled break, suggesting it was kept for reuse. One original squared end survives, with a thin turned-back wing to hold it in the hub; this is twisted and flattened against the wall. Tapering triangular section.

Structural fittings

- A3.341 **SF 112.23 (Fig A75j)** *L 86, H 47 (pivot H 32); arm tapers from 13.5 x 8 to 6 x 2mm.* L-staple from drop hinge. Long rectangular-sectioned horizontal arm tapering to a fine rounded end; vertical arm circular in section (D 9mm).
- A3.342 **SF 112.24 (Fig A75i)** *L 86, H 38 (pivot H 27); arm tapers from 11 x 7 to 5.5 x 1.5mm.* L-staple from drop hinge. Long rectangular-sectioned horizontal arm tapering to a squared end; vertical arm sub-circular in section (D 9).
- A3.343 **SF 112.25 (Fig A75n)** *L 73; head D 26 (eye 13 x 14); arms 47 x 7 x 4mm.* Double-spiked loop, tip of one arm lost, ends slightly splayed and arms slightly bent.
- A3.344 **SF 112.26 (Fig A75m)** *L 98; head L 28, W 25, section 12 x 4.5.* Double-spiked loop, the last 15mm of the tips bent in the same direction. Broad, flat bar tapers into the arms. Fragments of mineralised wood between the arms; unclear if *in situ*.

Other / non-specific fittings

- A3.345 **SF 112.27 (Fig A76e)** *L at least 175, plate 48 x 20, rod D 7.5mm.* Steelyard, now in fragments. One end has a flat plate with two perforations along its axis; both have remains of rods from suspension fittings, one a loop with the end wrapped round its arm, the other a flat-sectioned U-shaped loop. The circular-sectioned arm extends from one side of the plate; part is missing, but it ends in a shallow hook to hold the balancing weight or produce. For the type see Manning 1985a, 106-7.
- A3.346 **SF 112.28 (Fig A76f)** *L 30, H 15.5, T 4, est D 40mm.* Circular collar fragment (about a quarter surviving) with a low plano-convex section. Unidentifiable wood on

inside edge, implying it was attached to something; bone from adjacent handle in external corrosion.

- A3.347 **SF 112.29 (Fig A76g)** *48.5 x 44; strip 8.5 x 3mm*. Square collar with rounded corners, formed from a fine strip.
- A3.348 **SF 112.30 (Fig A76h)** *D 25 x 30, H 21, T 1.5-2mm*. Small oval collar; flat section with rounded ends.
- A3.349 **SF 112.31 (Fig A76i)** *D 78, rod D 7.5mm*. Ring, probably a handle. Circular section; lapped and welded join visible on X-ray, the section flattened here on the inside.
- A3.350 **SF 112.32 (Fig A77a)** *D 93, T 8-11mm*. Ring, circular-sectioned; probably a handle, the variable section thickness suggesting wear.
- A3.351 **SF 112.33 (Fig A77b)** *L 141, bar 17.5 x 5; terminals D 28.5, 25 x 28, perforation D 7mm*. Handle? Slightly curved bar, with expanded irregular discoid terminals perforated for attachment, shaped to fit a curved surface.
- A3.352 **SF 112.34 (Fig A77c)** *L 95, section 10 x 4; loop H 34, W 24, T 6mm*. Vessel handle and fragmentary mount. Rectangular-sectioned bar, bent into a tight C, the ends tapered to a round section; the intact one is gently curved, and sits in (but is not linked to) a looped fitting (with oval loop, internally 15 x 7.5mm) with a broken shank. The over-tight curve and gentle hook of the terminal suggest this was not a functioning handle, but was one which had been prepared for use but had still to be tailored to size for a vessel.
- A3.353 **SF 112.35 (Fig A77d)** *L 70, D 28 x 31, T 1-2mm*. Conical ferrule, tip lost to corrosion spalling. Open seam; top edge irregular.
- A3.354 **SF 112.36 (Fig A77e)** *L min 125, W 10.5, T 2mm*. Fine strip, slightly plano-convex in section, one end cut square, other broken.
- A3.355 **SF 112.37 (Fig A77f)** *L 116, W 16, T 1.5-2.5mm*. Folded strip, probably for reuse. Intact end gently rounded; other end lost. A non-joining fragment appears to be part of the same object, giving an overall length of some 410mm.
- A3.356 **SF 112.38 (Fig A77g)** Slotted object with near-perpendicular tapered tangs at either end, their tips lost; formed by welding two L-shaped rectangular-sectioned bars together, leaving a long parallel-sided gap between (2.5-3mm W) with pointed ends. L 120, W 8.5, H 27; bar 3 x 8.
- A3.357 **SF 112.39 (Fig A77h)** *L 150, W 70, bar 15 x 9.5, terminals W 16mm*. Large U-staple, plano-convex section, the spalled ends flattened into fastenings of uncertain form.
- A3.358 **SF 112.40 (Fig A77i)** *Estimated D 38, round section 5-6mm*. Fragmentary ring.
- A3.359 **SF 112.41 (Fig A77k)** *105 x 96 x 4mm; nail holes D 6; nail head 18 x 15, shank 5, L 35, giving a minimum substrate thickness of 27mm*. Door pivot? Large square plate with a central circular perforation; slightly irregular, with two corners slightly

extended; retained by four circular nail-holes in the corners, countersunk on the front, one pierced at a slight angle. A nail fragment survives in one, with a sub-square head, its shank angled and tip lost. Central circular perforation (D 33mm), the circumference on the underside with an irregular series of dents, perhaps from fitting it tightly to its substrate. The solid construction and dimensions might suggest use as the pivot from the top of a door (W H Manning, pers. comm.; cf. Manning 1985a, 127-8).

- A3.360 **SF 112.42 (Fig A77j)** *H 25, W 22, bar D 3.5, hoop D 7.5mm*. Buckle loop. D-shaped ring, the fractured fastening bar for a strap thinner than the hoop; circular section. Adhering organics on one side comprise a string of twisted wood fibres, but they could not be more closely identified (JAJ).

Nails

T-headed nails

- A3.361 **SF 112.43 (Fig A78a)** *Original L 56, head 21 x 8, shank 4.5 x 7.5mm*. Sinuous from removal; head slightly irregular, extreme tip lost.
- A3.362 **SF 112.44 (Fig A78b)** *L 72, head 20 x 9.5, shank W 6*. Head at angle to shank.
- A3.363 **SF 112.45 (Fig A78c)** *L 46, head 12 x 6, shank 8 x 6.5mm*. One arm of head lost; sinuous from removal.
- A3.364 **SF 112.46** *L 62, head 19 x 9mm*. Sinuous from removal; tapered arms, one slightly squared. Wood adhering to tip.
- A3.365 **SF 112.47 (Fig A78d)** *Original L c. 67, head 21 x 6, shank tapers from 4 x 7.5 to 2 x 5mm*. Shank bent at 45° from removal; tip clenched. Head somewhat asymmetrical and crudely formed, with channel at top of shank.

Type 1b nails (Manning 1985a, 134)

- A3.366 **SF 112.48 (Fig A78e)** *Original L 71, head 20 x 19, shank 10 x 9mm*. Tip bent back on itself, giving a wood thickness of c. 35mm; the lack of wood traces implies it had been removed.
- A3.367 **SF 112.49** *L 43, original L c. 65, head 18, shank 6mm*. Bent, tip twisted, implying removal.
- A3.368 **SF 112.50 (Fig A78f)** *L 55, head W 13, shank W 7mm*. Bent, head damaged, tip lost.

Unidentified

- A3.369 **SF 112.51 (Fig A78g)** *L 29, W 7.5mm*. Bent fragment.

Leather

- A3.370 **SF 112.52** *L 20, W 16, T 2mm*. Leather strap fragment, one original end slightly rounded, other lost.
- A3.371 **SF 112.53** *32, 14.5 x 8.5 x 1mm*. Short length of leather strap adhering to item.
- A3.372 **SF 112.54** *23 x 19 x 7mm*. An organic fragment attached to the surface of item 15 at an angle, probably a leather strap.

Non-ferrous objects

- A3.373 **SF 112.55 (Fig A78h)** *D 34, T 15-17; max W 45; best iron hoop W 11, section 4 x 3mm; m 118.3 g.* Lead disc weight, the edge channelled; perhaps a plumb bob, though the form is unusual. Remains of diametrically-opposed iron suspension loops, comprising sub-circular rods threaded through an elbow bend cut into the lead. One perhaps replaced the other; there are holes for an earlier version 90° round the circumference, with a distorted area opposite this hinting at further repair efforts. Two parallel, widely-spaced cuts on one face, leading in from the edge, are too irregular to be an inscription.
- A3.374 **SF 112.56 (Fig A78j)** *Flat extent 103 x 87.5; as folded 50 x 87.5, T 0.5mm.* Copper alloy mount. Sub-square sheet, some edges slightly rounded; folded to form an asymmetrical U-sectioned edge binding for an organic medium some 6mm wide. No rivet holes. Some leather traces on outer surfaces.
- A3.375 **SF 112.57 (Fig A78i)** *40.5 x 39 x c. 0.3mm.* Sub-square copper alloy mount, slightly tapered. Five circular or oval perforations (D 2-3mm; one broken, probably recently), are arranged along three sides; three on one long edge, and opposed ones on the short sides, but not in the corners; a groove from one leads to the corner, perhaps a marking-out line. The fourth, slightly dished side, has none. Unflattened flashing round the perforations on the underside implies either the mount was unused or was used on a soft substrate.

Animal bone

- A3.376 Counts were made of the identifiable fragments of cattle, sheep/goat and pig if they encompassed an anatomical zone, or distinguishing non repeatable characteristic on an individual skeletal element, as defined by Rackham (1987b). This method endeavours to reduce over recording of heavily fragmented bones and provides compatible data sets for comparison between the species. Ribs with the capitulum and vertebrae with zones were assigned to the categories of cattle size or sheep size. All identifiable fragments of all other species were recorded. Loose cheek teeth that clearly derived from one tooth row were counted as either mandible or maxilla, to reduce over-representation.
- A3.377 At the time of the assessment, most of the assemblage had not been washed. The number of identifiable fragments has increased substantially now the bones are clean. However, many teeth and some bones have not survived washing intact and are now reduced to fragments. Identifications made at the assessment stage have been used where bones are no longer identifiable. The disintegration of cattle teeth, particularly, has reduced the ageing information for the composition of the slaughter population.
- A3.378 The species present are listed in Table A4.64. It can be seen that numbers of identifiable fragments from the sub-phases are very small. Any interpretation of these finds is therefore tentative and may merely reflect the small size of the sample. The majority of the finds derive from the domestic farm animals reared for food, with cattle bones being most numerous. This is a reflection of the enhanced survival of the larger, more robust cattle bones. Horse bones may be well represented for a similar reason. The other companion animal, the dog is also present. Wild resources appear not to have contributed to the Table with the red deer finds being of antler, not meat bearing bones. Poultry are present only in Phase 6, again an indication of

survival, not original distribution. High status dining is hinted at by the single find of fish. Small commensal species are suggested by a solitary frog/toad.

Relative proportions of the domestic species

	Phase 3		Phase 5		Phase 6	
Cattle & cattle size	32	59%	69	75%	121	80%
Sheep/goat & sheep size	15	28%	17	18%	22	14%
Pig	7	13%	6	7%	9	6%
Totals	54		92		152	

A3.379 Although sample sizes are extremely small, there is a tentative suggestion of a difference in species representation between the earlier Romano-British Phase 3, with proportionally more sheep/goat and pig remains, and the later Romano-British and Anglian phases 5 and 6, dominated by cattle bones. Neither hand recovery nor preservational bias can obviously account for this, since the pits of Phase 6 should be least affected by these factors.

A3.380 Butchery marks were more readily observed once the bones had been washed. Chop marks are most common and principally observed on cattle bones from the Phase 6 pits. One example of a, very small but not juvenile, cattle scapula with a suspension hole in the blade was noted from context 763, the fill of the large Phase 6 pit in Area H (F777).

Cattle

A3.381 The collection of cattle elements is dominated by loose teeth, many of which are no longer distinguishable between molars 1 and 2. Several of the groupings of decayed cattle teeth probably represent the original deposition of at least complete teeth rows and possibly complete heads. All the examples of these are finds from Phase 6: contexts 2 and 3 filling the possible *Grubenhau* (F4) in Area A; and context 720 filling the Area H hollow (F730). Other concentrations of teeth, in better condition but also representing the original presence of large parts of skulls, were seen in the Phase 6 pit fills 762 and 763.

A3.382 Post-depositional loss is illustrated by Table A4.65. This demonstrates the survival of a selected suite of skeletal elements from the Phase 6 pits. The pattern indicates the presence of all parts of the body, suggesting slaughter and consumption on site, skewed towards the more robust bones, indicating some preservational bias. The Phase 6 cattle bones from contexts other than the pits are scarce in comparison, indicating only that some parts of head, fore and hind limbs have survived.

A3.383 Due to the less than ideal condition of the bones, the paucity of unfused bones from immature animals in Table A4.66 is unlikely to be representative of the preferred age stages for slaughter.

A3.384 Since teeth are more durable than bone, the tooth wear data in Table A4.68 may give a more reliable indication of age at death than the epiphyses. The third molars, in particular, suggest that beef was sourced from adult animals that had survived into and beyond their third year, but were not aged. The slight wear category corresponds to Grant's (1982) tooth wear stages (TWS) a-f. While TWS were recorded, there are too few data for detailed consideration. Three mandible tooth rows, from the Phase 6 contexts outside the pit groups, give Mandible Wear Scores (MWS) of 29, 30 and 42, which gives an indication of the MWS range represented by Table A4.68. A

partial mandible from a very young calf was recovered from context 763 of the large Phase 6 pit (F777) in Area H, but only one deciduous tooth was still *in situ*.

- A3.385 Few bones were sufficiently well preserved for measurements to be taken. The basal diameters of four horn cores divide into two larger and two smaller examples, probably males and females.
- A3.386 A few abnormalities were observed. Two mandibular third molars lacked the third column, a congenital trait in the Romano-British cattle population. Four teeth showed uneven wear. Such malocclusion may be an age-related condition, possibly caused by tooth loss in the occluding tooth row. One acetabulum from Phase 6 exhibits eburnation on the pubic facet, a degenerative age-related condition. One first phalanx has expansion of the proximal end, which may be a response to either draught work or the stress on the feet of an active working bull. The most interesting and unusual condition is displayed by a bovine lumbar vertebra from Phase 5a, where the entire caudal epiphysis shows pitting and eburnation. There is also bony growth on the vertebral body, indicating an area of active inflammation and bone deposition at the time of death. This appears to be an example of spondylosis deformans (Baker & Brothwell 1980, 129-30) which is generally associated with bulls rather than cows. This condition can result in an inability to serve cows, so could indicate the reason for culling this animal.

Sheep/goat

- A3.387 There were insufficient identifiable fragments from any one phase for meaningful consideration of body part representation. However, Phase 5 is outstanding for the presence of three partial skeletons, two of which are certainly sheep. The body from Phase 5a has lots of fresh breaks on the surviving bones and may in fact have been a complete skeleton that has not been completely recovered by hand excavation. The head and major limb bones are mostly present but not the ribs and vertebrae. The horn cores on the skull are definitely of sheep morphology and appear feminine. The full permanent dentition is present, giving MWS 32. Although wear is advanced on molar 1, the third molar is at a very early wear stage, suggesting an age at death not far advanced from the eruption age of about 2 years for this tooth. The epiphyses on the limb bones are fused, with the exception of the proximal humeri and a clear fusion line on the distal humerus. Following Silver (1969), this suggests an age at death at the upper end of the 2.5-3.5 years old bracket. This animal was a young adult ewe, possibly about 3 years old at death. There were no obvious butchery or skinning marks on the bones to suggest utilisation of the carcass. The findspot of context 386, a Phase 5d mixed demolition rubble filling the interior of the aisled building, suggests opportunistic disposal of a natural mortality, such as a lambing time casualty.
- A3.388 Most of the body from Phase 5b had been burnt, with the unburnt bones probably merely the result of incomplete combustion. The find was made in a ditch fill and it is not clear whether it was burnt *in situ*. The one horn core present is again definitely sheep and also appears feminine. The permanent dentition is present, though with less wear on molar 1 and slightly more wear on molar 3 than the Phase 5a animal. The vertebrae present are unfused. The limb bones are fused, though the fusion line on the proximal humerus is clear. This animal would appear to have been a ewe, a little, possibly up to a year, older than the Phase 5a animal. The fact that this body has been burnt suggests that this body represents more than straightforward disposal of a natural mortality. Similar finds of burnt sheep skeletons were made at the late

Roman villa at Rudston (Chaplin & Barnetson 1980, 155-6). There is a distinct possibility that such burnt sheep bodies represent the disposal of the uneaten remains of a ritual meal, analogous to the Jewish Passover lamb, requiring the uneaten and inedible portion to be disposed of immediately and made inaccessible to scavengers. Such ritual disposal also survives as modern practice in the Greek Orthodox Church (Georgoudi 1989, 190).

- A3.389 The body from Phase 5c is of a much younger animal. This was recovered from a pit fill. The fusion line on the acetabulum is still clear and all the epiphyses are unfused, indicating this animal was about or less than a year old. No parts of the head were found. It is unclear whether or not this body is food refuse or a natural mortality.
- A3.390 These three bodies provide virtually all the information on epiphysial fusion for this site (Table A4.67). Two of the bodies are certainly sheep and the third one probably is. It is possible that goat is also represented on this site. One distal humerus from context 763, the fill of the large Phase 6 pit in Area H (F777), appears much larger and more robust than those from the sheep bodies. Unfortunately the fragment has suffered excavation damage and also exhibits “penning elbow”, an exostosis on the lateral condyle (Baker & Brothwell 1980, 127), so a positive identification is not possible.
- A3.391 Excluding the bodies from phases 5a and b, finds of either loose or *in situ* teeth were infrequent. The few examples in Table A4.68 suggest mostly young, rather than aged, adults as exemplified by a single jaw from Phase 3c at MWS 21.
- A3.392 No measurable bones were recovered. Even from the bodies, the bones were either burnt, unfused or damaged. Evidence for one male was seen in the form of a horn core chopped from the skull, from Phase 5a.

Pig

- A3.393 Pig bones were such scarce finds that no interpretation of body part representation is possible. One group of bones from context 1423, a pit fill in Phase 5c, may be a partial skeleton. Part of a skull, with a female canine, has the molar 1 in wear, molar 2 present but unworn and molar 3 unerupted, suggesting an age at death about one year old. Also from this context are five cervical vertebrae, but not the atlas and axis, with the neural arches not yet fused to the centra, as well as unfused epiphyses. This section of neck suggests a younger animal than the head and there is no articulation between the two. A humerus with both epiphysial ends unfused and a scapula with the tuberosity unfused possibly derive from the same animal as the neck. This is clearly not a largely complete articulated body comparable to the sheep skeletons but the remains of a head and a forequarter, possibly not from the same animal.
- A3.394 Other than this find, ageing information is scanty. The few teeth in Table A4.68 suggest some older animals in Phase 6, with molar 3 in wear. Only one minor problem was seen: a rotated premolar 1 on a maxilla with a male canine socket, from Phase 6.

Horse

- A3.395 Overall, horse bones are as common as those of pig in Phase 3 and more numerous than those of pig in phases 5 and 6. This immediately indicates that horse bones are present throughout the main phases of occupation and refuse disposal in comparable

abundance to those from an unequivocal Table animal. Horse bones are generally more numerous on rural than urban sites and the author has frequently commented on the prevalence of horse bones in even the smallest Iron Age and Romano-British rural assemblages from a swathe of sites down the east of the country from the Tyne to the Humber. This phenomenon is not confined to this region. Parity between pig and horse bones was also noted for Romano-British contexts at Shapwick (Gidney 2007), and Hamilton-Dyer (2002) also observes that rural sites in the south-west tend to have relatively high proportions of horse bones compared to urban sites. Of particular relevance to Quarry Farm is Luff's (1999, 222) finding that, in a comparison of settlement types, horse bones contribute a minimum of 5% of the assemblage on most villa sites.

- A3.396 The standard interpretation has been not to suggest that horse formed part of the human diet but that the distribution of horse bones may be seen as disposal of carrion, largely separate from human domestic refuse. A dead horse presents a significant problem in terms of waste disposal and the simplest solution has usually been to push the body into the nearest convenient open pit or ditch. Legislation from much later ages makes it clear that there has always been a significant element of fly tipping in the disposal of such carcasses. Dispersal of the remains can be aided by the action of scavengers, particularly dogs.
- A3.397 On this site it is clear that, in the Phase 6 pits, horse remains have been deposited as a component of the normal range of domestic refuse and that some of the horse bones have been butchered in a comparable manner to those of cattle. The feeding of knacker's meat to dogs is a further standard explanation that could cover these finds. However the association of horse bones with what would normally be considered typical human food refuse does require that the concept of possible hippophagy on this site should be considered. Hyland (1990, 249) notes that the eating of horsemeat was repugnant to Romans and only resorted to in time of famine. Jukes (in prep) is currently exploring the origins of the Anglo-Saxon Christian taboo on hippophagy. Jukes has defined three criteria to assess the probability of archaeological finds of horse bones having been possibly eaten by humans, rather than being refuse from craft working, victuals for dogs or merely carrion. These are:
- a. horse bones occur on the site
 - b. the horse bones show either butchery marks or evidence of marrow extraction
 - c. the horse bones are found in the same context as other human food-domesticate bone-waste.
- A3.398 Bone from context 763, a fill of the large Phase 6 pit in Area H (F777), fulfills all three of Jukes' stipulations. A horse and a cattle metatarsal were butchered in the same manner: these are marrow bones. Also, one first phalanx of horse, from context 826, another fill of the large Phase 6 pit in Area H (F777), has been split in half longitudinally. Horse dismemberment in Phase 3a is indicated by a scapula from context 736 (the fill of posthole F735 in Area E) that has been chopped.
- A3.399 Cool (2006, 91-2) notes that regular and convincing evidence for human consumption of horse is sparse. One exception is the religious complex at Ivy Chimneys, Witham, Essex (Luff 1999, 205-7). Cool (2006, 91) makes the obvious connection from this of a ritual or religious basis for hippophagy. However Cool makes the very much more intriguing suggestion that the indigenous iconography of horses suggests they were an attribute of landholding. In such case, eating horse would have very different connotations to eating beef.

- A3.400 The remaining finds of horse elements from Quarry Farm appear to fall into the traditional interpretations, with concentrations in ditch fills suggesting carrion and loose teeth indicative of poor preservation and background debris. One group of teeth from Phase 3 is probably all that is left of a skull. The ageing information indicates adult animals with fused epiphysial ends. One jaw from Phase 6 with deciduous premolar 4 and molar 2 indicates an age at death between two and three years old (Schmid 1972, 77). A further jaw from Phase 5 with little wear on molar 3 indicates an animal about four years old. An aged animal is indicated by advanced tooth wear on a jaw from Phase 3.
- A3.401 The late Roman house and Anglo-Saxon ditches from Newton Bewley, Hartlepool, provide a local comparison with Quarry Farm. Here, too, pig and horse bones were recovered in similar numbers and clear and unequivocal chop marks were seen on the horse bones. The presence of dog gnawing marks on the same bones clouds the interpretation but it was noted that horse meat could have been eaten by the occupants (Gidney 2001).
- A3.402 A re-assessment of horse bones and hippophagy from British rural sites in the north-east, whether Iron Age or Roman period, is beyond the scope of this report but this site shows that such a re-appraisal is necessary.

Dog

- A3.403 The largely complete skeleton of a dog was recovered from context 763, a fill of the large Phase 6 pit in Area H (F777). The bones are generally in a good state of preservation but are slightly brittle, which has led to a lot of minor fresh damage during recovery. All parts of the body are present but there is very poor representation of the phalanges, demonstrating that it is very easy to miss these small elements during hand recovery.
- A3.404 The animal was an adult male. All the epiphysial ends are fused and all the permanent teeth are present, with some wear on the carnassials and adjacent teeth, used for gnawing bones. The *os penis* is present.
- A3.405 The skull was too damaged for measurements to be taken to establish cranial indices (Harcourt 1974). Measurements were taken of the posterior region of the cranium, following Jones *et al.* (no date). Greatest Length measurements were taken of the major limb bones to establish the withers height of the animal, following the factors given by Harcourt (1974, 154). The height estimates from individual bones and combinations of bones range between 0.63m and 0.66m but indicate the general stature of this dog.
- A3.406 The animal appears to have been in good skeletal health at death with no sign of degenerative arthropathies or oral problems, other than a possible minor gum inflammation. This dog had suffered traumatic injury earlier in its life. Four ribs showed clear bony growths and mis-alignment of the shaft indicative of healed breaks. The dog had therefore suffered a serious injury to at least one flank but had made a total recovery. The central metacarpals of the right front paw also showed evidence of bony growth suggestive of a healed injury but this appears to have been a surface injury, not broken bones. Such injuries, and recovery, and the stature of the animal are compatible with the initial suggestion made in the original assessment that this might have been a favoured hunting hound. It is unclear whether the late

Roman gilded brooch found in this pit was associated with the burial of the dog. Although the dog was deposited in a pit accumulating other waste, the brooch suggests some of the refuse was more than routine discard.

- A3.407 One calcaneum from this skeleton was submitted for radio-carbon dating. The result is 340-540 cal AD for the date of deposition.
- A3.408 Other than this skeleton, finds of actual dog bones were rare. Context 826, a fill of the large Phase 6 pit in Area H (F777), produced a scapula with a hole in the blade that appears very like the suspension hole seen in cattle, and less often, sheep scapulae. Phase 5 produced two bones from separate contexts.
- A3.409 The characteristic gnawing marks made by dogs on the bones of other species is usually a good indication of the presence of dogs. As seen from the table below, such gnawing marks are infrequent. In part this is a reflection of the poor surface condition of much of the assemblage. The presence of gnawing marks in Phase 3 testifies to the presence of dogs, despite the absence of actual dog bones. One dog can gnaw an awful lot of bones during a lifetime, so few dogs appear to have been present at any time on this site.
- A3.410 The low numbers of dogs that appear to have been kept on this site, and the equivocal evidence for gnawing marks on horse bones, tends to imply that the horse bones found were not primarily sourced to victual dogs.

Numbers of canid gnawed bones

	Phase 3	Phase 5	Phase 6 not pits	Phase 6 pits
Cattle	3	2		4
Sheep/goat	3	1	1	
Horse	1?	1?		

Red Deer

- A3.411 Red deer is the sole wild faunal resource utilised by the occupants of this site for which evidence has survived. One limb bone was recovered, a radius showing chop marks, from the Phase 6 pit fills. This is the only evidence for the consumption of venison. The remaining finds are all fragments of antler. The antlers are all large examples deriving from senior stags. One find from Phase 6 had clearly been shed. The use of antler for craft working is suggested by a sawn tine from Phase 3a. The remaining antler pieces were in poor condition.

Poultry

- A3.412 Only two bird bones were recovered, one example of domestic fowl and one of goose, both from Phase 6. These bones attest the presence of domestic poultry on the site but not their economic importance.

Amphibian

- A3.413 One frog/toad long bone was found in context 516, a Phase 4 deposit filling the flue of the *caldarium* in Area C. Once disused, such a place would be attractive to hibernating toads, for example. This small bone can only hint at the variety of small, wild commensal species originally present.

Fish

- A3.414 A single fish bone from context 370, a fill of the Phase 5d oven (F274) located at the northern end of the aisled building in Area C, was an unexpected find, given the

generally mediocre preservation and was initially thought to be of recent origin. However the findspot, a fill of a stone drain, is well sealed and indicates a small pocket of benign burial environment.

Glass

A3.415	Abbreviations
BD	= base diameter
D	= diameter
Dims	= dimensions
H	= height
ID	= internal diameter
L	= length
PH	= present height
RD	= rim diameter
T	= thickness
WT	= wall thickness

Tablewares

Polychrome

- A3.416 **1 (SF 41; Plate 10)** *Context 751, Phase 6 and Context 1016, Phase 5b: A - Dims 32 x 53mm, WT 3.5-4mm; B - Dims 28mm x 56mm, WT 3.5mm; C - Dims 17 x 32mm, WT 3.5mm.* Seventeen fragments, restored in three pieces (A,B and C), wide slightly convex side and almost flat base, large shallow plate or dish. Colourless with greenish tinge. Thin sections of polychrome mosaic canes in translucent blue, green and turquoise and opaque white, red, yellow and green embedded in upper surface. Canes with at least six floral patterns linked to lengths of flat rod and an area of wavy strips and roundels showing part of a floral design. Dull surfaces with strain cracks, particularly in A and B, some pitting. Some edges of A and B appear to have been re-worked and may have been cut and reshaped.

Strong colours

- A3.417 **2 (SF 59)** *Context 268, Phase 3a: Dims 15.5 x 6mm.* Melted lump. Yellowish brown. Grey ash on one surface.
- A3.418 **3 (SF 5; Fig A79a)** *Context 491, Phase 3b: PH 31mm.* Rim and handle fragment, jug or jar. Yellowish green. Edge of everted rim. D-sectioned rod handle attached to rim with folded thumb-rest.

Colourless

- A3.419 **4 (SF 63; Fig A79c)** *Context 516, Phase 4: PH 23.5mm, Body D approximately 80mm, WT 1mm.* Three body fragments, cylindrical cup with trails. Vertical side, rounded change of angle, lower body tapering in, with fine horizontal trail applied at change of angle. Dull, strain cracks.
- A3.420 **5 (SF 60; Fig A79e)** *Context 330, Phase 3a: PH 5.5mm, BD approximately 60mm.* Three lower body and base fragments, probably cylindrical cup. Open lower body and slightly concave base with narrow trailed base ring. Wear on base ring.
- A3.421 **6** *Unstratified: PH 18mm, WT 1mm.* Body fragment, cylindrical cup. Straight side above rounded change of angle. Dull.

A3.422 **7 (SF61; Fig A79f)** *Context 981, Phase 3d: PH 8mm, RD approximately 90mm, WT 1.5mm.* Rim fragment, cup or small bowl. Everted rim, edge fire rounded, tapering in to upper body. Dull.

Bluish Green

A3.423 **8** *Unstratified: Dims 24x22.5mm, WT 1mm.* Body fragment, probably jar or jug. Some bubbles. Wide convex side above base ring. Iridescent weathering.

Bluish green Containers

A3.424 **9** *Context 1, Phase 7: PH 17mm, WT 2.8mm.* Body fragment, cylindrical bottle. Straight side. Dull.

A3.425 **10 (SF 58)** *Context 3, Phase 6: Dims 26 x 17.5mm, WT 2.5-3.5.* Body fragment, prismatic vessel, probably a bottle. Straight side.

A3.426 **11 (SF 55)** *Context 241, Phase 3a: PH 38mm, WT 2.25mm.* Body fragment, prismatic vessel, probably a bottle. Straight side with right angle.

A3.427 **12** *Context 492, Phase 7: Dims 21.5 x 17.5mm, WT 3.75mm.* Small fragment from shoulder of prismatic vessel, probably a bottle. Thick wall. Some usage scratches.

A3.428 **13** *Context 492, Phase 7: Dims 18 x 15mm, WT 3-4mm.* Body fragment, prismatic vessel, probably a bottle. Straight side.

Unidentified

A3.429 **14** *Context 492, Phase 7: Dims 50 x 36mm.* Burnt lump. Bluish green. Completely melted, probably from vessel.

A3.430 **15** *Context 1107, Phase 5d: Not measured.* Five tiny chips. Bluish green.

Objects

Bangles

A3.431 **16 (SF 62; Fig A79g)** *Context F1474, Phase 5a: H 17.5mm, T 10, ID 70mm, L 37.5mm.* Fragment (58° of circumference), D-sectioned bangle. Dark blue ground, four thin opaque white and four opaque yellow narrow trails overlaid by three slightly oblique blue and opaque white twisted cords, all marvered nearly flush with convex surface. Some wear.

A3.432 **17 (SF 56; Fig A79d)** *Context 882. Phase 3c: H 11mm, T 6.5mm, ID 50mm, L 33.1mm.* Fragment (65° of circumference), D-sectioned bangle. Opaque white. No visible weathering.

Bead

A3.433 **18 (SF 54; Fig A79b)** *Context 964, Phase 4: H 4mm, D 8.8mm, Dperforation 2.2-3.0mm.* Small annular bead. Opaque yellow. Flat top and bottom surfaces, tapering perforation.

Geological stone identification

General visual assessment

A3.434 The stone blocks were relatively uniform, demonstrating the following characteristics:

- Composed of medium to fine grains
- Colours ranging from white to brown/buff and red
- Thin lenses of rounded pale mud flakes common in many pieces
- Most demonstrated medium thickness bedding averaging 200-300mm
- Flat even bedding surfaces - planar bedding
- Some thinner 'flaggy' pieces
- Evidence of cross-bedding structures within the fabric of the blocks
- Dark mineral spotting
- Visual evidence of some white (dolomitic?) cement within unweathered section of the rock.
- Generally uneven vertical fracture at right angle to obvious bedding planes

Microscopic examination

A3.435 Six representative samples were examined under the microscope. The following observations were noted:

- All samples were composed almost entirely of quartz grains with cemented matrix
- Visible cement of white dolomite (where fresh) or quartz;
- Sub-rounded quartz grains
- Bedding planes marked by finer grains and mica flakes
- Finer grained pieces contained abundant mica flakes throughout
- Many contained dark mineral 'spotting' that may be manganese or similar rounded deposits both within the matrix and along bedding planes

Comparison with Barwick Quarry samples

A3.436 Although much of the quarry is now overgrown it was possible to inspect a number of outcrops exposing the same beds along a length of about 20 metres. It was obvious that the quarry had been much larger but surrounding slopes had become degraded and overgrown.

A3.437 Along with a number of others in the area to the north of the adjacent River Tees, Barwick Quarry had been operated in the 19th century for its exposures of Cleveland Dyke rock. This is a hard dolerite (medium grained basaltic igneous rock) known commercially as 'whinstone', used extensively for road setts (rectangular blocks) used to create the active surface of roads. The quarry operators used the river as easy transport to take the rock down stream to Stockton and Middlesbrough.

A3.438 The Cleveland Dyke is vertical igneous intrusion injected in to the country rock in a semi-molten state. Along its contact edges it typically 'bakes' and shatters the country rock. Such effects can be seen elsewhere in the Cleveland Hills where it is still exposed in a number of large quarries. Here the Dyke has cut through horizontally-bedded sandstone of Triassic age, comprising units known as the Sherwood Sandstone Group.

A3.439 The exposures show a thick basal unit of medium grained buff-coloured sandstone topped by thinner flat-bedded units averaging around 200mm in thickness. Beds were generally flat-topped and planar but with more uneven vertical fracturing. Thinner beds were flaggy in nature. There is abundant evidence of cross-bedding structure within the individual beds.

A3.440 The archaeological samples had many characteristics in common with the samples taken from the adjacent Barwick Quarry. They were comparable in colour, grain size and mineral content and structurally had flat planar bedding and bedding thicknesses in the upper unit equivalent to those seen in the loose blocks inspected.

A3.441 No outcrops of the red, soft siltstone were seen in the exposure but are recorded in the general sequence of the Sherwood Sandstone - in fact these are a more typical rock type of the Group and dominate the foreshore exposures at Seaton Carew. There is therefore reason to suppose that other areas of the quarry did once expose this rock type. It is also unlikely that the obvious physical properties such as its red colour, ripple marking and flaggy nature would have made it worth transporting any distance.

Stone examined at Durham University

A3.442 Boxed material. Seven boxes of stone finds and some loose material from the site were examined in the Archaeological Services offices. A full listing of the geological identification of these items is provided in Table A4.69.

Worked stone artefacts

Axehead by Alan Saville (Fig A80)

A3.443 **SF 196 (Fig A80a)** *Context 797, Phase 3c: L 108, W 52, T 27.5mm; weight 212 g.* Near-complete Neolithic stone axehead, broadest at the cutting edge, with the virtually straight sides tapering uniformly towards the butt. The convex cutting edge is intact apart from a minor modern chip on one face, but has become blunted, and viewed end-on is slightly curved. The sides of the axehead are markedly faceted (max W 9mm towards the blade end) and inclined inwards towards one face, giving the axehead a somewhat sub-trapezoidal cross-section. The butt has suffered recent damage in the form of a blow from one face, leaving a flake scar 23.5mm across. This has slightly truncated the position of a previous ancient removal, evident as a pronounced flake scar through the ground surface on one face. The scar represents ancient damage through this surface. The damage at the butt makes it difficult to be absolutely certain of its original appearance, but it was probably squared off and faceted at a point just about coincident with the existing maximum extent. Elsewhere there are only two minor flake scars which preceded, but have not been removed by, the all-over grinding. There are some traces of slight faceting on the surface of both faces, resulting from uneven grinding, perhaps relating to resharpening or reworking. The surface is now matt, with a yellowish-olive-pale brown colouration, though the recent break at the butt shows that internally the rock is a darker grey-green; the present surface colour and condition is a result of weathering. This has also dulled the surface, altering what would originally have been an all-over ground and polished appearance. Material: fine-grained volcanic ash.

Whetstones

A3.444 **SF 197 (Fig A80b)** *Context 2, Phase 6: L 64.5, W 46, T 27.5mm.* Small fragment of a rectangular-sectioned flat whetstone, broken across the width. One face and one side have been flattened and smoothed from use with light polish. The remaining surfaces are unmodified. Fine hard buff sandstone.

A3.445 **SF 198** *Context 1314, Phase 4: L 179, W 48, T 43mm. F767.* Natural rounded cigar-shaped stone with one surface flattened and smoothed, with an oval area of red

ferruginous staining (59 x 32mm) perhaps from use. Secondary use as a pounder is indicated by a small round area (D 11.5mm) of peckmarks on one rounded end. Probably dolerite.

- A3.446 **SF 199** *Context 1016, Phase 5b: L 133.5, W 48, T 35.5mm.* Natural cigar-shaped stone with one smoothed and slightly flattened face. The wear is concentrated on the side of one face with an adjacent patch (43.5 x 6.5mm) of dark red staining on the edge and on one rounded end, perhaps from secondary use as a smoother. Both tips have small circular pecked facets (10mm, 13mm D) from secondary use as a pounder. Igneous rock (type uncertain).

Grinder/rubbing stones

- A3.447 **SF 200 (Fig A80c)** *Context 2, Phase 6: L 153.5, W 49, T 34mm.* Natural elongated cigar-shaped stone; one face has seen considerable use as a grinder/rubbing stone, creating a distinct convex smoothed and abraded face. Both sides have an elongated band of abrasion (127 x 17mm, 129 x 20mm) adjacent to the worked face. It is unclear whether this is the result of deliberate shaping or from use. Fine hard buff sandstone.
- A3.448 **SF 201** *Context 3, Phase 6: Remaining L 58, W 55.5, T 37mm.* A small fragment of an ovoid cobble; one face is flattened from use, perhaps as a grinder/rubbing stone. Dolerite.

Spindle whorls

- A3.449 **SF 202 (Fig A80d)** *Context 1242, Phase 5a: D 31.5, T (remaining) 14mm.* Biconical shale spindle whorl with a drilled central perforation (D 7mm). The material is badly laminated and the lower portion of the whorl has been lost.
- A3.450 **SF 203 (Fig A80e)** *Context 668, Phase 6: D 39, T 7mm.* Flat disc-shaped spindle whorl with slightly rounded edges and drilled central perforation (D 7.5mm). The edges have lathe-turned decoration comprising two raised ridges; the lower surface has a series of radial tool marks from manufacture. Slight damage to one edge. Oil shale or canneloid shale.
- A3.451 **SF 204 (Fig A80f)** *Context 1242, Phase 5a: D 45, T 15mm.* Unfinished sandstone spindle whorl, with off-centre drilled perforation (D 5mm), the ends flared into an hourglass (D 9mm). The edges and faces are coarse and uneven.

Other

- A3.452 **SF 205 (Fig A81a)** *Context 1278, Phase 5a: 200 x 250 x 110mm.* Unfinished vessel? Crudely-shaped circular sandstone fragment, fractured off a larger object (perhaps in course of manufacture, given its crudeness). The exterior is flaked. Sub-circular pecked perforation / hollow (maximum surviving W 150mm). The top edge is the weathered natural laminar surface, with some cutmarks.
- A3.453 **SF 206 (Fig A81b)** *Context 1463, Phase 5b: L 211, W 131, T 103mm.* Weight. Broken sub-rectangular body; tapers towards the rounded end, defined by a pecked groove, which has a transverse drilled suspension hole (D 33.5mm). Point-dressing on all surfaces. Sandstone.
- A3.454 **SF 207 (Fig A81c)** *Context 318, Phase 5d: H 200, W 160, T 120mm.* Unfinished miniature altar. Rectangular block, expanded at base and top, the latter damaged.

The expanded base has a groove on the front and two sides, suggesting the beginning of a double roll-moulding. Carefully-formed channelled toolmarks on all surfaces from point-dressing, mostly horizontal except on right side. The form resembles that of a crude small pillar, but it is interpreted as an unfinished altar on the basis of the size and form, with both plinth and capital, careful dressing and basal moulding. For similar-sized altars, cf. Collingwood & Wright 1965, nos 1024, 1081, 1084, 1087, 1145. Sandstone.

- A3.455 **SF 208 (Fig A81d)** *Context 1337, Phase 3b: L 235, W 195, T 59.5mm.* Ingot mould. Tabular dressed sandstone block, sub-rectangular in section. Three sides have been carefully squared off; one is broken. In the centre of one dressed face is a deep sub-rectangular mould with rounded corners (L 113, W 45, D 24mm) and dished base. The interior is stained from heat, as are areas of the slab's upper surface. Peckmarks remain on the interior of the hollow from manufacture, and also on the edges of the rounded ends.

Building materials

Architectural stone (all local sandstones)

- A3.456 **SF 209** *Context 236, Phase 5d: 310 x 160 x 110mm.* Moulded fragment from a plinth. Two faces survive, one with diagonal point-dressing, the other smoothed, with a recessed rounded moulding along the long edge, formed of a slightly concave recessed channel with rolled edges either side.
- A3.457 **SF 210 (Fig A81e)** *Context 236, Phase 5d: 435 x 330 x 130mm.* Reused architectural fragment with socket for upright. Tabular slab, both faces natural, with rough dressing on the lower surface to smooth it off. Pecked square socket (70mm wide, 20mm deep), 150mm back from surviving original edge, with flattened base and rather poorly-finished sides. Reused as a building stone; one original edge was retained as the visible face, with the others crudely dressed into a tapering block. A shallow ledge cut along one narrow edge was presumably to lock into another block.
- A3.458 **SF 19 (Fig A81f)** *Context 856, Phase 3a: L 620, W 305, T 140mm.* Broken dressed slab with remains of a door socket and curved wear. Tabular slab, the lower face mostly natural, thinned at the ends. The intact side uses a natural fracture plane with some coarse dressing; the ends are also roughly flaked, their top edges more carefully dressed square to provide a neat fit. The upper surface has occasional pick and point-dressing to smooth it; one end is neatly dressed with toolmarks perpendicular to the edge. On the fracture surface is a conical socket, slightly asymmetrical, with a rounded base (D 70, depth 75); it has been pecked, with subsequent use-smoothing indicating use as a door socket. A pronounced wear channel 45mm wide curves across one end of the slab, its sides damaged and its base smoothed. This is likely to be from a door, although not the one set in the socket.
- A3.459 **SF 212 (Fig A81g)** *Context 1227, Phase 3c: L 1040, W 280, T 110mm.* Flat rectangular slab, extensively dressed and relatively well-finished. The faces are dressed diagonally with a large point or pick (in two directions on one face). One edge uses a natural fracture plane, with fine flat chisel dressing at one end; the other edges are finely point-dressed, mostly on the diagonal. One face has a curved smoothed area of wear, 40-60mm wide, perhaps from the movement of a door.

- A3.460 **SF 213** *Context 603, Phase 5b: 162 x 102 x 25mm.* Roofing tile fragment, now lozenge-shaped; original form unclear due to breakage, but perhaps also a lozenge (the two original edges are at roughly 45° to one another). Broken across biconical perforation near tip (min 7mm, max 33mm).

Building materials

Building stones; the aisled building

- A3.461 A representative selection of building stones from the Phase 3a aisled barn was retained for study. All are local sandstones. Most are crudely squared blocks, tapering in plan and section, with one well-finished face. Face dimensions vary from 235-380mm W by 105-190mm H, and depth (perpendicular to the face) from 120-285mm. The faces are generally point-dressed except where a natural fracture plane has been utilised. One markedly better-finished block was also found, the front face with three rows of fine herring-bone dressing, one horizontal surface using a natural fracture plane, the other point-dressed, and the long edges well-finished with light point dressing (face 200 x 105, depth 250mm).

Building stones; other structures (all local sandstones unless noted)

- A3.462 **SF 214** *Context 469, Phase 3: 365 x 295 x 70mm.* Fragment of a squared tabular slab with natural ripple marks, worn on one face. Two edges naturally perpendicular, third flaked, fourth lost. Flooring slab from the hypocausted building – part of a floor, chosen presumably for both decoration and grip. Local micaceous siltstone.
- A3.463 **SF 215** *Context 236, Phase 5d: Face 160 x 115mm, depth 235mm.* Squared tapering building stone of same form as the ones in the aisled building but better finished. Horizontal surfaces and one edge use natural fracture planes; others flaked; front face has diagonal point-dressed channels.
- A3.464 **SF 216** *Context 1007, Phase 5a: The original dimensions are unknown, apart from the thickness (120mm); 210 x 225mm as it survives.* Fragment of dressed stone, broken and probably reused, with a shallow U-sectioned rectangular clamp-hole cut into the surface from the surviving edge (L 95mm, W 55mm, H 15mm). Traces of point dressing survive; several of the fracture surfaces are rather worn, indicating it was reused.

Brick & tile

- A3.465 Brick and tile were notably sparse on the site (1.2 kg / 34 fragments, excluding modern material), and clearly saw little use. There were no roof tiles, and only a few fragments of other forms: one fragment of a thick brick or building tile (T 50mm) came from F566, while thinner flat tiles (T 20-25mm) came from Contexts 236, 323, 328, 338 and 1331. A single piece of a stone roofing tile from Context 603 (see above) suggests that at least one building on site had a stone roof; others were presumably thatched or had wooden shingles. There were no box flue tiles associated with the hypocaust.

Daub

- A3.466 Over 4 kg of daub and burnt clay was recovered, the majority small amorphous abraded fragments. However, two preserve finger impressions, and five (perhaps eight) wattle impressions. Four main fabric types are present. The majority are a fine clay, red-brown in colour, with a small amount (about 5-10%) of small natural grit

inclusions. Also present are fragments of darker brown-red clay, slightly coarser than the 1st with larger and more frequent (about 10-15%) inclusions, and a light red-brown fine clay with fine sand/grit inclusions. Lastly is a red-brown coarse grit clay with large amounts (about 50%) of angular grit inclusions.

- A3.467 The daub was found throughout the site in a range of contexts from early Romano-British to modern. As Table A4.77 indicates, the dominant context was oven fills, probably derived from the superstructure of the ovens themselves, although the abraded condition means it is not possible to characterise the shape or form of the oven structures. However, most material was redeposited in secondary contexts, with small amounts from ditch and drain fills, structural features such as walls and foundation trenches, and rubble dumps. There are very few concentrations of material, but notable exceptions are over 0.5 kg of daub from a Phase 3b pit (F585) and a Phase 3d oven flue (F1311). 633g of daub was also recovered from within a stone drain (F274) connected with late Romano-British use of the site. These may represent demolition of nearby structures.

Wall plaster

- A3.468 Very little wall plaster is present amongst the assemblage, perhaps due partly to its soft fragile condition. None showed any paint traces, apart from a slight red hue on one fragment. Two contexts (both Phase 3d) produced plaster. Most (106 g) derives from the fill of a Phase 3 ditch (F1199), more or less equidistant from the villa, the hypocaust and the damaged building in area D, any of which could have been the source. A small quantity (12.3g) from the fill of the early hypocaust system was probably incorporated after the removal or destruction of the floor.

Mortar

- A3.469 Mortar has been differentiated from plaster following the criteria of Morgan (2001, 226), who argues that the two are often incorrectly recorded as one material; he distinguishes mortar as a bonding material and plaster as a finishing coat. Over 1.5 kg of mortar was recovered from the later phases of the site's use (Phase 3-7). This was visually examined, allowing variations in the composition to be recorded. Two types of mortar agglomerates were noted:
Type A: fairly soft to hard white chalk-/lime-rich mortar with few inclusions (< 15%) of small crushed tile/brick. This is distinguished from *opus signinum* due to the comparatively small percentage of tile/brick inclusions, and the lack of tile dust and large gravel inclusions. The high chalk-/lime component of this mortar gives it a bright white colour and contrasts sharply with the *opus signinum* which is red-brown in colour due to inclusion of larger quantities of sand and tile dust. Total wt 1716g
Type B: coarse, compact mortar with flecks of crushed tile/brick. Light-brown in colour. Total wt 33.7g.
- A3.470 The small quantity of mortar was fairly evenly scattered throughout the site, with no concentrations present. Most appears to have been recovered from secondary contexts although 33.7g of type B mortar came from the fill of a flue within the hypocaust building in Phase 4 (Context 516).

Opus signinum

- A3.471 Just under 3 kg of *opus signinum* was recovered. The condition of this material was variable, from a large flat section of floor (Context 302) to small abraded fragments that appear to have been worn and disturbed. Despite the variation in condition, the composition of the material was consistent throughout: a light red-brown

agglomerate of silt/clay-rich earth bound together with sand, small rounded pebbles and gravel, with a large quantity of crushed tile or brick and shell. The use of a high proportion of crushed and broken tile in the aggregate is the characterising feature of *opus signinum* (Perring 2002, 127). 2322 g of this material appears to be *in situ* internal flooring relating to the hypocausted structure (Phase 3b, Context 302). Over half a kilogram of further fragments was recovered from fill around the hypocaust system (Context 947), perhaps fragments incorporated in the fill after the repair or collapse of the building.

Querns

- A3.472 **Quern 1** Context 740, Phase 3a: approx 240mm across, fragment is 180mm long, max depth is 190mm. Half fragment of saddle quern, perhaps 40% extant. Shape sculpted with coarse hammering – no secondary working. Very smoothly worn grinding face. Medium/fine grained local sandstone. Poor milling properties.
- A3.473 **Quern 2** Context 1466 (Same as Context 944 below, but not joining), Phase 3a: 249 x 180 x 98mm. Fragment of Quern 1, has five small grooves (2-3mm wide, up to 3mm deep) on worn face (?grinding face) and four smaller grooves on opposite face (?base).
- A3.474 **Quern 3** Context 944 (Same object as Context 1466, but not joining), Phase 3c: 82 x 79 and 72mm thick. Small fragment (<20%) of saddle quern with small grooves in grinding face, one larger groove on basal facet and a further series of grooves and slots on the worked face between the grinding face and base. The large basal groove is 11mm wide and 3mm deep with a straight-sided and flat based cross-section. Reminiscent of ingot slots which are often found on later prehistoric querns in the north, but much too shallow in present state. Medium brown, fine-grained local Jurassic sandstone. Micaceous. Poorly bedded, without fossil or inclusions.
- A3.475 **Quern 4 (Fig A82a)** Context 782, Phase 3c: diameter 330mm, 152mm tall. Substantially complete beehive upper stone, approx. 90% extant, the only missing parts are fragments of the outer edge. Outer surface has small regular tooling, as has concave hopper, 140mm dia, and 72mm deep. Feed pipe is regular and well-drilled, diameter 25mm, the same diameter as the cylindrically-bored handle, 75mm deep. The grinding face is smooth, almost polished, and very slightly concave (max depression 9mm). Traces of occasional dressing marks from a round-tipped hammer are still evident. Worn asymmetrically, the base of the feed pipe is widened by 15mm on the worn side. There is slight modern damage beneath the handle hole and on the edge of the grinding face. Fine-grained local orange/yellow sandstone. No fossils or inclusions. Poor milling properties.
- A3.476 **Quern 5 (Fig A82b)** Context 720, Phase 6: diameter 330mm, ht 141mm. Substantially complete beehive upper stone, approx. 90% extant, damaged around outer edge, particularly around the handle hole. Moderately worn, giving slight depression in grinding face, max 20mm, which is smooth, almost polished, with ferruginous accretions, worn into the face. Uneven surface of g/f suggests that it had been used as a sharpening stone post-use. Outer surface tooled and worn, suggesting it has been much handled. Small round-pointed tool, head approx 4mm across. Two handle holes, opposed, one worn to g/f. Both about 70mm deep, narrow at base, 20mm wide and cylindrical but worn out example has the outer 48mm widened (by iron handle?) to 35mm at mouth. Feed pipe is also 20mm in dia, very cleanly drilled.

Light brown/yellow fine-grained sandstone. No inclusions, occasional flaws in bedding. Poor milling properties.

- A3.477 **Quern 6 (Fig A82c)** *Context 236, Phase 5d: 70mm at thickest part near eye, with crudely-worked conical hopper, 100mm wide x 27mm deep, and narrow feed-pipe, 14mm at narrowest, widening to 30mm at grinding face.* Approx 40% of disk quern upper stone, Outer wall is almost vertical, with very coarse tooling. Grey-brown, very fossiliferous ?Jurassic sandstone. Fine-grained with turbulent bedding. Moderate milling properties, the matrix has a tendency to polish but the surface stays abrasive because of the presence of the numerous fossil pits.
- A3.478 **Quern 7 (SF 16; Fig A82d)** *Context 787, Phase 3d: 208 x 265mm and at least 48mm thick.* Small fragment (<20%) of large diameter millstone, with steeply sloping outer wall finished with vertical linear tooling. Grinding face is concave, with dressing of concentric lines, worn but clearly visible. Outer walls roughly tooled with peckmarks from pick. Probably a base. Grey-brown fine-medium grained sandstone. No inclusion or fossils in the well-rounded and well-sorted matrix.
- A3.479 **Quern 8 (Fig A82g)** *Context 994, Phase 5c: 167 x 70mm in size.* Less than 10% of large diameter quern/small millstone, less than 39mm thick, with steeply sloping, curved, outer wall. Patches of ferruginous concretions on grinding face. Remains of handle slot in upper surface, 21mm deep and >27mm wide at fracture. Slight overhanging lip on edge of slot to help secure the handle bar. Sooting on fracture. Light brown-grey fine-grained, well rounded and sorted sandstone, ?local Jurassic. No fossil pits or inclusions.
- A3.480 **Quern 9** *Context 720 (Same object as Quern 10 below, but not joining), Phase 6: 151 x 142 and 35mm thick.* Small fragment of disk quern/millstone. Outer wall curved, with large round hammer tooling, regularly but not closely spaced. Traces of sooting or burning on grinding face which is flat and worn, without evidence of dressing lines. Medium grey Millstone Grit, coarse, moderately-well sorted and rounded, with quartz inclusions up to 7 x 7mm. Very good milling properties.
- A3.481 **Quern 10 (Fig A82f)** *Context 1092 (Same object as Quern 9 above, but not joining), Phase 5a: 160 x 87 x 38mm.* Fragment of Millstone Grit quern/millstone rim, no diagnostic features extant. Lithology as above.
- A3.482 **Quern 11 (Fig A82e)** *Context 879, Phase 5b: 121 x 105mm, and 38mm thick.* Four frags of rotary quern of large diameter or millstone, largest. Outer surface curved and sloping, and very coarsely tooled. Grinding face concave, worn smooth but with many small voids and pits to maintain abrasive quality. Dark grey Millstone Grit, poorly sorted with many angular inclusions of milky quartz, up to 18 x 13mm. Moderate to good milling properties.
- A3.483 **Quern 12 (Fig A83)** *Context F324, Phase 4: 700mm diam, 110mm thick.* Millstone Grit millstone, complete except for minor damage to one side of the eye, incorporated into sunken paved surface F324. This surface was within a rectangular pit [F325] measuring 5.3m long, 2.8m wide and up to 0.83m deep. The sides of the feature sloped steeply and levelled to a flat base. In the south part of the feature some stone slabs had been laid in an upright position, lining the cut over context 821. The millstone had been laid at the northern end of the feature. The backfill of pit F324 was filled by mid brown grey silty clay [264]. This contained four sherds of

century pottery dating from 375-420AD, and was later cut by the villa enclosure ditch. The stone is now broken in half, through the eye.

- A3.484 The central eye is flanked by opposed hopper apertures outer diameter 270mm, all set within a circular depression in the surface of the otherwise flat upper plane. No other fixing features. The grinding face has indistinct dressing tooling. Coarse grained, light reddish brown-grey Millstone Grit, poorly bedded, moderately rounded and poorly sorted, without fossil pits but with some angular quartz inclusions. Iron staining runs through the stone.
- A3.485 **Quern 13** *Context 905, Phase 4*: 70mm x 45mm x 35mm thick. A worn fragment of Mayen lava quern (edges worn, but preserving the original thickness).

Vitrified materials

- A3.486 The majority of slag from the site falls into two main types: those indicative of ironworking, possibly smithing; and those created during a range of pyrotechnic processes, and not necessarily indicative of metalworking. The association of these two main types in contexts 114 and 286 in this instance indicates that they were likely to have formed during the same process; most can be attributed to ironworking activities. A full catalogue of the material is retained in the archive.

Diagnostic slags

Plano-convex hearth bottoms

- A3.487 Evidence for the smithing of iron generally comes in two main forms: bulk slags and micro-slags. Of the bulk slags only plano-convex hearth bottoms (PCHB) are distinct from the waste products of smelting and are therefore considered to be diagnostic of smithing (Starley 2000, 338). Smelting cakes are characteristically larger in size and weight than those produced during smithing, and often have large charcoal inclusions or impressions (McDonnell 1994, 229-30). Although the majority of hearth bottoms from Quarry Farm were fragmentary, none appear to be of sufficient size to be smelting cakes.
- A3.488 Smithing hearth bottoms are an accumulation of slag formed in a hearth or pit as the result of high-temperature reactions between the iron, iron-scale and silica from either the clay furnace lining or sand used as flux by the smith. Hearth bottoms are recognisable by their characteristic plano-convex form, having a rough convex base and a smoother, vitrified, upper surface which is flat or even slightly hollowed as a result of the downward pressure of the air blast from the tuyère.
- A3.489 A total of 21 hearth bottom fragments was recovered (2200g) from contexts 114 and 286, representing at least nine items. The only complete example weighs 215g and is 98mm in diameter. A further four possible fragments were identified (189.5g).

Unclassified slags

- A3.490 The remaining bulk slags from these two contexts (1830g) are fractured and small. Such slags are a common component within a slag assemblage and can be produced during both iron smelting and smithing. Differentiating between the two through visual examination alone is difficult, and for this reason such slags are often referred to as undiagnostic slags. This includes one fragment which is an amalgam of amorphous dense iron slag and burnt earth. Although the majority are magnetic, a

small amount (152g) are not, but are similar enough in form to suggest they were produced during the same or a similar process.

Non-diagnostic slags

Vitrified hearth or furnace lining

- A3.491 544g of material from these contexts is vitrified hearth or furnace lining. Due to the direct association with diagnostic ironworking debris, it is likely that this material is fragments of the dismantled hearth used during these activities. Hearth lining forms as a result of a high-temperature reaction between the clay lining of the hearth / furnace and the alkali fuel ashes or iron slag. Often the material shows a compositional gradient from unmodified fired clay on one surface to an irregular cindery material on the other (Starley 2000, 339). Some of the pieces have attached iron slag, confirming the association with ironworking.

Tuyère fragment

- A3.492 *Context 286, L 155 W 135 T 49mm.* A large, flat, almost circular fragment of hearth lining with a large tapering sub-circular hole (D 28mm) near its centre was recovered from context 286. None of the original edges remain. This hole identifies it as a tuyère, which would have directed the air blast from the bellows to a hearth or furnace. It also acted to protect the combustible leather and wooden bellows from the fierce heat. The weight of the bellows pressing down on the hole has created a slightly everted rim on the external face.

Non-magnetic vitrified material

- A3.493 Many items classed as 'slag' during excavation cannot be directly related to ironworking and are best viewed as vitrified material. This is formed when material such as earth, clay, stones or ceramics is subjected to high temperatures, for example in a hearth. During heating these materials react, melt or fuse with alkali in ash, producing glassy (vitreous) and porous materials. These can be formed during any high-temperature pyrotechnic process and are not necessarily indicative of industrial activity. This accounts for 280g of material from contexts 114 & 286 and, in this instance, is directly associated with ironworking residues.

Other materials

- A3.494 Amongst the material from contexts 114 and 286 were two fragments of non-magnetic vitrified material of a different character which may be glass-working waste. These are small fragments of white vitrified, vesicular material which are light and brittle in appearance. Both fragments have surfaces of translucent light green-blue glassy material which is not consistent with iron-working residue.