ARCHAEOLOGICAL INVESTIGATIONS AT THE PRESTON ROMAN VILLA, SPRINGFIELD ROAD, BRIGHTON, 2002 and 2004

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ADS Supplementary Reports

GEOLOGICAL MATERIAL

by Luke Barber

A moderate-sized assemblage of stone was recovered from the site. The bulk of the assemblage consists of Upper Greensand, and less commonly chalk, tesserae that are reported on elsewhere (see CBM report below). Excluding the tesserae the excavations recovered 166 pieces of stone, weighing 7192g, from 27 individually numbered contexts. The material has been fully listed for archive on pro forma with all but six pieces having been discarded.

With the exception of two small pieces of 19th- century roofing slate (22g) all of the stone was recovered from Period 2.2 contexts. Despite this it is quite clear that a number of these contain intrusive later post-medieval stone both small (coal and Welsh slate fragments to 28g) and large (an ashlar fragment of probable Bath stone weighing 748g). Much of the remaining Period 2.2 stone consists of unworked pieces that would be naturally available on the site including parts of a weathered Sarsen boulder, ferruginous fissure fills from the chalk, Tertiary sandstones and iron pyrite. None appear to have been utilised in any way though it is interesting to note that 75 of the 77 pieces (376g of 418g total) of weathered pyrite were recovered from the grave fill [138] (burial [137]). Whether this material was deliberately placed in the grave is difficult to say as this feature was subjected to much more rigorous bulk sampling than other features.

The remaining stone can be divided into utilised stone and building materials. The latter includes four irregular and burnt pieces of Upper Greensand (56g) (OA3, fill [24] of re-cut [304]) that may simply represent fragments of tesserae and five (598g) pieces from Horsham stone roofing slabs (all from OA3, contexts [24] and [25]). These include light grey, grey/brown, red-brown and purple banded types measuring between 14 and 17mm thick but no fixing holes are present. It is perhaps surprising more Horsham stone was not recovered suggesting it was either systematically robbed when the building went out of use or only a small part of the complex utilised it. Certainly, the late Roman Horsham slab roof at Bignor villa left an enormous quantity of the stone behind (Barber in prep a).

The largest group of utilised stone is composed of material collected from the beach. Nine pieces (774g) of generally mid/dark grey quartzite were recovered either as complete elongated

pebbles/cobbles or fragments thereof. Quartzite pebbles are frequent finds on archaeological sites of prehistoric and Roman date in the area and it is almost certain such stones were collected from the beach specifically for their hard-wearing properties. However, these very same hard-wearing properties make it difficult to prove their utilisation as sharpening and polishing of softer materials, including iron, does not easily produce notable wear on the stones. Of the current quartzite pieces at least three are considered to definitely have been utilised judging by their D-profile sections and notably smoothed sides. These include both small examples (RF<45> measures 35mm long; OA3, context [24]) and larger types (RF<47> measuring 90mm+ long; OA3, context [33] and RF<49> measuring 132mm long. S1, context [164]). In addition there is a small elongated white flint pebble, measuring 45 x 22 x 8mm, that has a notable high polish on one side (RF<46> OA3, context [24]). This small stone was obviously used for polishing/burnishing.

The assemblage of stone makes it clear that the inhabitants appreciated the required properties of querns and whetstones and had the knowledge of the closest source of suitable materials for each task. Otherwise, the villas location obviously isolated it from easily acquiring a more diverse assemblage of stone. Both the villas at Beddingham and Barcombe, being situated within the Ouse valley, could not only use the local downland chalk and flint but could easily draw on a range of Wealden sandstones from upstream as well as having easy access to the coast and its associated trade (Barber in prep b and c). The current site appears not to have enjoyed such geological contacts.

WORKED FLINT

Karine Le Hégarat

Introduction

An assemblage of 86 pieces of struck flint (1441g), 198 fragments of burnt unworked flint (5726g) were recovered during the excavations (Table 1). The majority of the struck flints originated from Romano-British or later contexts (72.1% and 19.8% of the total assemblage respectively), and can therefore be regarded as residual. A further five flints were found unstratified. Pit [155] pre-dated the villa. Unfortunately, it produced only two artefacts, and given that the feature was dated to the Middle-Late Iron Age, these could also be residual. No diagnostic material was present. However, the general technological appearance of the assemblage indicates that the flints were manufactured over a long period ranging from the Mesolithic to the Bronze Age with a possible presence at the site even into the Iron Age.

	Flakes	Blade-like flakes, Blades and Bladelets	Chips	Irregular waste	Cores, Core fragments, Tested nodules	Retouched forms	Total
MIA/LIA (period 1.1)	1			1			2
Romano-British and later periods (periods 2.1, 2.2, 3.1 and 4.1) / unstratified contexts	56	3	1	18	5	1	84
Total	57	3	1	19	5	1	86

Table 1: summary of the struck flint by period and category type

METHODOLOGY

The pieces of struck flint were individually examined and classified using standard set of codes and morphological descriptions (Butler 2005; Ford 1987; Inizan *et al.* 1999). Basic technological details as well as further information regarding the condition of the artefacts were recorded. Dating was attempted when possible. All data have been entered onto a Microsoft Excel spreadsheet.

RAW MATERIAL AND CONDITION

All the struck material consisted of chalk-derived flint which varied in colour from light browns and greys to darker greys and almost black. A large quantity of the collected flint consisted of tertiary flakes, however when present, remnants of cortex indicated that two types of raw material were used. Smooth and extensively weathered stained cortex suggests that the majority of the flint may have been procured from superficial head deposits, and heavily pitted cortex suggests that a small component could have been collected from local gravel sources. The condition of the struck flints was variable. Although some pieces were only slightly damage, the majority were extensively edge chipped and abraded. The condition is consistent with their residuality. Thirteen pieces were recorded as broken.

THE FLINT ASSEMBLAGE

As noted above, no diagnostic implements were present, and dating can only be estimated with reference to technological traits. A large proportion of the assemblage is made up of irregular small-sized flakes. Nonetheless, a residual bladelet recovered from Roman context [154], a blade-like flake found unstratified and a small amount of carefully worked flakes with dorsal blade scars and platform preparation were present. These artefacts suggest a blade-orientated industry and can be attributed to the Mesolithic/Early Neolithic period. Two small flake cores displaying multiple platforms were recovered from context [271]. They may date from the same period. A small quantity of carefully reduced flakes with punctiform butts and platform edge preparation indicates that human presence may have continued into the Neolithic/Early Bronze Age. A single retouched piece may belong to this period; an unclassifiable scraper recovered from context [134]. The implement was made on a fragmentary flake of poor flint quality struck with a hard hammer percussor.

The absence of diagnostic material and the small size of the assemblage suggest that during the period spanning the Mesolithic to the Early Bronze Age, the site was possibly only used for transient or low density background activities. Cultural evidence from this period in the valley floor is often limited to isolated concentrations of flint scatters and occasional diagnostic tools including polished axes despite the numerous monuments recorded in the area. Nonetheless, recent work at Falmer has revealed early use of a neighbouring dry valley with a Mesolithic occupation site with clusters of pits (Garland and Anderson-Whymark 2016).

A large proportion of the assemblage consisted of flakes which were more irregular and crudely worked. They displayed characteristics of later prehistoric industries including larger butts with incipient cones of percussion and mainly no signs of platform preparation. These characteristics are typical of the middle to late Bronze Age or even Iron Age flint working traditions (Humphrey 2003; 2007; Young and Humphrey 1999). However, the majority of these pieces of flint débitage were surprisingly short, and thick flakes with developed bulk of percussion were sparse within the assemblage. Although this may be linked to the collection strategy adopted on site, this could also suggest that some of the flakes and irregular waste pieces represent accidental débitage associated with the building of the villa. Large "Combe Rocks flints" were used for the foundation of the walls as well as for the actual walls (Toms and Herbert 1926, 13).

DISCUSSION

The small lithic assemblage from Springfield Road is chronologically mixed. It suggests prehistoric presence at the site from the Mesolithic/Early Neolithic period, with later prehistoric activity also

represented. However, the contexts from which some of the flints were recovered, suggest the possibility that some of the material may actually represent accidental waste associated with the building of the villa.

CERAMIC BUILDING MATERIAL

By Susan Pringle

INTRODUCTION

A total of 44.821 kilogrammes of ceramic building material was analysed for this report. The majority of the material was of Roman date and types present included roof tile, box flue tile, painted wall plaster and tesserae. The remainder of the building materials were of post-medieval date and consisted of brick, roof tile, salt-glazed pipe and cement wall render.

METHODOLOGY

All the retained ceramic building material was recorded by fabric, form, weight and fragment count. Fabrics were identified with the aid of a binocular microscope and cross-referenced to the Museum of London (MoL) building materials type series where relevant. Samples of the brick and tile fabrics were retained. In the fabric descriptions the following conventions were used: the frequency of inclusions was described as being sparse, moderate, common or abundant; the size categories for inclusions was fine (up to 0.25 mm), medium (between 0.25 and 0.5 mm), coarse (between 0.5 and 1 mm), and very coarse (greater than 1 mm).

THE MATERIAL

Roman

Fabrics

The tile fabrics appear to have two different geological sources (Table 2). Tiles in the most abundant group have a highly calcareous matrix and coarse calcareous inclusions; these are

identical to MoL fabric 2453 and its variant fabric 2457. This fabric group is referred to below as the calcareous group. The rest of the assemblage consists of orange to orange-red fabrics most of which contain cream marl or silt and red iron-rich and calcareous inclusions. They have been subdivided to reflect the quantity of quartz inclusions. Fabric T1, which contains sparse medium quartz, accounts for approximately 60% (by count and weight) of the fabrics in this group; for the purposes of this report it is referred to below as the T1 fabric group. A full list of fabric descriptions is set out in Table 4.

The tiles in the calcareous group (MoL fabrics 2453 and 2457) are usually light brown with a pale pink, pale orange or grey matrix containing coarse whitish rounded inclusions. They are part of a distinctive group of calcareous tile fabrics which has a wide distribution along the south coast of England, from Exeter to London (Betts and Foot 1994, 27, fig.4); the origin of these fabrics is unknown, but is presumed from their distribution to be somewhere on the south coast of England or possibly northern France. Their date range is c. AD 140/180 to 300. They are probably the tiles 'of ochrous colour' recorded from the 1926 excavation (Toms and Herbert 1926, 16-17). The predominance of these tiles on the site suggests that they were the main tile source for the villa. The second group, of orange silty fabrics with red iron-rich inclusions (the T1 fabric group), is likely to have been made at kilns local to Brighton and the Sussex coast. There are some variations in the colour and texture of tiles in the group; quartz is sparse in some tiles (T1, T2, T5 and MoL 3018) whereas others are fairly sandy (T3, T6). The tiles in this group cannot be closely dated. Tiles in both fabric groups are most abundant in Group 3 contexts. Although the quantity of tiles retrieved from Roman contexts is too small to permit firm conclusions to be drawn, some slight differences in their distributions were observed; most of the tile from the Roman well G9, including the flue tile, is of the T1 group types, whereas all the tile from Rooms 7 and 8 is in the calcareous group, mainly MoL fabric 2453.

Fabric group	Tegula	Imbrex	Box flue	Ridge	Total
				tile	number
Calcareous (MoL 2453 and 2457)	47	7	-	1	55
Orange/red silty group (T1 etc.)	13	19	4	-	36
Total number	60	26	4	1	91

Table 2: Roman tile types by fabric group (securely identified forms and fabrics only)

Roman tile assemblage

Roman roof tiles (Table 3)

Tegulae

No complete tiles were present, but tegula fragments in the calcareous fabrics 2453 and 2457 accounted for approximately 90% by weight of the assemblage. These tiles are distinctive both for their rounded flange profile and for the dark red moulding sand found on many of the tiles. Single line arc-shaped 'signature marks' were noted on four tiles. These 'Type 1' signature marks are the most common on the tiles in this fabric group (Betts and Foot 1994, 26, fig. 3).

Tile type	Fragment count	Count as % of	Weight (kg)	Weight as % of
		total		total
Tegula	64	32%	6.258	56%
Imbrex	29	14%	2.096	19%
Tessera (tile)*	19(?)	9%	0.192	2%
Box flue	4	2%	0.296	3%
Ridge tile	1	<1%	0.186	2%
Unidentified	84	42%	2.049	19%
tile				
Total	201	100%	11.077	100%

* Some may be tile chips from opus signinum

Table 3: Roman tile types by count and weight

Imbrices

Imbrex fragments were recorded in fabrics T1 (68% of assemblage by weight), 2453/2457 (32% by weight). No complete tiles or features of interest were noted.

Ridge tile

Two ridge tiles were noted, in fabrics 2453 and a fine version of T1.

Flue tile

Only four fragments of flue tile were present, all of them box flue tiles with straight and diagonal bands of combed keying in variants of fabric T1. One was from levelling deposits and disturbed occupation associated with S1 Room 6. The other three, two of which conjoined, were from the Roman well [85]. Combed keying was almost always a feature of second century or later box flue tiles.

Tile tesserae

At least fourteen ceramic tile tesserae were present, the majority in pink fabric 2453 and light orange silty MoL fabric 3018 (T1 fabric group). A number of small tile chips with traces of white mortar were also noted. These were either poorly formed tesserae or tile fragments from coarse opus signinum.

Stone tesserae

The number of stone tesserae recorded was 792. The majority, numbering 776, were coarse in size and irregular, cut from Upper Greensand. Some were so irregular that they may have been offcuts from the manufacture of the tesserae, while others had traces of white plaster and orange grout, coloured with ground-up tile, and had clearly been used in a floor. Other stone tesserae recorded were nine in hard chalk (clunch), both coarse and smaller, five in chalk, of which one was small, and two probable tesserae in brown laminated sandstone and flint or chert.

Daub

Most of the daub from the site was in one of three fabrics; pale orange-pink with coarse calcareous inclusions (fabric D1), fine, micaceous orange-brown (fabric D2), and red sandy with coarse calcareous inclusions (fabric D3). Most was very abraded; only two fragments from context [33] (pit [120]) had good impressions of timber, probably timber stud.

Painted wall plaster

Most of the plain plaster is from red and white decorative schemes, with a smaller quantity of yellow ochre and a small fragment of green painted plaster. There was evidence from Rooms 2, 7 and 8, as well as from demolition and residual deposits that schemes were based on white-ground panels divided by red intervals. There was also evidence from Room 8 for overpainting on a red ground, either a panel or panel interval. The red on white ground scheme may also contain elements of diagonal banding in red on white from Rooms 2 and 8. These may be from a dado, from a band of decoration marking the horizontal division between zones, or from a

ceiling, although a more typical dado scheme of pale pink ground with red spatters was noted from Room 8. Also from Room 8 and post-villa deposits were fragments of other decorative motifs including straight red bands on white with bobbles(?) and curved red lines, and one with a floral or foliate motif. The straight lines could be part of an internal border to a white-ground panel; the curved lines are perhaps more likely to have formed part of a frieze, possibly a vine scroll, in the upper zone of the wall. The single very small fragment of green-painted plaster came from pit [211] in Open Area 5.

In context [275], containing material from the 1920s excavation trenches, was a fragment of white painted plaster with a greyish-black band and, parallel to it, a thin red line. This is likely to represent an internal panel border. There was in the same context a suggestion of more elaborate decoration from a fragment with what appears to be a realistically modelled architectural motif, possibly a cornice, against two shades of yellow [275]. Also, from the upper fill [24] of pit re-cut [304] there were three very small pieces with a geometric design in pink and red which may represent an architectural feature such as a modillion cornice. Although almost certainly part of the villa decoration, these cannot be attributed to a specific room.

Mortar

Lime mortar was recorded from eleven contexts, including mortar samples from contexts [46] and [53]. Samples were also recorded of the thick lime mortar floors or sub-floors from Room 8 and in the 1920s excavation trenches. The sub-floor from Room 8 consisted of a coarse mortar raft c. 35-40 mm thick, probably a base for the tessellated floor, although no surface impressions survived to confirm this interpretation. The mortar floor or thick wall render from the 1920s excavation trenches was 55mm thick with a flat, slightly gravelly, surface. Fragments of less bulky mortar and plaster, probably wall render or backing for painted plaster, came from Room 8 and the Roman quarry pits, and from post-abandonment contexts. Very little *opus signinum* mortar was noted; only one fragment was found in direct association with the villa, in Room 7 make-up deposits.

Post-medieval

The post-medieval brick and peg tile fabrics are described in Table 5.

Brick

Fifty fragments of post-medieval brick were recorded, weighing 2.902 kilogrammes. Most of the material came from 19th and 20th century contexts, though a few fragments of intrusive brick were found in Roman deposits. No complete bricks were recorded, and most were very abraded. A group of flooring bricks with worn surfaces in a fine orange fabric with blackish iron-rich spots (fabric PM4) was noted from the 19th century pit [209] and the modern pit [236]; these unfrogged bricks have the sharp arrises, smooth faces and fine moulding sand typical of 18th century bricks.

Roof tile

The peg tile assemblage was small, consisting of eleven tiles weighing 0.476 kg. Most of the tile was in a fine, hard, red fabric marbled with narrow silty bands (fabric PM5). Where present, nail-holes were square and set diagonally. Modern pit [236] contained vitrified peg and ridge tile. A single fragment of pantile, dating to post c.1630, was present as intrusive material or later disturbance in Room 7 of the villa.

Salt-glazed stoneware

A single fragment of stoneware pipe, with a brown salt glaze on the external surface, came from Open Area 6 deposits. The pipe is of 19th or 20th century date.

DISCUSSION

Most of the building materials from the site can be dated to the Romano-British period and specifically to the 2nd century or later. The post-medieval assemblage includes material typical of the mid-17th to 20 centuries.

The Roman period roofing tile from the site is relatively sparse and is unlikely to represent a collapsed roof or primary deposition of demolition material. Despite this, as the calcareous tile in the 2453/7 group was imported in the mid to late second or third century, most probably by boat from wherever it was made, it seems likely that it was used as roofing on the villa. The lack of large deposits of roof tile could be due either to re-use of the tile in the Roman period or to 19th and 20th century clearance of the area. It is also likely that roofing and box flue tiles in the T1 'local' group were used, either in or on the villa or in an ancillary, possibly hypocausted, structure; the flue tiles are also probably second or third century in date.

The wall plaster assemblage provides evidence of predominantly red and white decorative schemes of a fairly basic type, but a few fragments indicate the presence within the villa of some higher quality painting. However, the scarcity of the more complex decorative material and the degree of abrasion are such that it can provide little information. The colour schemes present seem to be more limited than those described after the 1877 excavations (Toms and Herbert 1926, 13), presumably because the more highly decorated rooms were elsewhere in the villa.

Fabric group	Fabric code	Description
Calcareous group	MoL 2453	Pink, light orange or yellowish-brown; numerous
		yellowish-white clay inclusions (<6 mm), in often
		mottled clay matrix; scatter of iron oxide (up to 1mm);
		some examples with frequent quartz (<0.8mm); flange
		rounded; often has red moulding sand.
	MoL 2457	Light grey or greyish brown; abundant fine grey shell and
		sparse quartz (<0.2mm); moderate coarse grey or white
		shell fragments (<6mm); sparse quartz inclusions
		(<0.8mm); some tiles have light brown or red moulding
		sand; flange rounded.
Orange silty group:	MoL 3018	Light orange, orange; fine clay matrix; frequent orange
containing sparse		clay and/or siltstone inclusions (most <2mm); varying
to medium quartz		amounts of scattered quartz (<1mm); numerous silty
		bands and inclusions in certain examples.
	T1	Orange-brown with lighter silty streaks and coarse
		rounded inclusions of pale siltstone; some dark red iron-
		rich material; sparse medium quartz; near MoL fabric
		3208.

	T2	Orange; fine calcareous inclusions including shell;
		abundant mica; sparse medium quartz and red iron-rich
		inclusions.
	T5	Orange-red or red; fine fabric with white calcareous
		lenses and sparse coarse to very coarse (<c.3.5mm)< td=""></c.3.5mm)<>
		calcareous inclusions.
Orange silty group:	T3/T4	Dark orange; sparse silty streaks; common to abundant
moderate to		fine to medium quartz; sparse very coarse
abundant quartz		chalk/limestone and red iron-rich material.
	Т6	Orange; matrix contains silt-sized quartz; moderate
		inclusions of medium to coarse dark red iron-rich
		material; sparse medium quartz and white calcium
		carbonate. Near fabric T1, but lacks silty streaks.

Table 4: Roman tile fabrics

PM1	Orange-red; coarse lumpy texture; clay/grog and dark red iron-rich						
	inclusions; modern machine-made brick.						
PM2	Orange-red; sandy. Only 1 definite example.						
PM3	Red; sandy with voids; inclusions of flint, red iron oxides, calcareous						
	material; brick fabric; fabric near MoL 3033; may be 17th century type.						
PM4	Orange; fine sandy texture; moderate medium to coarse dark iron-rich						
	spots; fine moulding sand; brick fabric; finer than PM3; 18th century						
	type?						
PM5	Red; fine texture; some fine silty marbling; peg tile fabric; 18th/19th						
	century?						
PM6	Light orange; prominent silty streaks; dark orange clay inclusions; some						
	tiles have fine quartz; brick and peg tile.						

Table 5: Post-med	ieval brick and	peg tile	fabrics
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BRIQUETAGE

by Trista Clifford

A small assemblage of 39 briquetage fragments weighing 128g was identified from three period 2.2 contexts (contexts [33], [57] and [249]). The fragments were examined using a 10x magnification hand lens and a series of fabrics recorded (Table 6).

Fabric	Description
F1	Fine sand tempered with abundant angular quartz/flint up to 2mm, slightly laminar
	Moderate fine sand temper with abundant angular quartz/FCF up to 5mm, poorly sorted,
F2	plus frequent organic temper. Organic impressions on outer surface
F3	A softer fabric than F2 with frequent angular FCF and no organics

Table 6 Fabric descriptions

The assemblage is entirely derived from container vessels of cylindrical shape and includes both body and rim sherds. A number have a rather flared profile, suggesting they come from dished vessels rather than troughs. Vessel thickness is consistent across the assemblage at 8-10mm. This thickness is similar to that of the Danebury assemblage and suggests that the vessels here represent the same, i.e. last, stage of the salt production process (Bradley 1992, 36). It is of note that no base sherds, which tend to be more robust, feature in the assemblage, although the reason for this remains obscure.

The absence of any other classes of briquetage, such as troughs, supports or structural material is also indicative of salt use as opposed to salt production. The fragments almost certainly derive from containers used to transport salt to the consumer sites rather than those employed in the evaporation process.

It is not altogether clear where the vessels may have originated from. Evidence for salt-working in Sussex is somewhat sparse, particularly for the latter half of the Roman period. Salt-working certainly took place during the Iron Age at Bishopstone, Newhaven and Shoreham (Bell 1977, 124) and at Scotney Court, Kent during the first century AD (Barber 1998), where the fabric types noted bear favourable comparison to those described here (ibid, 339-341). Bradley (1992, 44) notes that coastal salt production using ceramic technology ceases during the 2nd century in Sussex and elsewhere in the country with the establishment of urban centres, whereas further east in Kent, the traditional methods persist until the 3rd/4th century in areas furthest from towns

and villas. Given the villas proximity to the coast, it is almost certain that salt was procured from a local production centre.

GLASS

by Elke Raemen

INTRODUCTION

A total of 32 fragments of Roman glass (wt 51g) was found during the excavations. Included are two window pane fragments and 30 vessel fragments. The vessel fragments mostly consist of small body fragments and the exact form can therefore often not be established. However, a good range is presented, with the ubiquitous bottles/jars, bowls/cups, a plate, flasks and a possible jug fragment. As only general forms can be established, dates range from the late 1st across to the 4th century. However, all were recovered from contexts attributed to period 2.2. Glass was recovered from a variety of contexts, including quarry pits predating the villa, contexts within the actual villa and post-abandonment layers. A full list of the glass, which also includes a further 11 fragments of post-medieval glass found mostly intrusive in Roman contexts, has been deposited for archive. A brief overview of forms can be found below.

VESSELS

Storages vessels consist of bottles, represented by seven fragments from a minimum of five different vessels. Pieces are small but where identifiable, they appear to be from square or prismatic bottles. Part of a ribbon handle with relief ribs (RF<61>) was found in occupation debris [249] (S1). These bottles are commonly dated to the mid 1st to the end of the 2nd century.

Table ware includes the colourless cast rim of a plate (RF<54>) with overhanging edge, recovered from refuse pit [304] (fill [24], OA3). The fragment dates to between the last quarter of the 1st and the third quarter of the 2nd century (Price and Cottam 1998, 56). Other cast vessels include the colourless rim of a cup or small bowl (RF<60>, occupation debris [249], S1), probably dating to the later 1st to 2nd century, and a small colourless body fragment, likely to originate from a bowl (RF<57>, layer [57], OA6).

The only vessel possibly associated with serving was found in refuse pit [304] (fill [24], OA3) and consists of a blue/green jug or flask neck fragment (RF<52>).

A number of thin-walled body fragments in colourless, yellow-tinged and blue/green glass are also present. Too little survives to establish their origin, and they could derive from a variety of free-blown vessels e.g. cups or flasks. A total of six vessels is represented.

WINDOW GLASS

A fragment of blue/green cast window glass (RF<67>), dating to the 1st to 3rd century, was recovered from destruction debris [293] (S1). An unstratified fragment of blue/green blown window glass (RF<51>) probably dates to the 3rd century.

CONCLUSION

The assemblage from Springfield Road comprises a typical Roman villa group. None of the glass is of high status and the low number of surviving fragment as well as their fragmentary nature is due to the common Roman practice to recycle glass.

REGISTERED FINDS by Trista Clifford

A total of 81 Registered Finds were recovered during the excavations. This total includes the Roman glass, which accounts for the high number of 'household' objects (Table 7) and is discussed in detail within the Glass section (see above). This report focuses on the remaining 62 objects.

The metal objects, particularly the ironwork, were very poorly preserved with mineralisation apparent in many cases and many objects consisting of corrosion product almost in their entirety; conversely the non-metallic objects were generally in a good state of preservation.

Only five objects were recovered unstratified, the remainder derive almost exclusively from contexts of period 2.2. The Roman assemblage consists of a fairly typical group of objects relating to domestic life in a villa of this period which includes dress accessories, furniture fittings and tools. A small number of objects also hint at a military presence. An overview of the assemblage is given by functional category (Table 7), followed by a brief outline of the large assemblages from Open Area 3 and Structure 1 (Table 8).

	Period				
Functional category	U/S	2.1	2.2	4.1	Total
Personal adornment	2	1	10		13
Personal grooming			1		1
Textile equipment			1		1
Household	1		24	1	26
Recreation			2		2
Weights and measures			1		1
Building services	1		1		2
Tools	1		9		10
Fasteners and fittings			10		10
Agriculture			1		1
Military/weapons			3		3
Metal working			2		2
Bone working			1		1
Security equipment				1	1
Unknown			7		7
Total	5	1	71	2	81

Table 7 Overview of the assemblage by functional category

	Landuse								
Functional category	C1	OA2	OA3	OA4	OA6	S1	S2	U/S	Total
Personal adornment	1	1	3			6		2	13
Personal grooming			1						1
Textile equipment			1						1
Household			5		6	13	1	1	26
Recreation			1			1			2
Weights and measures			1						1
Building services						1		1	2
Tools			7			2		1	10
Fasteners and fittings			7		1	2			10
Agriculture			1						1
Military/weapons			2		1				3

Metal working						2			2
Bone working						1			1
Security equipment							1		1
Unknown			6	1					7
Total	1	1	35	1	8	25	2	6	81

Table 8 Overview of the assemblage by landuse

The most prolific areas of the site are OA3, a series of quarry pits, followed by S1, the villa structure (Table 8), which perhaps not surprisingly produced a large concentration of household objects. Many of the finds are not intrinsically dateable beyond a broad Roman date therefore an assessment of residuality has not been possible; tools and structural fittings in particular change very little in form. Personal objects such as jewellery and dress accessories may have a longer 'life' beyond their initial period of use. 'Residuality' evident in these cases is likely to be a result of curation of an 'heirloom' object; brooches in particular are commonly found in contexts of much later date than the object itself.

Overview of the assemblage by functional category

Personal Adornment

Brooches

Two brooches were recovered from the current excavations. The most complete of these, RF<20>, is a Nauheim derivative bow brooch of 1st century date. The type is a native one, and the flat bow is suggestive of a pre-Flavian date (Bayley and Butcher 2004, 147). Excavations during the 1960s (Dudley 1981, fig 10.2) produced a single elaborately enamelled Trumpet brooch with pelta shaped mouldings with parallel at Fishbourne (Hull 1971, 104 no36), again a native type of probable 2nd century date (Bayley and Butcher 2004, 161 Group B).

1. RF<20> Copper alloy brooch (Fig 10)

[299] Demolition layer S1 Period 2.2

Incomplete. L44mm W9mm.Hull Type 10/11 Nauheim derivative one piece brooch, external spring with three turns remaining, catchplate incomplete, pin missing, would have had a white metal coating (Bayley and Butcher 2004, 53).

2. RF<24> Copper alloy **?brooch** [283] OA2 Period 2.1
 Incomplete.

<u>Hairpins</u>

A total of seven hair pins (five bone, two copper alloy) and one possible bone hairpin were recovered. Bone pins are classified according to Crummy (1983) where appropriate. The absence of the head impedes dating in some cases; those which can be dated typologically are RF<1>, a bone pin with spherical head of mid -2nd century or later date, and a 4th century type, RF<2> from refuse pit fill [24]. RF<4> from the same context may be an attempt to replicate a style produced elsewhere in copper alloy. Previous excavations produced a single, unparalleled bone pin with a notched head (Dudley 1981, fig.7.8).

3. RF<1> Bone hairpin

Unstrat.

Incomplete. L89.4mm Head diameter 5.7mm. Crummy Type 3; Spherical head, shaft thickens below head, tip missing. AD 150 onwards (MacGregor 1985, 117; Crummy 1983, 22 and 252)

4. RF<2> Bone hairpin (Fig 10)

[24] Quad B Refuse pit OA3 Period 2.2

Incomplete. L34.7mm Head diameter 3.2mm. Crummy Type 5; Faceted, conical head with five incised reels below, tip missing. 4th century (Crummy 1983, 24)

5. RF<3> Bone hairpin (Fig 10)

[24]Quad C Refuse pit OA3 Period 2.2

Incomplete. L63.7mm Head diameter 5.2mm. Head resembles a conical whorled shell, tip missing. Two conjoining fragments. A similar unstratified example from Colchester is described as having a flame-shaped head (Crummy 1983, 25 and 439)

6. RF<4> Bone hairpin (Fig 10)

[24]Quad B Refuse pit OA3 Period 2.2

Incomplete. L99mm Head diameter 4mm. Head (reminiscent of Cool Gp 11; Cool 1990, 160), flame shaped finial surmounting a cylindrical block with restrictions either side. The head is highly polished. Tip missing. No exact parallel found.

7. RF<15> Copper alloy hairpin

Unstrat.

Incomplete. L31.4mm Th2.9mm. Tip fragment, slightly bent, with white metal coating.

8. RF<17> Copper alloy hairpin
 [246] Make up layer S1 Period 2.2
 Incomplete. L16.2mm Th2.2mm. Head and tip missing.

9. RF<70> Bone hairpin[24QB] Refuse pit OA3 Period 2.2Incomplete. Lxxmm Dxxmm. Head and tip missing.

<u>Beads</u>

Four similar translucent blue long biconical beads came from contexts within the villa. The type is typical of the 2nd-3rd with a distribution across Southern England and the Midlands (Guido 1978, 98). Similar beads from a 4th century grave context were found in Colchester (Crummy 1983, 34.961).

10. RF<10a> Glass bead[263] Make up layer S1 Period 2.2Complete. L11.7mm W 4 mm. Mid blue opaque glass; long biconical.

11. RF<10b> Glass bead[263] Make up layer S1 Period 2.2Complete. L9.9mm W 3.8 mm. Mid blue opaque glass; long biconical.

12. RF<11a> Glass bead[249] Occupation layer S1 Period 2.2Complete. L11.2mm W 4.2 mm. Mid blue opaque glass; long biconical.

13. RF<11b> Glass bead[249] Occupation layer S1 Period 2.2Complete. L10.4mm W 3.9 mm. Mid blue opaque glass; long biconical.

<u>Shoes</u>

The quantity of nails recovered suggests that both shoes are present, although no attempt at reproducing the nail pattern was possible.

14. RF<27> Iron shoe

[138] Grave fill Period 2.2

Incomplete. Group of 172 hobnails, typical dimensions L20mm, Head H9.5mm, Head D12mm. Largely clenched with domed, facetted heads. Highly corroded and fragmentary. No pattern discernible to indicate shoe style.

Personal grooming

Tweezers

15. RF<9> Copper alloy tweezers

[24]Quad C Refuse pit OA3 Period 2.2

Incomplete. L53.4mm W 5.5 mm. One blade missing. Angled, slightly expanded tip to remaining blade. Undecorated. Appear cast in one piece.

Objects associated with textile production

<u>Needle</u>

16. RF<5> Bone needle

[24]Quad C Refuse pit OA3 Period 2.2

Complete. L114.8mm Head W 5.7mm. Crummy Type 2 (Crummy 1983, 65). Flat spatulate head with rectangular eye. Possibly 2nd century or later.

Household utensils and furniture

Included within this category are those fittings which almost certainly come from domestic furniture; objects such as iron strips with a more uncertain provenance are included below under 'Fixtures and fittings'

Furniture fittings

17. RF<23> Copper alloy furniture stud[249] Occupation layer S1 Period 2.2Incomplete. H3.8mm. Domed hollow head, part of attachment spike remains.

18. RF<18> Copper alloy furniture stud

[249] Occupation layer S1 Period 2.2

complete. H16mm. D18.7mm. Domed hollow head, integral attachment spike

19. RF<16> Copper alloy furniture stud

[24QC] Refuse pit OA3 Period 2.2

Incomplete. H8.4mm. D13.7mm Domed hollow head, short integral attachment spike.

20. RF<6> Bone hinge (Fig 10)
[57] Post- abandonment layer OA6 Period 2.2
Complete. L35.8mm D22.3mm Turned and polished cylinder with single perforation, D7.5mm.
Similar to examples from Verulamium (Waugh and Goodburn 1972, 150)

21. RF<7> Bone hinge (Fig 10)
[299] Demolition layer S1 Period 2.2
Complete. L96.8mm D22mm Turned and polished cylinder with two perforations, incised lines infilled with black pigment between the perforations. Similar to examples from Verulamium (Waugh and Goodburn 1972, 150) and Fishbourne (Cunliffe 1971, fig 68.31)

Quernstones

by Luke Barber

Only two fragments of rotary quern were recovered from the site (710g), both from thin stones of later Roman type. The lower stone fragment RF<48> has part of its central spindle hole and is in a slightly granular Lower Greensand. The second example RF<44> is in the more typical harder Lodsworth type of Lower Greensand (Peacock 1987), but is not determinable as to upper or lower stone. It has pronounced obliquely tooled grinding furrows indicating the stone had not seen extensive use before it was broken.

22. RF<48> Stone quern

[164] Destruction layer S1 Period 2.2

Incomplete. Th29mm. Lower Greensand lower stone with part of the central spindle hole evident.

23. RF<44> Stone quern

[244] Destruction layer S1 Period 2.2

Incomplete. Th27mm. Lodsworth type Lower Greensand (Peacock 1987) Pronounced obliquely tooled grinding furrows

Other domestic equipment 24. RF<22> Copper alloy ?**vessel** [271] make up S1 Period 2.2 Incomplete. L28.1mm W24.5mm Th5.61mm Slightly concave ?base fragment, highly corroded and possibly burnt

25. RF<21> Lead pottery cramp

[287] Pit fill S2 Period 4.1

Complete. L32.6mm W15.6mm Th4.3mm Similar to an example from Alcester (Mould 1994, 206-7)

26. RF<38> Iron ?handle

[24] Refuse pit OA3 Period 2.2

Incomplete. L160mm W27mm Th10mm. Circular sectioned iron rod bent to form an angular C shape with circular perforated attachment terminal. No parallel found.

27. RF<28> Iron chain
[24] Refuse pit OA3 Period 2.2
Incomplete. Min L784mm Plain loops alternating with pinched figure of eight loop (Manning 1985, S13). Swivel attachment at one end (Manning 1985, S4).

Objects associated with recreation

Two counters were recovered. A single find of a 'black' glass counter from Room 7 may be the inset from a brooch (Allason –Jones 2011, 234). The presence of graffiti on the ceramic counter may be indicative of a military presence, with which graffiti/ literacy and gaming counters are often associated.

28. RF<13> Glass counter

[249] Occupation layer S1 Period 2.2

Complete. D24.8mm Domed with flat base, opaque 'black' glass. Similar to counters from Colchester (Crummy 1983, 95)

29. RF<68> Ceramic counter

[24] Refuse pit OA1 Period 2.2

Complete. D35mm Formed from a pottery vessel base, graffiti depicting a star formed of four intersecting lines on one face.

Weights and measures

30. RF<19> Lead weight
[24] Refuse pit OA3 Period 2.2
Incomplete. H28.4mm D29.3mm Biconical with slightly flattened base, remains of iron attachment loop.

Tools

A small but varied assemblage of tools was recovered, including a cleaver from Room 8 and a metalworking file from OA3. A small serrated blade from OA3 might have a military function or also be associated with metal or bone working.

Knives and cleavers

31. RF<35> Iron cleaver
[299] Demolition layer S1 Period 2.2
Incomplete. L214mm W67mm Th7mm Straight backed cleaver blade with socket for wooden handle. Manning type 2a (Manning 1985, 122)

32. RF<80> Iron knife[24] Refuse pit OA3 Period 2.2Incomplete. L37.7mm W18.1mm Th9mm Tip only, type uncertain.

33. RF<41> Iron ?drawknife
[24] Refuse pit OA3 Period 2.2
Incomplete. L73mm W27.5mm Th8mm- 4.2mm Fragmentary. Probable tool blade with triangular section and internal blade edge; possibly a drawknife blade

Other tools

34. RF<79> Iron file

[24] Refuse pit OA3 Period 2.2

Incomplete. L90mm W7.2mm Th3.6mm Rectangular sectioned with short square sectioned tang. None of the original surface remains. Very similar to a small file from Alcester (Mould 1994, 196.9)

35. RF<76> Iron saw

[33] Refuse pit OA3 Period 2.2

Incomplete. L61.3mm W20.1mm Th6.5mm Fragment from a bow saw blade, serrated edge with 3 teeth per centimetre. A similar saw blade came from Chichester (Down 1978, 290 fig 10.29.7) where it is listed as a military object.

36. RF<76> Iron **?billhook**

[36] Quarry pit OA3 Period 2.2

Incomplete. L91mm W66mm Th11mm Probable billhook of Manning type 1 (Manning 1985, 57) Blade at right angles to the handle, which has possible attachment holes visible on the x radiograph.

37. RF<45> Stone whetstone/polishing stone

[24] Refuse pit OA3 Period 2.2

Incomplete L35mm Quartzite pebble with D shaped profile and smoothed sides

38. RF<47> Stone whetstone/polishing stone

[33] Refuse pit OA3 Period 2.2

Incomplete L90mm Quartzite pebble with D shaped profile and smoothed sides

39. RF<49> Stone whetstone/polishing stone

[164] Refuse pit S1 Period 2.2 Incomplete L132mm Quartzite pebble with D shaped profile and smoothed sides

40. RF<46> Stone whetstone/polishing stone

[24] Refuse pit OA3 Period 2.2

Complete L45mm W22mm Th8mm Flint pebble with notable high polish on both sides

Fixtures and fittings

Two types of fittings are included within this section; structural fittings and other fittings for which the function is not apparent, such as iron strips.

Structural fittings

41. RF<43> Iron L shaped bracket[249] Occupation layer S1 Period 2.2Incomplete. L44.3mm W49.3mm Th16mm L shaped bracket in two fragments.

42. RF<42> Iron L shaped bracket[249] Occupation layer S1 Period 2.2Incomplete. L55.8mm W36.4.3mm Th11.8mm L shaped bracket in two fragments.

43. RF<36> Iron double spiked loop
[57] Post abandonment layer OA1 Period 2.2
Complete. L66mm W24.5mm Th19mm Similar to Crummy 1983, 4065.

44. RF<32> Iron structural fitting

[36] Quarry pit OA3 Period 2.2

Incomplete. L62mm W44mm Th9mm Tie strip or bracket with nail attached.

45. RF<83> Iron structural fitting

[24 QD] Refuse pit OA3 Period 2.2 Incomplete. L43.9mm W24.5mm Th10.1mm L shaped bracket or hinge strap

Other fittings

46. RF<25> Copper alloy strip fragment

[38] Quarry pit OA3 Period 2.2

Incomplete. L34.8mm W19.5mm Th4.1mm Rectangular strip folded in half widthways with single rivet hole at the centre of the broken edge. Probably a casket or strap mount. Undecorated

47. RF<12> Copper alloy strip fragment

[79] Quarry pit OA3 Period 2.2

Incomplete. L15.2mm W15.5mm Th0.6mm Strip folded in half widthways with single rivet hole Probably a casket or strap mount. Undecorated

48. RF<75> Iron strip fitting

[24 QC] Refuse pit OA3 Period 2.2

Incomplete. L45.2mm W24.5mm Th6.9mm Rectangular strip fragment with single rivet hole. Probably a casket or strap mount. Undecorated.

49. RF<81> Iron mount[24 QD] Refuse pit OA3 Period 2.2Complete. L34.8mm W13.9mm Th5mm Teardrop shaped mount with single rivet hole.

50. RF<82> Iron binding[24 QD] Refuse pit OA3 Period 2.2Incomplete. L29.7mm W12.1mm Th5.8mm U shaped binding fragment

Objects associated with agriculture, horticulture and animal husbandry

51. RF<14> Copper alloy fish hook[24 QB] Refuse pit OA3 Period 2.2Incomplete. L20.6mm Th1.8mm Wire with small barb.

Military equipment and weapons

52. RF<37> Iron shield boss

[68] Quarry pit OA3 Period 2.2

Incomplete. Dc.135mm Th9.5mm Seven fragments from a circular domed ?shield boss with wide riveted flange. The object is highly corroded and fragmentary making it difficult to ascertain a type. Probable preservation of leather on the underside of the flange (Jacqui Watson conservation report). It most closely resembles the circular bosses of Antonine and later date (Bishop and Coulston 2006)

53. RF<72> Iron shield boss

[243] Demolition deposit OA6 Period 2.2

Incomplete. L67.2mm W46.8 Th11.7mm Two fragments of probable shield boss flange. Both curved with a curved lip with broken edge. Possibly part of RF<37>

54. RF<74> Iron **?hilt**

[33] Refuse pit OA3 Period 2.2

Incomplete. L59.3mm W18.5mm Th13.2mm Possible hilt and tang fragments from a knife or dagger. Identified as such by Jacqui Watson.

Objects and waste associated with metal working

55. RF<34> Iron bar[164/56] Floor/levelling deposit S1 Period 2.2Complete. L106mm W33mm Square sectioned bar, probable metal working waste.

56. RF<71> Iron scrap[285] demolition layer S1 Period 2.2Incomplete. L90 mm W55mm Unworked piece of scrap metal

Objects and waste associated with antler, horn and bone working

57. RF<6> Bone inlay
[264] Make up layer S1 Period 2.2
Incomplete. L45.9mm W15.5mm Polished and worked fragment, possible inlay or bone working waste.

Security equipment, locks and keys

58. RF<33> Iron key[151] Pit S2 Period 4.1Complete. L97mm W37mm Th14.5mm Two wards; of post- medieval date

Objects for which the function is uncertain

59. RF<29> Iron object

[36] Quarry pit OA3 Period 2.2

Incomplete. L500mm D6mm Circular sectioned rod which has been twisted along the length, with slightly flattened terminal. This method of construction is a common decorative device in the Roman period and closely resembles several objects, most notably a poker from Watham Abbey Hoard (Manning 1985, A40) and the 'cage' bars of a cauldron chain from Dorn, Gloucestershire (Manning 1985, P10) although it is not clear whether this object is derived from either type. Probably part of the same object as RF<30>.

60. RF<30> Iron object

[36] Quarry pit OA3 Period 2.2

Incomplete. L180mm W141mm Th13.5mm D7.5mm Circular sectioned rod which has been twisted along the length, threaded through the centre of a rectangular sectioned bar which has a circular attachment hole at one end. The twisted bar is broken at the opposite end. Probably part of the same object as RF<29>.

61. RF<26> Copper alloy **object**[87] Well OA4 Period 2.2Incomplete. Three fragments of copper alloy plate or strip of unknown function

Overview by landuse

Open Area 3

A total of 35 objects came from Open Area 3, primarily from the fills of refuse pits [24] and [33]. Table 2 shows an overview of the assemblage by functional category. Very few of the objects are complete, many were broken before deposition or consist of small fragments from larger objects, supporting the interpretation of the feature as a refuse pit and indicating deliberate discard rather than casual loss. Where objects are dateable, for example the small group of hairpins RF<2>-RF<4>, a 2nd century or later date is proposed.

A wide range of activity consistent with villa life is represented; the largest groups are tools, including a saw, RF<76> which may have had a secondary military function, a knife RF<80>, and two whetstones RF<45> and RF<47>; and fasteners/fittings which include fittings relating to the structure of the villa and a variety of smaller strip fittings which might derive from furniture or caskets. Also of significance are two possible weapon fragments, shield RF<37> and knife/dagger hilt RF<74> which hint at a military connection.

Structure 1 (villa building)

Twenty-five objects were recovered from contexts associated with the villa itself; once again the assemblage reflects the function of the structure as a dwelling (Table 8). The largest category here is, not surprisingly, household items. Glass vessel fragments account for the majority but also present are quern fragments which attest to the processing of crops nearby, and furniture

studs. Dress accessories are also fairly numerous. No firm conclusions regarding activity patterns can be drawn but it may be noted that there are fewer tools from within the villa structure, and fewer activities are represented in the villa building assemblage compared to that of Open Area 3. Modern disturbance and robbing out of the walls of the villa in antiquity may account for the scarcity of finds generally from this area.

COINS

BY DAVID RUDLING

INTRODUCTION

Three Roman coins were recovered during the excavations undertaken at site in 2002-4. All are catalogued below. Previous discoveries of Roman coins at the site include three found in 1876 in an area of pits, and 'seven or eight' unspecified coins of bronze or copper found at the villa site in 1877 (Toms and Herbert 1926, 20-21; Dudley 1981, 70-71). Of these earlier finds two of the three found in or near the area of Roman pits excavated in 1876 were of Hadrian (AD 117-138) and Lucilla (daughter of Marcus Aurelius and married to Lucius Verus : Lucilla was killed in AD 182), respectively. Of those coins found in 1877, the whereabouts of which are now generally unknown, we know that one coin given to Brighton Museum is a very worn issue of Claudius I and was struck in AD 41. We also know that one of the missing coins was 'a small copper coin' of Claudius II Gothicus (AD 268-270), a commemorative 'consecratio' issue struck after Claudius' death.

The Catalogue of coins found in 2002 – 2004

 Gordian III, AD 238-244. Ae As (24mm). Fifth issue, AD 243-244. Mint of Rome.
 Obverse: IMP GORDIANVS PIVS FEL AVG, bust, laureate, draped and cuirassed, right Reverse: FORTVNA REDVX, S.C., Fortuna seated left, holding rudder and cornucopiae.
 Reference: *RIC* 331b.

Context [249] occupation deposit (S1) containing pottery dated to c. AD 200-250.

2. Probably Julia Maesa or Julia Mamaea. Julia Maesa was the grandmother of Elagabalus and Severus Alexander. She died in AD 223. Julia Mamaea was the daughter of Julia Maesa and the

mother of Severus Alexander. Assassinated in AD 235. Denarius: perhaps plated or Ae. Very corroded. Mint of Rome or a contemporary copy.

Obverse:]M[, bust right.

Reverse: [PVDIC]ITIA, Pudicitia seated left, raising veil and holding sceptre. Although this reverse

type is of Julia Maesa, hybrid coins with an obverse of Julia Mamaea do exist (Seaby 1982, 149).

References: *Cf. RIC* 268 and *RIC* 347; Seaby (1982) Julia Maesa 39 and Julia Mamaea 52 and 53.

Context [249], occupation deposit (S1) containing pottery dated to c. AD 200-250.

3. Constantius II, As Augustus, AD 337-361. Ae 17 mm. *Circa*. AD 353-355. Probably a contemporary copy.

Obverse: D N CONSTA[N] TIVS P F AVG, bust, pearl-diademed, draped and cuirassed, right. Reverse: FEL TEMP R EPARATIO, soldier advancing left, spearing fallen horseman, horseman sits to right and raises left hand; in ex., TR (ie the mark of the Trier mint). Reference: Type as *RIC* 359.

Context: [87]/[89] (a metal detector find from the lowest two excavated fills of the well).

DISCUSSION

Unfortunately the small number of coins generally from the site and of identified examples specifically, makes it difficult to interpret and use the villa coin data. The oldest recorded Roman coin found at the villa site is that of Claudius I issued in AD 41. Given its much worn condition however, this coin may have continued in circulation well into the second half of the first century, if not later. Coins of Hadrian and of Lucilla provide some dating evidence for the area of Roman pits investigated in 1876. Previously the commemorative issue of Claudius II (ie after AD 270) found in 1877 was considered to possibly indicate the end of occupation at the villa, however the discovery in 2002 of a fallen horseman type coin of Constantius II in the infill of a well ([87]/[89]) now provides an alternative mid fourth century end date. The dating of the associated pottery from the infills of the well ([86], [87], [88]) spans the period *c*. AD 120-400 and thus provides supporting evidence for a mid to late fourth century date for the infilling of the well. The infilling of the villa well/s is likely to have been one of the final stages of use/demolition of such a site. The two early third century coins found in 2004 in occupation deposit [249] provide supporting dating evidence to that provided by the pottery which indicates a date of *c*. AD 200-250. Despite the small size of the coin assemblage from this site, the absence

of the normally prolific issues of the period *c*. AD 330-340, and also the finding of only one coin of the very prolific issues of *c*. AD 260-80, is surprising and may indicate a significantly reduced usage of the site.

NAILS

by Trista Clifford

A total of 288 iron nails and nail fragments were recovered from 35 separate contexts. Nails were recovered almost exclusively from period 2.2 features. The nails are in an extremely poor state of preservation, with the majority in a fragmentary condition. Extensive mineralisation has occurred in most cases and many are obscured by corrosion product, making the production of a site typology difficult beyond differentiating between heavy duty and general purpose nails. Table 9 gives an overview of the Roman assemblage by type and completeness.

Туре	Complete	Incomplete	Total
HD	6	36	42
GP	23	207	230
Total	29	243	272

Table 9 Roman nail assemblage

Where form can be ascertained, both general purpose (GP) and heavy duty (HD) nails have square to rectangular sectioned stems with circular/sub-circular heads. Where a complete length could be measured, GP nails had lengths of between c.30 – 80mm, whilst HD nails measure c.55-130mm. Head diameters range from <22mm for GP nails, up to 31mm for HD types. Eight clenched nails have lengths between 23 and 54mm, suggesting use within fairly small structures.

General purpose nails make up 85% of the total assemblage. Only 20% of the assemblage derives from areas of primary deposition (i.e. occupation layers, in situ demolition layers); the remainder was almost all retrieved from refuse or quarry pit fills.

HUMAN REMAINS

By Lucy Sibun

INHUMATION BURIAL

A single Romano-British inhumation was uncovered during the excavation (period 2.2, [139]). The skeleton is in a reasonable state of preservation and almost complete, with only a few small elements missing, the majority of which are phalanges from the hands and feet. A full skeletal and dental inventory has been completed, details of which can be found in the archive. This included the recording of those characteristics used for ageing and sexing the skeleton as well as an examination of all elements for any signs of pathology. Metrical data was recorded where available in order to attempt a stature estimate and to assist with sexing the skeleton. The results of the analysis are outlined below.

Age

Based upon epiphyseal fusion and the auricular surface (Bass 1987; Buikstra, and Ubelaker 1994) skeleton [137] is a mature adult.

Sex

All the sexually dimorphic characteristics of the skull and pelvis that were available for recording (in accordance with Buikstra, and Ubelaker 1994) indicate a male individual.

Stature

Stature was calculated using standard stature estimate formulae after Trotter and Gleser (1958). For this individual the longbone measurements have provided a stature estimate of 1.68m (5' 6"). This stature estimate is consistent with that expected for the Romano-British period (Roberts and Cox 2003, 388).

Pathology

This mature male had suffered a broken right fibula. The well healed fracture was evident in the distal third of the shaft and has resulted in displacement and possible twisting of the distal end. In addition, periostitis is present on the distal medial surface of the fibula, and this is mirrored on the lateral side of the distal tibia. Unfortunately, the distal articulation of the fibula is absent but it seems likely that the periostitis results from the displacement of the distal fibula and subsequent contact with the tibia.

Small carious lesions were present in two mandibular teeth (the left canine and 1st premolar) on the cement-enamel junction of their distal surfaces. Slight calculus was present on all mandibular teeth with the exception of the right 2nd molar which displayed considerable calculus.

INFANT REMAINS

The remains of two infant skeletons were recovered, one from period 2.2 demolition deposit [299] and one from modern disturbance [267]. In both cases the partial remains of an infant, consisting of longbones and cranial fragments, were recovered and using longbone diaphyseal length they are likely to be newborn (Fazekas and Kósa 1978). It is not uncommon to find the remains of newborn infants buried in such contexts during Roman times and many similar examples are known from Sussex (e.g. Waldron *et al.* 1999)

MAMMAL, BIRD AND FISH BONE By Lucy Sibun and Gemma Ayton

INTRODUCTION

The animal bone assemblage dates from the Late Iron Age to Late Romano-British phases of the site. Bone producing contexts include rubbish pits, quarry pits, ditches, occupation layers and building related features. The majority of the animal bone assemblage was hand-collected but a few fragments were retrieved from environmental samples.

METHODOLOGY

Wherever possible bone fragments have been identified to species and the skeletal element represented. The bone was identified using the in-house reference collection and Schmidt (1972). Bone specimens which could not be confidently identified to species have been recorded according to their size as large-mammal, medium mammal and small mammal; these specimens include long bone fragments and vertebrae. To assist with the MNE calculations and in an attempt to avoid the distortion caused by differing fragmentation rates, the elements have been recorded according to the part and proportion of the bone. Small mammal bone has been identified to taxa with reference to Andrews (1990), Corbett and Harris (1991) and Lawrence and

Brown (1974). The taxonomic separation of chicken, pheasant and guinea fowl has been undertaken with reference to the criteria outlined by Tomek and Bochenski (2009) and MacDonald (1992).

The states of fusion have been recorded were possible. Cattle, sheep/goat and pig tooth wear has been recorded with reference to Grant (1982). Mammal and bird bone measurements have been taken in accordance with von den Driesch (1976). Each fragment has then been studied for signs of butchery, burning, gnawing and pathology.

The Mammal Bone

The mammal bone assemblage is in moderate condition. Although there are few signs of surface erosion, the assemblage is highly fragmentary with many very small fragments and few complete elements. As a result of the fragmentation, a large proportion of the assemblage was either unidentifiable (11%) or only identifiable as large or medium mammal sized (37%).

Mammal bone was recovered from period 1.1 (Mid to Late Iron Age), period 2.1 (Early Romano-British), period 2.2 (2nd to 4th century) and period 4.1 (modern). The identifiable assemblage has been quantified by period (Table 10). The assemblage from modern disturbance period 4.1 will not be discussed further.

Period	Fragment Count
1.1	3
2.1	5
2.2	1413
4.1	44
Total	1465

Table 10: The total number of identifiable bone fragments recovered by period

Period 1.1 Mid-Late Iron Age

This small assemblage produced a single fragment of sheep mandible and two fragments of medium mammal sized long bone. No additional information was available.

Period 2.1 Early Romano-British (AD 43–100)

The five fragments recovered from this period were a sheep rib, a fragment of pig tooth enamel, a hare long bone and two long bone fragments from large and medium sized mammals.

Period 2.2 Romano-British (AD 100-400)

This was the largest assemblage of bone comprising 1413 identifiable fragments (Table 11). The taxa identified within the assemblage include cattle, sheep/goat (hereafter referred to as sheep), pig, horse, dog, red deer, hare, wood mouse and house mouse.

The NISP (Number of Identified Specimens) count for all elements is shown in the table below with the calculated MNI (Minimum Number of Individuals) in brackets.

	NISP Count (MNI)
Cattle	231 (4)
Sheep	224 (6)
Pig	28 (2)
Horse	12 (1)
Dog	281 (3)
Red deer	27 (1)
Hare	7 (3)
Wood mouse	1
House mouse	1
Large mammal	196
Medium mammal	398
Small mammal	7
Total	1413

Table 11: NISP count for Period 2.2

Domesticates

This assemblage was particularly fragmentary and as a result, a large proportion was identifiable only as large and medium mammal sized. The majority were small fragments of long bones, vertebrae and ribs. Cattle and sheep are both well represented in this period although the MNI count suggests that sheep were more abundant. The NISP count indicates that pigs are significantly less abundant but the MNI calculations suggest that they are underrepresented by the NISP alone. According to the NISP figures above cattle form 48% of the domestic species represented, sheep 46% and pig only 6%.

Despite the relatively low numbers of fragments identifiable to taxa and element, The MNE (Minimum Number of Elements) has been calculated for cattle, sheep and pig, and is tabulated below (Table 12).

Element	Cattle	Sheep	Pig
Horn core	1	2	
Cranium			
Mandible	2	11	2
Atlas	2		
Axis			
Scapula	7		1
Humerus	2	1	1
Radius		3	1
Ulna			
Metacarpal	2	2	4
Pelvis	2	4	
Femur	2	1	1
Tibia	3	5	1
Astragalus	1	1	
Calcaneum		4	
Metatarsal	2	2	
Metapodial	3		
Phalanx 1	5	4	

Table 12: MNE counts for Period 2.2

The MNE counts show that elements from both butchery and kitchen waste are present for cattle sheep and pig. The lack of elements associated with primary discard for pigs suggests that

they were not butchered close to the site, although the pig sample is really too small to enable any conclusions to be made.

Ageing information is available in the form of epipyseal fusion and tooth wear data but both are limited. Epiphyseal fusion data is tabulated below (Table 13) and fusion ages are based on the data presented by Silver (1969).

AGE	ELEMENT	FUSED	FUSING	UNFUSED	TOTAL	FUSED
0-10	SCAPULA					
MONTHS	D. HUMERUS	1				
	P. RADIUS	2		1		
	TOTAL	3		1	4	75%
13-28	P.ULNA					
MONTHS	D. METAPODIAL	1				
	P. FEMUR					
	D. TIBIA	3		2		
	CALCANEUM	1				
	PHALANXE 1	3		1		
	TOTAL	8		3	11	73%
30-42	D. RADIUS					
MONTHS	P. HUMERUS					
	D. FEMUR			1		
	P. TIBIA			1		
	TOTAL			2	2	0%

Table 13: Epiphyseal fusion data for the sheep assemblage (D= distal, P= proximal)

The data fits with the recognised pattern for sheep exploitation in this period when slaughtering took place between the second and third years, primarily for meat (Maltby 1981, 175). There is not much evidence that animals were being allowed to mature and that secondary products such as wool were important.

The limited tooth wear data provides contradictory evidence with the tooth wear scores producing age estimates for three lambs, one less than 6 months and two 6–12 months, and two sheep of 4-6 years (Hambleton 1999). The contradictory and inconclusive results may result from the small sample size.

AGE	ELEMENT	FUSED	FUSING	UNFUSED	TOTAL	FUSED
0-18	SCAPULA	3				
MONTHS	P.RADIUS					
	D. HUMERUS					
	PHALANXE 1	3				
	TOTAL	6			6	100%
24-42	D. TIBIA	3				
MONTHS	D. METAPODIAL	6				
	CALCANEUM					
	TOTAL	9			9	100%
42-48	P.ULNA	1				
MONTHS	P.HUMERUS		1	1		
	P.FEMUR			2		
	D.FEMUR			1		
	D.RADIUS					
	P.TIBIA			1		
	TOTAL	1	1	5	7	14%
		1	1	1	1	1

The ageing data for cattle is limited to epiphyseal fusion (Table 14).

Table 14 Epipyseal fusion data for cattle (D= distal, P= proximal)

Although this is a small sample, the data indicates that cattle were not slaughtered young. This may suggest that cattle were valued more for secondary products such as milk rather than as meat.

The small number of pig elements present has not been tabulated. Only five long bones and four metacarpals were available for recording and with the exception of two metacarpals, all indicate immature animals (Silver 1969, 285-286). This would suggest that the animals were killed at a young age to provide meat. At least one animal is of foetal or newborn size. As with the sheep assemblage, the only age estimate based upon tooth wear contradicts this with an age of 27 to 36 months (Hambleton 1999).

Butchery marks were very limited, probably as a consequence of the fragmentary nature of the assemblage. A cattle horn core had been sawn from the cranium and a single sheep vertebra had

been split axially. Chop marks were noted on medium and large mammal long bone fragments, as well as cattle and sheep innominates, a cattle mandible, ribs and phalanx. Knife marks are evident on cattle ribs and a pig radial shaft. This evidence seems to represent primary butchery discard, carcass division as well as kitchen waste.

Only three metapodials have provided withers heights and these are tabulated below (Table 15). Further measurements are housed in the archive.

ТАХА	BONE	Greatest Length (GL) (mm)	Withers Height (cm)
Cattle	Metatarsal	211	114.9
Cattle	Metatarsal	203	110.6
Sheep	Metacarpal	127	61.47

Table 15 Biometric data (calculations made with reference to Fock for cattle, and Teichert for sheep, as referenced in von den Driesch and Boessneck 1974)

Canid gnawing was noted on a number of fragments from several contexts and this would suggest that the bone waste was not always deposited straight away. Charring was also noted on a number of fragments and is likely to represent accidental burning of waste fragments, perhaps discarded close to the kitchen fires.

Horse

A total of twelve fragments represent at least one horse. Fragments include long bones, metapodials loose teeth. All fragments appear to be from a mature animal. One complete metacarpal provided a wither height estimate of 130.76 cm which equates to approximately 13 hands (Kiesewalter 1888).

Dogs

Evidence for dogs has already been noted as gnawing marks on bones but the remains of at least three animals were present. With the exception of a single fragment of mandible from pit [299], all fragments were recovered from pit [304] (fill [24]) and quarry pit [35] (fill [36]). The evidence suggests that all animals were mature. A number of complete elements were present (Table 16), withers heights have been calculated with reference to Harcourt (1974)

Context	BONE	Greatest Length (GL) (mm)	Withers Height (cm)
	Radius	96.93	50.33
[24]	Tibia	140.00	50.29
	Tibia	140.95	50.56
	Femur	139.54	30.84

Table 16 Biometric data

One of these dogs is notably smaller than the others, but this conforms to the observation that small dogs (less than 40cm at shoulder height) were becoming more common in Western Europe during the Roman period (Baxter 2010, 1), following the introduction of lap or house dogs at this time (Harcourt 1974, 164). Two possible types have been noted, dwarf hounds and toy or midget dogs (Baxter 2010, 1), of which the Springfield Road animal is an example.

Red Deer

A total of 27 red deer fragments were identified representing at least one animal. However, the majority of the assemblage consists of very small antler fragments. The assemblage also included the remains of one shed antler as well as long bone and metapodial fragments. A single fragment of humerus had chop marks evident on the distal shaft.

Small mammal

Evidence of small mammals has been recovered by hand and through sieving. In total, sixteen fragments were recovered. Seven fragments were identified as hare and consisted of five distal humeri, producing an MNI of three, a distal radius and a scapula. One complete pelvis has been identified as probable woodmouse (*Apodemus sylvaticus*) and a single mandible has been identified as house mouse (*Mus domesticus*). The remaining assemblage contains post-cranial elements that are difficult to identify to species but are similar in size to house mouse.

Bird Bone

The bird bone assemblage contains 53 fragments of which 45 could be identified to taxa (Table 17). The identifiable bone includes chicken (*Gallus gallus*), mallard (*Anas platyrhynchos*), goose (*Anser sp.*) and woodcock (*Scoloplax rusticola*) and rook/crow.

ТАХА	NISP
Chicken	25

Chicken/Pheasant/Guinea Fowl	13
Woodcock	7
Mallard	2
Goose (Anser sp.)	2
Rook/Crow	1

Table 17: NISP (Number of Identifiable Specimens) count for the bird assemblage

Medium-sized galliforms dominate the bird assemblage and it is likely that the majority of these bones derive from domestic chickens which can be separated from the closely related pheasant and guinea fowl on a number of morphological characteristics (Tomek and Bochenski 2009; MacDonald 1992). If we assume that all of the medium-sized galliform specimens derive from chickens then a minimum of seven chickens are represented in this assemblage. The presence of tarsometatarsi both with and without spurs indicates that the assemblage contains cockerels and at least one hen. Also amongst the specimens are six, unfused and porous bones suggesting that these birds were bred on-site. A cut mark was noted on the distal end of a tibiotarsus. Further evidence of possible domestic species includes fragments of mallard/domestic duck and probable greylag/domestic goose.

Remains of woodcocks are often recovered from Roman sites (Yalden and Albarella 2009) and evidence implies that they were hunted and eaten (Parker 1988). The single rook/crow specimen probably represents the remains of a scavenger.

Fish

Just sixteen fragments of fish bone were recovered by hand and through sieving. The majority of these are unidentifiable rays and spines though three vertebrae have been identified and represent grey mullet (*Liza sp.*), plaice (*Pleuronectes platessa*) and sea bass (*Dicentrarchus labrax*). All three species are found in marine water and indicate that fish contributed to the local diet.

DISCUSSION

The distribution of the assemblage across the site did not appear to produce any distinguishable patterns or suggest the presence of any specialised areas. Almost half the assemblage (approximately 44%) was recovered from a single feature, pit [24] and the results suggest that

this, like many others pits on the site was used for the disposal of general waste from butchery and kitchen activities.

The variety of species represented is not unexpected for a site of this type. King (1984) has suggested that 'Romanised' settlements such as villas tended to follow a more Roman style diet which usually meant an increase in the proportions of cattle and pig at the expense of sheep, which had dominated the Iron Age assemblages. Although this does not seem to be the case here with a high proportion on sheep represented by NISP and more significantly the MNI numbers, regional variations would have been inevitable. It was noted that sites with more than 30% sheep in the assemblage such as this one, were still evident in low lying areas of the country with light soils suited to sheep grazing (King 1978).

Set within a rural location the villa would have made use of locally available resources. The surrounding farmland and general environment would have supported their livestock and provided hunting grounds for deer. The few fish remains recovered indicate that the marine environment was also being exploited. The only definite evidence for farming activities taking place in the immediate vicinity is the suggestion that chickens were bred on site. The large mammal assemblages are too small to be able to conclude with confidence whether or not butchery was taking place on or close to the site.

MARINE MOLLUSCS

by David Dunkin

The excavations produced 47 contexts containing marine molluscs with a total weight of 18.128 kg. Analysis of the assemblage indicates the total weight is comprised of more than 90% oyster remains (*Ostrea edulis*). The other species identified were limpet (*Patella vulgata*), mussel (*Mytilus edulis*), periwinkle (*Littorina littorae*), carpet shell (*Venerupis decussata*), whelk (*Buccinum undatum*), queen scallop (*Aequipecten opercularis*) and cockle (*Cerastoderma edule*). Each of the latter occurs in very small quantities and the bulk of the assemblage is therefore dominated by oyster.

In terms of weight, only three contexts (OA 5 pit [18], fill [19]); OA3, re-cut [304], fill [24]; OA3 pit [120], fill [33]) produced in excess of 750g (Table 18). Their combined weight is 11.660 kg which represents *c*.64% of the total assemblage. The three contexts have been targeted for a more in

depth analysis (see below). Regarding the full assemblage 35 of the contexts containing marine molluscs are Roman with dates broadly spanning the entire period. Very small quantities of oyster, limpet, cockle, periwinkle, whelk, mussel and scallop have been identified from nine contexts dating to the 17th-20th centuries.

Table 18 shows that apart from oyster remains, the three Roman pits produced very small quantities of whelk, limpet, carpet shell, mussel and cockle. Fills [24] and [33] contained greater numbers of periwinkle suggesting this may have been a more important secondary food resource. Contexts [19], [24] and [33] produced a total of 171 complete left or lower valves of oyster where the umbone is intact and 193 right or upper valves (Table 18). In ageing the 364 oyster shells just 29 left/right valves were less than 4 years old. The remaining shells are in the range of 4-10 years+ indicating that the vast majority of the gathered oyster was of mature/edible age. Analysis of the contexts in Table 18 identified a level of distortion in 59 oyster valves (*c*.16%). Distortion is usually a reflection of overcrowding and may be eradicated or reduced in healthy farmed or cultivated colonies. Furthermore, the oyster valves displayed a high incidence of polychaete worm infestation with evidence for this in 94 shells (*c*.26%) and 12 cases of burrowing sponge were also identified (Table 18).

Thus the variation in size and age together with the degree of distortion and infestation suggests that the oysters from the Roman contexts were from wild colonies and were not considered to have been harvested from a 'cultivated' source. Also Table 18 demonstrates very clearly that the numbers of left and right oyster valves are numerically consistent and that this pattern is within the normal range of disposal of everyday domestic rubbish.

Context [33] produced a left/lower perforated oyster valve (*c*. 6 years old). The symmetrically shaped oval perforation lies typically on the upper fringe of the adductor scar. Four similar perforated shells were noted for example at Hangleton DMV excavations (Holden 1963, 175 and 177). The present author favours the idea that they may have had a decorative role for internal/external structures or as 'jewellery'. These perforated shells are observed from time to time in the archaeological record and are considered to be purposefully modified but their proven function is not known.

It is not possible to identify the source of the oyster recovered at Springfield Road. However, the parameters as discussed above suggest they came from a wild colony. Because of long shore drift

the mouth of the River Adur at Shoreham by Sea was probably several kilometres further east in the Roman period. This estuarine resource could have lain therefore within 6 km of the site.

Medieval and post-medieval deposits in Shoreham have produced very large quantities of oyster remains deriving from the Adur estuary (see Stevens 2009, 106; Stevens 2011, 139) and this is known to have provided a suitable habitat for oyster beds. In later periods they were cultivated. The marine molluscan assemblage indicates that oyster was a secondary food resource throughout the Roman period and that the other identified species should be regarded as an occasional and minor food resource.

Context	Context type	Species	Quantity/Age	Evidence of
Number	Date			Encrustation
	Total Weight			(Ostrea edulis
				only)
19	Pit	Ostrea edulis	Oyster: 7 left valves: 8 years+;	4 valves with
	Early/Mid	(Oyster);	9 right valves: 4-10 years;	slight distortion;
	Roman	Buccinum undatum		4 valves have
	(0.875 kg)	(Common whelk);	2 x adult common whelks; 7 x	evidence of
		Patella vulgata	limpets (2 juveniles); 4 x adult	burrowing
		(Limpet);	periwinkles; 10 x carpet shells	sponge (e.g.
		Venerupis	(2 juveniles)	Cliona celata); 2
		decussata		valves with
		(Carpet shell);		slight worm
		Littorina littorea		infestation (e.g.
		Periwinkle		Polydora
				hoplura)
24	Quarry Pit	Ostrea edulis;	Oyster: 18 x left valves: 5-10	8 valves with
(Quadrant A)	Early/Mid	Littorina littorea	years+; 17 x right valves: 3-10	distortion; 17
	Roman		years;	with polychaete
	(1.100 kg)			worm
			3 x periwinkles (1 juvenile)	infestation
24	Quarry Pit	Ostrea edulis;	Oyster: 37 x left valves: 5 <3	11 valves with
(Quadrant B)	Later Roman	Buccinum undatum;	years; 32 5-10 years+; 38 x	distortion; 1
	(2.480 kg)	Cerastoderma	right valves: 2 <3years; 36 5-	valve with
		edule	10 years;	burrowing
		(Common cockle);		sponge; 15
		Patella vulgata;	4 x juvenile whelks; 3 x	valves with
		Mytilus edulis	cockles; 1 x juvenile limpet; 5	worm
		(Mussel);	x mussels; 20 x adult	infestation; 3 x
		Littorina littorae	periwinkles	adhering shells
24	Quarry Pit	Ostrea edulis;	Oyster: 16 x left valves: 4-10	3 valves with
(Quadrant C)	Later Roman	Littorina littorae	years; 27 x right valves: 4	distortion; 7
	(1.200 kg)		<4years; 23 4-10 years;	valves with
				worm
			3 x periwinkles	infestation
24	Quarry Pit	Ostrea edulis;	Oyster:30 x left valves: 1 <3	10 distorted
(Quadrant D)	Later Roman	Buccinum undatum;	years;29: 4-10 years; 40 x	valves; 1 valve
	(2.290)	Cerastoderma	right valves: 2 <3 years; 38 3-	with burrowing
		edule;	10 years+;	sponge; 18
		Venerupis		valves with
		decussata;		worm
		Littorina littorae		infestation

			1 x juvenile whelk; 2 x adult	
			cockles; 3 x carpet shells; 18 x	
			periwinkles (adults/juveniles)	
33	Pit	Pit Ostrea edulis; Oyster: 16 x left valves: 4 <4		4 distorted
(Quadrant A)	Later Roman	Patella vulgata;	years; 12 4-10 years +; 1 left	valves; 9 valves
	(0.845 kg)	Cerastoderma	perforated valve; 14 x right	with worm
		edule;	valves: 11 3-7 years; 3 8-10	infestation; 1
		Mytilus edulis;	years;	valve with
		Venerupis		burrowing
		decussata	1 x adult limpet; 1 x adult	sponge; 3 x
			cockle; 1 x mussel; 3 x carpet	adhering shells
			shells	
				14 distorted
33	Pit	Ostrea edulis;	Oyster: 32 x left valves: 2 <3	valves; 14
(Quadrant B)	Early/Mid	Venerupis	years; 30 4-10 years+; 33 x	valves with
	Roman	decussata;	right valves: 4 <3 years; 29 4-	worm
	(1.875 kg)	Buccinum undatum;	10 years;	infestation; 4
		Littorina littorae;		valves with
		Cerastoderma	5 x adult carpet shells; 2 x	evidence of
		edule;	juvenile whelks; 27 juv/adult	burrowing
		Mytilus edulis;	periwinkles; 5 x adult cockles;	sponge
		Patella vulgata	4 x mussels; 2 x juvenile	
			limpets	
33	Pit	Ostrea edulis;	Oyster: 15 x left valves: 10 4-9	5 distorted
(Quadrant C)	Later Roman	Patella vulgata;	years; 5 10 years+; 15 x right	valves; 12
	(0.995 kg)	Venerupis	valves: 1 <3 years; 14 4-10	valves with
		decussata;	years;	worm
		Mytilus edulis		infestation; 1
			2 x limpets (1 juv); 6 x adult	valve with
			carpet shells; 1 x adult mussel	burrowing
				sponge

 Table 18. Quantification and identification of marine molluscs from 3 targeted contexts

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