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Small Finds from Thurnham Roman Villa, Kent

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1 BRONZE AGE METALWORK

by Peter Northover

Two pieces of metalwork attributed to the Bronze Age were found within a waterhole (10288) with a ramped access. The waterhole had evidently been subject to disturbance and also contained Iron Age and medieval pottery, as well as a red deer metatarsal dated to cal AD 978-1155 (2F).

1.1 Context 10294, small find 10071, record ID P-578

Small knife or dagger blade with sub-lozengic section blade; rounded, sub-trapezoidal hilt plate with V-shaped nick in top and deep, U-shaped rivet notches symmetrically placed on either side; slight expansion of blade to a shoulder below the rivet notches; blades has concave edges, asymmetrically worn; no original part of the cutting-edge survives; all blunted by corrosion. Rust brown encrustation over pale-green pitted surface.

Overall length 54 mm; max width 17 mm.

Composition: 0.15% Fe; 0.07% Co; 1.53% Ni; 0.01% Zn; 0.42% As; 0.18% Sb; 6.82% Sn; 0.01% Ag; 0.05% Pb; 0.37% S.

There are two possibilities for a dating and context for this blade. It could belong to the family of early Bronze Age knife daggers, or it could derive from a middle Bronze Age dirk.

Knife daggers were catalogued by Gerloff (1975, nos. 237-346): her illustrations show that almost no knife daggers have a lozenge section blade, and none at all have side rivet notches. We must therefore look among middle Bronze Age dirks both in Britain and at least neighbouring areas of the Continent.

The dirks and rapiers of the British middle Bronze Age have been catalogued by Burgess and Gerloff (1981). Unfortunately, a significant number of dirks and rapiers is hard to classify and the authors do not always adhere closely to their definitions when assigning blades to a particular type. A particular, and relevant, area of obscurity applies to rivet notches: it is very hard to determine whether they are original, have been re-worked from rivet holes, or simply represent damage. Burgess and Gerloff show that rivet notches are most common among dirks and rapiers of their Group IV, especially Type Cutts, with many blades modified for re-hafting. These blades, though, all have some form of mid-rib, however broad and flat so that it is unlikely that the Thurnham blade belongs to this group.

Burgess and Gerloff (*op. cit.* Nos. 207-307) catalogue a rather heterogeneous selection of blades as Group II dirks and rapiers with poorly defined butts or butts modified for re-hafting, primarily on the basis of the lozenge-section of the blade. Some of these blades do have rivet-notches but they are usually not as deep and slot-like as the ones on this blade. Also, occasional examples appear elsewhere among the Group I dirks and rapiers, notably

their No. 197, from the River Thames, which does have two deep rivet notches (described as re-worked from rivet holes).

For a closer parallel it is necessary to look further afield. The middle Bronze Age daggers from France and the Channel Islands have been catalogued by Gallay (1988). Two of her categories combine rivet-notches and lozenge-section blades, namely *Dolche mit trapezförmiger Griffplatte und Nietkerben* (Nos. 887-904) and *Einfach Kerbdolche* (1028-1049, esp. 1020-28): other daggers with rivet notches have some form of mid-rib. In some cases with both types the rivet-notches appear to be an original feature, while in others they derive from damage to or re-working of the butt of the dagger.

For the best matching of the two features together one can cite among the *Einfache Kerbdolche*, Gallay's No.1021, unfortunately without provenance, and a dagger from Fontainbleau, *Dolche mit trapezförmiger Griffplatte und Nietkerben* No. 897. There are also other examples among the French daggers of the deep rivet notches of the type seen on the Thurnham dirk so it is reasonable to see the blade as French in origin. In terms of chronology the occurrence of a *Dolch mit trapezförmiger Griffplatte und Nietkerben*in the hoard from Tréboul in Brittany places them in the first half of the middle Bronze Age, largely contemporary with the Acton Park phase in Britain (and with Group II dirks and rapiers), while Gallay places the *Einfache Kerbdolche* in Bronze Final 1, contemporary with Penard in Britain and with Cutts dirks. A Penard period composition places a similar example from Flag Fen (Coombs 2001, No. 43) as contemporary with the *Einfache Kerbdolche*.

Fortunately, the composition of the Thurnham blade allows us to choose between these possibilities. The key features are the high nickel content, with Ni>As, and the relatively modest tin content of 6.8%. For comparison there is now available in Europe a large database of analysed middle Bronze Age metalwork from the British Isles, France, Switzerland and Denmark (for bibliography see Rohl and Northover 2001; Rychner and Kläntschi 1995; Liversage 2000). Taken together these indicate that the metal is of Continental origin, possibly Alpine (Rychner and Kläntschi *op. cit.*), and is most common in the middle of the middle Bronze Age, the Taunton period in Britain, Bronze Moyen II in France, and Period II in northern Europe. It is effectively absent in the Penard period (Bronze Final l/Period III). This makes it certain that the blade does derive from a lozenge-section dirk or dagger of the middle Bronze Age. Given the chronology of these the Thurnham blade was probably made during a period contemporary with Acton Park or the beginning of Taunton in Britain, in absolute terms a date in the 15th century BC. In the Acton Park period Britain was an exporter of bronze to the Continent (Northover 1982), the trend being reversed in the Taunton period, so the blade was possibly not imported until that time; when and where it was re-worked is, of course, another question.

The nature of the alloy used in the blade allows us to say a little more about its probable history. Northover (1982) noted that bronze with an Ni>As impurity pattern was originally made with a moderate tin content of the order of the 6.8% seen here. As the metal was exported westwards in was re-used in northern and western France where much of it was re-alloyed with additional tin, presumably from Breton or south-west English sources. This re-alloying was very characteristic of the Taunton period. Clearly the blade has escaped these processes. Possibly it was imported before such re-alloying had become commonplace and was found handy re-worked into a knife without re-melting.

1.2 Context 10294, small find 10072, record ID P-579

Needle or pin formed from circular section wire; the head or eye is formed by bending the end of wire over; the cross-section of the wire thins at the top of loop and the end is cut or broken and slightly flattened against the shaft; about 20mm from the head shaft is bent at angle of about 120E and about 50mm further along the shaft is again bent and tapers quickly to a much thinner section; this taper is partly due to wastage of metal by corrosion but does appear to be, at least in part, intended. The actual point is missing. The pin as a whole was covered with a rusty encrustation with the eye full of iron hydroxides/oxychlorides. Under the rust is a dull green pitted surface.

Overall length 94mm; diameter 2mm

Composition: 0.03% Fe; 0.02% Co; 0.76% Ni; 84.49% Cu; 0.01% Zn; 0.04% Sb; 14.02% Sn; 0.01% Bi; 0.05% Pb; 0.17% S

The pin does not fall into a well-defined type and the cut or broken end of the head makes it most probable that the pin has been reworked from a damaged example of an unidentified type. Thus it is not possible to provide a dating for the pin on the basis of its form, and equally it is not possible to say too much about the function of the piece, whether it was a pin or a needle. A similar item has been found associated in a metalworker's hoard of tools in Burgundy (Thevenot 1998, 130). This example is rather thicker than the Thurnham example and has a blunter point; it is formed from square-section wire of which the hoard also includes some stock. The hoard also contains anvils, hammers, decorative and other punches, modelling tools, and a possible swage and wire-drawing die. The "pin" may also fall into the category of modelling tool; some others are also clearly re-worked from small bits of scrap.

Such a re-worked item as the Thurnham "pin" is impossible to date from its morphology. However, the composition is of considerable help. As discussed above, an Ni>As impurity pattern and a high tin content, here 14%, place the pin in the Taunton period of the middle Bronze Age. The metal is imported and it is very probable that the pin that was re-worked was also an import. In contrast, the pin from the Burgundy hoard cited above can

be dated to the succeeding period, Bronze Final 1 in France, contemporary with Penard in Britain.

When Rowlands (1976) published his study of middle Bronze Age metalworking in southern Britain settlement finds such as these bronzes from Thurnham were virtually unknown in the area. However his maps (e.g. Rowlands *op. cit.,* Map 27) north Kent, extending east into Thanet is an area where middle Bronze Age metalwork shows some concentration. Here, then, we have two pieces of bronze of middle Bronze Age date associated with a waterhole with an access ramp. Although relatively close in date from a current perspective it is perfectly possible that the blade and pin were deposited more than 50 years apart although the proximity of location *in situ* would suggest that this is unlikely. The association of bronze and water can lead to an easy assumption of ritual activity and this is, of course, a real possibility. At Flag Fen, for example, we know that the bronze deposited in the water around the walkway and platform included very utilitarian items such as small tools that might be associated with metalworking activity. However, we should not automatically exclude a more utilitarian story. Both items are small objects, re-worked from other items into small tools associated with crafts, or into personal accessories, and there is no reason why they cannot have simply been lost during everyday activities that made use of the waterhole or the area immediately round it. However, these were also deposited in an unusual context of sorted flint nodules that effectively infilled the waterhole and put it out of use. Given the close physical association between the two items and the unusual context that they were deposited in it would appear that these do represent ritualised deposition.

2 THE SMALL FINDS OF METAL, GLASS, WORKED BONE AND FRIT

by Hilary E.M. Cool

2.1 Introduction

The CTRL excavations at the Thurnham villa produced a very large assemblage of metal finds, and a small number of ones made of glass, frit and worked bone. The size of the metal assemblage stems in part from the extensive metal detecting that was carried out throughout the excavation. All of the metalwork was examined, but in this report only those items that can definitely be attributed to the Roman period on typological or contextual grounds have been included, together with two items that are likely to be of medieval date. The finds, excluding iron nail fragments (see Table 4) are summarised according to functional category and site period in Table 1.

Key to periods:

LPRIA = Late Pre-Roman Iron Age c 50 BC to c AD 50/60

ERo = Early Roman c AD 60 to 120

MRo(1)= Middle Roman (phase 1) 120 to 150

MRo(2)= Middle Roman (phase 2) 150 to 250

LRo = Late Roman 250 to 420

Med = Early medieval c 1000 to 1350.

P-Med/Mod = Post-medieval to modern 1500 to present

– = includes not only unstratified finds but also those from unphased contexts which are likely to belong to the Roman to medieval period.

Table 1: The finds by functional categories and period

Function\Period	LPRIA	LPRIA / ERo	ERo	MRo (1)	MRo (2)	LRo	Med	P-Med / Mod	–	Total
Personal ornaments	-	1	8	2	7	34	1	2	3	58
Toilet equipment	-	-	3	-	2	1	1	-	-	7
Recreational items	-	-	1	-	1	1	-	-	1	4
Household items	-	-	1	-	1	2	-	-	-	4
Writing equipment	-	-	-	-	-	-	-	-	1	1
Transport items	-	-	1	-	-	2	1	-	-	4
Structural fittings	-	-	1	-	2	2	1	-	1	7
Tools	-	-	5	1	1	8	1	1	-	17
Metalworking debris	-	-	1	-	-	2	-	-	2	5
Fasteners	-	1	11	-	7	16	2	-	5	42
Agricultural items	-	-	-	-	1	2	-	-	-	3
Military equipment	-	-	-	-	-	1	-	-	1	2
Religious items	-	-	1	-	1	-	-	-	-	2
Miscellaneous	2	1	20	4	16	42	8	-	9	102
Total	2	3	53	7	39	113	15	3	23	258

Judged by the typological date of many of the finds, this is overwhelmingly a 1st to 2nd century assemblage. Late Roman material is rare, and the only item of medieval date that can be identified with certainty is the prick spur no. 55 although several finds from the medieval soil layer 10015 are also likely to belong to this period rather than represent residual Roman items. As can be seen from Table 1, very few items were found stratified in late pre-Roman Iron Age (LPRIA) deposits. There are, however, a small number of items found in later contexts which would seem to belong to this period of occupation. They would suggest occupation started a decade or two before the Roman conquest. The occupation associated with the early Roman proto-villa period is particularly well represented in the finds assemblage, and suggests a somewhat higher standard of living than villa complex assemblage does.

In what follows the finds will first be discussed in functional groups to establish their date. In the second part the assemblage will be discussed as a whole to explore what it tells us about the different periods of occupation.

Each catalogue entry includes the catalogue number, the object description, the dimensions, the small find number (SF), the context number (Cxt). The number (P-) visible at the end of each catalogue entry refers to the unique record ID which can be found in the database.

2.2 Items by functional categories

2.2.1 Personal ornaments and equipment

The personal ornament and equipment are summarised in Table 2. In general these items are of 1st, and to a lesser extent, 2nd century date. Later Roman material is conspicuously rare. No items were found stratified in Late pre-Roman Iron Age deposits, but typologically several of the brooches appear to belong to that period of occupation.

Table 2: The personal ornaments and equipment by site period

	LPRIA / ERo	ERo	MRo (1)	MRo (2)	LRo	Med	P-Med / Mod	–	Total
Brooch	-	1	2	1	9	-	2	2	17
Hair pin	-	3	-	2	1	-	-	1	7
Bracelet	-	-	-	-	1	-	-	-	1
Finger ring	-	-	-	1	1	-	-	-	2
Bead	-	1	-	-	5	-	-	-	6
Hobnail	1	3	-	3	16	-	-	-	23
Buckle	-	-	-	-	1	1	-	-	2
Total	1	8	2	7	34	1	2	3	58

The brooch assemblage from the site is predominantly a 1st century one, despite all but one of these deriving from contexts associated with the later periods of occupation. Eight

brooches belong to types that were in use in the early to mid 1st century and so could have been associated with the LPRIA period of occupation although they were all found residually.

Nos 1 and 2 are Nauheim Derivatives with strip bows (Hull Type 11; Olivier 1988, 36-8; Bayley and Butcher 2004, 147). These came into use during the first half of the 1st century AD, were very common in the early post-Conquest period, but are going out of use during the 70s. They are rare, for example, on sites associated with the Flavian advance to the north (Snape 1993, 13). No. 2, recovered during the watching brief expansion of the excavation around the possible temple area, is decorated with a band of rocker arm ornament which would point to a pre-conquest date (Mackreth 1998, 130). Langton Down (Hull type 21) and rosette (Hull type 27) brooches have a similar date range, though they went out of use a decade or so before the Nauheim derivatives (Bayley and Butcher 2004, 150). At Thurnham there are two fragmentary Langton Downs (nos 3 and 4) and two rosette brooches (nos 5 and 6). The latter belong to the type with a flat disc upper body to which a decorative sheet was soldered. These appear to have been popular during the second quarter of the 1st century (Mackreth 1995, 971 no. 94). The final brooches belonging to this early group are the two Colchester brooches (nos 7 and 8) (Hull Type 90 – see Bayley and Butcher 2004, 148). These are predominantly a brooch of the first half of the 1st century, and the theory has been advanced that they were no longer being made by the time of the Conquest (Mackreth 1998, 116).

There are also four brooches belonging to types that were introduced at the time of the invasion in AD 43. The Bagendon brooch (no. 9 – Hull Type 52 see Bayley and Butcher 2004 no. 151) has a Claudio-Neronian *floruit*. This was recovered from a sequence of clay levelling deposits securely dated to c AD 60-70 so it may be another brooch worn by the inhabitants of the LPRIA enclosure settlement. The other three brooches are Hod Hills (Bayley and Butcher 2004, 152). One (no. 11) has the lugs centrally placed (Hull type 62), one (no 10) has the lugs at the bottom of the upper bow (Hull type 61), and the third (no. 12) is too fragmentary to assign to a type. Hod Hills are very common brooches in southern Britain and were going out of use in the 60s. The Thurnham examples are clearly residual items deriving from late Roman soil layers (nos 11 and 12) and a middle Roman posthole (no. 10).

Colchester Derivative brooches (nos 13-15) developed in the mid 1st century to replace Colchester brooches. All three from Thurnham have the double lug method of spring fixing, and two (nos 13 and 14) have a broadly D-sectioned bow (Hull type 93) which seems to be the preferred style of the *Cantii.* Recent finds have suggested that such brooches continued in use into the 2nd century (Cool in Booth *et al.* forthcoming). One of the Thurnham examples (no. 13) was recovered from a clay levelling layer deposited before AD 120 but was subject to considerable disturbance in the late Roman period. However, this example is highly likely to have belonged to the earlier part of the types lifespan as it has a perforated catchplate and may

therefore be added to the twelve already discussed as being indicative of what the LPRIA occupants were wearing. The other two came from middle Roman and late Roman contexts (nos 14 and 15 respectively). From its context no. 14 might have been associated with the villa occupation, but no. 15 is clearly residual and could as easily have been worn by the proto-villa inhabitants.

The only brooch that may confidently be assigned to the inhabitants of the villa is the unstratified plate brooch no. 16. Though fragmentary, it clearly belonged to one of the less common variants of the enamelled disc brooches widespread in the 2nd to early 3rd century (Bayley and Butcher 2004, 176-8). The central stepped cell is very similar to that on a circular example with edge lugs from Suffolk (Hattatt 1982, 142 no. 132). It was suggested that that example was imported, but it should be noted that the style of enamelling with contrasting dots of enamel set in an enamel ground, as opposed to true millefiori using cane segments, is typical of British craftsmen at that time.

The final brooch recovered is an iron penannular brooch from a late Roman silting deposit sealing a surface adjacent to the corndrier. This appears to be an example with plain knob terminals (Fowler 1960, Type A1), and as such is not closely datable within the Roman period.

The brooch assemblage from this site is a curious one. In southern Britain up to the middle of the 2nd century, the favoured fashions in clothes required brooches to fasten them. At Thurnham, though, the recovered assemblage is of 1st century date; and there are very few candidates for use at the end of the early Roman period of proto-villa occupation, let alone any 2nd century association with the replacement stone villa building. This does not seem to be for depositional reasons, such as the absence of suitable rubbish deposits relating to the periods of villa occupation; the 1st century brooches, after all, are generally found residually rather than in the obvious rubbish deposits of the proto-villa such as the fills of ditch 20400. Nor does it seem likely that the inhabitants would have continued to wear the particular 1st century forms present into the 2nd century. Though it is possible that some forms of Colchester Derivative did have long lifespans, Hod Hills, Bagendons and rosettes had definitely disappeared some time before the end of the 1st century.

The use of hair pins is a post-Conquest fashion in Britain, and at Thurnham the female inhabitants seem to have adopted the new hairstyles during the proto-villa period with three of the seven found recovered from early Roman deposits (nos 20, 21 and 23). Three are of the common form where the head consists of grooves cut into the top of the shank. One of these (no. 18) is of copper alloy (Cool 1991, Group 5D), the other two (nos 19-20) are bone (Crummy 1979, Type 2). There are also two undecorated versions, again of both copper alloy (no. 21 – Cool 1991, Group 24) and bone (no. 22 – Crummy 1979, Type 1). All of these are commonest in the 2nd century, and were probably coming into use during the later 1st

century. There is one example of a pin with a more elaborate head (no. 23) that belongs to a later 1st to 2nd century type more commonly found north of the Thames (Cool 1991, Group 10). These normally have three pairs of grooves around the upper part of the head, but a small number of examples with four pairs as here are known from the core area of their distribution (Cool 1983, 593 nos 24-26), so this does not appear to be a local variant. No. 23 is unusual in being very short, at a time when the fashion was for long hair pins. The shank is asymmetrical, however, and there seems to be a distinct possibility that it may have been shortened after breakage.

The only bracelet recovered (no. 25) is an example of the very common cable twist form that is most numerous in the 4th century. This example is one of the few indications of late Roman occupation in the Thurnham small finds assemblage and is undoubtedly a contemporary loss being incorporated into one of the few deposits that were rich in late Roman material at Thurnham. The scarcity of bracelet fragments generally is a very good indication that there was not much domestic occupation at Thurnham by the 4th century. Bracelets at that time were worn several to a wrist, and fragments can be very common on domestic sites (see for example the assemblage from the Lullingstone villa – Meates 1987, figs. 25-27).

One of the two finger-rings is of special interest (no. 27). It is a simple expanded signet ring, typical of the 1st to 3rd centuries (Henig 1974, fig. 1 types II / III) set with a nicolo intaglio, a type of stone most popular in the 2nd and 3rd centuries (*ibid* 42). It was found in the drip gully associated with the 14-post structure of the middle Roman (phase 2) period. The typology and the context of the piece thus come together to suggest it was lost by a 2nd to 3rd century inhabitant of the villa complex, and it may be casting some light on the religious beliefs of that person. The device on the intaglio depicts a parrot with a bunch of grapes, and parrots were associated with Bacchus by virtue of his Indian adventures (*ibid* 151). Bacchic imagery is not uncommon on jewellery items (Henig 1984, 179-80), and it seems reasonable to conclude that this was because of their wearers devotion to that saviour god.

The other finger ring is represented simply by an enamelled bezel (no. 26) found within a mixed late Roman soil deposit and almost certainly a residual item. When complete it would have had constricted shoulders, possibly with an additional cordon behind the constriction, see for example those from Scole (Rogerson 1977, fig. 56.13) and NorNour (Butcher in Dudley 1967, fig. 8.10). These are part of a group of ornamental finger-rings in use during the 2nd and into the 3rd century, though the ones with enamelled bezels as here tend to be of 2nd century date (Cool 1983, 249 Group XII).

Of the five beads definitely identified, two are of 1st to 2nd century date. The frit melon bead (no. 28), though found in a context associated with the late Roman smithy, is clearly residual as such beads went out of use in the mid 2nd century. Annular glass bead such

as no. 29 are found throughout the Roman period, but this is likely to be of early Roman date given that it was found in a floor deposit of the probable temple belonging to the early Roman period. All of the beads that could belong to the late Roman period on typological grounds (nos 30 and 31) were found in contexts of this date. Two of them (no. 30) were recovered whilst sieving the fill of the infant burial and may represent a jewellery item not identified during excavation as the sample was taken from the area at the centre and base of the grave. The bead assemblage is thus another area where the paucity of 4th century domestic occupation can be seen. Glass bead necklaces were fashionable at that time, and beads are not uncommon on 4th century sites. During the excavations at Thurnham, extensive sampling was undertaken. It is to be expected in such circumstances that small glass beads would have been recovered from the processing of the samples had they been present. Here only no. 31 might represent such casual domestic loss.

The polychrome glass fragment no 32 is a most curious piece which appears unparalleled. It is broken at the edge of a small perforation and thus might be a bead. Alternately, the perforation might have been for a small rivet to attach it as a setting. It was found in the late Roman smithy within the villa and thus has a *terminus ante quem* of the late 3rd century. At that period, and earlier in the Roman period, very few glass beads were made in polychrome glass. Polychrome beads were a feature of the later pre-Roman Iron Age and into the early Roman period; but the use of blue/green glass would suggest this was a product of the Roman period rather than part of that tradition.

Two iron buckles were recovered. One (no. 34) was recovered from a medieval soil horizon; the other (no. 33) comes from the late 3rd century smithy and thus poses something of a problem. It appears to be a small rectangular iron buckle with a central bar. Whilst this would be totally unexceptional in a post-medieval context (cf Goodall 1990, 535, fig. 140 1331-3), it is most unusual in a late 3rd century one. Iron was not much used to make buckles in the Roman world, and where Roman buckles do occur they tend to be of different patterns (see for example, Manning 1985a, 146-7). It is therefore quite likely that this item is actually intrusive, particularly when considered that it was recovered from the uppermost archaeological horizon within the smithy.

Finally in this section the hobnails can be considered. Isolated hobnails are found throughout the stratified sequence from the early Roman period onwards, including one in a LPRIA context whose deposition probably extended up to c AD 60 (see Table 2) indicating that from an early date the inhabitants adopted Romanised shoe fashions.

1 Nauheim Derivative brooch. Copper alloy. Rectangular-sectioned strip tapering to foot and spring; spring of one and one and a half turns with chord passing underneath head; broken catch plate. Length 49mm, maximum section of bow 5 x 1mm. SF 10966. Cxt 12279. P-1242.

2 Nauheim Derivative one-piece brooch. Spring of two turns on either side with chord passing below head; bent pin; strip bow tapering to foot, band of rocker arm down front of bow; triangular catchplate. Bow bent out of shape. Length 49mm, spring width 10.5mm. ARC 420 63+500/99 watching brief. SF 4. Cxt 294. P-1583.

3 Langton Down brooch, upper part only. Copper alloy. Closed spring case with part of spring visible on one side, pin missing; upper part of vertically ribbed bow with double groove around top. Present length 22mm, maximum width 18mm. SF 10767. Cxt 11396. P-1183.

4 Langton Down brooch, upper part only. Description as no. 3. Present length 21mm, maximum width 18mm. SF 10870. Cxt 11846. P-1220.

5 Rosette brooch. Copper alloy. Crushed spring cover retaining part of spring; disc upper bow with pair of grooves around edges, central rivet with cup head, traces of backing material for missing repoussé sheet; central part of fan tail with two vertical rows of beading; trapezoidal catch plate. Length 40mm, width of spring cover 19, width of disc 20mm. SF 10899. Cxt 10503. P-873.

6 Rosette brooch, now in two pieces. Copper alloy. Disc upper bow, sides often chipped and broken but retain two vestigial lugs at side, remnants of solder for attachment of missing front plate, double perforated lug at back for spring; fantail with fine groove parallel to each edge, wider vertical groove centrally and traces of white metal plating; broken catch plate. Length 44mm, width of upper bow (including lugs) 29mm. SF 10283. Cxt 10503. P-808.

7 Colchester brooch. Copper alloy. Short ribbed spring covering of spring of 2 turns on either side, pin complete; chord held by long forward facing hook; D-sectioned tapering bow; broken perforated catchplate. Present length 28mm, width spring 10mm. SF 10771. Cxt 20057. P-1380.

8 Colchester brooch. Copper alloy. Broken spring cover, spring of 4 turns on either side with chord held by forward facing hook, pin missing; oval-sectioned bow bent out of shape; catchplate broken. Present length 45mm, spring width 22mm. SF 10857. Cxt 11792. P-1218.

9 Bagendon brooch, brass with tin plating (XRF). Hinge bent over forward enclosing iron hinge bar and remnants of copper alloy pin. Two transverse grooves between hinge and upper arched bow, corrosion products obscure any other decoration there may have been in this area. Central vertical band punched with square blocks and concave band on either side, two transverse grooves below. Narrow lower broken bow and broken catch plate. Two small iron rivets inserted on either side of upper bow, rectangular square socket across the base of the upper bow. Length 36mm, maximum width 12mm. SF 10772. Cxt 11392. P-1177.

10 Hod Hill brooch Gunmetal with tin plating; bronze pin (XRF). Hinge rolled over and retaining upper part of pin; rib above long rectangular upper bow, three vertical ribs transversely grooved, lateral lugs with neck at base of bow; constricted moulding between upper bow and tapering lower bow with groove on the side and broken foot; broken catch plate. Length 49mm, maximum width 23mm. SF 10627. Cxt 10652. P-929.

11 Hod Hill brooch. Copper alloy. Hinge rolled forward; square upper panel with three vertical ribs, horizontally nicked, and central knob on each side; horizontal rib above

panel and double cordon below; plain slightly expanded foot; trapezoidal catch plate. Length 28mm, width 15mm. SF 10298. Cxt 10503. P-821.

12 Hod Hill brooch. Copper alloy. Fragment retaining part of head and vertically ribbed upper bow with transverse rib above. Present length 15mm. SF 10981. Cxt 12361. P-1248.

13 Colchester Derivative brooch. Copper alloy. Short spring covers with double perforated lug behind, upper lug retains chord of spring of three turns on either side, lower perforation retains copper alloy bar through centre of spring, spring and on one side and pin now broken and detached; D-sectioned tapering bow with step on either side at head and two transverse grooves at foot; triangular catch plate with two perforations with stepped crossbar between them. Length 56mm, maximum width 20mm. SF 10862. Cxt 20112. P-1454.

14 Colchester Derivative brooch. Copper alloy. Short open-ended spring cover with double perforated lug behind, upper perforation of lug retaining chord of spring of three turns on either side and pin, pin and spring bent out of shape. D-sectioned tapering bow with flange on either side; knob and cordon foot; triangular catch plate. Length 51mm, maximum width 19mm. SF 10089. Cxt 10348. P-591.

15 Colchester derivative brooch; wings and upper bow only. Copper alloy. Short spring covers with double perforated lug behind; D-sectioned bow with central rib producing slight effect of cavetto moulding. Present length 20mm, maximum width 17mm. SF 11029. Cxt 12368. P-1253.

16 Plate brooch. Copper alloy. Flat broken flange with oval stepped cell and broken lugs for hinged pin; lower step has grooved decoration; oval cell with central circular cell, outer ring with blue enamel set with opaque red dots; circular cell set with contrasting but now much decayed enamel. Present length 21mm. SF 10386. Cxt unstratified. P-508.

17 Penannular brooch. Iron. Half extant in three fragments. Circular hoop with knob terminal and remnants of pin wrapped around hoop. Diameter *c* 30mm, hoop section 3.5mm. SF 10474. Cxt 11044. P-1046.

18 Hair pin. Copper alloy. Circular-sectioned shank tapering to point; conical head with one narrow groove and one wide channel. Length 70mm, section 2mm. SF 10970. Cxt 20048. P-1379.

19 Hair pin. Bone. Circular-sectioned shank tapering slightly to point; conical head with two grooves below, upper one with over-lapping ends. Length 87mm, section 2.5mm. SF 10825. Cxt 15028. P-2075.

20 Hair pin. Bone. Circular-sectioned shank tapering slightly; conical head with two grooves below; shank broken. Length 42mm, section 3mm. SF 10715. Cxt 20002. P-2074.

21 Hair pin. Copper alloy. Circular-sectioned tapering shank with conical terminal, point broken. Length 98mm, maximum section 3.5mm. SF 10934. Cxt 12101. P-1233.

22 Hair pin. Bone. Circular-sectioned slightly tapering shank; very shallowly conical head. Length 59mm, section 5mm. SF 10871. Cxt 15190. P-2077.

23 Hair pin. Copper alloy. Biconical knob head, circular-sectioned tapering shank with asymmetric point. Four pairs of grooves arranged in a square on the upper surface of the head with a horizontal groove on lower part. Length 48mm, head section 8mm, shank section 2mm. SF 10878. Cxt 20169. P-1468.

24 Hair pin. Bone. Circular-sectioned shank fragment retaining faceted point. Length 42mm, section 2mm. SF -. Cxt 15001. P-2078.

25 Cable twist bracelet. Copper alloy. Three strands, left-hand twist; one strand forming broken terminals with other strands wrapping around once. Extant length *c* 120mm, section 2mm. SF 10365. Cxt 10513. P-885.

26 Finger ring, bezel only. Copper alloy. Circular bezel with ring and dot cell and stumps of shoulders. Cell inlaid with enamel of contrasting colours, outer ring now brown (possibly originally red) and inner now light green. Diameter 7mm. SF 10764. Cxt 11397. P-1185.

27 Finger ring. Copper alloy. Circular-sectioned hoop expanding to oval sectioned bezel; hoop damaged at back. Oval nicolo intaglio, truncated conical. Device - parrot, facing right in impression, and grapes. Diameter 25 x 22mmm. SF 10549. Cxt 11235. P-1144.

28 Melon bead; turquoise frit. Approximately one-quarter extant. Length 16mm. SF 10832. Cxt 20089. P-2068.

29 Annular bead, approximately one-third extant. D-sectioned. Diameter 20mm, length 6mm, perforation diameter 9mm. SF 10623. Cxt 10870. P-2018.

30 Beads (2). Annular; translucent dark blue glass. Diameters 3mm, 2.5mm. SF -. Cxt 10634. P-2013.

31 Bead; ovoid. Cloudy translucent dark green glass. Length 8mm, diameter 5 x 3.5mm, perforation diameter 1mm. SF 10763. Cxt 11394. P-2034.

32 Bead? Plano-convex with small central perforation; one edge damaged. Underside a layer of transparent blue/green glass; upper surface has a ground of opaque turquoise laid over an opaque white layer blue/green. Sides of upper face have four triangular patches of opaque yellow, the chipped side may have had a fifth. Complete side has trail of opaque white and translucent blue/green arranged in zig-zag around two of yellow patches; there is evidence that these trails may penetrate to the blue/green back ground. Diameter 17mm, perforation diameter 2mm, thickness 5mm. SF 10797. Cxt 20058. P-2066.

33 Buckle. Iron. Rectangular with central bar; stepped sides. Length 33mm, width 19mm. SF 10776. Cxt 20058. P-1386.

34 Buckle. Iron. Rounded triangular loop. Length 33mm, width 32mm. SF 10020. Cxt 10015. P-518.

35 23 Hobnails – see table 2 for distribution.

2.2.2 Toilet Equipment

Table 3: The toilet equipment by period

	ERo	MRo (2)	LRo	Med	Total
Mirror	-	1	-	-	1
Toilet spoon	2	-	-	-	2
Tweezers	-	1	-	-	1
Olivary probe	1	-	-	-	1
Spatula	-	-	1	1	2
Total	3	2	1	1	7

The toilet equipment from Thurnham is summarised in Table 3. It consists of a mirror (no. 36), items from small chatelaines for personal grooming (toilet spoons and a pair of tweezers – nos 37-39), part of a long handled olivary probe that could have been used for either cosmetic or medical purposes (no. 40), and two items that may have been intended as spatulas (nos 41 and 42). Such items tend to be less chronologically sensitive than many types of personal ornaments. Whilst all the items would happily fit within a Roman *milieu*, and in the case of the chatelaine items, a late pre-Roman one; only the mirror no. 36 can be independently assigned a close date within the Roman period. Rectangular mirrors such as this were the commonest type of the 1st century, and are unlikely to have been made after that date (Lloyd-Morgan 1981, 3 Group A). This example is assigned to the occupation of the Aisled building being recovered from the upper occupation or post occupation silts within a room at the north-western end. Though it is distinctly possible that such mirrors continued in use well into the 2nd century, it seems highly unlikely it would still have been in active use by the later stages of the occupation of the building. If it is to be linked with occupation in the building it would have to be during the earlier part of it. Another item in this category associated with the Aisled building was the set of tweezers recovered from a post-occupation silting layer.

Though many items of toilet equipment such as olivary probes, ligulae etc are likely to remain not closely dateable within the Roman period; there are some signs that some refinement will be possible with the small chatelaine items (see Crummy and Eckardt 2004). More examples from well-dated contexts are needed for this work to advance, however, so the recovery of the toilet spoon from the securely stratified and dated upper level of ditch 20400 associated with the proto-villa is a valuable addition to the dating of this particular variant.

36 Mirror, two joined and one detached fragment from a rectangular mirror. White metal with copper alloy corrosion, probably a high tin bronze; one complete and parts of two other sides, edges bevelled. Dimensions 70mm by at least 55mm, thickness 1mm. SF 10788. Cxt 11507. P-1190.

37 Toilet spoon. Copper alloy. Broken loop head; circular-sectioned tapering shank with slight collar below loop, and broken at top of spoon. Length 57mm, section 2.5mm. SF 10898. Cxt 20174. P-1480.

38 Toilet spoon. Copper alloy. Formed of sheet; broken perforated terminal, shaft formed by rolling edges of sheet together; small cupped spoon. Length 46mm, shank section 2mm. SF -. Cxt 15148. P-1308.

39 Tweezers, in 3 fragments. Copper alloy. Rectangular-sectioned strip with closed loop and inturned jaws. Length 37mm, width 4mm. SF 10890. Cxt 15001. P-1264.

40 Olivary probe, in two pieces. Copper alloy. Circular-sectioned bent shank, one end broken, other expanded olivary probe; other fragment of shank has triple cordon, probably originally centrally. Present length 110mm. SF 10464. Cxt 11130. P-1121.

41 Spatula. Copper alloy. D-sectioned strip widening into rounded, slightly convex-curved spatula bowl with perforation centrally. Length 41mm, maximum width 9mm, thickness 1mm. SF 10023. Cxt 10015. P-520.

42 Spatula? Copper alloy. Rectangular-sectioned sheet shank with angular expanded spatula; both ends missing. Length 43mm. section spatula 5 x 1mm, section shank 2x1mm. SF 10765. Cxt 11394. P-1181.

2.2.3 Recreation items

The items associated with recreation consist of four gaming counters. The size of no. 43 means that it might be either a small black glass counter or the setting for an item of jewellery. Black glass counters are typical of the 1st to mid 2nd centuries (Cool *et al* 1998, 1555) whereas black settings in jewellery are more typical of the late Roman period (see for example Hull type 270-271 – Bayley and Butcher 2004, 178). No. 43 was found in the upper level of ditch 20400 associated with proto-villa and so it seems reasonable to interpret this as a counter. The two bone counters are also 1st to 2nd century types (Greep 1986, 202 type 1). One (no. 44) was associated with the mid Roman occupation of the Aisled building; the other (no. 45) came from the late Roman smithy where it must be suspected that it was residual. The final counter made from a fragment of lead sheet (no. 46) derives from an unphased context is not intrinsically dateable.

43 Counter; plano-convex. Dark green/blue glass appearing black. Diameter 12mm, thickness 6mm. SF 10721. Cxt 20002. P-2060.

44 Counter. Bone. Circular with very slightly convex-curved obverse, flat reverse and bevelled sides; central dot on upper face. Diameter 18mm, thickness 3mm. SF 10996. Cxt 15001. P-2079.

45 Counter. Bone. Circular with flat faces; sides bevelled to reverse; central dot on upper face. Diameter 19mm, thickness 5mm. SF 10867. Cxt 20112. P-1528.

46 Counter. Lead alloy. Sheet, circular. Diameter 14mm, thickness 2.5. SF 11027. Cxt 20444. P-1508.

2.2.4 Household items

There are only a small number of items that can be related to household equipment, but of particular interest is the handle no 47 from the proto-villa ditch 20400. This would have come from a large copper alloy basin of a type in use during the 1st century (den Boesterd 1956, 52 no. 172-3). The evidence for the use of basins like this in Britain normally comes from military sites (see for example Usk - Manning *et al* 1995, 196 no. 12, fig. 53 and Castell Collen - Britnell *et al* 1999, 53 no. 10) or the larger urban sites such as Colchester (Crummy 1983, 73 no. 2046, fig. 76) and Leicester (Hebditch & Mellor 1973, 47 no. 11). It is unusual to find them on late 1st century rural sites (see Cool in Press Table 15.3). There is evidence that the intended use of large bowls such as this was for hand washing as part of the dining regime (Koster 1997, 86). Whether this bowl was used in that way at Thurnham is open to question. An interest in using large bowls in pottery and glass has been observed to be characteristic of people living on rural sites in 1st to 2nd century Roman Britain (Cool and Baxter 1999, 84-5). It may be that the bowl arrived on the site as the result of this interest, rather than because elite dining practices were being followed. Loose drop handles are also used on some styles of large bowl (see for example Koster 1997, 55 no. 61), and it is possible that the handle no. 48 could have been used in this way; though other uses, such as being a chest or box fitting, are also possible (Borrill 1981, 306 no. k). This piece was associated with the middel Roman occupation of the Aisled building, having been recovered by metal detecting prior to excavation of the uppermost archaeological levels.

Another find of some interest is no. 49. These composite fittings seem most likely to have come from an item of furniture, though insufficient is preserved to identify precisely what. One of the pieces retains a circular perforation opening up the possibility that it may have been part of a hinged fitting, and the adjacent bevel does look as if it was intended to fit against another element. Various items of folding furniture are known to have been used in the Roman world including tripods intended to support large bowls, such as those from Pompeii (Ward-Perkins and Claridge 1976, no. 143) and from a late 1st century burial at Verulamium (Frere 1991, 259-60, fig. 20). Folding stools like that found in the Holborough barrow (Jessup 1954, 22) are also known. The pieces were recovered from the late Roman construction levels of the corndrier and are presumably residual from the earlier occupation.

The final item in this category is a small decorated bone fragment (no. 50) from a thin silting deposit that accumulated over a cobbled surface to the east of the corndrier in the late Roman period. This seems most likely to have come from a piece of inlay or veneer. The use of such material to decorate boxes in the late Roman period has long been known (see for example Wilson 1968, 106 no. 225). A more recent find of part of a wooden door at

Shiptonthorpe has shown that they could also be used to decorate much larger pieces of furniture (Halkon and Millett 2003, 309).

47 Basin handle. Copper alloy. Circular-sectioned curved rod handle expanding to triple ribbed unit centrally, outer ribs transversely grooved on top and bottom. Terminals missing. Present width 75mm, central section 16mm. SF 10879. Cxt 20174. P-1472.

48 Drop handle. Copper alloy. Circular sectioned bar tapering to broken in-turned curved ends. Width 70mm, section 8mm. SF 10809. Cxt 15007. P-1274.

49 Two composite fittings from item of furniture. (1) Approximately square-sectioned iron rod with cast triple-ribbed copper alloy fitting on one end, fitting flat ended and has bevel on one side, with two small rivets in flat end and circular perforation close to junction with iron. Length 50mm, length copper alloy fitting 23mm, dimensions of terminal end 25 x 15mm. (2) Rectangular-sectioned iron rod with cast copper alloy fitting on one end in form of collar and hemisphere, latter with two bevelled facets on either side; second iron bar of smaller dimensions enters a slot in hemisphere. The two bars would have been at an angle of approximately 130 degrees. Length 49mm, length of copper alloy fitting 20mm, section of copper alloy fitting 17x16mm. SF 10390. Cxt 11009. P-1004.

50 Inlay. Bone metapodial (?), fragment; one face retains three ring and dots. Length 22mm. SF -. Cxt 10349. P-2080.

2.2.5 Writing equipment

The only item associated with any certainty with writing was a seal box lid (no. 51) from an unphased context that might have been associated with the middle Roman occupation of the Aisled building. In general, seal boxes may be dated to the 1st to 3rd centuries as this was the main period when intaglios were being used to seal documents, packages and anything else that needed to kept secure. Currently this piece appears to be unique in Britain; certainly a recent review of the seal boxes from the province produced no others showing this form of radial decoration (Tongue 2004). Direct *comparanda* cannot be used, therefore, to suggest a date for the piece but the material it is made from may provide a clue. Qualitative XRF analysis has shown it to be a tinned brass with the radial lines possibly being inlaid with a copper niello. When new therefore this piece would have appeared silver with black lines decorating it. The type of alloy and the method of decoration is typical of mid to later 1st century artefacts. It may be seen on such items as Hod Hill brooches (Bayley and Butcher 2004, 153), early plate brooches (*ibid* 155) and military harness fittings (Jenkins 1985). It is very likely therefore that the item may have been made during the 1st century. If so, and if it was indeed associated with the occupation in the Aisled building, it would have been old when lost.

Another item possibly associated with writing is no. 78 discussed in the tools category.

51 Seal box lid. Tinned brass (XRF). Circular with central umbo and inserted central stud; perforated hinge. Circular groove separates flange from umbo; flange and umbo

radially grooved analysis produced possible evidence of inlay, ? a copper-based niello. Diameter 22mm, length 27mm. SF 10804. Cxt 15002. P-1270.

2.2.6 Transport

Three items connected with transport during the Roman period were recovered. Two are iron linch pins of common Roman forms, introduced after the Conquest and then remaining in use throughout the Roman period. (Manning 1985a, 74 types 1a and 2b). No. 52 with a crescentic head was found in an early Roman deposit dated to the end of the 1st century, while no. 53 came from a late Roman soil layer overlying the demolished temple building. The third item (no. 54) is most probably a fragment of a hipposandal (*ibid* 63). It was found in the late Roman smithy and so should be regarded as an item of scrap metal.

In addition to the Roman transport items, an iron prick spur (no. 55) is of some interest as it is a rare indicator of some activity on the site in the medieval period. It has sides which curve under the ankle, a style that was coming into fashion in the second half of the 12th century (Ellis 1991, 55). This piece, recovered from a post-hole, is thus most likely to be of 13th or 14th century date.

52 Linch pin. Iron. Crescentic head; square-sectioned shank; transverse perforation. Length 127mm, width of head 40mm. SF 10754. Cxt 11337. P-1162.

53 Linch pin. Iron. Spatulate head with turned over loop; rectangular-sectioned stem. Length 110mm, width of head 54. SF 10212. Cxt 10408. P-734.

54 Hipposandal? Iron. Fragment of rear hook and sole plate with broken edges. Length of hook 50mm. SF 10838. Cxt 20058. P-1414.

55 Prick spur; in three pieces. Rectangular-sectioned heal with slightly angled sides and small expanded terminals; four-sided pointed goad. Length 110mm. SF 10000. Cxt 10007. P-510.

2.2.7 Structural finds

Table 4: Distribution of nails by period

Period	With heads	Shank fragments	Total
LPRIA/ ERo	1	4	5
Ero	128	115	243
MRo (1)	6	14	20
MRo (1/2)	5	18	23
MRo (2)	78	107	185
Lro	198	226	424
Med	24	14	38
P-Med/Mod	9	15	24
–	33	20	53
Total	482	533	1015

The commonest structural finds from the site were iron nails. Over 1000 fragments were recovered, but a better measure of quantity is to count those that retained heads, which shows

that a minimum of just under 500 were found (see Table 4). Nails provide a very good index of the impact of being part of the Roman world had on a site, as iron was much more freely available after the invasion than it had been in the late pre-Roman Iron Age. As can be seen from Table 4, at Thurnham it is clear that nails were adopted in some numbers during the early Roman period. This is probably because Romanised styles of building were being adopted to build the proto-villa and probable temple. The average length of all the complete nails is just over 60mm (range 26mm to 140mm, interquartile range 43-75mm). Nails of this sort of length are frequently found in large quantities on timber forts because they are ideal for fastening timber cladding (Manning 1985b, 291), and they may have served a similar purpose here. It is not surprising that judged by the head count the numbers decline during the middle Roman period as fewer would have been needed then as more of the buildings were made of masonry. The rise in numbers that occurs during the later part of the middle Roman and particularly the late Roman periods reflects residual finds. Over a third of the nail heads recorded in late Roman deposits, for example, come from contexts where it might be suspected that they were derived from the early Roman temple structure (contexts 10407-9, 10413, 10756). Of the other structural items that would have been used mainly with timber buildings, the only holdfast (no. 56) also came from an early Roman deposit. The joiners dogs reflect a similar picture to the nails. Nos 59 and 60 come from the temple area and are both likely to have been deposited when the structure was demolished and at the similar time as the large amount of nails that are found here.

The only other item of the structural finds to call for special comment is the small fragment of window glass no. 62. This was found in a context dated to the end of the middle Roman (2) period or possibly the earlier part of the late Roman period. However, its method of manufacture (blown) and colour (pale greenish bubbly) mark it out as of being of 4th century date. It clearly does not belong to the 2nd century Roman villa, but to what extent it should be taken to indicate 4th century glazing either as additions to the standing remains of the earlier villa or as part of an otherwise unidentified building in the close vicinity is open to question. To give an example of the quantities of window glass that can be recovered from glazed 4th century villas, the case of the Stanwick villa, excavated as part of the Raunds area project, can be considered. There fragments measuring an area of over 5000cm2 were recovered (unpublished data). The status of a single small fragment as here is thus somewhat ambiguous, especially as evidence for higher status maintenance of the existing structures in the 4th century is rather negative. What is more interesting is the absence of any cast window glass from the excavations. This was the typical window glass of the 1st to 3rd century, and had the villa been glazed, that would have been the type of glass used. At the villa at Minster-in-Thanet which was broadly contemporary with the Thurnham villa, for example, well over a hundred fragments of cast glass equivalent to over 1000cm2 were recovered (for the site see

Perkins and Parfitt 2004: I am most grateful to Dave Perkins for allowing me to see his glass report in advance of publication)

56 Holdfast. Iron. Complete with rove. Length 60mm. SF -. Cxt 11586. P-1196.

57 Bolt. Iron. Large truncated conical head. Length 58mm, head width 18mm. SF -. Cxt 15272. P-1341.

58 Bolt. Iron. Shank fragment. SF 10003. Cxt 10038. P-535.

59 Joiners dog. Iron. Tip of one arm probably missing. Width 50mm, length 45mm. SF 10209. Cxt 10408. P-731.

60 Joiners dog. Iron. One arm missing. Width 80mm, length 60mm. SF 10685. Cxt 10780. P-965.

61 Loop hinge. Iron. Two rectangular strips, one with rounded ends with three two perforations, other has two perforations and one end forming a loop articulating with perforation in the first strip. Length 100mm, width 18mm. SF 10757. Cxt 20037. P-1373.

62 Window glass fragment. Blown. Greenish bubbly. Area 2cm². SF 10651. Cxt 10772. P-2017.

2.2.8 Tools and metal-working debris

Table 5: Tools by period

	ERo	MRo (1)	MRo (2)	LRo	Med	P-Med/Mod	Total
Knives	2	1	1	2	1	1	8
Carpenters tools	3	-	-	-	-	-	3
Smiths tools	-	-	-	4	-	-	4
Other	-	-	-	2	-	-	2
Total	5	1	-	8	1	1	17

The iron tools recovered from the site are summarised in Table 5. Knives have been included in this category though of course some could have household as well as craft uses. Substantial parts of three knives were recovered, all of the others are merely small fragments of blades. Both nos 63 and 64 fall into the category of Manning Type 11 knives (Manning 1985a, 114). No. 63 is certainly of Roman date as it came from a middle Roman surface forming part of a trackside shrine. No 64 came from a post medieval field boundary, and though it might be a residual Roman piece, this cannot be confirmed on typological grounds. A third knife (no. 65) was recovered from the early Roman backfill deposit levelling the boundary ditch (20400) associated with the proto-villa.

The activities of a carpenter can be seen in the early Roman period with fragment of drills (nos 72 and 73) recovered from the clay levelling layers predating the construction of the probable temple building and from the backfill of ditch 20400. A fragment (no. 71) of a probable mortice chisel (see Manning 1985a, 23) was also recovered from ditch 20400. It is noticeable that all of the smith's equipment (nos 74-77) derives from late Roman contexts

when a blacksmith is known to have been at work on the site; though in none of these cases were the tools directly associated with the smithy.

Of the two tools that did come from the smithy, neither can definitely be identified as a smiths tool. No. 78 appears to be part of what Manning (1985a, 31) has termed a modelling tool. These would have been ideally suited for that purpose, but it has been pointed out that given their associations with other writing equipment in graves, their main purpose may have been as spatulas for smoothing the wax on writing tablets (Crummy 2002). Whatever the purpose of this piece, in the context it was found in, it should probably be considered as scrap. No. 79 by contrast appears to be complete. If it is a tool, the solid handle would make it suitable to be a smiths tool as they are not given wooden handles because they are struck. It is difficult though to see what purpose the small semi-circular expansion served. It has a rounded rather than a sharp edge. This would not necessarily be a draw-back if what was being cut was hot metal, but it is difficult to see why the edge was semi-circular. An alternative approach to the piece would be to regard it as an un-finished item in the process of manufacture. The stepped outline of the handle and shank and the overall size are very similar to those seen on many T-shaped lift keys (see for example Manning 1985a, 90 no. 023). Additional working at either end could well have produced the normal loop handle and bit.

Five fragments of waste associated with metal-working were also recovered. A smith working with copper alloy seems to have been present during the early Roman period. A small fragment of casting waste (no. 80) was recovered from the backfill of ditch 20400 associated with the proto-villa. The other two fragments (nos 81-82) are from unphased contexts, but as they were part of the buried soil beneath the villa construction levelling layers, it seems reasonable to regard them as contemporary early Roman items.

Of the two fragments of iron slag, one unsurprisingly comes from the smithy (no. 83), and the other from a late Roman soil layer.

63 Knife. Iron. Triangular blade with back continuing line of rod handle that terminates in a broken knob. Tip of blade broken. Length 139, length of blade 78mm, maximum width of blade 30mm. SF 10275. Cxt 10508. P-875.

64 Knife. Iron. Square-sectioned tang; back of triangular blade, straight back continuing line of tang. Length 81mm, tang section 6.5mm, width blade 30mm. SF 11003. Cxt 15273. P-1343.

65 Knife. Iron. Triangular blade with slightly curved back continuing line of broken tang and curving down to straight edge. Present length 140mm, length of blade 100mm, blade section 18 x 3mm. SF 11006. Cxt 20174. P-1482.

66 Blade. Fragment. Iron. Edge and back parallel. Present length 65mm, width *c* 20mm. SF 10521. Cxt 10643. P-927.

67 Blade; fragment. Iron. Narrow blade with edge parallel to back, edge slopes up to tip. Length 40mm, width 10mm. SF 10447. Cxt 11044. P-1027.

68 Blade. Iron. Tip of triangular blade. Length 60mm. SF 10987. Cxt 15263. P-1333.

69 Blade. Iron. Tip of triangular blade. Length 45mm. SF 10056. Cxt 10015. P-532.

70 Blade. Iron. Fragment from close to tip. Length 33mm, section 14 x 4mm. SF 10975. Cxt 12279. P-1244.

71 Chisel. Iron. Square-sectioned bar expanding to broken chisel blade. Length 64mm, width of blade 16mm. SF 10727. Cxt 20002. P-1368.

72 Drill bit. Iron. Rectangular-sectioned head tapering to chisel end; broken shank. Length 48mm, section 6mm. SF 10889. Cxt 20175. P-1483.

73 Drill bit; head? Iron. Length 42mm. SF -. Cxt 11722. P-1210.

74 Punch. Iron. Rectangular-sectioned, flat head, slightly expanded before tapering to rounded spatulate tip. Length 65mm, head section 6 x 4.5mm. SF 10558. Cxt 11044. P-1074.

75 Punch. Iron. Square-sectioned, one end slightly rounded and damaged, other tapering to point. Length 110mm, section 14mm. SF 10761. Cxt 20037. P-1375.

76 Punch? Iron. Square-sectioned tapering to point with flat head. Length 65mm, width 10mm. SF -. Cxt 15081. P-1298.

77 Punch or chisel. Iron. Square-sectioned bar; upper end broken, lower end bevelled. Length 37mm, section 6.5mm. SF 10567. Cxt 11044. P-1082.

78 Modelling tool. Iron. Rectangular-sectioned bar becoming square-sectioned in central part; one end tapering to sharp edge. Length 60mm, section 7.5 x 2mm. SF 10786. Cxt 20058. P-1395.

79 Tool? Iron. Square-sectioned handle, stepped junction to narrower shank becoming rectangular-sectioned; small lunate tool with rounded rather than sharp edge. Length 168mm, section handle 9mm. SF 10801. Cxt 20058. P-1404.

80 Casting waste. Copper alloy. Fragment with charcoal. 1g. SF 10902. Cxt 20136. P-1460.

81 Casting waste. Copper alloy. 2 fragments. 3g. SF 10985. Cxt 20353. P-1507.

82 Casting waste. Copper alloy. 1 fragment 4g. SF 10908. Cxt 20074. P-1431.

83 Iron slag. SF 10811. Cxt 20058. P-1407.

84 Iron slag. SF 10193. Cxt 10408. P-715.

2.2.9 Fasteners and fittings

Table 6: Fasteners and fittings by period

	LPRIA\Ero	Ero	MRo (2)	LRo	Med	–	Total
Locks and keys	-	-	1	1	-	-	2
Studs and nails	-	4	3	5	-	-	12
Staples and spikes	-	-	1	1	-	3	5
Bindings	-	1	-	3	-	1	5
Ferrules and collars	-	4	1	1	-	-	6
Pot repairs	-	1	-	1	2	1	5
Other	1	1	1	4	-	-	7
Total	1	11	7	16	2	5	42

A variety of fasteners and fittings of likely Roman date, judged either from their context or from their typology, were recovered and these are summarised in Table 6. Such items do not tend to be chronologically sensitive within the Roman period. In general this category calls for little special comment as it is one that is normally, as here, well represented on Roman sites.

Items such as the copper alloy nails (nos 85-87) are likely to have decorated items of furniture. Composite studs such as no. 88, for example, are regularly found decorating boxes and chests (see for example Borrill 1981, 305 and Crummy 1983, 85, nos 2179-82); while large-headed iron nails such as no. 96 were used as to fasten upholstery and the like (Manning 1985a. 135 Type 7). The various types of spikes (nos 97-101) could be used for a variety of purposes depending on material and size: the copper alloy example no. 99 would be suitable for attaching a handle to a box, whilst some of the larger iron examples probably had a structural purpose. The worked bone assemblage includes a fragment from a bone hinge (no. 123) of the normal Roman type (see Waugh and Goodburn 1972, 149); and there are five lead plugs and cramps (nos 113-117). These would have been used to repair pottery vessels. They were recovered mainly from post-Roman contexts, but include one (no.113) from an early Roman context and one (no. 116) from a medieval soil layer. No. 116 may conceivably be of medieval date rather than a residual Roman item as lead plugs were, albeit less commonly, used to repair medieval pottery vessels. On some sites security was obviously an issue judged by the numbers of locks and keys recovered, but at Thurnham such items are relatively scarce and were found in mid to late Roman contexts (nos 118-119). No. 118 was associated with the aisled building and may reflect the need to secure access to a higher status structure.

One of the very small number of items stratified in the pre-Roman/early Roman deposits belongs to this category: the clip no. 120. These are found on Roman sites (see for example Cool 1990, 89 nos 51-57, 83 for references to others); but they are probably best known as being part of repairs to medieval sheet metal vessels (Egan 1998, 176). Within the

context of this site a Roman date can be preferred. The context in which the clip was found spans the LPRIA to early Roman transition and is likely to have been deposited c AD 60-70, so it provides no evidence for taking the dating of these items back prior to the conquest.

85 Nail. Copper alloy. Flat-topped oval-sectioned knob head; square-sectioned broken shank. Length 9mm, head section 6 x 5mm. SF 10893. Cxt 20174. P-1479.

86 Nail. Copper alloy. Truncated conical head with central circular groove; circular-sectioned shank. Length 45mm, head section 5.5mm, shank section 2mm. SF -. Cxt 15037. P-1282.

87 Nail. Hemispherical copper alloy head; iron shank. Length 30mm, head section 10mm. SF 10967. Cxt 12279. P-1243.

88 Composite stud. Slightly domed lead alloy with traces of copper alloy sheet cover and remnants of iron shank. Present head dimensions 14 x 14mm. SF 10796. Cxt 11392. P-1178.

89 Stud and integral washer. Copper alloy. Domed oval head, circular-sectioned shank, flat washer. Length 16mm, head diameter 19 x 16mm, washer diameter 13mm. SF 10108. Cxt 10404. P-623.

90 Stud. Copper alloy. Domed, flanged head with detached short square-sectioned shank. Length 11.5mm, head diameter 17mm. SF 10942. Cxt 20237. P-1494.

91 Stud or mount. Copper alloy. Large sheet disc head with domed centre, mostly missing, three concentric ribs on flange. Diameter 28mm. SF 10766. Cxt 11343. P-1163.

92 Stud. Copper alloy. Large slightly domed head, square-sectioned broken shank. Length 21mm, head diameter 31mm, shank section 3mm. SF 10847. Cxt 15037. P-1283.

93 Stud. Copper alloy. Large conical head, broken at one side; circular-sectioned tapering broken shank. Length 11mm, diameter of head 20mm. SF 10845. Cxt 20077. P-1436.

94 Stud. Copper alloy. Small flat ribbed head, square-sectioned tapering shank. Length 12, head diameter 6.5mm. SF 10904. Cxt 20189. P-1488.

95 Stud. Copper alloy. Large flat circular head; square-sectioned shank tapering to point. Now bent out of shape. Head diameter 17mm, length 20mm. SF 10165. Cxt 10407. P-673.

96 Upholstery nail. Iron. Large circular head. Head diameter 32mm, length 18mm. SF 10316. Cxt 10503. P-839.

97 Double-spiked loop. Iron. Parallel arms, tip of one missing. Length 52mm. SF 10449. Cxt 11044. P-1028.

98 Double-spiked loop? Iron. Bar bent into loop; arms missing. Length 30mm. SF 10819. Cxt 20074. P-1425.

99 Double-spiked loop. Copper alloy. Legs spirally twisted and broken. Present length 25mm, section at loop 2 x 1mm. SF 10873. Cxt 15028. P-1280.

100 Double-spiked loop. Iron. Bar bent over with straight legs, loop retaining ring. Length 46mm, diameter 40mm. SF 10841. Cxt 20074. P-1427.

101 Loop-headed spike. Iron. Spike with parallel legs and loop enclosing ring. Length spike 70mm, diameter of ring 50mm. SF 10073. Cxt 10110. P-564.

102 Angle bracket. Iron. Rectangular-sectioned. Ends broken. Length 40mm. SF 10433. Cxt 11044. P-1022.

103 Angle binding. Iron. Strip bent at 90 degree angles with broken edges; one face has central rib. Length 91mm, width 38mm. SF 10798. Cxt 20058. P-1402.

104 Nailed binding. Iron. Rectangular section bent through 90 degrees with perforation in each terminal. Length of arms 90 and 75mm, width 28mm. SF 10840. Cxt 20074. P-1426.

105 Nailed binding. Iron. D-sectioned curved bar; one end broken, other a perforated disc terminal. Length 123mm, section 6.5 x 2mm, diameter of disc 15mm. SF 10758. Cxt 20037. P-1374.

106 Binding. Copper alloy. U-shaped, both ends broken. Length 25mm, depth 4mm. SF 10965. Cxt 12270. P-1239.

107 Collar. Copper alloy. Cast oval fitting with central rib and rectangular perforation through centre. Length 26mm, maximum section 22 x 19mm, perforation dimensions 9 x 22mm. SF 10865. Cxt 11722. P-1211.

108. Collar. Iron. SF 10177. Cxt 10413. P-744.

109 Collar. Iron. Narrow, cylindrical, penannular. Diameter 21mm, length 10mm. SF 10672. Cxt 10810. P-968.

110 Collar. Iron. Cylindrical. Diameter 45mm, depth 23mm. SF 10988. Cxt 15263. P-1334.

111 Collar. Iron. Rectangular-sectioned cylinder. Diameter 39mm, section 14 x 4mm. SF 11002. Cxt 15269. P-1340.

112 Collar. Iron. Broken rectangular-sectioned cylinder. Diameter *c* 16mm, section 9 x 2.5mm. SF 10629. Cxt 10654. P-930.

113 Plug. Lead alloy. Oval cylindrical with uneven underside. Dimensions 18 x 15mm, thickness 11mm. SF 10402. Cxt 11337. P-1161.

114 Plug. Lead alloy. Circular with central thickening on underside. One edge broken. Dimensions 24 x 24mm, thickness 7.5mm. SF 10315. Cxt 10503. P-838.

115 Plug. Lead alloy. Oval, plano-convex. Dimensions 28 x 25mm, thickness 5mm. SF 10033. Cxt 10013. P-511.

116 Plug. Lead alloy. Oval outline, H-shaped profile. Dimensions 28 x 15mm, thickness 3mm. SF 10025. Cxt 10015. P-521.

117 Cramp?. Lead alloy. One bar with triangular cross-section. Length 44mm. SF 10805. Cxt 15003. P-1271.

118 Slide key. Iron. Rectangular-sectioned handle with circular perforation; chip-carved junction with bit with 6 teeth. Length 75mm, handle section 18 x 8mm. SF 10999. Cxt 15263. P-1337.

119 Padlock bolt?. Iron. Rectangular-sectioned terminal tapering to narrow central spine. Length 53mm, maximum section 25 x 21mm. SF 10566. Cxt 11044. P-1081.

120 Clip. Copper alloy. Diamond-shaped sheet with each end folded back and then out, one end broken. Present length 10mm, width 8mm. SF -. Cxt 15265. P-1338.

121 Terminal. Copper alloy. Hollow bell-shaped terminal with long finial; sides with concentric ridged decoration. Traces of wood recovered internally during conservation. Length 24mm, diameter 16mm. SF 10360. Cxt 10509. P-882.

122 Fitting. Copper alloy. Fragment of curved circular-sectioned bar with integral disc at end. Length 25mm, section 2.5mm. SF 10310. Cxt 20065. P-1417.

123 Hinge. Bone. End of cylinder; part of perforation. Length 27mm. SF -. Cxt 10772. P-2083.

124 Shackle. Iron. Broken annular ring with broken ring at each end in same plane. Diameter *c* 45mm. SF 10131. Cxt 10407. P-640.

125 Loop-headed bar. Iron. Rectangular bar with one end bent over to form loop. Length 93mm. SF 10204. Cxt 10408. P-726.

126 Mount. Iron. Plate - one edge has semi-circular lobe with central perforation, diagonal grooves on edge. Width 77mm, length 44mm. SF 10779. Cxt 20058. P-1389.

2.2.10 Agricultural Items

Three items associated with agriculture were recovered. One is a fragment of a spade shoe (no. 127) from the uppermost and final occupation levels of the Aisled building. It is part of the iron sheath that would have fitted around a wooden spade blade (Manning 1985a, 44 Type 1). An ox-goad (no. 128) from a late Roman context is a common Roman type (Rees 1979, 76 no. 26). The third item is a small hook (no. 129) also from a late Roman context (Manning 1985a, 56).

127 Spade shoe. Iron. Majority of one arm of a round-mouthed form. Length 228mm, maximum width 53mm. SF 10974. Cxt 15001. P-1265.

128 Goad. Iron. Open cylinder with pointed extension at one edge. Length 33mm, diameter 15mm. SF 10573. Cxt 11044. P-1086.

129 Small hook. Iron. Curved blade, raised flange on each side, perforation close to broken end. Length 65mm, width 21mm. SF 10620. Cxt 10409. P-741.

2.2.11 Military Equipment

Two pieces of military equipment were recovered. No. 130, a surface find, is a stud with a decorative pattern that is very closely paralleled by an example found in the Walbrook stream bed deposits (Wilmott 1991, 468) suggesting a 1st to earlier 2nd century date. In discussing this and other very similar ones from London, Webster (1960, 85 fig. 6. 151c) drew attention to identical ones from continental fort sites and suggested that they came from military strap and harness fittings. This example is made of brass with tin plating and thus technologically falls happily into the category of tinned military equipment of the mid to later 1st century discussed in connection with the seal box no. 51. As such no. 130 could be expected to have arrived on the site during the early Roman period associated with the proto-villa.

No. 131 is another military harness fitting, but of later date. Small lunula pendants such as this are a 2nd to 3rd century fashion (Oldenstein 1977, 162-4, Taf. 45); and are not uncommon on military sites in Britain, see for example ones from Caerleon (Zienkiewicz 1993, 114 no. 38) and Chesterholm (Bidwell 1985, 119 no. 17, fig. 39). This example is thus likely to have arrived on the site during the mid Roman period when the villa complex was active although its context of recovery provides little clarification of this.

The presence of two chronologically isolated items of military harness equipment at Thurnham is obviously of some interest. Black (1994) argued that such finds on villa sites reflected the fact that these were the homes of retired soldiers. Bishop (1991) has advanced the theory that the finds of later 2nd to 3rd century equipment in towns and other non-military sites reflects detachments of soldiers on policing duties. Though most military equipment enters the archaeological record through deliberate deposition as a result of site and store clearance when forts were abandoned (see discussion Bishop and Coulston 1993, 34-6); casual loss through wear and tear must also have occurred. These two items might reflect nothing more than the occasional visit of soldiers on policing or tax duties.

130 Stud. Brass with tin plating (XRF). Flat head with rib on underside; square-sectioned tapering shank. Upper face with design of 4-petalled flower with four dots in centre of each petal. Head diameter 17mm, length 10mm. SF 11033. Cxt 15353. P-1351.

131 Lunulate pendant. Copper alloy. Hollow-backed pendant with knobbed terminals and double knobbed moulding between them. Loop on upper edge retains articulating bar and hinge elements from the fitting from which it was suspended. Length 31mm, width 22mm. SF 10713. Cxt 10992. P-1003.

2.2.12 Religious items

Two fragments that seem most likely to have come from statuary have been included here as many statues in the Roman world had religious connotations. No. 132 came from a bare-footed figure. The angle of the foot suggests that the figure might have been dancing or, perhaps like the Mercury figure found at Gosbecks (Henig 1995, 95 fig. 60), was preparing either to take off or land from flight. This piece was recovered in an early Roman soil layer

associated with the inhabitants of the proto-villa. The second piece, no. 133, was from a context associated with the middle Roman period. It is a hollow cast piece and the features it exhibits are consistent with it being the base of a fairly large statuette. Its location of recovery adjacent to an isolated trackside structure (10750) could indicate the presence of a small wayside shrine in this location.

132 Figurine. Copper alloy Human left foot with toes clearly modelled; lacking heal and broken at ankle joint. Small part of base remains showing figure would have either been balanced on toes or pointing the left foot. XRF analysis - 12.1% Cu, 42% Sn, 24% lead. Length 18mm. SF 10380. Cxt 11379. P-1173.

133 Statue base. Copper alloy. Hollow casting with flat underside mostly missing; stepped circumference and stepped asymmetrical profile. Present height 31mm, diameter of front *c* 80mm. SF 10060. Cxt 10110. P-563.

2.2.13 Miscellaneous

Table 7: The miscellaneous items by period

	LPRIA	LPRIA/Ero	Ero	MRo (1)	MRo (2)	LRo	Med	–	Total
Rings	-	-	1	1	4	4	1	-	11
Other objects	-	-	-	-	-	4	-	-	4
Bar	-	-	1	-	2	4	-	1	8
Plate	-	-	1	-	-	3	-	-	4
Rod	-	-	-	-	-	3	-	1	4
Run-off	-	-	-	-	-	2	3	-	5
Sheet	1	-	4	2	2	6	1	2	18
Strip	-	1	5	1	5	3	1	2	18
Wire	-	-	-	-	-	1	1	-	2
Fragment	1	-	8	-	3	12	1	3	28
Total	2	1	20	4	16	42	8	9	102

As is to be expected many of the pieces of metal recovered from the stratified contexts consisted of fragments of bar, sheet etc that cannot be more closely identified. These are summarised in Table 7 together with the metal rings and other items that could have served a variety of purposes and two strips of worked bone (nos 201 and 202).

134 Ring. Copper alloy. Circular-sectioned, small segment. Present length 8mm, section 2.5. SF 10953. Cxt 20119. P-1456.

135 Ring. Copper alloy. Circular-sectioned in 3 fragments. Diameter 20mm, section 2mm. SF -. Cxt 15001. P-1262.

136 Ring. Copper alloy. Circular-sectioned, half extant. Diameter 26mm, section 2.5mm. SF -. Cxt 15186. P-1312.

137 Ring. Copper alloy. Circular-sectioned. Diameter 18mm, section 5.5mm. SF 10849. Cxt 11507. P-1191.

138 Ring. Copper alloy. Circular-section, approximately one quarter extant. Diameter *c* 15mm, section 3mm. SF 10926. Cxt 15206. P-1319.

139 Ring. Copper alloy. Rectangular-sectioned in 3 fragments. Diameter *c* 25mm, section 2 x 1.5mm. SF 10318. Cxt 10349. P-603.

140 Ring. Copper alloy. Circular-sectioned. Diameter 21mm, section 3mm. SF 10866. Cxt 20112. P-1455.

141 Ring. Copper alloy. Circular-sectioned, showing signs of wear. Diameter 21 x 19mm, section 2.5mm. SF 10185. Cxt 10408. P-707.

142 Ring. Copper alloy. With rib running around exterior; evidence of wear. Diameter 21mm, section 6.5 x 3mm. SF 10116. Cxt 10407. P-629.

143 Ring. Iron. Diameter 35mm. SF 10989. Cxt 15263. P-1335.

144 Ring. Iron. Broad band, fragment. Diameter *c* 30mm. SF 10043. Cxt 10015. P-530.

145 Bracket. Iron. Rectangular-sectioned strip with tapered, outsplayed ends. Length 91mm, section 10 x 4mm. SF 10465. Cxt 11044. P-1037.

146 Pin or needle. Copper alloy. Point of tapering shank. Length 17mm. SF -. Cxt 15018. P-1277.

147 Socket. Iron. Fragment. Length 66mm, section 13mm. SF 10802. Cxt 20058. P-1405.

148 Spike. Iron. Tapering to point. Length 75mm. SF 10533. Cxt 11044. P-1066.

149 Bar. Copper alloy. Fragment. SF 10827. Cxt 15054. P-1287.

150 Bar. Iron. Tapering to both ends. SF -. Cxt 11646. P-1204.

151 Bar. Iron. Tapering to point. SF -. Cxt 11641. P-1202.

152 Bar. Iron. Tapering. SF 10366. Cxt 10487. P-784.

153 Bar. Iron. Fragment. SF 10217. Cxt 10349. P-597.

154 Bar. Iron. Circular-sectioned shank with one blunt end, other end bent through 90 degrees and broadens to a rectangular section. Broken. Length 77mm, section of shank 8mm. SF 10830. Cxt 20089. P-1444.

155 Bar. Iron. Rectangular. SF -. Cxt 12279. P-1241.

156 Bar. Iron. Square-sectioned. SF 10910. Cxt 20074. P-1433.

157 Plate. Iron. Fragment. SF 10833. Cxt 20089. P-1445.

158 Plate. Iron. Fragment. SF 10868. Cxt 20155. P-1463.

159 Rod. Copper alloy. Fragment. SF 10404. Cxt 10513. P-891.

160 Plate. Iron. Five-sided. Length 45mm, width 26mm. SF 10142. Cxt 10407. P-650.

161 Plate. Iron. Fragment. SF 10517. Cxt 10407. P-697.

162 Rod. Copper alloy. Fragment. Square-sectioned. SF 10556. Cxt 11044. P-1072.

163 Rod. Copper alloy. Fragment. SF 10911. Cxt 20074. P-

164 Rod. Iron. Square-sectioned tapering to point, other end broken. Length 34mm, section 6mm. SF 10219. Cxt 10373. P-608.

165 Wire. Iron. Fragment. SF 10272. Cxt 20103. P-1449.

166 Wire. Copper alloy. Fragment. SF 10008. Cxt 10015. P-513.

167 Sheet. Copper alloy. Fragment. SF 10955. Cxt 20242. P-1505.

168 Sheet. Copper alloy. Fragment. SF 11009. Cxt 20175. P-1485.

169 Sheet. Copper alloy. Crumpled, folded fragment. SF 10927. Cxt 15206. P-1320.

170 Sheet. Copper alloy. Crumpled, folded fragment. SF 10927. Cxt 15206. P-1321.

171 Sheet. Copper alloy. Fragment. SF 10990. Cxt 15263. P-1336.

172 Sheet. Copper alloy, Fragment. SF 10982. Cxt 12361. P-1249.

173 Sheet. Copper. 3 small fragments. SF 10861. Cxt 20145. P-1462.

174 Sheet. Copper alloy. Fragment. SF -. Cxt 20067. P-1420.

175 Sheet. Iron. Fragment. SF 10968. Cxt 12203. P-1237.

176 Sheet. Iron. Fragment. SF -. Cxt 12363. P-1252.

177 Sheet. Iron. Fragment. SF 10843. Cxt 20074. P-1429.

178 Sheet. Lead alloy, Fragment. SF 10398. Cxt 11375. P-1169.

179 Sheet. Lead alloy, Folded fragment. SF 10399. Cxt 11375. P-1170.

180 Sheet. Lead alloy. Fragment. SF 10395. Cxt 10404. P-625.

181 Sheet. Lead alloy. Off-cut. SF 10029. Cxt 10015. P-525.

182 Sheet. Lead alloy. Fragment. SF 10917. Cxt 15204. P-1317.

183 Sheet. Lead alloy. Off-cut. SF 10359. Cxt 10509. P-881.

184 Sheet. Lead alloy. Fragment. SF 10355. Cxt 10509. P-880.

185 Strip. Copper alloy. Fragment. SF 10937. Cxt 12203. P-1236.

186 Strip. Copper alloy. 3 perforated fragments. SF 11004. Cxt 20174. P-1481.

187 Strip. Copper alloy. 4 fragments. SF -. Cxt 15001. P-1263.

188 Strip. Copper alloy. Fragment. SF 10837. Cxt 11641. P-1203.

189 Strip. Copper alloy. Sheet, folded. SF 10523. Cxt 10668. P-936.

190 Strip. Copper alloy. Perforated fragment. SF 10026. Cxt 10015. P-522.

191 Strip. Copper alloy. Fragment. SF 11030. Cxt 15300. P-1345.

192 Strip. Iron. Fragment. SF -. Cxt 11472. P-1189.

193 Strip. Iron. Fragment. SF 10983. Cxt 15001. P-1266.

194 Strip. Iron. Fragment. SF 10636. Cxt 10667. P-935.

195 Strip. Rectangular-sectioned. SF 10751. Cxt 11331. P-1160.

196 Strip. Iron. Fragment. Rectangular-sectioned. SF 10774. Cxt 20058. P-1384.

197 Strip. Iron. Perforated and fragmented. SF 10537. Cxt 11143. P-1126.

198 Strip. Iron. Fragment. SF -. Cxt 10864. P-977.

199 Strip. Iron. Flat with broken ends. SF 10126. Cxt 10407. P-635.

200 Strip. Iron. Fragment. SF 10818. Cxt 20074. P-1424.

201 Strip. Bone. Rectangular-sectioned, both ends broken; green-stained. Length 38mm, section 8 x 1.5mm. SF 10936. Cxt 12101. P-2081.

202 Strip. Bone. Rectangular L-shaped bar. Length 44mm, section 9.5 x 2.5mm. SF 11000. Cxt 15263. P-2084.

203 Run-off. Lead alloy. SF 10820. Cxt 11578. P-1195.

204 Run-off. Lead alloy. SF 10030. Cxt 10015. P-526.

205 Run-off. Lead alloy. SF 10028. Cxt 10015. P-524.

206 Run-off. Lead alloy. SF 10027. Cxt 10015. P-523.

207 Run-off. Lead alloy. SF 10361. Cxt 10509. P-883.

208 Fragment. Copper alloy. SF 10684. Cxt 10863. P-976.

209 Fragment (3). Copper alloy. SF -. Cxt 15001. P-1260.

210 Fragment. Copper alloy. SF 10391. Cxt 11011. P-1006.

211 Fragment. Copper alloy. SF 10874. Cxt 20111. P-1453.

212 Fragment. Copper alloy. SF 10930. Cxt 20126. P-1457.

213 Fragment. Copper alloy. SF 10912. Cxt 20074. P-1435.

214 Fragment. Copper alloy. Heavily corroded and blistered. SF 10951. Cxt 20240. P-1504.

215 Fragment. Copper alloy. SF -. Cxt 20067. P-1421.

216 Fragment. Copper alloy. SF -. Cxt 15054. P-1286.

217 Fragment. Iron. SF 10829. Cxt 11616. P-1199.

218 Fragment. Iron. SF 10700. Cxt 10870. P-982.

219 Fragment. Iron. SF 10704. Cxt 10726. P-944.

220 Fragment. Iron. SF 10701. Cxt 10870. P-983.

221 Fragment. Iron. SF -. Cxt 15001. P-1259.

222 Fragment. Iron. SF 10815. Cxt 20058. P-1410.

223 Fragment. Iron. SF 10376. Cxt 10513. P-888.

224 Fragment. Iron. SF 10497. Cxt 11044. P-1065.

225 Fragment. Iron. SF 10554. Cxt 11044. P-1070.

226 Fragment. Iron. SF 10575. Cxt 11044. P-1087.

227 Fragment. Iron. SF 10568. Cxt 11044. P-1083.

228 Fragment. Iron. SF 10472. Cxt 11044. P-1044.

229 Fragment. Iron. SF 10631. Cxt 10654. P-932.

230 Fragment. Iron. SF 10824. Cxt 10782. P-966.

231 Fragment. Iron. SF 10203. Cxt 10408. P-725.

232 Fragment. Iron. SF -. Cxt 15133. P-1305.

233 Fragment. Iron. SF 10913. Cxt 12013. P-1229.

234 Fragment. Lead alloy. SF 10400. Cxt 11375. P-1171.

235 Fragment. Lead alloy. SF 10032. Cxt 10015. P-528.

2.3 An overview of the finds

The finds discussed in this report provide a very good index of the changing nature of life at Thurnham during the 1st and 2nd centuries. The most notable feature is the increase in numbers of objects recovered during the early Roman period (see Table 1). This cannot be explained merely by the nature of the contexts recovered. Although a primary rubbish dump or backfill deposit was recovered relating to the end of the early Roman period from ditch 20400, it is clear that the LPRIA period had almost as many contexts which could have produced objects as that of the following period. This can be seen in Table 8 where possible finds-containing contexts (those described as layers or fills) are tabulated by period. Overall the LPRIA period had 18% of such contexts, but if the contexts which produced finds are considered, only 4% fall into this period.

Table 8 : Numbers of fills and layers by period

	Prehist	LPRIA	Ero	MRo (1)	MRo (2)	LRo	Med	P-Med/ Mod	–	Total
All contexts	33	386	471	209	279	216	72	177	314	2157
%	1%	18%	22%	10%	13%	10%	3%	8%	15%	
Contexts with finds	-	12	74	19	57	68	14	22	64	330
%	-	4%	22%	6%	17%	21%	4%	7%	19%	

The LPRIA inhabitants do not appear to have had many things. There is some evidence for brooch wearing in the second quarter of the 1st century AD, but other than that the material culture of these people is invisible. Given the brooches that they might have worn were found residually, it is always possible that some of the less closely dated artefacts might have belonged to this period but the evidence of Table 8 suggests this is unlikely.

A defining feature of the Roman period in Britain is that the inhabitants used many more things than they had done in the preceding LPRIA. The expansion of material culture, however, does not proceed uniformly in all areas. In parts of the Gloucestershire countryside, for example, it cannot really be seen until the 2nd century (Cool in Miles *et al* forthcoming); whilst in parts of rural northern Britain it never occurs. At Thurnham this expansion can clearly be seen in the second half of the 1st century in the contexts associated with the early Roman proto-villa. The inhabitants continued to wear brooches, acquiring some new ones that arrived after the conquest; but they also adopted other new fashions. Women wore their hair in new styles that required hair pins; people in general took to wearing the hobnailed shoes. Counters, items of toilet equipment, household utensils, and various furniture fittings are recovered, all suggesting new ways of passing the time and furnishing houses. The occurrence of iron nails implies a change in building practices as do finds such as the carpentry tools. Table 1 clearly shows the explosion in the number of functional categories represented in the early Roman period reflecting major changes in the lifestyles of the inhabitants.

These people were not only acquiring lots of new things, some of the items suggest quite a wealthy lifestyle. The copper alloy basin (no. 47), for example, may not have been used in the way it would have been in the heartlands of the Roman world, but it would still have been an expensive item and an unusual find on a 1st century rural Romano-British site. The dancing figurine represented by the small foot no. 132 is another unusual find for this period and type of site.

It is clear that the wealth and range of items seen at late 1st century Thurnham is not necessarily typical of the region. It is useful to compare the picture from Thurnham with that gained during the excavations of the Roman settlement at Westhawk Farm, Ashford. There the large finds assemblage showed that the inhabitants adopted the new suite of material culture only gradually, and in their dress may have been quite conservative (Cool in Booth *et al.* forthcoming). There is certainly nothing like the range of items of later 1st century date

that we see at Thurnham. The question which then arises whether this change at Thurnham came about by lifestyle changes of the LPRIA population living there, grasping new opportunities; or is it the result of some incomers introducing new ways? In answer to this, the messages from these finds are mixed. Some elements of the brooch assemblage might suggest continuity, the Colchester Derivative brooches, for example, are those favoured by the Kentish population. One of the hair-pins (no. 23), though, is a type more normally found north of the Thames, rather than one of the Kentish forms such as that found during earlier excavations at the site (Pirie 1961, 170 fig. 5 no. 12). The difficulties of interpreting a single item of military equipment like the stud no. 130 has already been discussed, but given the nature of the assemblage associated with the proto-villa, the presence of a retired officer and his household might be thought to be an attractive idea.

Judged from the number of functional categories represented, there are no major changes in the material culture assemblage between that associated with the proto-villa and that of the mid Roman villa complex. Looked at in more detail, however, the villa complex assemblage appears more impoverished. If we take the assemblage associated with the Aisled building, for example, it can be noted that though it includes a mirror and possibly the seal box, both of these are 1st century objects, so they are old in the contexts in which they were found. With the exception of the two finger rings, personal ornaments which would have been in contemporary use with the villa are very scarce, and this is a category that is normally found in large quantities at most periods. Brooches of types typical of the 2nd century are only represented by a single plate brooch (no. 16). This too cannot be put down to regional preferences. The Mount villa near Maidstone, *c* 10km from Thurnham and occupied in the 2nd and 3rd centuries, provides a useful comparison. There an excavation covering a much smaller area than that carried out at Thurnham, produced three brooches typical of what might be expected in a 2nd century assemblage (Mackreth in Houliston 1999, 106, fig. 9 nos 4-6). Interpreting absence is always difficult and possibly the explanation lies in the rubbish disposal habits associated with the villa complex. Certainly there is nothing comparable to the ditch fill 20400. The importance of finding such contexts should not be over-stated however. The infilling of ditch 20400 only produced one-third of the stratified early Roman items summarised in Table 1; whereas the occupation horizons within the room (15290) at the north-western end of the aisled building produced more items equal to half of the stratified middle Roman (phases 1 and 2) material in the same table. Strange though it may appear, as the material culture assemblage currently stands, the inhabitants of the masonry villa complex seem to have had a more impoverished lifestyle than those of the proto-villa. The finds recovered during the earlier excavations were published in a rather perfunctory way (Pirie 1961; Ashbee 1987), but nothing in the publicly available record suggests a different picture.

Finds that can be independently dated to the late Roman period at Thurnham are rare. Even in where there are groups of material from contexts clearly associated with the late Roman occupation, these are often residual. Contexts associated with the smithy, for example, produced a brooch of mid 1st century date (no. 13), a melon bead of the 1st to mid 2nd century (no 28) and a counter of a type commonest in the 1st and 2nd centuries (no. 45). The finds discussed here do not suggest an area under regular domestic occupation in the 4th century; at the best they hint at sporadic activity.

3 IRON AGE AND ROMAN COINS

by Paul Booth

Two Iron Age and 49 Roman coins were recovered, in very variable condition. The Roman coins covered the whole of the period from the mid 1st century AD to the end of the 4th, though the 1st-2nd century pieces were mostly poorly-preserved. With the exception of a silver siliqua all the coins, including the Iron Age ones, were of copper alloy.

The most notable characteristics of the group were relatively high incidences of mid 1st century and early 4th century coins. Most notable amongst the former was a quadrans of Claudius, a type rarely encountered amongst site finds in Britain, particularly in a rural context. This coin, now poorly-preserved, had probably not been in circulation all that long when lost and may have been in contemporary use with the four certain or probable Claudian copies also found. The latter are known at villa sites in the region, for example at Lullingstone (Reece 1987, 50) and at Keston where, in association with potin coins, as at Thurnham, they are considered to indicate mid 1st century activity (Reece 1991, 141). The remaining 1st-late 3rd century coins are unremarkable; the latter concentrated in the villa building, four coming from the metalworking deposits in room 20000. The relatively numerous early 4th century coins, several of which were in much above-average condition, were, however, quite widely distributed across the site. Later 4th century material was generally poorly represented, but did include a siliqua of Honorius, dated AD 395-402.

The coins are summarised by period in Table 9 and then in terms of the four principal issue periods defined by Reece (1973, 230-231) in Table 10. Here the unidentified 4th and 3rd-4th century pieces have been assigned arbitrarily to general period D (AD 330 and later). Summary information from the earlier excavations has also been added. The effect of these additions is to enhance the significance of the late 3rd century period B, but periods A and C are still strongly represented overall. The assemblage is insufficiently large for these points to be pressed further, however.

3.1 Catalogue

Coins in good or very good condition at the time of loss are indicated by an asterisk.

1. Potin, Class I. Obv: stylised head. Rev: stylised bull. Similar to BMC (Hobbs 1996) 667. First half of 1st century BC. Generally good condition, but damaged at edges. SF10848. Cxt 20117. AL-1.

2. Cunobelinus. Obv: winged horse with CAM beneath. Rev: winged victory advancing left with CVN in front. As Van Arsdell (1989) 1973; Hobbs 1996, 1938 etc. Early 1st century AD. SF10918. Cxt 15205. AL-4.

3. Quadrans. Claudius. Obv: TI CLAVDIVS] CAES[AR AVG round three-legged modius. Rev: Only SC in the centre is visible. RIC I, 84, 86-88 or 90. AD 41-43. SF10807. Cxt 15005. AL-6.

4. As. ?Claudius, eroded. AD 41-54 (if regular). SF10373. Cxt u/s. AL-8.

5. As. Claudius (Grade III copy). Obv: Head left. Rev: Minerva, SC. *c* AD 41-64. cf Boon 1974, 103. SF10401. Cxt 11311. AL-9.

6. As. Very poor, but perhaps another Claudian copy. Obv: Head left. Rev: completely lost. ?*c* AD 41-64. SF11035. Cxt 12525. AL-10

7. As ?Claudian copy. Pierced at back of head of obverse bust. ?*c* AD 41-64. SF10114. Cxt 10405. AL-11.

8. Dupondius. ?Nero, very poor condition. Obv: N[…, bust right. Rev: ?Securitas Augusti, figure seated right. *c* AD 64-66. SF10286. Cxt 10503. AL-12.

9. As. Vespasian. Obv: [IMP CAES VES]PASIAN A[VG…. Rev: Standing figure, very worn. AD 69-79. SF10803. Cxt 15001. AL-13.

10. As. ?Trajan. Obv: Head right. Rev: completely lost. SF10118. Cxt 10407. AL-14.

11. Dupondius*. Antoninus Pius. Obv: ANTONINVS AVG PIVS P P TR P XVIII. Rev: LIBERTAS] COS IIII, Libertas standing left. RIC III, 933. AD 154-155. SF10117. Cxt 10407. AL-15.

12. Sestertius. Julia Domna. Obv: [IVLIA] AVG[VSTA. Rev: [MATER DEV]M, Cybele enthroned with lion on each side. RIC IV, 859. AD 196-211. SF10246. Cxt 10461. AL-17.

13. Sestertius? Illegible. Rev: ?standing figure. ?1st-2nd century AD. SF10914. Cxt 20079. AL-18.

14. As? Surfaces almost entirely eroded. 1st-2nd century AD. SF10352. Cxt 10502. AL-19.

15. As? Surfaces almost entirely eroded. 1st-2nd century AD. SF10977. Cxt 10517. AL-20.

16. As? Surfaces almost entirely eroded. Only SC visible on reverse. 1st-2nd century AD. SF10407. Cxt 10616. AL-21.

17. Radiate (‘antoninianus’). Tetricus I. Obv: IMP C G P ESV T[ETRI]CVS AVG. Rev: V]ICTOR[IA AVG. Victoria standing left. Cunetio 2582. ?AD 271-272 (Bland and Burnett 1988, 154). SF10112. Cxt 10400.AL-22.

18. Radiate, ?irregular. Tetricus I. Obv: IMP C TETRICVS P F [AVG]. Rev: SA[LVS AVGG. Salus standing left. As Cunetio 2617. ?AD 270-273. SF10113. Cxt 10400. AL-23.

19. Barbarous radiate. Obv: poss TETR]ICVS AVG. Rev: Figure standing left. *c* AD 270-295. SF10836. Cxt 20098. AL-24.

20. Barbarous radiate. Rev: Sol. *c* AD 270-295. SF10844. Cxt 20103. AL-25.

21. Barbarous radiate. Rev: SPES[, Spes standing left. *c* AD 270-295. SF10800. Cxt 20058. AL-26.

22. Barbarous radiate. Very poor condition. *c* AD 270-295. SF10178. Cxt 10414. AL-27.

23. Barbarous radiate. *c* AD 270-295. SF10814. Cxt 20058. AL-28.

24. ?Barbarous radiate. *c* AD 270-295. SF10997. Cxt 15001. AL-29.

25. AE2*. Concordia Militum. Obv: CONSTANTINVS P F AVG. Rev:CONCORD MILIT. London. RIC VI, 197. AD 310-312. SF10358. Cxt 10509. AL-30.

26. AE2*. Genio Pop Rom. Obv: IMP LICINIVS P F AVG. Rev: GENIO POP ROM. Trier. RIC VII, 57. AD 313-315. SF10319. Cxt 10506. AL-31.

27. AE2*. Soli Invicto Comiti. Obv: IMP LICINIVS P F AVG. Rev: SOLI INVICTO COMITI. London. RIC VII, 35. AD 315. SF10919. Cxt 10503. AL-32.

28. AE2. Soli Invicto Comiti. Obv: IMP CONSTANTINVS AVG. Rev: SOLI INVICTO COMITI. Trier. RIC VII, 101 or 131. AD 316-317. SF10297. Cxt 10503. AL-33.

29. AE2. Beata Tranquillitas. Obv; CONSTAN TINVS AVG. Rev: BEATA TRAN QVILLITAS, VO/TIS/XX. Trier. RIC VII, 316. AD 321. SF51. Cxt u/s. AL-34.

30. AE2*. Beata Tranquillitas. Obv; CONSTANTINVS IVN NOB C. Rev: BEATA TRAN QVILLITAS, VO/TIS/XX. Trier. RIC VII, 353. AD 322. SF10959. Cxt 20288. AL-35.

31. AE2. Beata Tranquillitas. Obv: CONSTAN TINVS [AVG]. Rev: BEATA TRAN QVILLITAS, VO/TIS/XX. Trier. RIC VII, 368. AD 322-323. SF10956. Cxt u/s. AL-36.

32. AE2*. Beata Tranquillitas. Obv: CRISPVS NOBIL C. Rev: BEAT TRANQLITAS, VOT/IS/XX. London. RIC VII, 275. AD 323-324. SF10214. Cxt 10415. AL-37.

33. AE2*. Beata Tranquillitas. Obv: CONSTANT INVS IVN N C. Rev: BEAT TRANQLITAS, VOT/IS/XX. London. RIC VII, 287. AD 323-324. SF10213. Cxt 10415. AL-38.

34-35. x2 AE3*. Providentiae Augg. Obv: CONSTAN TINVS AVG. Rev: PROVIDEN TIAE AVGG. Trier. As RIC VII, 504. AD 327-328. SF10357. Cxt 10509. AL-39; SF10828. Cxt 11578 AL-40.

36. AE3. Urbs Roma. Rev: Wolf and twins. Trier. ?LRBCI, 51. AD 330-335. SF10356. Cxt 10509. AL-41.

37. AE3. Gloria Exercitus. Obv: CO[NSTANTINVS MAX AVG]. Rev: Gloria Exercitus, 2 standards. Trier. LRBCI, 61. AD 330-335. SF10379. Cxt 10457. AL-42.

38. AE3. Gloria Exercitus. Obv: CONSTANTIVS AVG. Rev: GLORIA EXERCITVS (1 standard). Trier. ?LRBCI, 132 (mintmark incomplete). AD 335-341. SF10104. Cxt 10402. AL-43.

39. AE3/4. Gloria Exercitus (?irregular). Obv:]P F AVG. Rev: 2 soldiers, 1 standard. ?AD 335-341. SF10381. Cxt 11011. AL-44.

40. AE3. Fel Temp Reparatio. Rev: [FEL TEMP R]EPARATIO, phoenix on pyre. ?Trier. AD 346-350. SF11011. Cxt 11578. AL-45.

41. AE3. Fel Temp Reparatio. Obv: [D N CONSTAN] TIVS P F AVG. Rev: FEL TEMP REP, fallen horseman. ?AD 346-360. SF10388. Cxt 11452. AL-46.

42. Minim. ?Fel Temp Reparatio. Rev: degraded fallen horseman type. *c* AD 350-365. SF10596. Cxt 11267. AL-47.

43. Minim. House of Constantine. Obv: cut down bust. ?*c* AD 350-365. SF11036. Cxt 15211. AL-48.

44. AE3. House of Valentinian. Rev: ?Gloria Romanorum, emperor and captive. AD 364-378. SF10354. Cxt 10509. AL-49.

45. AE3. House of Valentinian. Rev: standing figure eg as Gloria Romanorum or Gloria Novi Saeculi. ?AD 364-378. SF10176. Cxt 10412. AL-50.

46. AE3. ?Gloria Novi Saeculi. Arles (mintmark incomplete). ?LRBCII, 529. AD 367-375. SF10005. Cxt u/s. AL-51.

47. Silver Siliqua*. Obv: D N HONORI VS P F AVG. Rev: VOT V MVLT X in wreath. ?Milan. RIC X, 1226. AD 395-402. SF10119. Cxt 10411. AL-52.

48. AE3. Illegible. ?4th century AD. SF10134. Cxt 10407. AL-53.

49. AE3. Illegible. ?4th century AD. SF10353. Cxt 10509. AL-54.

50. AE3. Illegible. ?4th century AD. SF10714. Cxt 10993. AL-55.

51. AE4. Illegible. 3rd or 4th century AD. SF11034. Cxt 12523. AL-56.

Table 9: Summary of coins from THM98 by issue period

Period	**SF no**	**Total coins**
1 up to 41	10848, 10918	2
2 41-54	10807, 10401*, 11035*, 10373*, 10114?	5
3 54-68	10286	1
4 69-96	10803	1
5 96-117	10118	1
6 117-138		
7 138-161	10117	1
8 161-180		
9 180-192		
10 193-222	10246	1
11 222-238		
12 238-260		
13 260-275	10112, 10113	2
14 275-296	10836*, 10844*, 10800*, 10178*, 10814*, 10997*?	6
15 296-317	10358, 10319, 10919, 10297	4
16 317-330	(100)51, 10959, 10956, 10214, 10213, 10357, 10828	7
17 330-348	10356, 10379, 10104, 10381*	4
18 348-364	11011, 10388, 10596*, 11036*	4
19 364-378	10354, 10176, 10005	3
20 378-388		
21 388-402	10119	1
		(43)
1st-2nd century	10914, 10352, 10977, 10407	4
3rd century		
4th century?	10134, 10353, 10714	3
3rd-4th century	11034	1
TOTAL		51

Table 10: Summary of all coins from Thurnham by broad issue period

Period	THM98	Ashbee	Pirie	TOTAL
A (up to 260)	16			16
B (260-294)	8	2	3	13
C (294-330)	11			11
D (330-402)	16	1?		17

4 THE ROMAN VESSEL GLASS

by Hilary E.M. Cool

The Roman vessel glass from the CTRL excavations at Thurnham is summarised by colour and period in Table 11. Some colours have a chronological significance. Strong colours such as dark yellow/brown glass had gone out of general use before the end of the 1st century; colourless glass is commonest in the 2nd and 3rd centuries; bubbly green-tinged colourless glass comes into use towards the end of the 3rd century and is the typical glass of the 4th century. Blue/green glass is the standard everyday glass of the 1st to 3rd centuries. On the whole the colours found in the contexts of the different periods are appropriate allowing for occasional residual occurrences.

Key to periods:

LPRIA = Late Pre-Roman Iron Age c 50 BC to c AD 50/60

Ero = Early Roman c AD 60 to 120

MRo(1)= Middle Roman (phase 1) 120 to 150

MRo(2)= Middle Roman (phase 2) 150 to 250

LRo = Late Roman 250 to 420

Med = Early medieval c 1000 to 1350.

P-Med/Mod = Post-medieval to modern 1500 to present

– = includes not only unstratified finds but also those from unphased contexts which are likely to belong to the Roman to medieval period.

Table 11: Roman vessel glass fragments by colour and period

Colour/Period	LPRIA	Ero	MRo(1)	MRo(2)	LRo	P-Med/Mod	-	Total
Yellow/brown	-	1	-	-	2	-	-	3
Light green	-	-	1	1	-	-	-	2
Colourless	-	-	3	-	1	-	1	5
Blue/green- vessel	1	21	2	4	14	1	4	47
Blue/green - bottle	1	6	2	3	3	-	14	29
Light green bubbly	-	-	-	-	4	-	2	6
Total	2	28	8	8	24	1	21	92

In what follows the typology of material will first be briefly discussed to set it in its original chronological setting. Following this the assemblage will be considered as a whole to see what it can tell us about the site.

4.1 The vessels present

The earliest vessels are represented by nos 1-2 and 7. Only no. 7 is usefully stratified deriving from an early Roman context associated with the proto-villa. It is a fragment from the commonest mid 1st century unguent bottle (Price and Cottam 1998, 169-70) which was going out of use in the last third of 1st century. The other two fragments were found residually in a late Roman deposit. No. 1 is from the handle of a long-necked conical or globular jug (*ibid* 150-56). These were 1st century forms whose use carried on into the 2nd century. In the case of no. 1 the vessel was clearly a 1st century one given its strong colour. These vessels were often ribbed and it is likely that the body fragment no. 2 from the same context came from the same vessel. Given their residual context, the use of this jug by the inhabitants of the proto-villa must remain unproven.

The commonest vessel type represented on the site are blue/green bottles (nos 11-20). These came into widespread use during the later 1st century with the prismatic forms continuing in use into the 3rd century, whilst the cylindrical ones go out of use in the early 2nd century (Price and Cottam 1998, 191-200). At Thurnham over half of the fragments found came from such bottles. A substantial part of a cylindrical bottle came from an early Roman context (no. 17) and a hexagonal bottle is represented by a body fragment from an unphased context, most of the other fragments probably came from the square form. As can be seen from Table 1 they are particularly well represented in early Roman contexts.

Many of the other blue/green fragments are not closely dateable on typological grounds as they belong to long-lived forms or are not sufficiently diagnostic. A flask (no. 8) and a jar (no. 6) were clearly in use during the 1st century as they came from contexts associated with the proto villa. Jugs are represented by handle fragments (no. 4 and 5) recovered from middle Roman (phase 2) contexts. The most interesting vessel represented is a shallow conical dish (no. 3) also from a middle Roman (phase 2) context. It has a fire-rounded inturned rim and appears unparalleled. The combination of colour and rim finish would suggest a later 2nd and 3rd century date, which would be consistent with the context date. It should be noted though that shallow open vessels such as this would appear to be rare at that time.

In the small group of fragments made in 4th century glass only two forms can be identified. No. 21 is an example of one of the commonest drinking vessel forms (Price and Cottam 1998, 121-3). No 22 is from a funnel-mouthed cylindrical bottle or flask (*ibid* 184-5 and 204-5). These are not very common in Britain, but what marks this piece as very unusual is that it was decorated with facet-cutting. These have occasionally been found in other north-western provinces (see for example Fremersdorf 1967, Tafn. 146-62), but the only other example I know of from Britain was recovered from Winchester (The Brooks excavations – unpublished).

4.2 Vessel glass usage at Thurnham

Vessel glass is extremely rare in Britain prior to the Conquest. The two fragments (both blue/green and one from a bottle) which came from clearance and levelling deposits assigned to the LPRIA period immediately prior to the development of the proto-villa clearly belong to the 'Roman' rather than Iron Age occupation consistent with the terminal date for this period in the post conquest period.

The assemblage associated with the proto-villa is overwhelmingly one made of containers (bottles, an unguent bottle and another flask). The inhabitants were clearly interested in using whatever was transported in these and seemed less interested in using glass tablewares. To a certain extent this is the pattern seen elsewhere in later 1st to mid 2nd century assemblages from rural sites where there tends to be a concentration on bottles and large bowls (Cool and Baxter 1999, 84-5). The scarcity of glass tablewares is interesting in the light of the presence of the large copper alloy basin (small find report no. 47), and would tend to confirm that whatever the basin was used for on this site, it was probably not as part of an elite dining regime in the classical Roman mode.

A variety of common vessel forms might have been expected to have been in use in the villa complex, but on the whole they are curiously absent. During the 2nd century colourless glass tablewares become increasingly widespread. By the later 2nd century cylindrical cups with double base rings (Price and Cottam 1998, 99-100), for example, are very common and are frequently found on even quite small rural sites. They were common at the Lullingstone villa (Cool and Price 1987, 112) and are also present at the Minster-in-Thanet villa (for the site see Perkins and Parfitt 2004: I am most grateful to Dave Perkins for allowing me to see his glass report in advance of publication). In the Thurnham assemblage colourless glass is conspicuous by its scarcity. Such as has been found consists merely of a small number of body sherds (see Table 11). Bottles continue to be used and there are occasional fragments of blue/green tablewares including the unusual dish (no. 3), but the assemblage is rather small. As with the small finds, it is impoverished compared with that of the proto-villa.

Ironically the most unusual and luxurious glass vessel in the assemblage, the facet-cut bottle (no. 22), is most likely to be of 4th century date, though a date at the end of the 3rd century might be possible. This is the sort of thing that might be expected on an elite 4th century villa, for which there is currently no evidence at Thurnham.

4.3 Catalogue

4.3.1 Dark yellow/brown

1 Jug; handle fragment. Straight ribbon handle with central rib; one edge broken. Present length 42mm. EVE 0.14. SF 10613. Cxt 10413. P-2006.

2 Body fragment, ribbed. SF 10612. Cxt 10413. P-2007.

4.3.2 Blue/green

3 Conical dish; rim and upper body fragment. Incurved rim, edge fire-rounded, side sloping shallowly. Shallow trail on upper body. RD 180mm, WT 1mm, PH 15mm. EVE 0.2. SF 10413. Cxt 10487. P-2009.

4 Jug; handle fragment. D-sectioned curved handle with expanded lower attachment retaining curved part of shoulder. Present length 33mm, handle section 5 x 5mm. EVE 0.28. SF 10972. Cxt 20048. P-2062.

5 Jug; handle fragment. Fragment from edge straight ribbon handle. Present length 10mm, thickness 1.5mm. EVE 0.14. SF -. Cxt 15214. P-2056.

6 Jar; rim fragment. Rim bent out, down and in. Rim diameter 70mm. EVE 0.2. SF-. Cxt 12540. P-2041.

7 Unguent bottle, rim fragment. Complete outbent rim, edge sheared. Rim diameter 23 x 22mm, EVE 0.2. SF 11005. Cxt 20174. P-2070.

8 Flask; cylindrical neck. EVE 0.2. SF 11012. Cxt 12455. P-2040.

9 Base fragment. Slightly convex-curved wide lower body; solid pushed-in base ring, slightly concave base. BD 50mm, WT 2mm, PH 14mm. SF 10362. Cxt 10487. P-2010.

10 Body fragment. Convex-curved; two abraded bands. Dimensions 23 x 13mm, WT 2mm. SF -. Cxt 12444. P-2039.

11 Bottle, neck fragment. SF 10634. Cxt 10518. P-2011.

12 Bottle; cylindrical neck fragment. SF 10852. Cxt 15090. P-2049.

13 Square bottle; shoulder fragment. EVE 0.14. SF 10897. Cxt 15001. P-2043.

14 Prismatic bottle. Shoulder fragment. SF 10422. Cxt 11033. P-2021.

15 Prismatic bottle; 2 shoulder fragments. SF 10789. Cxt 11507. P-2035.

16 Bottle; handle fragment. Edge of reeded handle retaining small part of shoulder. Present length 32mm. EVE 0.14. SF 10821. Cxt 15017. P-2048.

17 Cylindrical bottle, 16 base and body fragments. Straight side with slight bulge at junction with shoulder; shallow concave base. Vertical scratch marks on side. Base diameter c. 140-150mm. EVE 0.42. SF 10520. Cxt 10643. P-2014.

18 Square bottle; lower body and base fragment. Base design - one circular moulding with 'L'-shaped mouldings in corner, only one extant; concave base with slight scarring possibly from pontil. Base width c. 55mm, diameter of circular moulding c. 36mm., PH 11mm. EVE 0.28. SF -. Cxt 20079. P-2067.

19 Prismatic bottle; lower body and base fragment. Base design - part of one circular moulding remaining near edge. Present height 24mm., EVE 0.28. SF 10412. Cxt 10609. P-2012.

20 Square bottle; lower body fragment retaining edge of base. Present height 36. EVE 0.28. SF 10520. Cxt 10643. P-2015.

4.3.3 Bubbly green-tinged colourless

21 Conical beaker. Curved rim, edge cracked off and ground; straight side sloping in. Abraded band below rim edge. RD 70mm, WT 1mm, PH 15mm. EVE 0.2. SF 10691. Cxt 10934. P-2019.

22 Cylindrical bottle; lower body and base fragment. Heavily weathered. Straight side sloping in slightly to concave base. Lower body decorated with diagonal wheel-cuts in zig-zag pattern. BD 60mm, WT 1.5mm, PH 23mm. EVE 0.42. SF -. Cxt 11394. P-2033.

23 Body fragment. Slightly convex-curved with parts of three narrow trails. Dimensions 24 x 18mm, WT 1mm. SF 10086. Cxt 10339. P-2003.

5 THE WORKED STONE

by Ruth Shaffrey

5.1 Introduction

The worked stone assemblage comprises fourteen definite rotary quern fragments, four probable fragments and a number of small weathered lava fragments which almost certainly come from querns. In addition to the rotary querns, stone was used in construction and for processing (three whetstones and one rubbing stone). A variety of materials were utilised in addition to the lava, notably Greensand, Millstone Grit and Hertfordshire Puddingstone, but none are unusual for north west Kent.

5.2 Methodology

All the stone was examined with the aid of a x10 magnification hand lens. The following fields were then recorded: dimensions, weight, lithology and description. All the finds have been entered into the CTRL Small Finds database.

5.3 Context and date

Rotary quern fragments were utilised in a variety of secondary contexts, including as packing in postholes (in entrance structure 10950 and post row boundary 10980) and as building materials for the corn drier (10340). Most of the small quern fragments occurred as incidental inclusions such as within backfill deposits (grave 10640), soil layers (11510 and 12725) and silting fills (e.g. well 12370). A single lower rotary quern (SF 10976), which is complete apart from some damage to about one third of the circumference, was the only stone artefact found in a notable deposit. It was placed in the base of a pit (10570) and accompanied by two complete imbrices and a complete pottery vessel containing charred grain. Although this quern is only the lower half of a pair of stones, it seems likely a complete stone such as this would have been fully functional upon deposition (Shaffrey 2003, 164). The damage to part of the circumference of the quern would not have affected the usability of the quern as it may have occurred after deposition, especially if the lower part of the pit was regularly submerged and exposed as hypothesised. In addition to this, the nature of the pit deposit as a whole suggests deliberate placement.

Our understanding of the votive deposition of rotary querns is still being developed but now that archaeologists are open to the idea of the deliberate deposition of these it is becoming apparent that it occurred on a range of sites. A notable comparison is provided by Newstead where they were frequently deposited in pits and wells (Clarke 2000, 25). The reason for the ritual deposition of querns is almost certainly due to their connection with food preparation (Hill 1995, 131; Shaffrey 2003, 164), an interpretation strengthened by the

Thurnham example which was placed alongside the charred remains of cereal processing debris placed within a pot.

There are no significant patterns of deposition for the other items of worked stone. Two whetstones were recovered from the late Roman soil and rubble layer (10525) surrounding the demolished temple (12720) with a further example recovered from the late 1st century clay levelling deposits (11670) sealed by its construction. Another was recovered from an early Roman soil horizon (11208) sealed by a surface (11510) within the 14 post building (11250). A probable roofing stone was found on the surface of the soil horizon (15421) to the west of the aisled building (15000) and may reflect roofing materials from this structure.

5.4 Discussion

The assemblage consists of a broad range of lithologies, most being typical of the materials used in Kent. They include Hertfordshire Puddingstone, Neidermendig lava, Millstone Grit and various types of Greensand. It is difficult to determine much about the typology of the rotary querns as only one is sufficiently complete for its style to be ascertained. This quern (SF 10976) is of a standard disc style but is unevenly worn suggesting semi-rotational use.

Most of the Greensands used at Thurnham were types of Lower Greensand which was available locally, alongside the ferruginous sandstone interbedded within it. Large chunks of Greensand worn on one or both faces indicate it was used for building and flooring purposes, whilst at least one roof stone of Greensand suggests it was used in a variety of constructional purposes. Although Greensand was locally available, it seems plausible that the five rotary querns were made at a known production centre at Copt Point, Folkestone, which is known to have been in operation during the early Roman period (Keller 1989) and believed to have produced the querns for at least five sites. Lower Greensand from Copt Point is known to have been used at Westhawk Farm, Ashford (Roe in prep) and is thought to have been used at a number of sites including Leda Cottages (Shaffrey 2006), Eastwood, Fawkham (Philp 1963, 72); Hayes Baston Manor (Philp 1973, 90 and Black 1987, 117) and two sites in West Wickham (Elm Farm and Fox Hill, Philp 1973). Only one of the Greensand quern fragments was found in an early Roman context (soil layer 11510) but the remainder were reused and may well have been manufactured during the known production period.

Hertfordshire Puddingstone (HPS) querns were recovered from three contexts. Two of these produced large fragments and the third consisted of over 20 small pieces. Hertfordshire Puddingstone (HPS) was less commonly used in Kent than other stone sources with all the current known finds spots of HPS in the northern half of Kent and the majority in north-west Kent (Shaffrey 2006); its use at Thurnham is therefore consistent with the current evidence. Its use is almost certainly 1st to early 2nd century in date (Major 2004, 4) but one quern is something of an anomaly typologically being much thinner, flatter and of larger than average

diameter (King 1986, 118). Although differences in style are often assumed to be chronological in origin, it is more likely that the source of the stone is different so that it was subject to different typological influences. Although HPS is known to occur mainly in Hertfordshire, it does occur in other parts of the country from Essex to Buckinghamshire, Berkshire and as far afield as Dorset (Rudge 1966, 247). The variety found here has cream, yellow and brown rolled pebbles set in a dark brown matrix, and is common to other sites in Kent. It is quite different, however, to the paler variety found in other areas, for example Strood Hall on the route of the A120 in Essex (Shaffrey in prep.). The likelihood is that the sources for the types are different but as few surface exposures remain, this is difficult to ascertain.

Most of the lava quern fragments recovered (50 fragments from 14 contexts) were small weathered pieces, typically found in Kent and of the four larger fragments, only two can be assigned to a type. Both of these are of the Röder type 4, that is, flat disc style querns with a raised kerb around the upper outer edge and both are of typical dimensions being 450 and 530 mm in diameter. The distribution of lava quern fragments in Kent has been outlined elsewhere (Roe 1999; Shaffrey 2004) but their recovery here compliments our understanding that lava occurs on at least 70% of sites in the county (Roe 1999, 29).

Of the four fragments of Millstone Grit found, two may be from millstones as they are both over 110 mm thick but neither is sufficiently complete for this to be absolutely clear. Millstones in Kent, however, are commonly made of Millstone Grit, for example at Mount Villa (Kelly 1993, 228) and Keston Villa (Philp et al 1991, 180). Millstone Grit was even more frequently used for hand operated rotary querns and these were also used at Mount Villa (Kelly 1993, 228) plus many other sites, especially in northern Kent such as Joyden's Wood, Springhead and Farningham (Tester and Caiger 1955, 182; Roe 1999, 29-30; Black 1987).

In addition to the rotary querns and building stone, other items of worked stone were recovered including a small cube of ferruginous sandstone that may have been a roughout for a tessera. There are also four whetstones made from locally available ferruginous sandstone and Greensand. One of these utilised an existing pebble, two were not deliberately shaped but had been extensively used on at least one side and the fourth is a primary whetstone.

5.5 Conclusions

The stone types utilised at Thurnham villa are all of the lithologies we would expect to see on Roman sites in Kent but there is a greater overall range than normally found indicating the wide connections of the site. The range is very similar to that found at nearby Springhead town, however, which produced querns of Lava, Millstone Grit, Greensand and Hertfordshire Puddingstone (Roe 1999, 31) and suggests some sites in the north west of Kent had access to a broad range of materials. The assemblage of worked stone, however, is both very

fragmentary with nearly all pieces recovered from secondary contexts and with only one quern near complete, and this from a placed deposit. As a whole it suggests considerable recycling of, and probably therefore, pressure on resources. The wide range of materials represented may reflect trade over several centuries with different materials exploited at different times.

6 THE SLAG

by Lynne Keys

Both the smelting and secondary smithing of iron were represented in the slag assemblage from Thurnham Villa. Each took place in different periods, quite separate from each other: smelting in the late pre-Roman Iron Age and at the start of the early Roman periods, smithing in the late Roman period. The quantity of iron slag and related material is not large for a site of this size (21.5 kg) but it may be that much of the slag was re-used elsewhere in the Roman period, possibly for road metalling.

6.1 Late pre-Roman Iron Age c100 BC to AD 43

Smelting slag (almost 2 kg) was recovered principally from contexts relating to the late pre-Roman Iron Age or early Roman. Its occasional appearance in later contexts, in ever decreasing quantities, is almost certainly the result of re-deposition. Unfortunately none of the smelting slag was found in association with a furnace or in any primary context; the amount involved is not large and may represent a one-off or brief period of smelting. The presence of tap slag (for an explanation of terms, reference should be made to the Methodology section below) may indicate the smelting took place, for a specific purpose, during the initial Roman period. No earlier Iron Age furnace slag was present in the assemblage.

Characteristic smelting slags (tap slag, run slag, and dense slag) were found particularly in ditch sub-groups 10660 and 10840 relating to the early Roman and Iron Age enclosures respectively. Sub-group 10840 which included cut 10926 (fills 10928 and 10941) represents one specific incident of slag dumping in the enclosure ditch. No hammerscale or smithing slag was present in these contexts so we have no way of knowing whether the iron bloom(s) produced by the smelt underwent primary smithing in the same area.

Occasional small fragments of stone which are thought to be ore were encountered during examination but none appear to have been roasted and may be naturally occurring fragments. No identification of the ore is known to have taken place.

6.2 Late Roman 250 AD to 410 AD

The slag in the late Roman was related to secondary smithing activity, specifically in Room 20000 in the centre of the villa building. Although disturbance and dismantling had obviously occurred within the room, intensive examination of the slag (in particular microslags recovered from soil samples), their types and spatial distribution, permitted a possible interpretation of the features and activities within the room.

Two hearths are almost certainly represented by the tile and stone arrangements of 20115 and 20094 in the centre of the room; there is the possibility that another stood in the

area of 20098, against the southern wall. The first two hearths mentioned may have had raised fire beds (i.e. the smith worked standing up) and what we are left with are the base fragments. In the area 20096 between these hearths (20115 and 20094) - specifically in the central area of samples <10170> <10169> and <10171> - an anvil probably stood. Here some ordinary smithing occurred but the slag evidence shows high temperature welding predominated.

Another anvil could have stood to the west of hearth 20098 (represented by sample <10259> but it is more certain that one was situated to the east of 20098 (represented by 20056 samples <10067> and <10090>). The hammerscale in this area consisted of some spherical but much more flake, implying ordinary ironworking – rather than high temperature welding – predominated in this area. This is the opposite of the type of smithing which looks to have occurred in the centre of the room (in 20096 - see above).

The absence of quantities of undiagnostic slag and smithing hearth bottoms in and around the smithing area – and from elsewhere in and around the villa - during the time this activity was taking place indicates they may have been removed for re-use somewhere else. Only three late or residual smithing hearth bottoms were found in 20058, the layer which covered most of the deposits in the smithy.

6.2.1 List of significant contexts within room 20000

Context 20056

This layer was in the southern part of the villa room (20000). It contained a substantial amount of flake and some spheroid hammerscale (samples <10067> and <10090>); produced the second largest quantity of undiagnostic iron slag (886 g); and contained some vitrified hearth lining. 20056 lies between 20094 and 20098, both contexts with hammerscale.

Context 20096

This is an area of burnt clay in the centre of the room. It was sampled in several places but the quantity and type of hammerscale varies within this layer. The largest quantities are in <10170> and <10171> which implies an anvil may have stood in this area.

Context 20115

This is described as a small circular arrangement of flue tiles and tufa bricks, possibly part of (20096). I would argue that this feature may once have been rectangular structure, possibly an outer case (of wood or squared stones) with debris inside, used to create a raised hearth.

Context 20098

This has been interpreted as the scorched base of an ironworking hearth against the southern wall of room 20000. Lots of flake hammerscale in <10259> and fragments of reddish rusted iron.

Context 20058

This was a layer covering most of the smithy deposits in Room 20000. Sample <10021> contains a moderate amount of broken flake, tiny spheroid hammerscale, and some small broken fragments of iron. This layer also contained the largest amount of undiagnostic slag (1854g) and the only smithing hearth bottoms from the smithy (three small examples) – the characteristic bulk slag of iron smithing.

6.3 Methodology and explanation of terms

The assemblage (21.5k g) was recovered mainly by hand over most of the site. Additionally, during excavation of Room 20000, samples were taken in a grid across the floor. The latter produced greater or smaller amounts of hammerscale, although it was obvious from the small bones and teeth of rodents in samples that disturbance of deposits had probably occurred. Despite this some useful interpretation was possible (see above).

The slag was visually examined and categorised on the basis of morphology alone. A magnet was run through soil in bags to detect micro-slags such as hammerscale. Each slag type in each context was weighed; smithing hearth bottoms were weighed individually and measured to obtain their dimensions. Quantification details are given in the slag table for the site.

Activities involving iron can take two forms:

1) manufacture of iron from ore and fuel in a smelting furnace. The resulting products are a spongy mass called an unconsolidated bloom consisting of iron with a considerable amount of slag still trapped inside, and slag (waste).

2a) primary smithing: hot working of the bloom by a smith using a hammer, using a hearth (usually) near the smelting furnace, to remove excess slag. The bloom becomes a rough lump of iron ready for use. The slags from this process include smithing hearth bottoms and micro-slag in the form of tiny smithing spheres;

2b) secondary smithing: hot working by a smith using a hammer to turn a piece of iron into a utilitarian object or to repair an iron object. As well as bulk slags, including the smithing hearth bottom, this generates micro-slags: hammerscale flakes from ordinary hot working of a piece of iron, or tiny spheres from high temperature welding to join two pieces of iron.

Some types of iron slag are diagnostic of smelting or smithing, while others are not. Slag described as undiagnostic could have been produced by either process; additionally, slags may be broken up during deposition, re-deposition or excavation and may have to be assigned to the undiagnostic category.

Other types of debris sometimes encountered in slag assemblages may be produced by a variety of high temperature activities - including domestic fires - and cannot be taken on their own to indicate iron-working was taking place; these include fired clay, vitrified hearth lining, cinder, and fuel ash slag. If these are found in association with iron slag, they may be considered as possible products of the process.

6.3.1 Smelting

Three types of smelting slag were found at Thurnham in contexts relating to the late pre-Roman Iron Age and early Roman periods. Their occasional appearance in later contexts is almost certainly the result of re-deposition of Iron Age material.

Tap slag is a dense, low porosity, fayalitic (iron silicate) slag with a ropey flowed structure. It is formed as liquid slag is allowed to flow out continuously or intermittently through a hole in the side of the furnace along a specially made channel into a hollow in the ground. This removal of the slag facilitated retrieval of the bloom after the smelting operation. It is believed furnaces with tap holes replaced bowl furnaces as their efficiency was recognised early in the Roman period but the idea may have crossed the Channel before the Roman settlement.

The term run slag is applied both to slag which had obviously flowed during the smelting process, but is so broken up that it cannot be positively identified as tap slag, or to runny slag without the characteristic ropey flow. Dense slag, like tap slag, is of low porosity but without the flowed surface.

6.3.2 Secondary smithing

The bulk slag most characteristic of smithing is the smithing hearth bottom. It formed as a result of high-temperature reactions between the iron, iron-scale and silica from either a clay furnace lining or the silica flux used by the smith. The predominantly fayalitic material produced by this reaction dripped down into the hearth base during smithing to form a slag which, if not cleared out, developed into the smithing hearth bottom. When removed from the hearth they were usually taken outside and deposited in the nearest pit or ditch. Given the amount of micro-slag (hammerscale) evidence for smithing in Room 20000, the absence of the smithing hearth bottoms within and around the villa is immediately noticeable. This could be explained by their being accumulated and subsequently removed for use elsewhere (for example as road metalling).

Hammerscale is a term used to describe two diagnostic microslags produced by smithing. The ordinary hot working of a piece of iron either to make an object or repair it produces flake hammerscale. The other, small spheres, is produced when an iron bloom is worked at high temperature to remove excess slag after smelting (the production of iron in a furnace from ore and a fuel), or by high temperature welding as a smith joins two pieces of iron to make an object. Since both types are invisible to the naked eye when in the soil, they usually remain in the immediate area of smithing activity (around the anvil and between it and the hearth) when larger slags are cleared out and dumped elsewhere.

The largest quantity of hammerscale was in 20098 <10259>, the hearth against the southern wall of room 20000.

Some flake and but lots of tiny spheres of hammerscale were recovered from 20056 <10067>, south of 20098, while 20096 <10170> and <10171> contained only tiny spheres.

Vitrified hearth is produced in the area nearest the tuyère region (the region of highest temperature) of the hearth or furnace. By itself it is not diagnostic of smelting or smithing activity and can be produced by a number of other high temperature activities but its association with other diagnostic material provides support for the process. Not much vitrified hearth lining was recovered, providing further support for the idea that raised hearths were used in the late Roman smithy.

Cinder is a very porous, highly vitrified material formed at the interface between the alkali fuel ashes and siliceous material of a hearth lining; it was found in numerous contexts across the site and may have been produced in domestic contexts.

Ferruginous concretions are made up of a re-deposition of iron hydroxides (rather like iron panning), enhanced by surrounding archaeological deposits, particularly if there is iron-rich waste present as a result of ironworking.

7 LIST OF ILLUSTRATED SMALL FINDS

The following small finds have been illustrated. They are classified by catalogue number as defined in the specialist reports above. Each entry also includes the small find number (SF), the object description and the context number (Cxt). The number (P-) visible at the end of each catalogue entry refers to the unique record ID which can be found in the database. For detailed descriptions, please refer to the catalogues in the reports.

7.1 The small finds of metal, glass, worked bone and frit

7.1.1 Personal ornaments and equipment

1.	SF 10966	Brooch	Cxt 12279	P-1242
2.	SF 4	Brooch	Cxt 294	P-1583
3.	SF 10767	Brooch	Cxt 11396	P-1183
5.	SF 10899	Brooch	Cxt 10503	P-873
6.	SF 10283	Brooch	Cxt 10503	P-808
7.	SF 10771	Brooch	Cxt 20057	P-1380
8.	SF 10857	Brooch	Cxt 11792	P-1218
9.	SF 10772	Brooch	Cxt 11392	P-1177
10.	SF 10627	Brooch	Cxt 10652	P-929
11.	SF 10298	Brooch	Cxt 10503	P-821
13.	SF 10862	Brooch	Cxt 20112	P-1454
14.	SF 10089	Brooch	Cxt 10348	P-591
15.	SF 11029	Brooch	Cxt 12368	P-1253
16.	SF 10386	Brooch	Cxt 0	P-508
17.	SF 10474	Brooch	Cxt 11044	P-1046
18.	SF 10970	Hair pin	Cxt 20048	P-1379
19.	SF 10825	Hair pin	Cxt 15028	P-2075
20.	SF 10715	Hair pin	Cxt 20002	P-2074
21.	SF 10934	Hair pin	Cxt 12101	P-1233
22.	SF 10871	Hair pin	Cxt 15190	P-2077
23.	SF 10878	Hair pin	Cxt 20169	P-1468
25.	SF 10365	Bracelet	Cxt 10513	P-885
26.	SF 10764	Finger ring	Cxt 11397	P-1185
27.	SF 10549	Finger ring	Cxt 11235	P-1144
30.	SF -	Bead	Cxt 10634	P-2013

31.	SF 10763	Ovoid bead	Cxt 11394	P-2034
32.	SF 10797	Bead	Cxt 20058	P-2066
33.	SF 10776	Buckle	Cxt 20058	P-1386

7.1.2 Toilet Equipment

36.	SF 10788	Mirror	Cxt 11507	P-1190
37.	SF 10898	Toilet spoon	Cxt 20174	P-1480
38.	SF -	Toilet spoon	Cxt 15148	P-1308
40.	SF 10464	Olivary probe	Cxt 11130	P-1121

7.1.3 Recreation Items

43.	SF 10721	Setting	Cxt 20002	P-2060
44.	SF 10996	Counter	Cxt 15001	P-2079
45.	SF 10867	Counter	Cxt 20112	P-1528

7.1.4 Household items

47.	SF 10879	Handle	Cxt 20174	P-1472
48.	SF 10809	Handle	Cxt 15007	P-1274
49.	SF 10390	Fitting	Cxt 11009	P-1004
50.	SF-	Inlay	Cxt 10349	P-2080

7.1.5 Writing equipment

51.	SF 10804	Seal box	Cxt 15002	P-1270

7.1.6 Transport

52.	SF 10754	Linch pin	Cxt 11337	P-1162
53.	SF 10212	Linch pin	Cxt 10408	P-734
55.	SF 10000	Prick Spur	Cxt 10007	P-510

7.1.7 Structural

61.	SF 10757	Loop hinge	Cxt 20037	P-1373

7.1.8 Tools and metalworking debris

63.	SF 10275	Knife	Cxt 10508	P-875
64.	SF 11003	Knife	Cxt 15273	P-1343
65.	SF 11006	Knife	Cxt 20174	P-1482
68.	SF 10987	Blade	Cxt 15263	P-1333
71.	SF 10727	Chisel	Cxt 20002	P-1368
72.	SF 10889	Drill bit	Cxt 20175	P-1483

74.	SF 10558	Punch	Cxt 11044	P-1074
75.	SF 10761	Chisel	Cxt 20037	P-1375
77.	SF 10567	Punch or chisel	Cxt 11044	P-1082
78.	SF 10786	Modelling tool	Cxt 20058	P-1395
79.	SF 10801	Tool	Cxt 20058	P-1404

7.1.9 Fasteners and fittings

87.	SF 10967	Nail	Cxt 12279	P-1243
91.	SF 10766	Stud	Cxt 11343	P-1163
93.	SF 10845	Stud	Cxt 20077	P-1436
95.	SF 10165	Stud	Cxt 10407	P-673
101.	SF 10073	Loop-headed spike	Cxt 10110	P-564
105.	SF 10758	Nailed binding	Cxt 20037	P-1374
107.	SF 10865	Collar	Cxt 11722	P-1211
110.	SF 10988	Collar	Cxt 15263	P-1334
118.	SF 10999	Slide key	Cxt 15263	P-1337
119.	SF 10566	Padlock bolt	Cxt 11044	P-1081
121.	SF 10360	Terminal	Cxt 10509	P-882
122.	SF 10310	Fitting	Cxt 20065	P-1417
126.	SF 10779	Mount	Cxt 20058	P-1389

7.1.10 Agricultural Items

127.	SF 10974	Spade shoe	Cxt 15001	P-1265
128.	SF 10573	Goad	Cxt 11044	P-1086
129.	SF 10620	Small hook	Cxt 10409	P-741

7.1.11 Military equipment

130.	SF 11033	Stud	Cxt 15353	P-1351
131.	SF 10713	Lunulate pendant	Cxt 10992	P-1003

7.1.12 Religious Items

132.	SF 10380	Figurine	Cxt 11379	P-1173
133.	SF 10060	Statue	Cxt 10110	P-563

7.1.13 Miscellaneous

145.	SF 10465	Bracket	Cxt 11044	P-1037
154.	SF 10830	Fitting	Cxt 20089	P-1444

202.	SF 11000	Strip	Cxt 15263	P-2084

7.2 Roman glass vessels

3.	SF 10413	Conical dish	Cxt 10487	P-2009
4.	SF 10972	Jug	Cxt 20048	P-2062
7.	SF 11005	Unguent bottle	Cxt 20174	P-2070
9.	SF 10362	Base fragment	Cxt 10487	P-2010
18.	SF -	Square bottle	Cxt 20079	P-2067
22.	SF -	Cylindrical bottle	Cxt 11394	P-2033

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