



Nine Wells 2013

Trench 1 and 3 Report

Surrounds of the hypocaust



Summary

In the fifth season of excavation at Nine Wells, Whittlesford the surrounds of the hypocaust discovered in 2012 have been investigated. Despite widespread destruction of the remains it was possible to establish that the hypocaust had been a small, narrow structure that had been built, probably during the second century, in the valley bottom of the Hoffer Brook immediately below the Melbourn Rock outcrop. It may have continued to function well into the fourth century. Some tentative evidence for a heat distribution system was seen.

Part of an opus signinum floor surface was found near to the hypocaust. Other compacted surfaces occurred at higher level, with a concentration of fourth century window glass shards embedded in one small area. Numerous fragments from a broken up tessellated floor provided some insight into the floor structure and its patterned surface.

An unexpected find from a spoil heap was a corroded bronze coin of Cunobelinus (AD 10 – 41). This was identified as being an extremely rare type, the first of its kind to be found in Cambridgeshire.

Introduction

George Maynard (1829 – 1904), who was a local man, a 19th century antiquarian and a curator of Saffron Walden Museum, wrote the following about the Nine Wells site (also known as The Chronicle Hills) in his papers that are retained in the Cambridgeshire Record Office:-

“In the year 1818 some barrows situated near Nine Wells on the edge of the high ground where the moor called Got Moor which forms a part of the low ground of which Triplow Common is a continuation were cleared away to fill up some of the hollows near so as to improve the land for agriculture, and then a number of antiquities were discovered many of them of undoubted roman origin though it is probable the tumuli themselves might be an earlier date.

Section title page

Top left – a silver denarius of Divus Antoninus Pius

Top right – a selection of painted plaster

Centre – an arrangement of tesserae

Bottom left – 4th century window glass

Bottom right – detail of bonded tesserae

The writer of this was too young to take much interest in them at the time they were discovered but remembers seeing a large portion of tessellated pavement in a comparatively perfect state – part of a bath with a length of lead pipe from the bottom to convey the water away. Also the appearances of a number of walls foundations and floors which extended a long way about – the proprietor of the ground had a number of holes dug to see how far they extended – they were covered by a layer of mould about two feet thick and consisted of broken bricks & tiles of various shapes many of them with running patterns moulded on them & others with the sides turned up as though they had formed part of a roofing, fragments of pottery, shells of oysters & bones of animals also great quantities of stones consisting of large flints & thin pieces of limestone slate.”

As a competent painter, he produced a watercolour in 1877 entitled “Ploughing over the site of the Roman villa, the Quave Trees in the background” (figure 1).



The arrow shows the approximate position of the recent excavations

Figure 1 George Maynard's 1877 watercolour of *Nine Wells*

This viewpoint places the “villa/bathhouse” that he was describing in the bottom of the shallow valley of the Hoffer Brook, just below the Melbourn Rock outcrop. Recent excavations have been conducted in this general area, where the remains of a hypocaust were found in 2012 and reported

(reference 1). As part of the overall excavation programme for 2013, two trenches (1 and 3) were dug with the aim of:-

- Determining the extent of the hypocaust
- Revealing any boundary wall foundations
- Seeking any relationships between this structure and adjacent features
- Seeking further evidence of a postulated piped water system

Trenches dug

To pursue these aims, trenches were positioned immediately either side of the now backfilled 2012 trench in which the hypocaust, on a northwest to southeast alignment, had been discovered. This was to permit investigation of the structure and its surrounds in both the southwestern and northeastern directions.

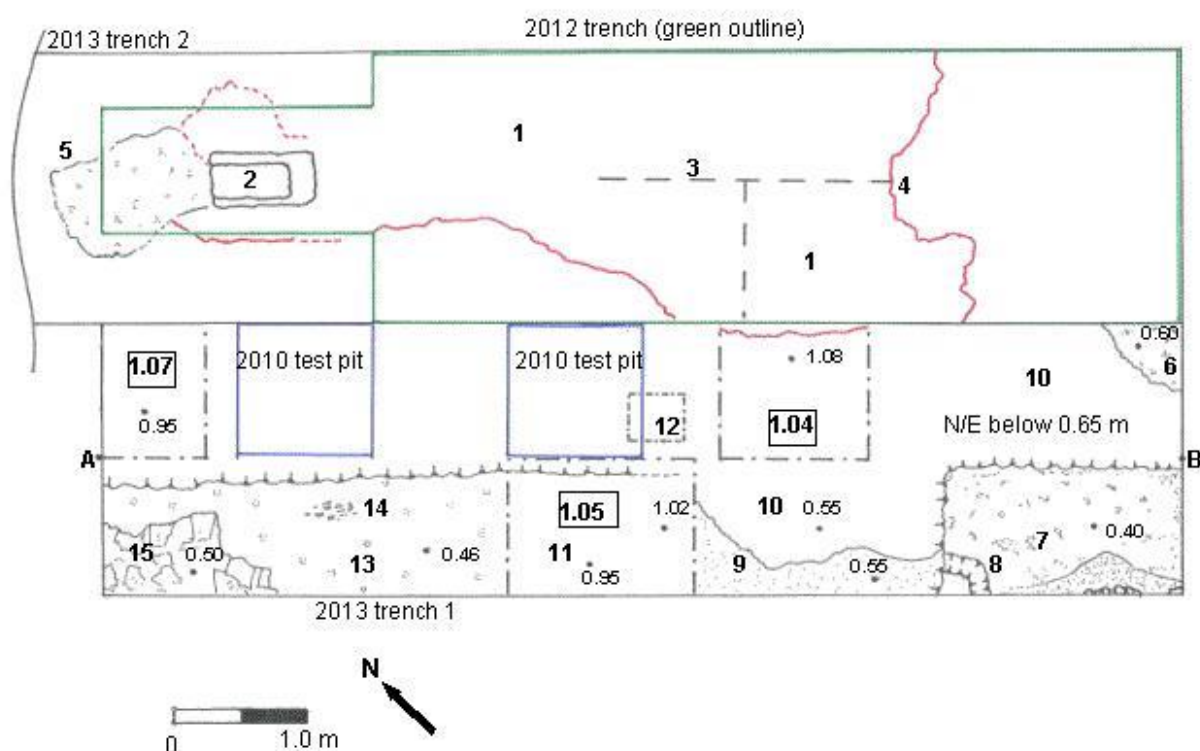
Trenches were measured and laid out with reference to a base line that had been established when the geophysical survey was performed by the Archaeology RheeSearch Group. GPS readings using a Garmin etrex 10 unit were taken at the ends of the trenches, and then repeated a few days later. A mechanical digger was used to prepare the trenches down to a depth of 0.35 metres. This was just below the plough soil, which has a typical depth of 0.30 metres in this area of the field. Spoil was checked with metal detectors and the material found is discussed later in the report (**The finds**).

A general comment is made about the assignment of context numbers to the fill of the trenches. As found in previous years, the amount of demolition debris and the nature of its deposition often made it difficult to discriminate between discrete layers, with lenses of mortar, *opus signinum* and ash frequently encountered. Boundaries were either diffuse or gradual.

Trench 1 (size: length 8 metres, width 2 metres)

The trench plan and its relationship to the “hypocaust trench” of 2012 are shown in figure 2.

The footprint of the trench included two 1 x 1 metre test pits that had been excavated in 2010. These were dug to a depth of 0.6 metres, with 0.25 x 0.25 metre sondages in the western corners going down to below 1 metre. Both these pits produced demolition material, but no evidence for organised structure (reference 2).



Red line – robbed edge of hypocaust floor

. = spot depth, metres

N/E = Not excavated

1 = Surviving area of hypocaust floor

2 = *Pila* at NW end

3 = Ash-filled gully in floor

4 = Grate feature and possible location of stoke hole

5 = Limit of ashy spread on hypocaust floor

6 = Ashy layer at SE end

7 = Compacted surface of chalk and *opus signinum*

8 = Shallow gully in compacted surface

9 = Yellow-brown gravel

10 = Brown fill with patches of ash and CBM

11 = Position of *opus signinum* floor feature

12 = Sondage

13 = Compacted chalk surface

14 = Concentration of glass shards

15 = Rubble

GPS readings:-

A – TL 45181 47479

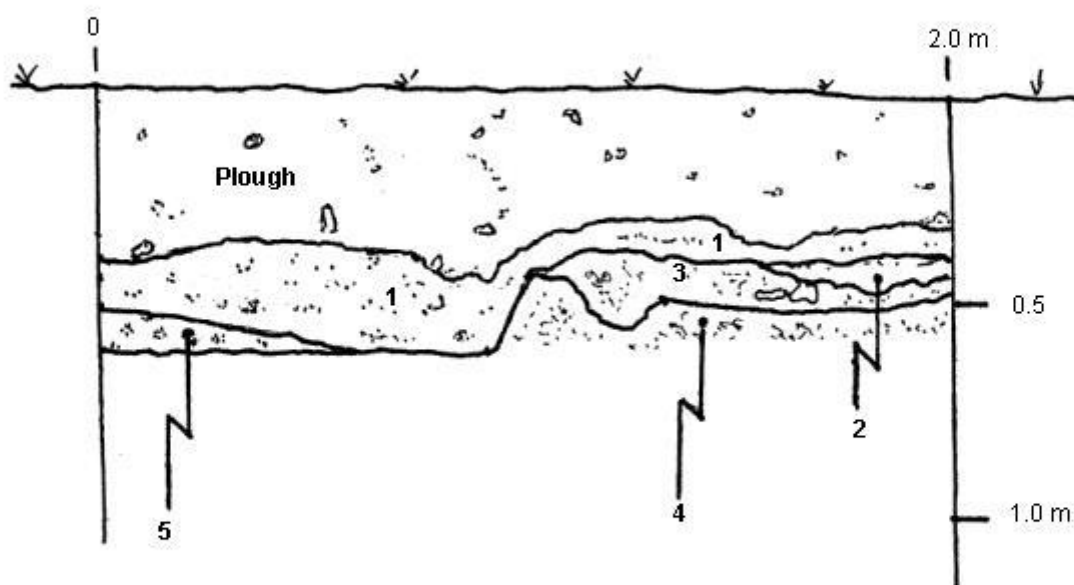
B – TL 45187 47473

Figure 2 Plan of trench 1 and its relationship to the 2012 “hypocaust trench”

The now familiar debris layers for this site were encountered below plough soil and context numbers 1.01, 1.02, 1.06, 1.08 and 1.13 were assigned to these. Within these yellow-brown loamy layers moderate to abundant

amounts of debris occurred (essentially tile fragments up to very large size, cobbles, *opus signinum* and mortar as lumps and diffuse spreads). A darker brown debris layer (context 1.10) occurred at deeper levels, below 0.7 metres.

The largest feature in the trench was a hard, compacted chalky surface at depth of 0.4 – 0.5 metres. In the southern corner (position 7, figure 2) *opus signinum* had been rammed down as if providing a make-up and levelling layer for a floor that had worn down. Refer to the section drawing for the southeastern end of the trench (figure 3). This area of the surface, including a short length of gully, was truncated by what appeared to be part of a robber pit (figure 4).



- | | |
|---|---------------------|
| 1 = Brown with chalk lumps (context 1.02) | 2 = Dark brown |
| 3 = <i>Opus signinum</i> (context 1.11) | 4 = Compacted chalk |
| 5 = Ashy layer (context 1.12) | |

Figure 3 Southeastern section of trench 1



Red arrow shows edge of robber pit, with the compacted chalk surface to left

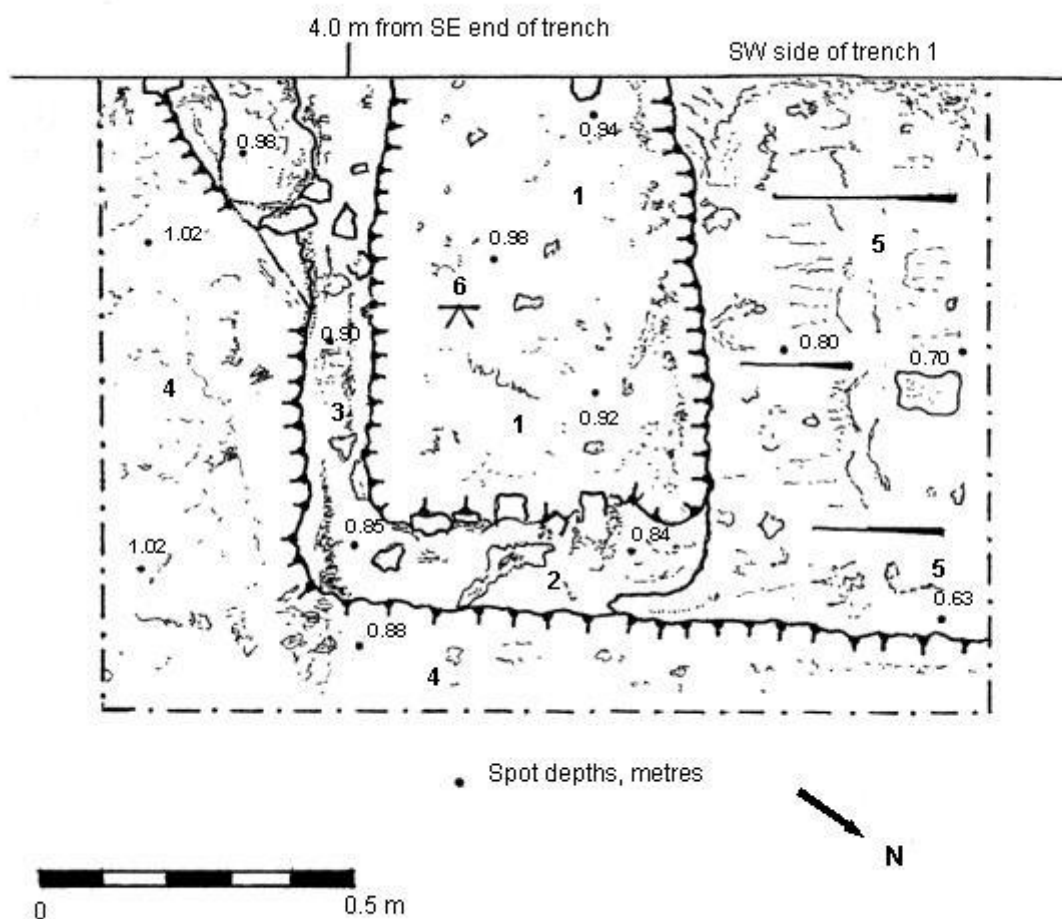
Figure 4 Part of the southwestern side of trench 1

Further along the southwestern side of the trench an animal burrow had obscured the archaeology. The compacted surface could be seen again at the northwestern end of the trench (position 13, figure 2), with a concentration of rubble in the western corner (position 15, figure 2). A concentration of flat glass shards was also embedded in the surface at depth 0.35 – 0.40 metres (position 14, figure 2 and figure 5). The shards were recovered for examination; their appraisal is given later in the report (**The finds**).



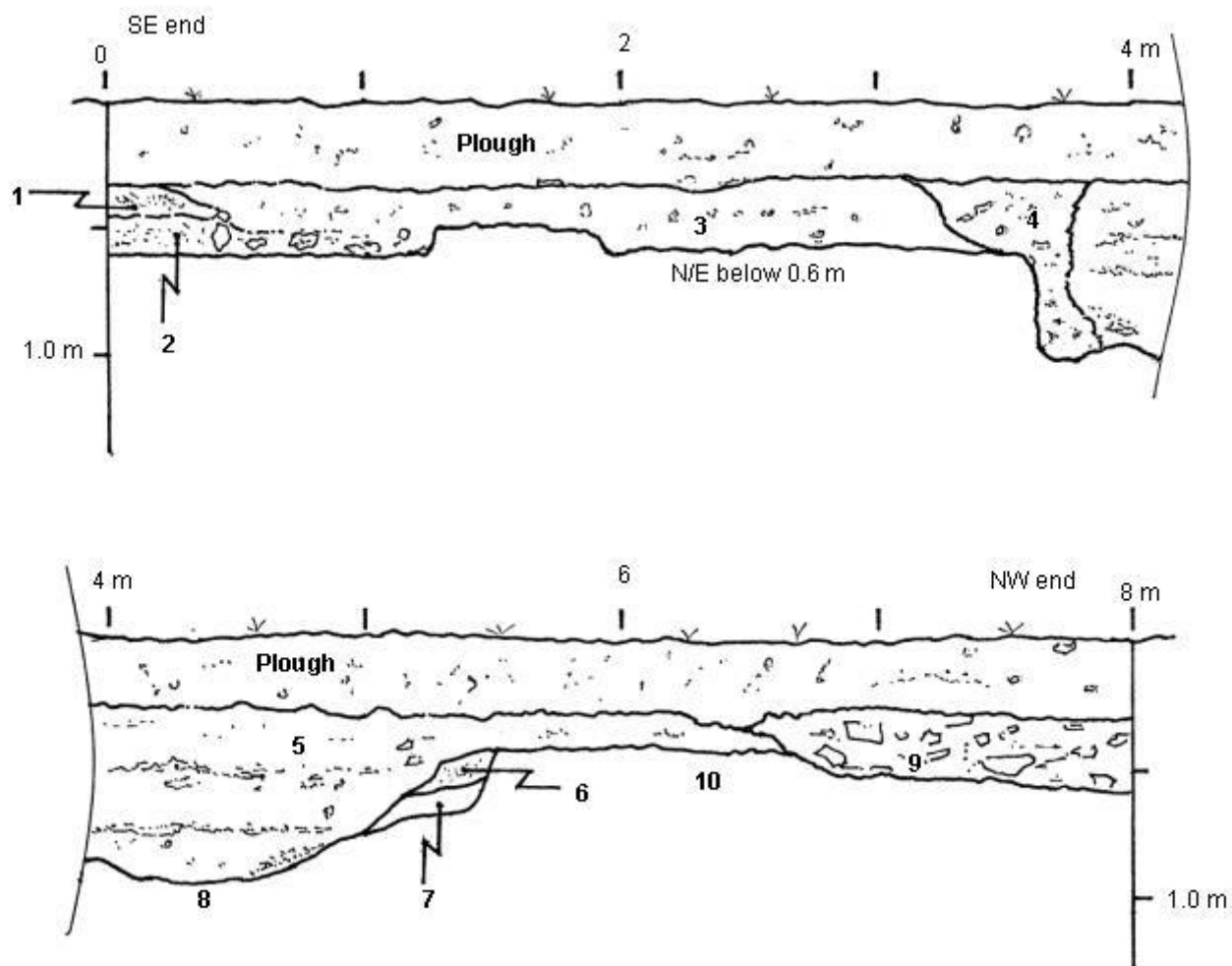
Figure 5 Recovery of glass shards embedded in the compacted chalky surface

A slot [cut 1.05] was dug along the southwestern side of the trench to further investigate the surface. The surface sloped downwards from the northwest until a spread of *opus signinum* was encountered at depth ca. 0.95 metres. When fully revealed, this feature appeared to be a corner of an *opus signinum* floor with raised sides (figure 6). It disappeared into the side of the trench and thus its full extent could not be determined. There was some suggestion that the chalk surface sloping down to the floor level had originally been stepped (refer to section drawing, figure 7). In the northeastern section of cut 1.05 an ashy feature could be seen, which ran into the very corner of the floor, with its southeastern side showing scorching (figure 8). It was uncertain how this had been formed but appears to be an ash-choked channel of some kind that emanates from the hypocaust. In section, small fragments of burnt CBM could be seen intermingled with the ash. A small sondage, 0.40 x 0.35 metres, was dug (position 12, figure 2) and this confirmed the continuation of this feature towards the hypocaust.



- 1 = *Opus signinum* floor
- 2 = Side of floor with flint pebbles incorporated
- 3 = Side of floor with tile fragments incorporated and burning along top
- 4 = Yellow-brown gravel
- 5 = Sloping surface of compacted chalk
- 6 = Floor level measured at 0.33 metres with reference to south datum peg TB10 (TL 45201)

Figure 6 Plan of opus signinum feature in cut [1.05]



- 1 = *Opus signinum*
- 2 = Compacted chalk
- 3 = Yellow-brown fill plus CBM (context 1.01)
- 4 = Brown fill with ash, chalk and CBM
- 5 = Brown fill (context 1.06)
- 6 = Compacted chalk
- 7 = Chalk and gravel
- 8 = *Opus signinum* floor feature
- 9 = Yellow-brown fill with rubble and chalk above a compacted chalk surface
- 10 = Compacted chalk with stones

Figure 7 Southwestern section of trench 1



Red arrow shows the ashy feature running into the corner of the *opus signinum* floor and then along its raised side. The top of the feature was 0.70 metres below ground level.

The edge of the chalky slope can be seen to the left.

Figure 8 Northeastern section of cut [1.05]

A slot [cut 1.04] was dug along the northeastern side of the trench to see whether there were any more remains of the hypocaust. Only a robbed edge, tile debris and a spread of ash were found. The ragged edge of the hypocaust floor (the *pavimentum*) protruded 0.14 metres maximum into trench 1. In section, the floor could be seen sitting on flint foundations at depth 1.05 – 1.08 metres. It showed some evidence of repair and make-up. The ash-filled floor gully (feature 3, figure 2) could also be seen in section in the corner of the cut (figures 9 and 10).

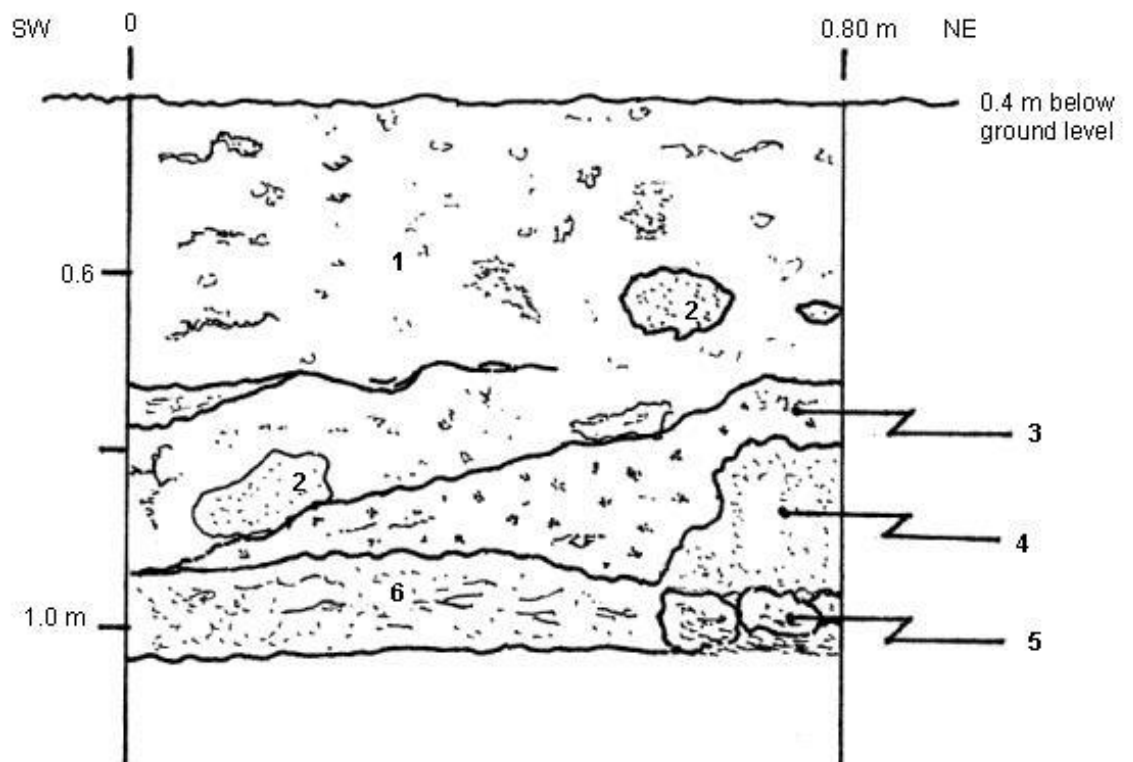


Red arrow shows the level of the hypocaust floor (the *pavimentum*) at depth 0.80 metres below ground level and surveyed as 0.47 metres with reference to south datum peg TB10 (TL 45201 47413)
 Green arrow shows the level of the flint foundations of the floor
 Blue arrow shows the section of the ash-filled floor gully

As seen in 2012, the southeastern end of the hypocaust is marked approximately by the position of the vertical measure.

The edge of the yellow plastic membrane that was used to cover the hypocaust before backfilling the 2012 trench can be seen above the feature.

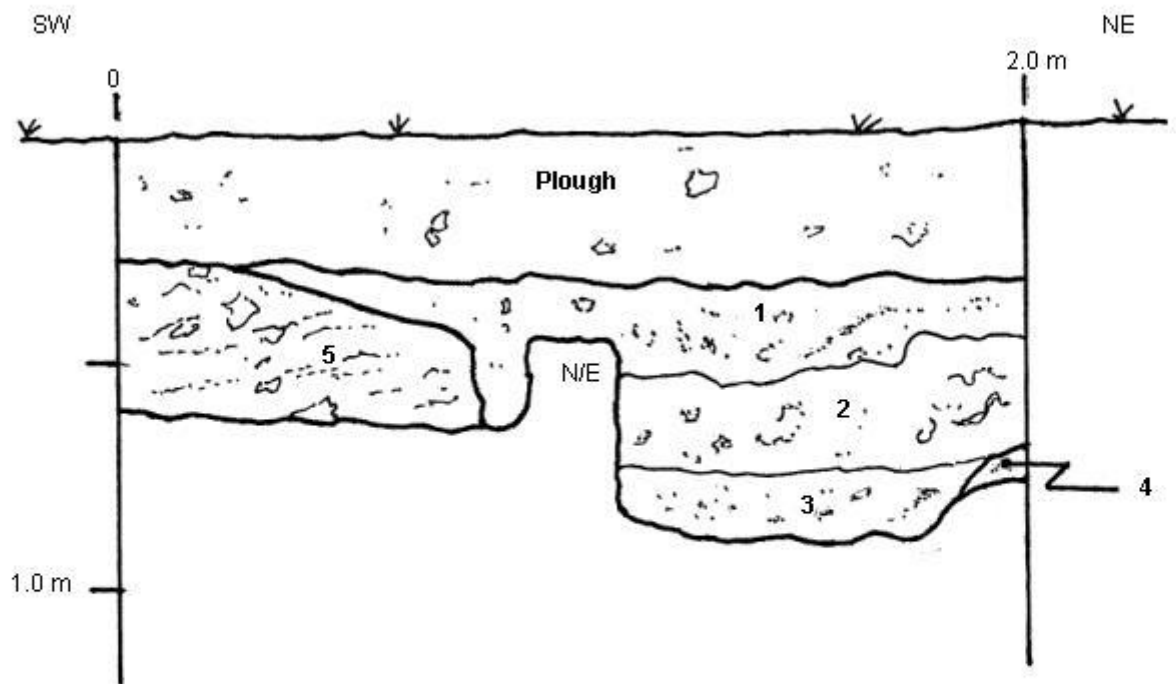
Figure 9 Robbed edge of hypocaust seen in cut [1.04]



- 1 = Brown fill with lenses of debris (context 1.13)
- 2 = *Opus signinum*
- 3 = Ashy layer (context 1.03)
- 4 = Crushed mortar
- 5 = Flint cobble base of hypocaust floor
- 6 = Gravel and crushed mortar

Figure 10 Northwestern section of cut [1.04]

A slot [cut 1.07] was dug at the northwestern end of the trench down to a depth of about 0.95 metres to check for any remains of the hypocaust near to the rectangular *pila* that had been revealed in 2012 (feature 2, figure 2). Only an area of robbing was found. In fact, the ragged edge of the hypocaust floor could be seen in the adjacent trench 2 about 0.3 metres from the *pila*. The section of the northwestern end is shown in figure 11.

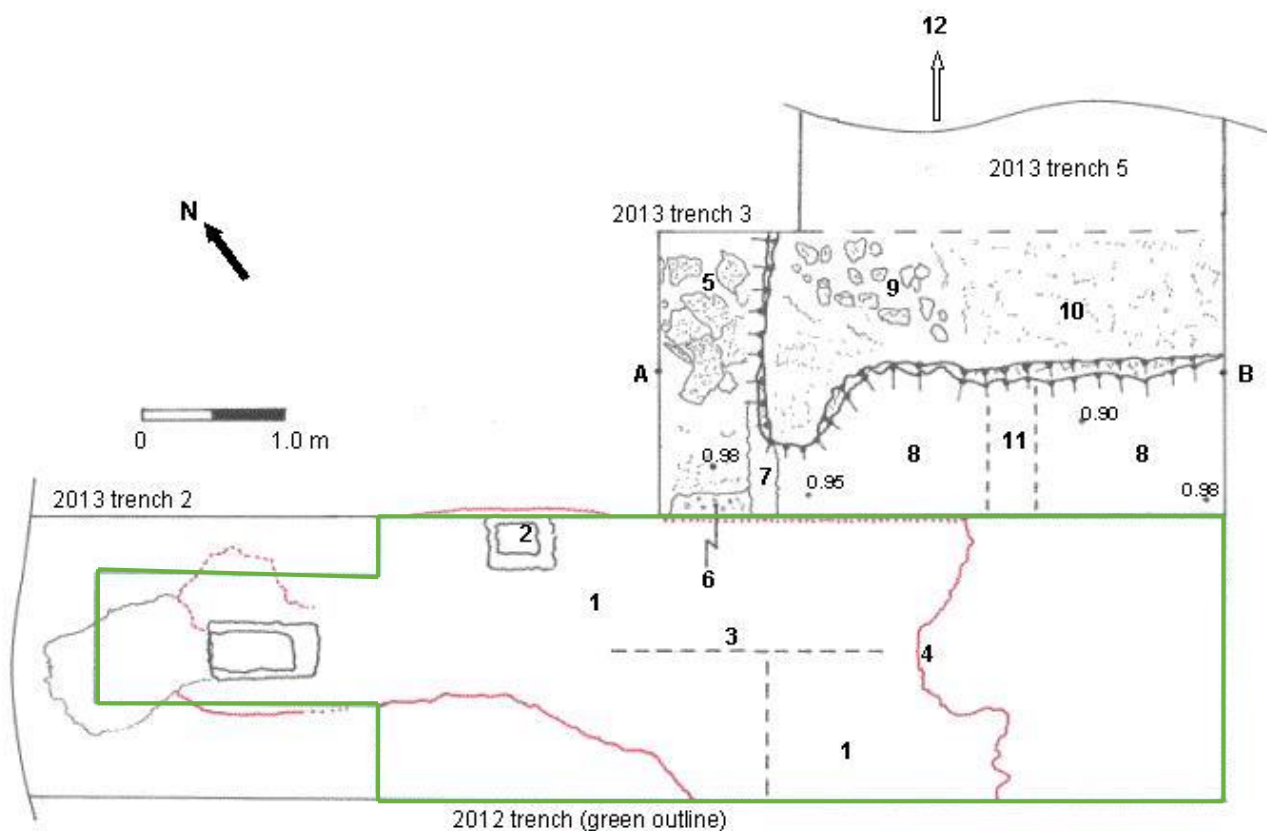


- N/E = Not excavated
- 1 = Yellow-brown fill with chalk lumps and CBM (context 1.01)
- 2 = Brown fill with CBM (context 1.08)
- 3 = Darker brown fill (context 1.10)
- 4 = *Opus signinum*
- 5 = Yellow fill with rubble and chalk lumps above a compacted chalk surface

Figure 11 Northwestern section of trench 1

Trench 3 (size: length 4 metres, width 2 metres)

The trench plan and its relationship to the “hypocaust trench” of 2012 are shown in figure 12.



Red line – robbed edge of hypocaust floor
 . = spot depth, metres

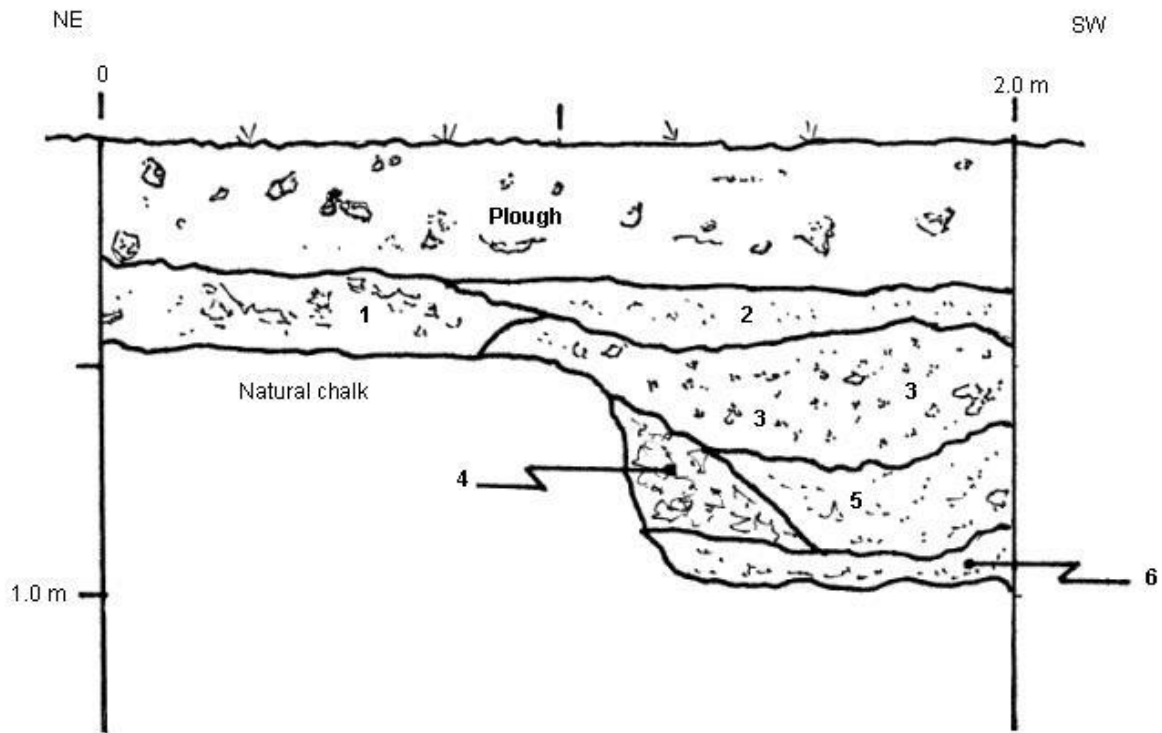
GPS readings:-
 A – TL 45186 47479
 B – TL 45189 47474

- 1 = Surviving area of hypocaust floor
- 2 = *Pila* whose edge was first seen in the southern corner of the 2011 trench
- 3 = Ash-filled gully in floor
- 4 = Grate feature and possible location of stoke hole
- 5 = Broken up floor of mortar, *opus signinum* and *tesserae*
- 6 = Ashy deposit at depth ca. 0.82 metres
- 7 = Gravel and flints
- 8 = Yellow-brown, brown and ashy fills containing CBM and chalk lumps
- 9 = Spread of flint cobbles on chalk
- 10 = Natural chalk at depth ca. 0.45 metres overlain with compacted gravel and chalk
- 11 = Not excavated below 0.65 metres
- 12 = Line of cobbled wall foundation seen in trench 5

Figure 12 Plan of trench 3 and its relationship to the “hypocaust trench”

A hard, compacted chalky surface was soon encountered at depth of about 0.40 metres when cleaning the machined surface back from the southeastern end. A dark, ashy spread of material was also visible (context 3.03). This appeared to be a continuation of the spread seen at the southeastern end of the 2012 trench and which also extended across to the eastern corner of trench 1. Lead waste was recovered in this part of the trench; this is

discussed later (**The finds**). Further fills (principally context 3.07) containing moderate amounts of debris material were excavated below the ashy layer. The section drawing of the southeastern end is given in figure 13.



- 1 = Grey, chalky layer
- 2 = Orange-brown layer (context 3.01)
- 3 = Dark, ashy layer with chalk lumps (context 3.03)
- 4 = Crushed *opus signinum* with chalk lumps
- 5 = Brown layer (context 3.07)
- 6 = Dark brown layer

Figure 13 Southeastern section of trench 3

An abrupt edge to the chalk ran longitudinally down the trench towards the northwestern end and then turned to the northeast. This was most likely a length of the Melbourn Rock outcrop that runs along both sides of the shallow valley of the Hoffer Brook (reference 3). This natural chalk was overlain with packed chalk and gravel forming a hard surface (figure 14).



Figure 14 Hard packed surface (arrowed) overlying natural chalk

Lying on the chalk was a scatter of large to very large flint cobbles (position 9, figure 12). The cobbles continued along the adjacent trench 5 as an organised linear feature, a wall foundation, aligning with the probable stoke hole of the hypocaust (position 4, figure 12).

Between the chalk outcrop and the southwestern side of the trench, fills containing moderate amounts of debris, mainly mortar and *opus signinum* fragments and *tesserae*, but only occasional tile, were excavated down to a depth of about 1 metre. Context numbers 3.01, 3.03 and 3.06 were assigned. No more organised remains of the hypocaust, not even a sidewall, could be seen. However, an ashy feature, possibly an ash-choked channel, was noted in section in the bottom western corner coming from the hypocaust at floor level (feature 6, figure 12 and figure 15). The ashy material continued for a short distance before dipping into gravel. The entrance to this ashy feature had been seen in the 2012 “hypocaust trench” and commented upon (reference 1).

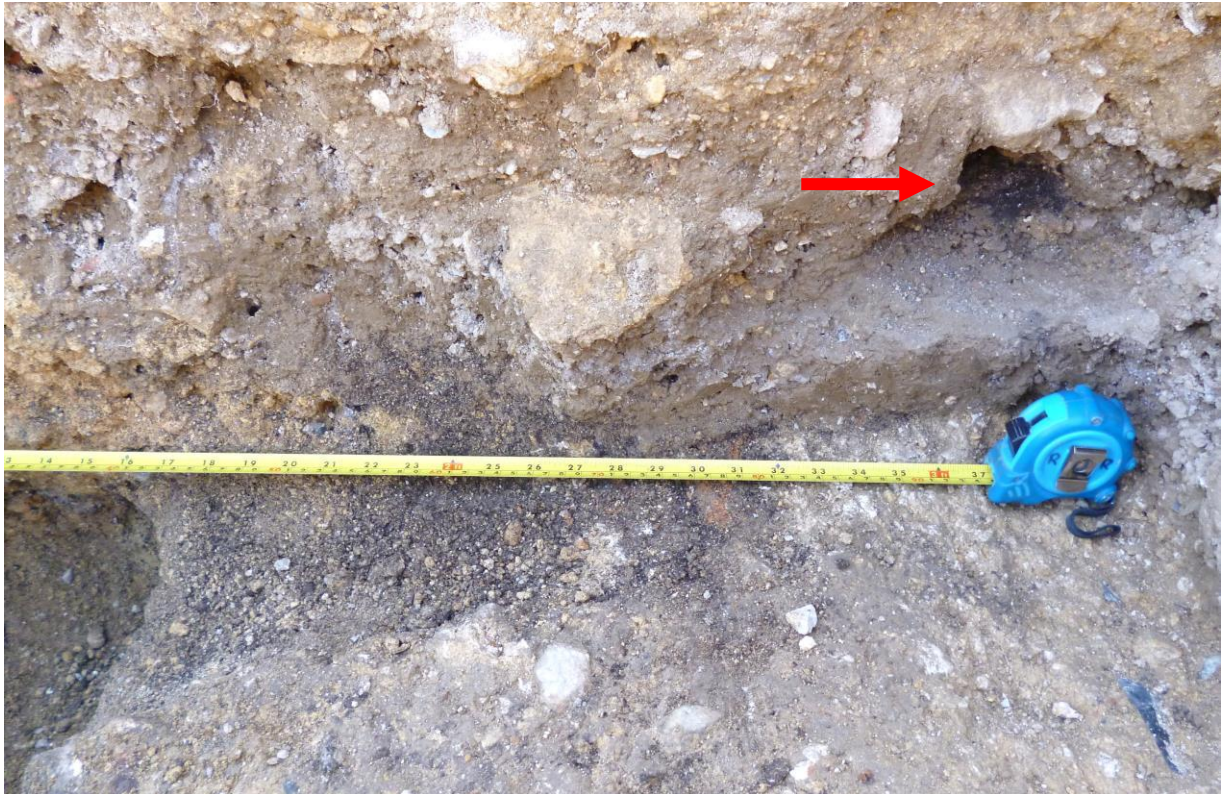
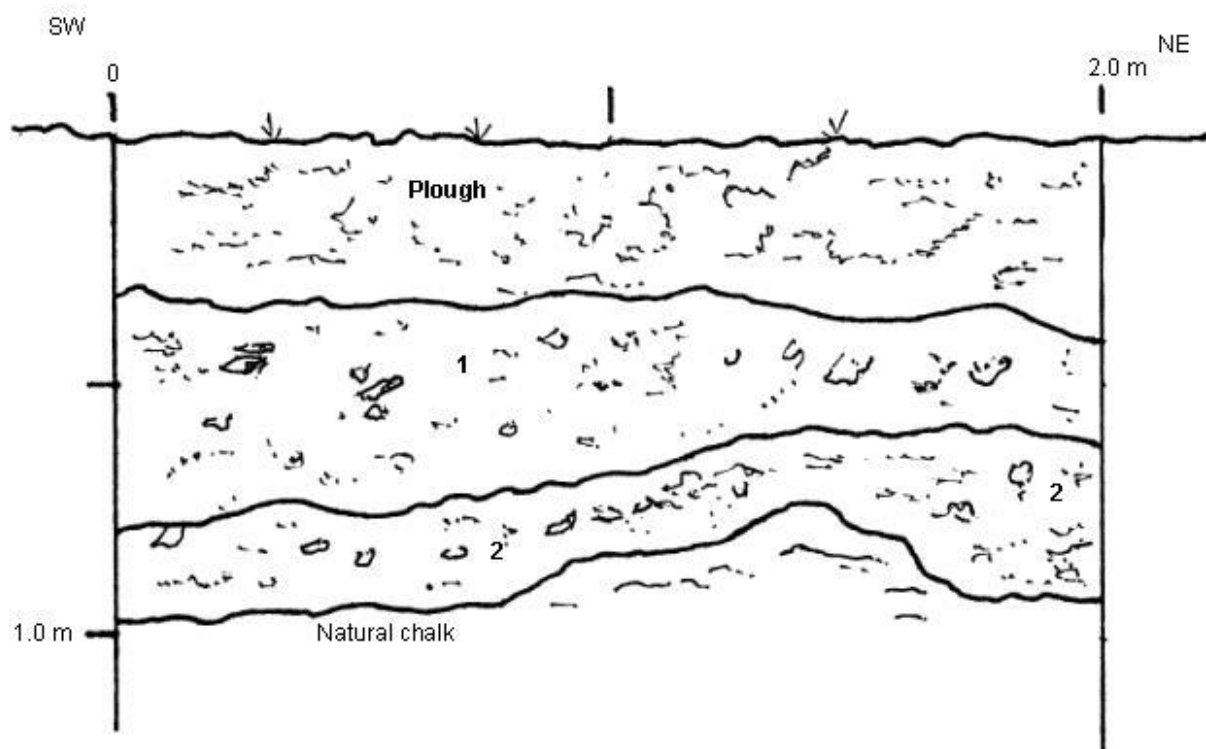


Figure 15 Part of the southwestern section of trench 3 showing the ashy feature (arrowed) emerging from the adjacent hypocaust at floor level

The yellow-brown fill (context 3.01) and below that, the darker brown fill (context 3.06) continued at the northwestern end, between the chalk outcrop and the side of the trench, going down to gravel above natural chalk at a depth of about 1 metre. The section drawing is given in figure 16 and the edge of the chalk outcrop can be seen in the photograph (figure 17).



- | |
|---|
| <p>1 = Yellow-brown layer with CBM/<i>opus signinum</i> and chalk lumps (context 3.01)</p> <p>2 = Darker brown layer with CBM/<i>opus signinum</i> and chalk lumps (context 3.06)</p> |
|---|

Figure 16 Northwestern section of trench 3



Figure 17 View of the northwestern end of trench 3, looking to the northeast. The chalk outcrop is arrowed and some of the excavated floor material can be seen to the left, on the side of the trench

Part of a broken up tessellated floor that had been dumped into context 3.01 was a notable feature at this end (figure 18). A study note on the *tesserae* and the floor structure, contributed by Robert Skeen, is given later in the report (**The finds**). Fragments of painted plaster, predominantly of a greenish-blue hue, were associated with this material. The darker brown layer also yielded *tesserae* and plaster fragments, but at lower concentration. Tile debris throughout trench 3 was rare to occasional, in contrast to the amount from trench 1.



Figure 18 Some of the broken up floor material in trench 3

The finds

Carole Fletcher and Steve Wadeson, both of Oxford Archaeology East, and Sally Cottam of the Association for the History of Glass kindly provided advice during assessment of the various items. The finds from trenches 1 and 3 are summarised in tables 1 and 2, respectively.

Ceramic building material (CBM)

The yellow-brown and brown fills in both trenches yielded moderate to abundant quantities of CBM, including mortar and *opus signinum*. This excavated material was deposited along the sides of the trenches except for *tesserae* and the more unusual construction items that were placed in finds trays. No attempt was made to distinguish between fragments of tile and brick since the tile itself could be as thick as 50 mm, as seen in the “hypocaust trench” of 2012. In particular, the tiles supporting the *pilae* were this thick.

There were notable differences between trenches 1 and 3. Brick/tile, including box flue tile, was abundant in trench 1, but the *tesserae* were few (39). In contrast, 1000 plus *tesserae* were recovered from trench 3, but the amount of brick/tile was very low. The main conclusion drawn is that the heated walls of the building were more likely to have been on the southwestern side of the hypocaust rather than to the northeast where the chalk outcrop lies.

Box flue tile from trench 1 was examined. Wall thickness was 15 to 18 mm. Two main fabric types were noted:- buff-to-orange colour **with** shell inclusion and a harder, orange-red material but **without** shell inclusion. Heat scorching was evident on most pieces. Combed patterns were seen on both main fabric

types, but no scoring or roller relief patterns. Three-, five- and six- toothed combing produced 40 to 45 mm wide tracks of wavy, curved and straight lines (see figure 19). Brodribb (reference 4) records that the number of teeth on a comb ranges from 3 to 24, with an average of 7, giving a track width of 18 to 105 mm, with an average of 37 mm. At least 80 patterns have been identified; with a cross pattern the commonest. The implication is that box flue tile had been sourced from at least two production sites over whatever construction and re-construction episodes that occurred.



Cross pattern on shell tempered tile fabric



Wavy pattern on shell tempered tile fabric



Straight and curved line pattern on hard red tile fabric

Figure 19 Examples of box flue tile patterns

A fragment of an angled moulding with a dark red painted plaster finish was a more unusual find from trench 3 (figure 20). This may have come from a niche or window surround in the fabric of the building. Trench 1 yielded an eroded fragment that may have been part of an antefix roof tile.



Figure 20 Fragment of angled moulding from trench 3

The broken up floor material and *tesserae* from the northwestern end of trench 3 are discussed in the following note prepared by Robert Skeen:-

A scattering of *tesserae* is present throughout the site but some 1000+ were found within an area of 1.4 x 0.75 metres at the northwestern end of the trench. They were in close association with what appeared to be large *opus signinum* floor fragments that had been tipped into the context, although no *tesserae* were found attached to these fragments.

Two main sizes were found: the 'large' are on average 25 mm square while the 'small' are on average 15 mm square. 15 mm appears to be a fairly typical size for decorative mosaic pieces (reference 5). Their main characteristics are as follows:

'Large' tesserae

- Some 400+ were found (1600 are required to cover 1 square metre). Most are single pieces but there are also blocks of up to 7 connected pieces (figure 22(a))

- All pieces are red and are made from broken tile. Some were found with 'small' white *tesserae* attached (figure 22(b)).

'Small' tesserae

- Some 600+ pieces were found (4444 are required to cover 1 square metre). About half were single but there were many blocks of up to 8 connected pieces (figures 23 and 24)
- They were of three colours: red, white and blue/black. The majority were red: the overall proportion of colours is shown in the chart below

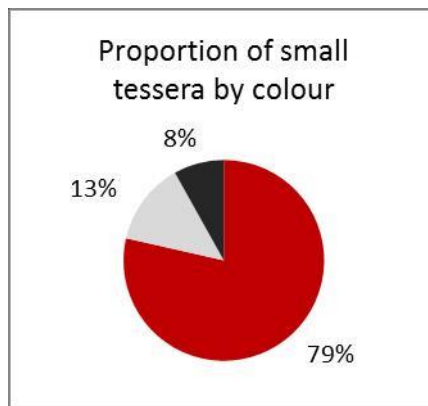


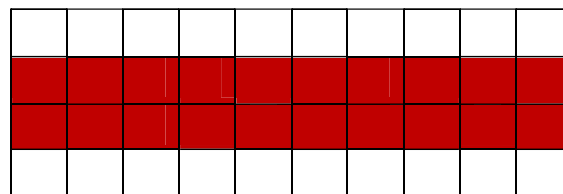
Figure 21

- The red is made of broken tile, the white appears to be hard chalk and the material of the blue/black *tesserae* has yet to be determined.

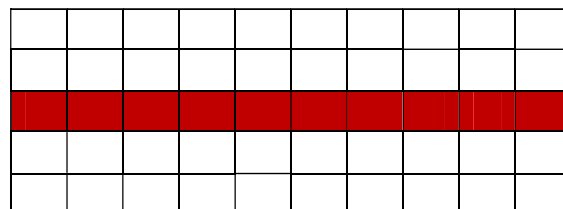
All

- The great majority, especially the 'small' *tesserae*, show signs of having been covered with mortar to the extent that in many cases their colour/pattern is only visible from the underside (figure 23(a))
- The degree of adhesion between *tesserae* was very poor and it is only the mortar overlay that has kept some of the fragments joined together
- Occasionally the original grouting is visible; some of this appears to have a dark bluish surface colouring.

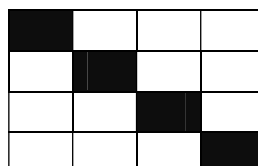
As noted above, many of the 'small' *tesserae* are still connected together and some blocks indicate a particular patterning. The most common connections suggest a white/red/red/white frize motif thus:



A few suggest a variation with a single red line (figure 24(a)):



The connected tiles show simple linear connections between *tesserae* of different colours. None show the sort of diagonal colour changes illustrated below which would be evident in, say, simple chequer or meander designs such as those in Fulleston villa or Cirencester (e.g. reference 6, figures 31, 49 and 50).



There are also blocks of 'small' red *tesserae* with no colour changes. A few show black/red connections (figure 24(b)) and three blocks suggest that there may be a curved element in the design (figure 25) – although this may be simply the result of poor construction.

Floor material

The flooring on which the *tesserae* appear to have been laid consists of *opus signinum* laid over a mortar and gravel base (figures 26 and 27). This lies close to the hypocaust excavated in 2012 and could possibly be the overlying floor from this part of the building. However, the rough mortar and gravel base underlying the *opus signinum* suggests that the floor may have been laid directly on soil, rather than on a tile base.

Possible interpretation

It appears that most mosaics in Britain were laid in one of two main phases. The first was between ca. AD 150 to 200. The craft then seems to have lapsed completely, certainly between AD 230 and 270. The second phase occurred in the later 3rd century and early 4th century when there was considerable redevelopment and enlargement of buildings (reference 7).

Whereas second century mosaics were predominantly geometric, the reverse was the case in the 4th century. Second century mosaics were more soundly bedded than later examples and were laid on mortar or *opus signinum* (reference 8). Guy de la Bedoyere notes that tessellated floors were fairly common in the first century and were normally either uniformly laid or of simple geometric patterns (reference 9).

The excavated material appears to be:

- Essentially geometric in pattern - perhaps a border surrounding blocks of large *tesserae*
- Bedded on *opus signinum* laid over a mortar base
- Simple in style, using only the classic primary mosaic colours
- Subject to some rebuilding or redecoration at a later phase, although the floor seems to have remained intact – the overlying mortar does not extend around the fragments but appears to have been broken along with them. It is interesting to note that fragments of painted wall plaster found in the same context also show signs of redecoration, with mortar partly covering the original surface.

These points suggest the following interpretation:

- A mosaic floor laid in the 1st or 2nd century

- Then subject to subsequent renovation or redecoration which involved some overlay but not destruction
- Finally being broken up (date(s) uncertain) and used as fill.



(a)



(b)

Figure 22 (a) Blocks of large tesserae and (b) large and small tesserae connected



(a)



(b)

Figure 23 (a) Linear pattern – underside and (b) linear pattern – top side



(a)



(b)

Figure 24 (a) Single red line and (b) black/red combinations



Figure 25 Possible non-linear shapes



Figure 26 Surface of opus signinum



(a)



(b)

Figure 27 (a) Mortar on underside of opus signinum and (b) side view of opus signinum



Figure 28 An arrangement of some tesserae

So far unique for the site, a single, small *tessera* that had been fashioned from samian pot was found in trench 1 (figure 29).



Figure 29 The “samian pot tessera” from trench 1

Pot Sherds

The pottery recovered was generally unremarkable and in low quantities (totals of 180 grams from trench 1 and 304 grams from trench 3). The two largest pieces were both from trench 3:-

- A mortarium rim sherd with missing flange; possibly Hadham ware
- A rim sherd of a large pot; black-slipped and burnished of Horningsea ware type, 2nd to 3rd century (figure 30).

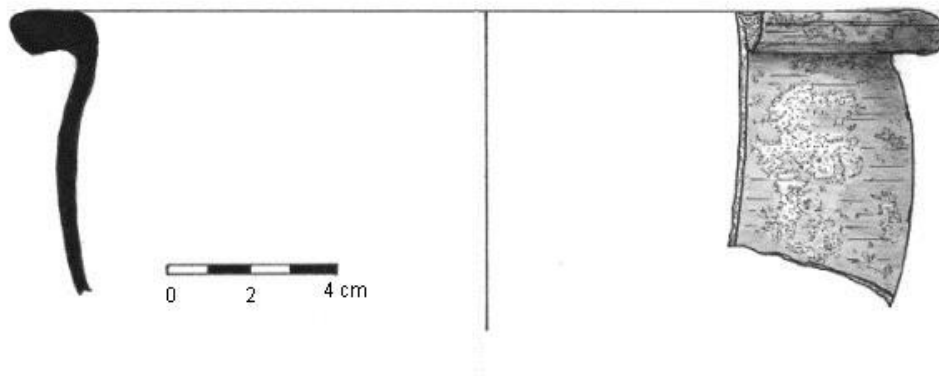


Figure 30 Black-slipped and burnished pot from trench 3

The compacted surface (context 1.11) in trench 1 yielded a sherd of German stoneware (Frechen ware, 1550 to 1700) from a small, thin-walled beaker (figure 31). This was considered to be a diagnostic piece because it implies that the surface, some 0.4 metres below current ground level and also below plough soil, had been exposed during this period, and possibly into the 19th century.



Figure 31 Frechen ware pot from trench 1

Glass

Single shards of what has been considered as Roman window glass have been found across the site, but the high concentration found in trench 1 was a surprise. The shards, which were embedded in the compacted chalky surface (figure 5), were washed and dried. The total area of glass was calculated to be about 1460 cm² by weighing and measuring the area of a sample of shards. This equates to a nominal 38 cm square. There were twenty-two edge shards, making a total edge length of 0.549 metres. Edges have a rounded profile. With such a low proportion of edge shards, the amount of glass recovered does not constitute complete windowpanes. The assemblage appeared to comprise shards in three subtle shades, very pale yellow-green, pale blue-green and very pale blue (figures 32 and 33):-

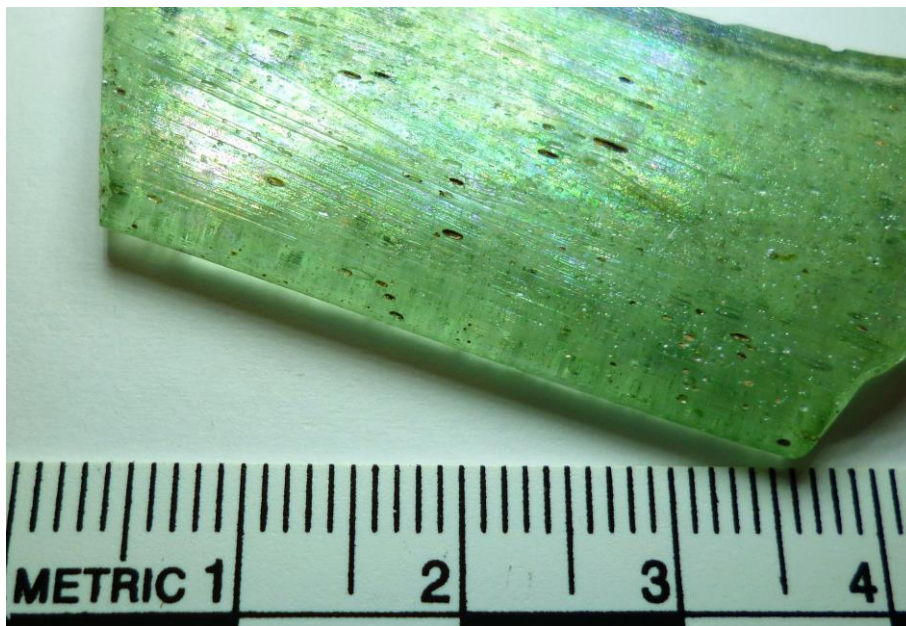
- Very pale yellow-green – typically 1 to 2 mm thick with edge pieces (8) up to 3.5 mm thick; profuse inclusions of elongated bubbles plus black specks; 218 pieces weighed 299 grams
- Pale blue-green – typically 2 to 3 mm thick with edge pieces (10) up to 5 mm thick; profuse inclusions of elongated bubbles plus some black specks; 203 pieces weighed 315 grams
- Very pale blue – typically 1 to 2 mm thick with edge pieces (4) up to 3 mm thick; fewer bubbles; 119 pieces weighed 116 grams

Staff at Oxford Archaeology East examined some samples and their initial assessment was that the glass was more likely to be post-medieval in date, and made by the cylinder (or muff) process, than Roman glass. Samples were sent to Sally Cottam of the Association for the History of Glass and thence were examined at their glass study day in November 2013. Both Sally Cottam

and glass specialist Professor Jennifer Price declared that the samples were 4th century Roman. Late Roman window glass, in contrast to the earlier cast glass of the 1st and 2nd centuries, was also manufactured by the cylinder process whereby a cylinder of glass was blown, slit longitudinally and then flattened.



(a)



(b)

Figure 32 Glass shards from trench 1 – (a) from left to right, shades of very pale yellow-green, pale blue-green and very pale blue and (b) detail of an edge shard with included bubbles and black specks



Figure 33 Assemblage of the pale blue-green shards

With this confident assessment by the Association, one possible scenario that might account for this concentration is:-

- Windows were installed during a refurbishment of the building in the 4th century. The panes varied in shade, having been blown from different chunks of imported raw glass
- Robbing and ruination of the building followed
- Some of the broken window glass was gathered up and left on the floor surface that was still exposed until the early 19th century during one of the site levelling and destruction events.

Coins

Four coins were found by metal detecting the spoil heaps of trenches 1 and 3.

A silver denarius of Divus Antoninus Pius (AD 161) had been probably lost in the last quarter of the 2nd century, judging from the degree of wear (figure 34). This provided more dating evidence for the origins of the building.

The images and inscription on a small, corroded bronze coin were just

sufficiently visible to permit its identification. It is a bronze unit of Cunobelinus, the Hound of (sun god) Belenus, (AD 10 to 41) who ruled over the Catuvellauni and Trinovantes. Better examples of the type show a butting/kneeling bull and the inscription TROCC on the reverse (figure 35). The bull is an image of sacrifice and a symbolic emphasis on the *Pax Romana*. This type is classified as extremely rare, with less than fifteen recorded. TROCC may be short for Troccos, meaning something like “crippled”, who was perhaps an associate of Cunobelinus (reference 10). Ian Leins, Keeper of Iron Age and Roman Coins at the British Museum, endorsed the identification and advised that this is the first coin of the type to be recorded for Cambridgeshire. The coin pre-dates the Roman building. Of note here is the speculation that the tumuli, known as the Chronicle Hills, which once stood nearby, and whose exact location remains an enigma, could have been Iron Age in date (reference 3).

Two small, badly corroded coins are probably 4th century Roman AE bronze issues judging from their size alone.



Obverse



Reverse – *CONSECRATIO*

Figure 34 AR denarius of Divus Antoninus Pius, AD 161, Spink 498 and R.I.C. 436



Figure 35 (top) Bronze unit of Cunobelinus, AD 10 – 41, from the spoil heap of trench 1 and (bottom) a better example from Chris Rudd List 104 – head left, CVNO in front, ringed pellet by neck, beaded border / bull butting right, tail raised, beaded ring above, trefoil behind with pellet above and below, TROCC and ringed pellet below. Spink 341.

Lead

As in 2012, significant quantities of waste lead in the form of irregular lumps from melting processes were found. Metal detecting yielded 1.67 kg from the spoil heap of trench 1 and 0.43 kg from the spoil heap of trench 3. In addition, 0.49 kg was recovered while excavating the southeastern end of trench 1 and 0.36 kg from trench 3. George Maynard made passing comment on having seen a length of lead pipe (refer previously to the transcript of his notes). As speculated upon in the 2012 report (reference 1), perhaps there had been a piped (hot?) water system, with the lead piping ripped out and melted down sometime after the hypocaust went out of use. The ashy layers at the southeastern ends of trenches 1 and 3 may relate to this lead recovery activity, or be just the result of raking out from the hypocaust stoke hole. Intriguingly, three short lengths of lead strip, weighing 30, 19 and 6 grams, were found in the trenches. Each piece had been pierced by a nail, with the rust staining still visible and had been cut with shears. Two of the pieces are shown in figure 36. It is conceivable that each piece had been part of a securing strap for lead pipe. The straps had thus been sheared off to release the pipe for melting down, leaving a short length still nailed down to some foundation. Figure 37 shows an example of pipe strapping from Pompeii.



Figure 36 Perforated lead strip – (top) from trench 1 and (bottom) from trench 3



Figure 37 An example of lead pipe strapping from Pompeii (image downloaded from flickr)

Other finds

The quantity of painted plaster was relatively small compared with other areas of this site; trench 1 with 26 small pieces and trench 3 with 48 small pieces. As seen before, there was some evidence of re-coating. Some fragments have colour banding and hints of patterning. More unusual blue-green shades occur on fragments from trench 3. The colours are recorded in the finds tables. Some examples of these features are shown in figure 38.

Only small amounts of bone, occurring as fragments in a generally poor state of preservation, and oyster shell were found, suggesting that trenches 1 and 3 were not in an area of domestic activity.

A small, iron turn key came out of trench 1 (context 1.03). Although very corroded, there is some suggestion of an end knob that indicates it is of Roman date (figure 39 and reference 11). A few nails were found; 4 from trench 1 and 6 from trench 3.

Some residual flint flakes were found; 6 from trench 1 and 4 from trench 3. There was one possible scraper (figure 40) and the other pieces were unremarkable, being rough or cortical flakes. A single, heat-crazed pebble was recovered from trench 3 (figure 41).



Figure 38 Examples of painted plaster fragments from trench 3 – (top left and right) traces of banding and patterning, (top centre) re-coated white plaster and (bottom) blue-green shades



Figure 39 Iron (turn) key

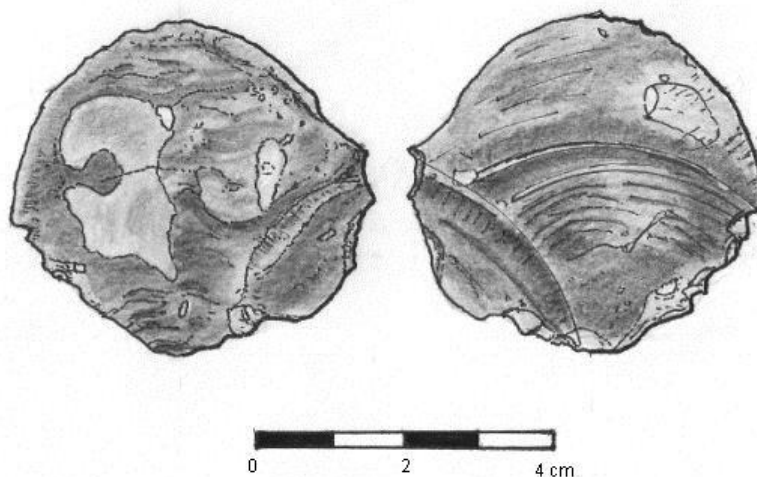


Figure 40 Flint scraper from trench 1 – (left) ventral view and (right) dorsal view



Figure 41 Heat-crazed pebble

Concluding discussion – surrounds of the hypocaust

It was quite by chance that the placement of the “hypocaust trench” of 2012 was such that it contained essentially all that remained of this structure. No more *pilae* were to be found in trenches 1 and 3 (and trench 2). In trench 1, a narrow strip of the robbed edge of the floor could be seen and no trace remained of any of the retaining wall along the southwestern side of the hypocaust. Likewise in trench 3 no trace remained of the northeastern sidewall. However, it is now possible to deduce the maximum dimensions of the hypocaust. It had been a relatively small and narrow structure. Its maximum length, as measured from the postulated stoke hole at the southeastern end to the point at which the ashy spread on the floor petered out beyond the final *pila* at the northwestern end (as viewed in trench 2), was 6.2 metres. The width is a little more difficult to estimate. The bounds can be taken as the edge of the chalk outcrop seen in trench 3 and the features seen in trench 1. Some allowance needs to be made for the gaps between these bounds and the (missing) sidewalls of the hypocaust. A width of no more than 3 metres can be envisaged. This structure had been built immediately to the southwest of the Melbourn Rock outcrop on the lower chalk and gravel of the shallow valley of the Hoffer Brook (reference 3). This is fully in accord with George Maynard’s recollections. He mentions the site-levelling event of 1818 and the extensive remains still visible to him when he was a young lad, which would have been in the 1840s. The inference must be that further substantial

destruction of the site continued beyond the 1840s, noting there is no hint of any upstanding structures in his 1877 watercolour.

George Maynard also recorded that the foundations and floors were “covered by a layer of mould about two feet thick”. It seems that he must have examined the holes that had been dug for the proprietor. Darker brown layers were encountered below yellow-brown layers in parts of both trenches (for example, context 1.08 in trench 1 and context 3.06 in trench 3). These darker layers could equate to this “layer of mould”, which perhaps accumulated gradually. The yellow-brown layers above were more friable and loose in nature, suggesting rapid accumulation during the destructions and levelling of the 19th century.

Unfortunately the organised archaeology found in trenches 1 and 3 was sparse after 1600 years or so of decay and destruction since the abandonment of the hypocaust and surrounding buildings. Only a few discussion points about the general layout of this area can reasonably be made without recourse to unfounded speculation.

1. From the northeast, the remains of a wall could be seen in trench 5 and this aligns with the presumed stoke hole at about 2.3 metres from the southeastern end of the 2012 trench (feature 4, figure 2). The remains of this wall in trench 3 were less obvious, being a scatter of flint cobbles on the chalk surface (feature 9, figure 12). Presumably this had been an outer wall, at least near the hypocaust.
2. As previously observed in the note on the broken up floor in trench 3, it was unlikely to have lain, when intact, on the capping above the *pedalis* tiles of the hypocaust. It was more likely to have lain at (Roman) ground level around the hypocaust, possibly on top of the compacted chalk surface. A similar surface at the same general depth was seen along the southwestern side of trench 1, with the addition of an *opus signinum* “make-up” layer on top at the southeastern end. The surfaces continued to the southeast and southwest as they can be seen in the sections of trenches 1 and 3. These surfaces may have been the foundations for tessellated floors that, in George Maynard’s words, “extended a long way about”. It is also possible that a post-Roman chalky layer had been laid down over earlier surfaces in some areas. Some indication of this can be seen in figure 14.
3. Assessment of how the hypocaust supplied heat to its surrounds is hampered by the lack of surviving structure along its flanks. The abundance of box flue tile fragments in trench 1 suggests that the heated areas above the hypocaust extended to the southwest rather than the northeast. Two ashy features leading outwards from just above hypocaust floor (*pavimentum*) level, which itself was covered with a layer of ash, on the southwestern side and one on the northeastern side also provide a clue to some kind of central heating system. One of

these features fed into the corner of the *opus signinum* floor structure that was at a level just below that of the hypocaust floor. The evidence is tenuous but was this part of a hot bath? The possibility of a lead-piped hot water system was mooted in the 2012 report (reference 1). George Maynard again provides some supporting evidence as he remembered seeing “.... part of a bath with a length of lead pipe from the bottom to convey the water away.” Significant amounts of lead waste were again found this year plus the short lengths of perforated strip (for pipe strapping?).

4. The flat glass found in quantity in trench 1 indicates that the building in the fourth century had been glazed, providing further evidence for its wealth.

In Taylor and Arbon's conclusions about the Chronicle Hills (reference 3) they pondered on the evidence for a major Roman building complex in the valley bottom. The possibility that buildings comprised a spa, bathing complex and religious site connected with the worship of water deities rather than a villa, which would have been in an unsuitable, damp location, was discussed. This excavation, as well as excavations in 2009-2012, has provided evidence that certainly does not conflict with this interpretation. However, the sequence and timescales of decay, destruction, infilling and levelling must remain largely speculative.

Site Code: NW13

Trench: 01

Contexts: 1.01 (fill below plough soil) and 1.02 (fill below plough soil at SE end)

Pot		Tesserae	Plaster, No.	Other/Notes
No.	Weight, g			
				Context 1.01
9	53	9 large	7 small frags.,	pot – 7 grey (1 base, 60 mm diam.); 1 orange (rim frag.); 1 white glaze
		1 small	white + 1 pink	1 flint flake
				1 lead strip, pierced, 19 g
				shards of flat, pale green glass, total weight + 730 g
				Context 1.02
4	32	5 large	1 green	pot – 2 grey; 1 orange; 1 buff
				1 small sandstone pebble, possible whetstone?
				1 charcoal

Table 1 Finds from trench 1 – pot rim and base diameters were determined by measuring sherds against a chart

Site Code: NW13

Trench: 01

Contexts: 1.03 (ashy fill in cut 1.04) and 1.06 (fill of cut 1.05)

Pot		Tesserae	Plaster, No.	Other/Notes
No.	Weight, g			
				Context 1.03
2	15	4 large	7 off white	pot – 2 grey
			3 red/orange	1 clinched nail
				1 corroded iron key, 56 mm long
				1 small piece of lead waste
				Context 1.06
9	34	7 large	8 white	pot – 1 grey; 4 orange; 4 buff
		2 small		2 nails
				4 flint flakes
				3 flat glass – 2 v. pale yellow-green, 1 pale blue
				2 plaster fragments with traces of red and grey pattern on white

Table 1 (continued)

Site Code: NW13

Trench: 01

Contexts: 1.10 (a fill of cut 1.07), 1.11 (a fill at SE end)
and 1.13 (a fill of cut 1.04)

Pot		Tesserae	Plaster, No.	Other/Notes
No.	Weight g			
				Context 1.10
4	32	5 large		pot – 2 grey (1 rim with rustication, 180 mm diam.); 1 Nene Valley;
				1 mortarium rim/lip fragment
				Context 1.11
1	2	2 large		pot – salt glazed Frechen stoneware
				1 flint flake
				1 bone fragment
				lead waste, 488 g
				Context 1.13
2	12	3 large		pot – 2 grey
			1 small	small <i>tessera</i> fashioned from samian pot
				1 tile fragment bonded to <i>opus signinum</i>
				1 possible antefix roof tile fragment, 72 by 55 mm, in poor condition
				1 nail

Table 1 (continued)

Site Code: NW13

Trench: 03

Contexts: 3.03 (ashy fill at SE end) and 3.07 (lower fill at SE end)

Pot		Tesserae	Plaster, No.	Other/Notes
No.	Weight g			
				Context 3.03
2	13			pot – 1 shelly; 1 orange
				lead waste, 212 g
				Context 3.07
8	54	1 large	20	pot – 2 samian, spalled; 3 grey; 2 orange; 1 red with black/white slip
				plaster frags. – 9 white; 1 pink; 2 red/white; 7 red; 1 white/black
				1 oyster shell

Table 2 Finds from trench 3 – pot rim and base diameters were determined by measuring sherds against a chart

Site Code: NW13

Trench: 03

Contexts: 3.01 (debris layer below plough soil at NW end and along SW side)

Pot		Tesserae	Plaster, No.	Other/Notes
No.	Weight, g			
15	113	400+ large	17	pot – 8 grey (2 rim, one with diam. 130 mm); 1 buff; 1 Nene Valley;
		600+ small		1 imitation samian; 3 orange; 1 spalled brown core
				plaster – blue-green; pale green; grey-blue; dark red and orange fragments
				3 fired clay fragments
				1 angled plaster moulding, 57 mm long
				11 bone fragments, 5 oyster shell
				3 flint flakes
				1 pale green glass shard
				3 nail
				1 perforated lead strip, 30 g; lead waste, 148 g

Table 2 (continued)

Site Code: NW13

Trench: 03

Context: 3.06 (dark brown fill at NW end and along SW side)

Pot		Tesserae	Plaster, No.	Other/Notes
No.	Weight, g			
9	184	41 large	11	pot – 6 grey (1 rim, 140 mm diam.); 1 imitation samian;
		19 small		1 mortarium (rim with fractured flange, 340 mm diam., buff with black grits);
	g			1 black slipped and burnished (rim diam. 220 mm)
				plaster fragments – 8 blue-green; 1 orange-white; 2 white
				1 bone fragment; 3 oyster shell
				1 heat-crazed spherical pebble, 20 mm diameter
				1 <i>tegula</i> fragment (possible <i>tegula mammata</i>), 65 mm max. length
				1 flint flake
				waste lead, 50 g

*Table 2 (continued)***References**

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