David George Bird

ASHTEAD COMMON, SURREY (ENGLAND): ROMAN TILEWORKS

The modern administrative county of Surrey lies to the south and west of London, although the historic county once extended right up to the bank of the River Thames, opposite the city. It has mostly poor soils but is well suited to growing trees; indeed even today, after many years of urban development pressures, it is the most wooded county in England. Not surprisingly therefore, the county is not particularly well known for major sites of the Roman period, although there have been discoveries of national importance.[1] The aim of this note is to draw attention to the recent discovery of a Roman tile kiln with features that seem to be very unusual survivals, and the opportunity is taken to note some of the more interesting products of the tilery.

The Ashtead Common Roman villa and tileworks is about 30 km from Roman London near the road from London to Chichester (**fig. 1**). The villa was first excavated in the 1920s by A. W. G. Lowther and A. R. Cotton, when extensive evidence for a tilery was also noted.[2] Further work was carried out in the 1960s, of particular importance for an overall site survey by John Hampton when the site had much less vegetation cover than is now the case.[3] Lowther's published reports left many unanswered questions and more were raised by Hampton's survey. A new research programme was therefore initiated in 2006, directed by the author for Surrey Archaeological Society.[4] Fieldwork was completed in 2013; post-excavation work is in progress and therefore it is not yet possible to offer closer dating of some aspects of the site. A considerable amount of unpublished information has been gathered about the earlier excavations (detailed press reports, photographs, lecture notes, some site notes and finds held in museums) which will also aid in the re-interpretation of the site.

Ashtead Common is a National Nature Reserve which places restrictions on archaeological work. For example, excavation is not permitted within 7 m of veteran trees or in areas of special plants or at certain times of year. Much of the site is dense woodland and the heavy London Clay also causes considerable difficulties during excavation as the ground always seems to be either rock hard or half under water. Parts of the archaeological site are protected as Scheduled Monuments which also restricts excavation in places.

What is now known about the site can be summed up as follows (**fig. 1**). Not far to the west of the villa found by Lowther, the ditches and ramparts of a triangular earthwork enclosure can still be seen (internal measurement approximately 1.45 ha). Detailed survey by English Heritage[5] suggested that there had been several periods of use and this was confirmed by an excavated section of the defences in 2011 which showed at least three phases, the second of which can be dated by pottery to around the middle of the 1st century AD. Between the earthwork and Lowther's villa, excavation in 2010–2013 revealed what is probably a 'proto-villa' of the later 1st century. The previously-known villa to the east was also tested and it was established that it had been preceded by a chalk-floored structure on a different footprint, perhaps to be associated with the 'proto-villa'. The villa building itself has now been shown to have several phases, the last of which (starting probably in the late 2nd century) seems to have involved extensions to each side, the addition of an elaborate drainage system and the raising of the floor level overall by around 300 mm. In the 1920s, to the south of this building, a separate bath-house was found, notable for a circular *laconicum*, which is very unusual for a Romano-British villa site.[6]

Although widespread evidence for tile-making was noted in the 1920s, no details were recorded. Hampton was able to demonstrate that most of the evidence for the tilery lay east of Lowther's villa, beyond an enclosure wall. He plotted a very large clay pit and several smaller ones; a radiocarbon date was obtained more recently that served to confirm a Roman date for the main pit.[7] Concentrations of tile debris were also identified which Hampton thought might be the former locations of tile clamps, which he called K1, K2, etc. He excavated parts of K3 which proved to have a jumble of layers of burnt and unburnt

1 For an overview: D. Bird, Roman Surrey (Stroud 2004).

2 Lowther 1927, 153; id. 1929, 1; id. 1930, 132.

3 J. N. Hampton, Roman Ashtead. In: A. A. Jackson (ed.), Ashtead, a village transformed (Leatherhead 1977) fig. 2, 30. John Hampton has kindly made available his unpublished survey and excavation records.

4 For short interim notes see P. Booth, Roman Britain in 2013, I, Sites explored, 9, southern counties. Britannia 45, 2014, 384–395 esp. 389–390, and previous years cited there. The excavation was carried out entirely with volunteers, mostly from Surrey Archaeological Society. I am particularly grateful to Nikki Cowlard and Alan Hall for their help with this paper. A comprehensive report on all aspects of the excavation is in preparation for volume 100 of Surrey Archaeological Collections.

5 D. McOmish/S. Newsome, Ashtead Common, Leatherhead, Surrey. Survey and investigation of an earthwork enclosure. English Heritage Research Dep. Report Ser. 37/2007 (London 2007).

6 D. Perring, The Roman house in Britain (Abingdon 2002) 175.

7 M. Waller, Ashtead Common, the evolution of a cultural landscape: a spatially precise vegetation record for the last 2000 years from southeast England. The Holocene 20/5, 2010, 733–746 esp. 741.

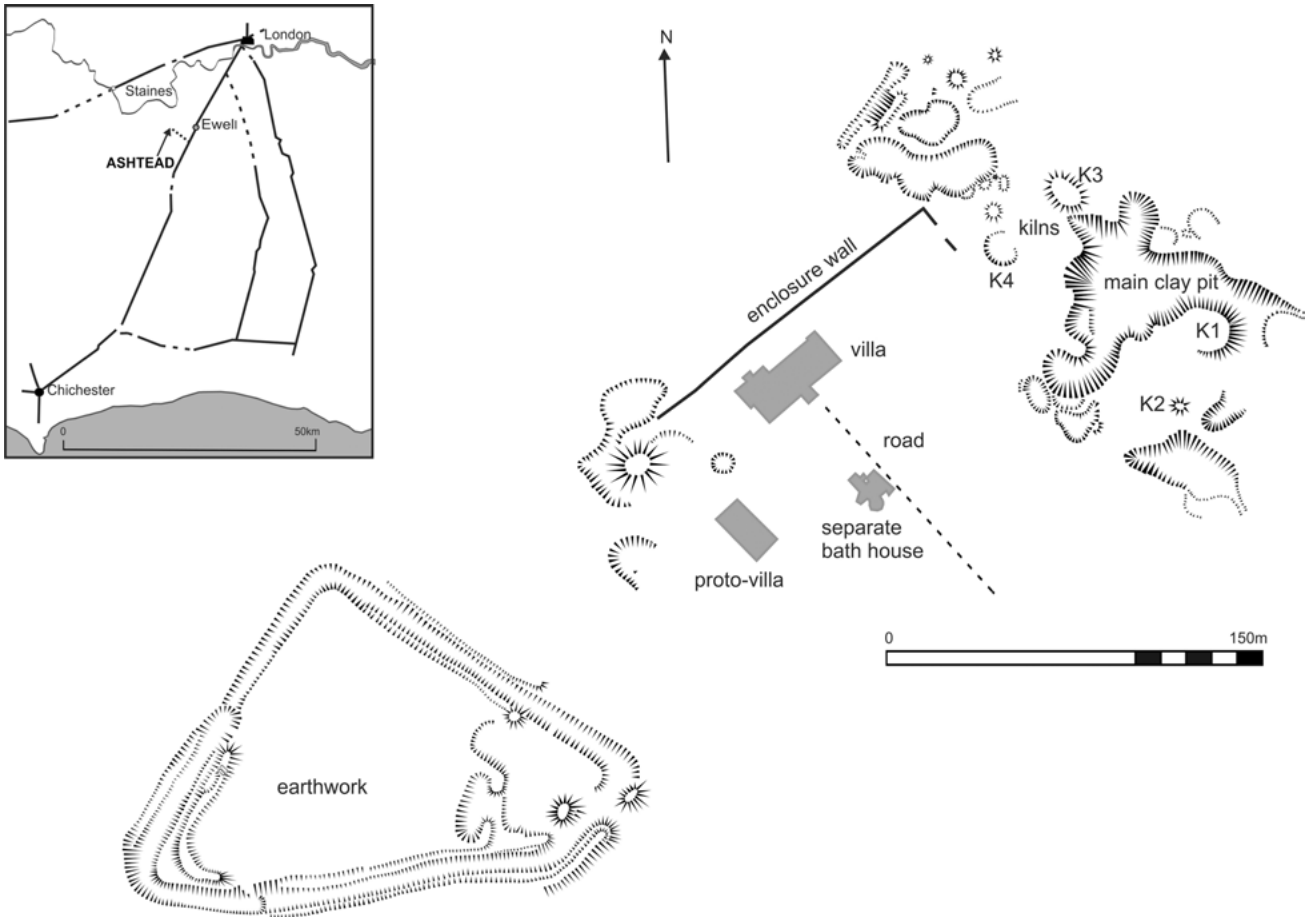

Fig. 1. Location plan and overall plan of site (illustration: Alan Hall).

clay, charcoal lenses, tile wasters, pottery and other rubbish. It is probable that the 'K' features should be understood as waster heaps. Study of the pottery from K3 suggests that some of it was being made on or very near the site; work is in progress on this newly identified local industry.

The vegetation cover makes geophysical surveying difficult but it was possible to examine an area close to the west side of the main clay pit and the results suggested a possible kiln site close to K3.[8] Excavation was carried out in three-week periods over several seasons, restricted by nature conservation and other requirements so that it was never possible to see the whole kiln at the same time, or to examine all parts of the kiln and its stokehole. Some areas were covered in terram and partially reopened in subsequent seasons to undertake further work. Most of the structure was however recorded and found to be a large two-period rectangular kiln measuring about 3m × 3.5m internally with its stokehole to the east on the edge of the clay pit (**fig. 2**). The central flue extended for about 1.6m from the front of the kiln towards the stokehole which was fronted by retaining walls on either side. It was not possible to excavate the entire stokehole on either side or towards the clay pit but some of the area around the kiln could be examined.

The first kiln was set into a rectangular pit with outer walls constructed of tile fragments. These were made by using large pieces with straight edges to define the outer edges of the wall, the core then being filled up with other fragments. Eight inclined side flues were made by covering the area with tiles and leaving appropriate gaps as the height grew from inside to outside – the walls dividing the flues were not built completely free-standing. The flues were then packed up as necessary, using small tile fragments and clay to make the inclines. The central flue walls were composed of flat tiles which may have been laid green as they often seemed to curve and buckle in vertical sequences. Some areas were extensively heat damaged and the walls had been rebuilt in places. Where it was tested by excavation the fill of the central flue included several interleaved layers of charcoal and burnt clay and this together with the repairs to the walls suggests a long period of use.

The first-period kiln was eventually demolished to about the level of the springing of the arches across the central flue and a new kiln was raised on top. New side walls for the central flue were built up from tile fragments set on a thin layer of clay on the base provided by the earlier walls, with a straight edge along the side of the flue but only a rough edge on the other side (**fig. 3**). There was an obvious join and a ledge in places along the central flue (**figs. 4; 7**), which seems to have been backfilled with burnt clay and broken

[8] R. Cole/C. Meaton, A detailed topographical and geophysical survey of Ashtead Common, Surrey. Unpublished Archaeology South-East Report no. 2008025 (Portslade, Brighton 2008) 8.

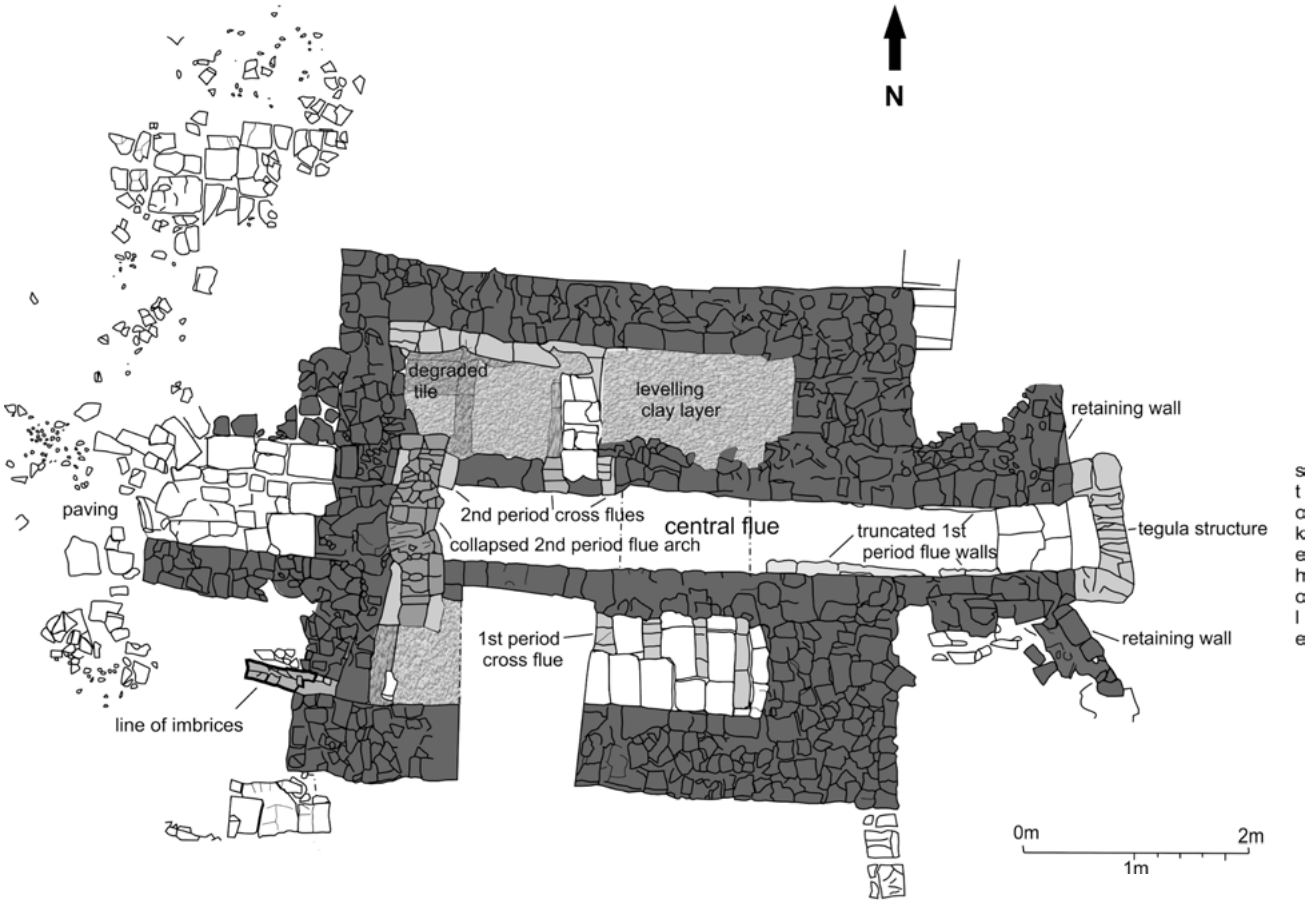

Fig. 2. Composite plan of the tile kiln (illustration: Nikki Cowlard).

Fig. 3. Part of the kiln seen from the south. The scale poles lie mostly on the yellow clay fill over the northern side chamber of the first-period kiln. To the left of this can be seen the remnants of the later tiled base over the clay and parts of two of the second-period inclined flues. In the foreground the yellow clay fill has been removed from the southern side chamber revealing the filled-in remnants of the first-period inclined flues. The second-period central flue wall can be seen built over them. The front and side walls of the kiln are also visible (photograph: David Bird).

Fig. 4. Overhead view of most of the kiln, with south at the top. The red end of the right-hand scale pole rests on the remnants of a side flue wall of the second-period kiln. Part of the *tegula* structure can be seen on the left at the end of the central flue and a collapsed flue arch is visible at the right-hand end of the flue just inside the back wall of the kiln. This collapsed arch also appears on **fig. 5** (photograph: Alan Hall).

Fig. 5. Overhead view of the rear of the kiln, with west at the top. The collapsed flue arch is visible in the centre foreground at the end of the central flue, just inside the back wall of the kiln. The tiled approach to the kiln, with its two flanking walls, can be seen, continuing the line of the central flue. The line of *imbrices* laid through the wall can be seen at the south-west corner (photograph: Stella Fagg).

Fig. 6. Detailed view of the *tegula* structure, with the tile that bridged the central gap restored to its original position (photograph: David Bird).

tile to about the level of this ledge to form a new base for the flue, thus covering the surviving open ends of the original side flues. The latter and the remains of the earlier side chambers were packed up with clean yellow clay against the back of the new central flue side walls and tiles were laid on this clay to make a base for free-standing walls forming the sides of eight new inclined flues. Evidence for these side flues only survived towards the back of the kiln but the measurements indicate the likely number. Part of the collapsed arch that once carried the side flue wall nearest the back of the kiln over the central flue had survived (**figs. 4–5**).

A tiled approach was identified leading up to the back of the kiln and exactly continuing the line of the central flue (**figs. 2; 5**). It was probably associated with the earlier kiln and was presumably intended to facilitate loading and unloading. Only a few parallels have been noted so far but see for example Eccles (Kent) and Heiligenberg kiln 1.[9] Groups of tiles were found laid flat near to the outside of each corner of the kiln. They varied considerably in number and the way they were laid but as none were noted elsewhere it is suggested that they served to support large posts for a cover structure. The variations could be explained by differential ground, the need to make up for some rotting of a post or the use of replacement posts. If such a structure existed it would probably have continued over the extended flue and stokehole, but this could not be tested by excavation as the relevant areas were not available.

Archaeomagnetic dating indicates that the last firing of the second-period kiln took place between AD 205 and 225

[9] A. McWhirr, Tile-kilns in Roman Britain. In: A. McWhirr (ed.), Roman brick and tile. BAR Internat. Ser. 68 (Oxford 1979) 97–189 esp. 157–158; F. Le Ny, Les fours de tuiliers gallo-romains. Méthodologie; étude technologique, typologique et statistique; chronologie. Doc. Arch. Française 12 (Paris 1988) 77 fig. 38, 98.

Fig. 7. The front of the kiln seen from the east. The *tegula* structure is in the foreground, butting up against the front of the central flue and the two wing walls that delimit the front of the stokehole. A prominent ledge along the left side of the central flue marks the join between the first- and second-period walls. The kiln's front walls can be seen in the background, and a small part of the kiln proper (photograph: Stella Fagg).

Fig. 8. Detail of the line of *imbrices* laid through the back corner of the kiln, seen from outside the kiln (photograph: Stella Fagg).

(at 95% confidence).[10] As elements of the first-period kiln had been sealed by the unburnt yellow clay packing, it was hoped that it would be possible to obtain a separate date for the last use of that kiln but in the event the date obtained was to all intents and purposes the same (although this could in theory mask a difference of a decade or more). It is possible therefore that both kiln and villa were rebuilt at a higher level at about the same date in the late 2nd century, the kiln perhaps gaining a cover building and the villa being given an elaborate new drainage system. This may suggest a period of unusually wet weather, perhaps a factor in the abandonment of the whole site at some time in the early 3rd century. The area can be very difficult today in wet weather.

A structure at the stokehole end of the first-period central flue probably survived because of the raising of the kiln; it was below the level of the base of the second-period central flue. The first flue had been closed by *tegulae* placed on end (with their cut-outs at the top) to continue the line of the flue walls into the stokehole (**figs. 6–7**). There were 10 on the south side and 11 on the north and then others had been placed between them, leaving a small central gap, with seven *tegulae* to the south and six to the north. The central gap had been bridged by a horizontal tile. Part of this tile had collapsed into the gap but its broken edges could be matched exactly with other fragments still *in situ* on each side. There were other tiles laid horizontally in a rough pattern around the top of the *tegula* structure but it is not clear how the extension was covered beyond the permanent flue arch as it did not survive high enough. It is assumed that the structure was intended to facilitate control of the air flow once the desired firing temperature had been reached, and that it would normally have been removed after each firing in preparation for the next.

The central gap in the block was presumably controlled using a cover, perhaps another *tegula*,[11] to make it possible to judge the state of the fire and to permit more or less air to enter the kiln.[12] No close parallels for the *tegula* structure are known to the author[13] but a tile kiln at Hartfield in Sussex, close to the Surrey border, had a vertical stack of *tegulae* on one side of the flue arch. David Rudling postulated that they might have been part of a structure for closing the flue[14] and it could well be that the Ashtead example shows how this would have been done. No doubt close analysis of other kilns will provide examples of features more damaged than

[10] M. Noel, Ashtead Roman villa, Ashtead Common, Surrey. Archaeomagnetic analysis of a Roman tile kiln. Scientific dating report, 2011. English Heritage Research Dep. Report Ser. 80/2011 (London 2011).

[11] For a *tegula* found in just such a position on a pottery kiln at Asse, Belgium and similar features at Mainz-Weisenau see T. Clerbault, Een inleiding tot de Gallo-Romeinse pottenbakkersovens in Gallia Belgica en Germania Inferior: inventaris, spreiding en morfololgie (Unpublished masters thesis Univ. Gent 2010) 99–100 fig 45 (see: www.lib.ugent.be/).

[12] A photograph of the firing of a reconstructed Roman kiln at Flintsbach (Lkr. Deggendorf), based on the excavated example at Essenbach (Lkr. Landshut) in Germany, shows how this might have looked in practice; note also the loose bricks forming a temporary extension of the flue (U. Brandl/E. Federhofer, Ton und Technik. Römische Ziegel. Schr. Limesmus. Aalen 61 [Aalen 2010] 37). When visiting a modern gas-fired tile kiln near Cranleigh, Surrey, the writer was assured that it was their practice to block up the loading entrance (here at the front of the kiln) with bricks and clay but to leave one brick free to allow the kiln master to remove it to judge the colour of the fire, using this technique even in the 21st century, with gas-fired heating.

[13] I am grateful to Dr Tim Clerbault for discussion about possible parallels for the Ashtead *tegula* structure.

[14] D. R. Rudling, The excavation of a Roman tilery on Great Cansiron Farm, Hartfield, East Sussex. Britannia 17, 1986, 191–230 (198 and plate 15B).

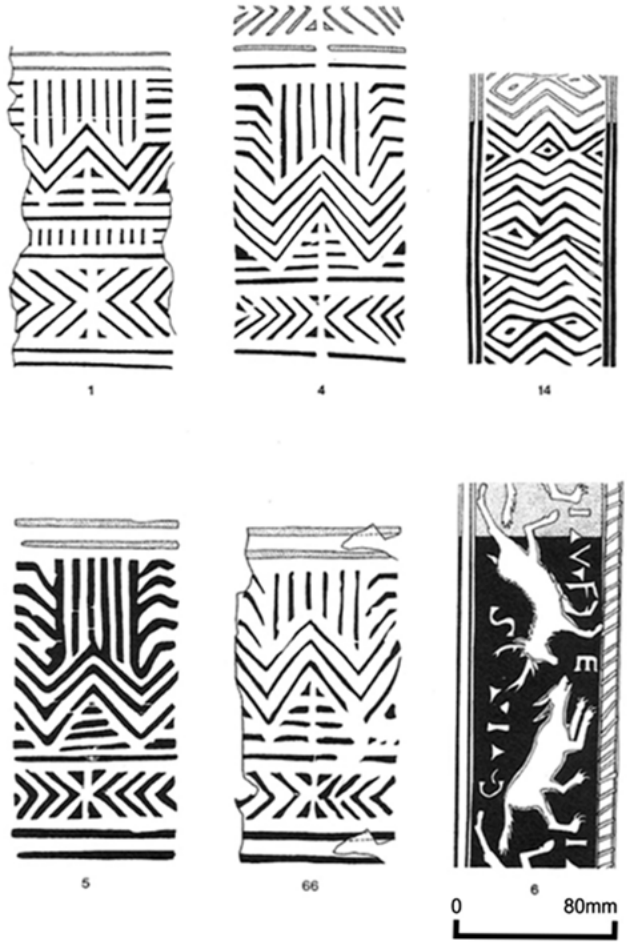

Fig. 9. The six die patterns used on box flue tiles made at Ashtead. Each tile required more than one pass with the roller (see the effect on the box tile shown on **fig. 10** for example). After Betts et al. 1994, *passim* (illustration: Alan Hall and David Bird).

at Ashtead that could now be interpreted as all that survived of similar structures.

Another aspect of airflow control was also found at Ashtead. At one of the back corners of the kiln a line of *imbrices*, burnt on the inside, was found laid through the wall (**figs. 2; 8**). It is probable that there was once a similar structure at the opposite corner but that did not survive to a sufficiently high level. The aim must have been to provide small vents to draw the fire right through the kiln to its very back corners. It is probable that the vents were just above the top of the floor level of the first-period kiln, to judge by the angle of the surviving inclined side flues.

It is not possible to be specific about the products of the kiln itself. Tile wasters in the fill of the central flue and in the levels over the kiln included floor tiles, *tegulae*, *imbrices* and box tiles but there is a great deal of tile debris scattered across a wide area and allowance must be made for rubbish being dumped from elsewhere. The nearby waster and rubbish heap 'K3' could be related to use of the kiln; it had standard tiles as well as combed and relief-patterned box tiles, particularly those of die 1 (see below). The deep pit in trench 23 just to the west may also have been filled with waste material from this kiln; it held very little pottery (apart from a face pot; see below) but a great deal of burnt material and tile wasters, mostly floor and roof tile but including combed and relief-patterned box tiles including dies 1 and 5.

The overall site has a great many fragments of box tiles patterned by combing or by the use of a roller stamp. The latter technique is mostly confined to SE England.[15] Six patterns are known to have been made at Ashtead, one (die 6) with well-produced lettering with serifs and stops around a finely-realised dog and a stag (**fig. 9**). The letters are usually interpreted as G(aius) I(ulius) S(…) and I(ulius) V(…) FE(cit). A. W. G. Lowther, the original excavator, made a study of the relief patterns used in Roman Britain, which was updated in 1994.[16] It remains difficult to provide close dating for these patterns but the majority are thought to be of the 2nd century.

One probably unique product of the Ashtead tilery was a box tile to which a clay 'fishtail' had been attached at the top (**fig. 10**). This was used to bind the tiles into the wall (although it was probably not very successful in a building

[15] It is of interest in this regard to note the suggestion that box voussoir tiles were invented in SE England in the 1st century AD: L. C. Lancaster, A new vaulting technique for early baths in Sussex: the anatomy of a Romano-British invention. Journal Roman Arch. 25, 2012, 419–440.

[16] A. W. G. Lowther, A study of the patterns on Roman flue-tiles and their distribution. Surrey Arch. Soc. Research Paper 1, 1948 [but undated]; Betts et al. 1994.

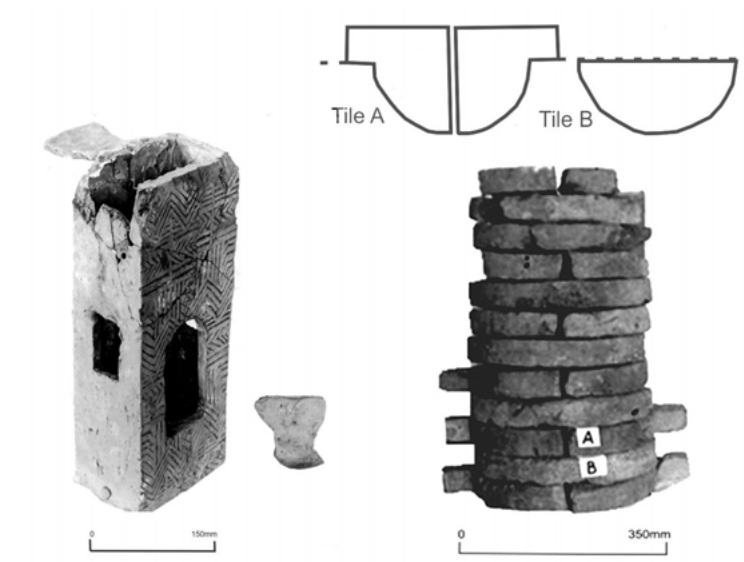

Fig. 10. Left: a box flue tile with round-headed front cut-out. Two 'fishtails' are shown, one restored to its original position at the top of the back of the box tile. Right: tiles made and used to create attached half columns, reconstructed from individual site finds, and sketch to show how they fitted together. Illustration made from prints of photographs of the 1920s, courtesy of Surrey Archaeological Society. Not all of these tiles are now available. After Lowther 1929 pl. IV, and unpublished but see Lowther 1929 pl. III (replacement metric scales added and photographs cleaned up by Alan Hall).

on clay!). Some of these tiles had a round-headed cut-out in the front (made before firing) which is also very unusual. They were used in a room of the villa at the site which was completely lined with box tiles starting from the very base of the hypocaust. As a consequence it was necessary to provide an entrance into the front of the tile to allow access for the hot air. Another unusual tile was used to make attached columns (**fig. 10**). A quarter-round tile, with a lug intended to be built into the wall face, was matched to a second and then topped by a semi-circular tile and so on up the wall. A number of chimney pots (so-called 'lamp chimneys') were also produced at Ashtead.[17]

The main clay pit at Ashtead is very large and together with finds from the site indicates that there was large-scale production of tiles of many different types. It is however difficult at present to track the distribution of the products. As the site is on London Clay, which covers a large area around London, the fabric is not easy to distinguish from tiles made elsewhere in the region. It is possible to trace the distribution of tiles having the same relief-pattern dies, but it is often suggested that the roller may have travelled with an expert tile-maker from one production site to another rather than the tiles coming from one production centre. A programme of analysis using inductively-coupled plasma spectrometry is in progress in an attempt to resolve some of these questions.[18]

The circular *laconicum* in the separate bath house at Ashtead and several aspects of the finds suggest a probable link to the military community and the discovery in 2013 of the face pot noted above reinforces this suggestion. It was probably placed in a ritual offering connected with a request, or thanks, for a successful firing of the kiln. The late Gillian Braithwaite commented that both face pots and *tazze* seem to have been 'closely associated with the army and the military community in the western provinces.'[19] *Tazze* had already been found at Ashtead in the 1920s.[20] Perhaps G.I.S was an ex-military man with experience of tile-making.

davidgeorgebird@ntlworld.com

[17] A. W. G. Lowther, Romano-British chimney pots and finials. Ant. Journal 56, 1976, 35–48 [prepared for the press by F. H. Thompson].

[18] In collaboration with Dr Michael Hughes and Dr Ian Betts.

[19] G. Braithwaite, Faces from the past: a study of Roman face pots from Italy and the western provinces of the Roman Empire. BAR Internat. Ser. 1651 (Oxford 2007) 255.

[20] See for example Lowther 1929, pl. Vb, opposite 8.

Bibliography

Betts et al. 1994	I. Betts/E. W. Black/J. Gower, A corpus of relief-patterned tiles in Roman Britain. Journal Roman Pottery Stud. 7 (Oxford 1994).
Lowther 1927	A. W. G. Lowther, Excavations at Ashtead, Surrey. Surrey Arch. Collect. 37/2, 1927, 144–163.
Lowther 1929	Id., Excavations at Ashtead Surrey. Second report (1927 and 1928). Surrey Arch. Collect. 38/1, 1929, 1–17.
Lowther 1930	Id., Excavations at Ashtead, Surrey. Third report (1929). Surrey Arch. Collect. 38/2, 1930, 132–148.