Channel Tunnel Rail Link
Union Railways (South) Limited

Project Area 420

THURNHAM ROMAN VILLA, THURNHAM, KENT
ARC THM 98

DETAILED ARCHAEOLOGICAL WORKS ASSESSMENT REPORT FINAL

Prepared By **Date:**	**S. Lawrence**
Checked By: **Date:**	**S. Foreman**
Approved By: **Position:** **Date:**	**A. Dodd**

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Oxford Archaeological Unit
Janus House
Osney Mead
Oxford OX2 0ES

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SUMMARY

Thurnham Roman Villa and Honeyhills Wood

As part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL), the Oxford Archaeological Unit were commissioned by Union Railways (South) Limited to undertake detailed excavation of the site of Thurnham Roman Villa (SAM KE 299) to the south-west of Thurnham village, near Maidstone, Kent. Also included within this assessment are all previous works at Thurnham Villa, works within the limits of Honeyhills Wood, a watching brief Significant Discovery Individual (WB SDI) at Hockers Lane, and the watching briefs from chainage 62+200 to chainage 66+350 in CTRL Project Area 420. The work at the Scheduled Ancient Monument of Thurnham Villa was carried out in accordance with the terms of a Deed on Heritage (Ancient Monuments) from the Secretary of State, under the terms of the CTRL Act 1996.

The excavation of Thurnham Villa (SAM KE 299) and its immediate surroundings uncovered evidence for a sequence of Late Iron Age and Roman occupation from the 1st century BC to the early 5th century AD. Much of the evidence was concentrated within the area of the Scheduled Ancient Monument at the north-western end of the site. The watching brief SDI at Hockers Lane revealed evidence of further, contemporary occupation. In summary, the following dated occupation sequence has been established:

- the creation of a waterhole at the Thurnham Villa site in the Middle Bronze Age, in which a special deposit of metalwork may have been placed, and probable prehistoric activity of uncertain date in the vicinity in the form of a cremation and a number of pits containing burnt flint and charcoal
- a probable hiatus in occupation during the Late Bronze Age and Early-Mid Iron Age on the site at Thurnham Villa, with slight hints of Middle Iron Age occupation at Hockers Lane
- the establishment of permanent settlement on the Thurnham Villa site in the Late Iron Age, in association with tree clearance; a Late Iron Age enclosure at Hockers Lane and further occupation 500m to the north-west
- the levelling of the Late Iron Age enclosure ditches at Thurnham Villa and the construction of a romanised house and probable temple in the mid 1st century AD; the abandonment of the enclosure at Hockers Lane; continuing occupation 500m to the north-west of Hockers Lane
- the development of the Thurnham Villa site during the 2nd and possibly early 3rd century into a Roman villa complex with trackway access from the east, comprising a main house rebuilt in stone, with an attached bath house, a probable temple, an aisled building and a probable agricultural building, with accompanying wells and external surfaces; occupation continuing north-west of Hockers Lane, until at least the early 2nd century
- a substantial decline in the scale of occupation at Thurnham Villa from the mid 3rd century
- iron smithing within a central room of the main Villa building during the later 3rd century
- probable continuing lower-level activity at Thurnham Villa during the 4th century, evidenced by a corn-drier, an oven and the restoration of a well
- the abandonment of the Thurnham Villa site in the early 5th century
- a hiatus in occupation during the Anglo-Saxon period
- the re-establishment of occupation, probably at Corbier Hall (SAM KE 309), at some point between the late 11th and 13th centuries
- sparse evidence for land divisions in the post-medieval period.

Assessments have been carried out for all classes of stratigraphic, artefactual and environmental evidence. There is excellent potential to refine and confirm this sequence of occupation, the plan of the complex at different phases of its life, and the dating of these phases of activity. Stratigraphy was well preserved over much of the site, and good excavated sequences demonstrate the processes of construction, occupation and destruction. Closely datable stratified material is present in many finds assemblages, and more detailed analysis of datable material present in important contexts should help to resolve existing uncertainties.

The evidence for the transition between the Iron Age and Romano-British periods at Thurnham has significant potential for further study. The early date at which the transition seems to have occurred at Thurnham, and the evidence for the direct substitution of a romanised for a non-romanised complex, make the site of particular interest. The additional data from Hockers Lane will allow the evidence of contemporary neighbouring romanised and non-romanised sites to be considered together.

The recovery of evidence for the full extent of successive complexes, rather than simply for the main house is still comparatively unusual for villa excavations and increases the importance of the site. The excavated evidence has the potential to show how and when the main villa house was modified and extended, and how and when subsidiary buildings were added to the complex. Good stratigraphic data exist for identifying both the types of buildings and features present on the site, and the presence of functional zones characterised by features such as hearths, ovens and working surfaces. The specialist contributors have identified potential within the finds and environmental assemblages to supplement this information from the study of finds distributions across the site, the presence of materials such as plaster and tile in building debris, and concentrations of plant remains in features such as the corn-drier and the oven in the aisled building.

Specialists have emphasised the need for studies of patterns of contact and trade to be undertaken on an inter-site basis wherever possible, allowing the Thurnham assemblages to be seen in the context of trading systems and supply sources evidenced at other sites.

There is considerable potential within the environmental assemblages to consider the evidence for the cereal economy of the region, and to determine the contemporaneous local environment of the villa. Evidence of arable activity and animal husbandry and of the procurement and working of naturally occurring resources such as iron, stone and wood is well represented. However the poor preservation of most of the animal bone limits the potential of this assemblage for wider analysis.

The presence of the possible early Roman temple at Thurnham is of considerable interest. Its association with an ‘antique’ collection of pottery suggests that the temple may have been associated with veneration of ancestors (K Painter and P Salway, pers. comm.), and its proximity to a Late Iron Age roundhouse may possibly suggest evidence for some form of continuity.

The site has good potential for further study of the perceived decline of the villa, which seems to have begun around AD 200-250. Thereafter, occupation at a reduced level was apparent until the late 4th or early 5th century. The statements of potential for the stratigraphy, finds and environmental assemblages emphasise the quality of material available to inform interpretation of Thurnham’s history during this very uncertain period.

Thurnham Roman Villa was identified as a Key Study Area for Research Objective 2.4 of the CTRL Research Strategy, Towns and their rural landscapes 100 BC-AD 1700. The key themes and ideas that have emerged as a result of the fieldwork events and the post-excavation assessment suggest that there is excellent potential to address most areas of

research interest that were identified in the Fieldwork Event Aims and the Landscape Zone Priorities.

1. INTRODUCTION

1.1 Project Background

Heritage Deed

1.1.1 The CTRL Act 1996 disapplies the requirements for obtaining scheduled monument consent; however, the nominated undertaker was required to obtain agreement under the Deed on Heritage (Ancient Monuments) from The Secretary of State as advised by English Heritage for the necessary mitigation works to the monument. The agreement sets out the detailed mitigation to be undertaken by the nominated undertaker and was granted, subject to conditions, on 9 October 1998.

1.1.2 As part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL), Oxford Archaeological Unit (OAU) was commissioned by Union Railways (South) Limited (URS) to undertake detailed excavation of the site of Thurnham Roman Villa (SAM KE 299) to the south-west of Thurnham village, near Maidstone, Kent. Also included within this assessment are all previous works at Thurnham Villa, works within the limits of Honeyhills Wood, a watching brief Significant Discovery Individual (SDI) at Hocker's Lane and the watching briefs from chainage 62+200 to chainage 66+350 in CTRL Project Area 420. All the fieldwork events are listed on Table 1. The location of the sites between chainages 62+200 and 64+250 is shown on Figure 1. The full extent of the Thurnham Lane to West of Crismill Lane WBG (ARC 420/99 63+900-66+350) is not shown, owing to the complete absence of features of archaeological interest.

Table 1: Thurnham Roman Villa, principal site: Associated sites and fieldwork events

Fieldwork Event	Type	Event Code	Contractor	Date of fieldwork
Hocker's Lane	WB SDI	ARC 420/99 62+200 - 63+000	OAU	4.6.99-1.1.00
East of Hocker's Lane	Evaluation	ARC EHL 99	OAU	29.3.99-1.4.99
Honeyhills Wood	WBG	ARC 420/99 63+000 - 63+400	OAU	4.6.99-1.1.00
Honeyhills Wood	Detailed Excavation (Trenches)	ARC HHW 98	OAU	a. 30.11.98-8.12.98 b. 17-21.5. 99
Honeyhills Wood	Earthwork Survey	ARC HHW 97	OAU	21-23.3.97
Thurnham Roman Villa	WB SDS	ARC 420/99 63+400 - 63+900	OAU	4.6.99-1.1.00
Thurnham Roman Villa (Principal Site)	Detailed Excavation and Strip, Map and Sample	ARC THM 98	OAU	2.11.98-18.6.99
Thurnham Roman Villa & Land South of Corbier Hall	Evaluation	ARC THM 96	OAU	11-28.11.96
Thurnham Roman Villa	Geophysical Survey	ARC THM 95	Stratascan	a. 23-24.1.95 b. 24-27.2.95
South of Corbier Hall	Geophysical Survey	ARC CHS 95	GSB	23.2.96 (report)
East of Corbier Hall	Geophysical Survey	ARC CHE 95	A Bartlett	June 1995 (Drawing)

Fieldwork Event	Type	Event Code	Contractor	Date of fieldwork
Thurnham Lane to West of Crismill Lane	WBG	ARC 420/99 63+900 - 66+350	OAU	4.6.99-1.1.00

1.1.3 Thurnham Roman Villa detailed excavation and strip, map and sample investigated an area of land 470m long by 35-75m wide adjacent to the eastbound carriage of the M20 between Thurnham Lane and Honeyhills Wood (URL grid point 59960 37110 and NGR TQ 7995 5711). The total area investigated covered 3.20ha (31991m²).

1.1.4 The majority of the Thurnham excavation (*c* 2.2ha) was specified as strip, map and sample. Detailed excavation was specified within the area of the *c* 0.8ha of the Villa Scheduled Monument. These excavations were undertaken between 2nd November 1998 and 18th June 1999.

1.1.5 While work was in progress on the main villa excavations, a limited programme of trenching was undertaken within the CTRL boundary to investigate nearby earthworks within Honeyhills Wood. Trenches were excavated across each of the extant earthworks, and towards the east end of the wood, to identify any remains that might have been associated with the villa.

1.1.6 Watching briefs were undertaken between chainages 62+200 and 66+350 between June and December 1999.

1.1.7 The SDI site excavated at Hocker's Lane was discovered during this watching brief phase. The main excavation of the enclosure site was completed between 23rd August and 17th September 1999. The SDI site was located on land to the immediate south of Detling village enclosed by Honeyhills Wood to the east, the M20 to the south and Hocker's Lane to the west (URL grid point 59200 37480 and NGR TQ 7930 5740). The targeted excavation area measured 75m along its north-west to south-eastern axis and was between 45-53m wide, covering an area of 0.35ha (3501m²).

1.1.8 The archaeological Written Schemes of Investigation were prepared by Rail Link Engineering (RLE), and agreed in consultation with English Heritage and Kent County Council (KCC) on behalf of the Local Planning Authorities (URL 1998; URS 1999b).

1.2 Geology and Topography

1.2.1 The area of the investigations (chainage 62+200-66+350) lies south of and parallel to the North Downs on Gault Clay with localised overlying areas of Chalk Head (Geological Survey of Great Britain, sheet 288, 1976). A variable drift deposit of yellowish brown silty clay and flints covers the solid geology to varying depths. The area of detailed CTRL investigations occupied low-lying ground extending north-westwards from Thurnham Lane (69.60m OD). The ground rises to a plateau at 76.50m OD, upon which the Thurnham Villa complex was situated. The site of Hockers Lane WB SDI lay at 77 m OD.

1.2.2 A gently undulating landscape typical of downland areas characterises the route along the foot of the North Downs, with the historic woodlands of Horish Wood and Honeyhills Wood located at the north-western end of the area of investigation. An area of rough grassed paddocks, upon which Hocker's Lane SDI excavation was

located, separates these woodlands whilst Thurnham Villa was located to the immediate east of Honeyhills Wood within modern cultivated pasture.

1.2.3 Small grassed pasture fields continue eastwards past Thurnham Lane before being replaced by larger arable fields shortly before Longham Wood.

1.3 Archaeological and Historical Background

Thurnham Villa and Corbier Hall

1.3.1 Thurnham Roman Villa is a Scheduled Ancient Monument (SAM KE 299), and is among the best-known villas in Kent, with a history of previous investigation by antiquarians and archaeologists. An estimated one third of the villa complex was destroyed by the construction of the Maidstone bypass (now the M20), following limited excavations in 1958. The remaining area of the Scheduled Monument was largely encompassed within the CTRL corridor. This also affected land to the immediate south of the medieval moated manor of Corbier Hall (SAM KE 309), although in this case the scheduled area lay outside the CTRL land-take boundary.

1.3.2 The villa was first recorded in 1833 during preparation of the land for hop cultivation, when it was noted that 'the pavements and foundations of a considerable Roman mansion were uncovered' (Charles 1844). Following the initial discovery, the villa was consistently wrongly located, so that when a Roman building was encountered during 1932 it was at first thought to be a new site. Trench excavations were carried out in 1933 of what was realised to be the 'Roman mansion', revealing the line of several walls and remnants of *opus signinum* floors (Ashbee 1986).

1.3.3 Further open area excavations were undertaken at the southern end of the villa building in 1958 in advance of construction for the Maidstone bypass (Pirie 1960). Two main phases of construction were recorded, the later phase including the addition of three apses with *opus signinum* and sand floors. The remains of a second, less substantial stone building were also discovered, *c* 50m to the south-east of the villa house.

1.3.4 The site of Corbier Hall, which lies immediately to the north of the CTRL corridor, was also the subject of 19th century antiquarian interest. In 1862 Sir George Hampson 'laid bare what appears to have been the lower story of the hall of a mansion called Corbie's Hall' (Roach Smith 1886). In addition to revealing the cellar, note was made of the considerable traces of a moat on one side and the presence of a small building, 'probably a dovecote', which had been removed without record the previous year (*ibid*).

1.3.5 The evidence from these 19th and 20th century intrusions and excavations formed the basis of the CTRL Environmental Assessment for the Thurnham area (URL 1994). Aerial photographs were commissioned in 1990 as part of the assessment, amplifying the plan of the villa building examined in 1933. The presence of an adjacent aisled building and other potential features was confirmed by a geophysical survey of the villa area in 1995 (URL 1995a). Further geophysical surveys were also conducted in the vicinity of and on the site of Corbier Hall in 1995 and 1996 (URL 1995b & 1996).

1.3.6 OAU undertook an evaluation in late 1996 (URL 1997a). This exposed the wall footings of both the villa and the aisled building. Surviving stratigraphy was encountered in association with each building although no intact surfaces or floors were found, suggesting that these features had been plough-damaged in recent years.

Adjacent trenches to the east also provided evidence of other structures with ditches, pits, cobbled spreads and building debris all present. The pottery was mainly datable to the 1st and 2nd centuries AD, with a pre-conquest element almost certainly present. No medieval remains were encountered to the south of Corbier Hall, although the line of the moat, which had been levelled in the 1950s, was revealed.

Honeyhills Wood

1.3.7 An assessment (URL 1994) identified a series of low earthworks in Honeyhills Wood. A survey of the ditch and bank earthworks by the OAU in 1997 (URL 1997b) suggested that these were part of two large rectilinear enclosures. However, the earliest Thurnham and Detling estate map of 1709 and subsequent maps do not show any internal divisions within the woodland. The survey report therefore concluded that the earthworks were likely to be of earlier origin although not necessarily associated with the villa complex.

Hockers Lane and East of Hockers Lane

1.3.8 Prior to the CTRL investigations few archaeological remains were known within the 800m section of the CTRL corridor running eastwards from the boundary with the Sittingbourne Road Watching Brief General (WBG). Most of this area is occupied by the historical woodland of Horish Wood and the western edge of Honeyhills Wood. However, Iron Age and Romano-British pits and ditches were encountered during the laying of a gas pipeline 60m to the north of Horish Wood (Syddell 1967) which falls within the northern limit of the CTRL boundary.

1.3.9 The *c* 3.8ha area of grassed paddocks between Hocker's Lane and Honeyhills Wood was evaluated by OAU in 1999 revealing a small cluster of late Iron Age/early Roman ditches, gullies, pits and postholes located within a single trench (URS 1999a). The trench location subsequently proved to be set within the enclosure revealed during the watching brief.

Thurnham Lane to West of Crismill Lane (ARC 420/99 63+900-66+350)

1.3.10 Apart from ditch and bank earthworks within Longham Wood, no archaeological features were known for chainage 63+900-66+350. The earthworks within Longham Wood were surveyed during the same phase of work as those recorded at Honeyhills Wood and the results are separately reported (URL 1997b).

2. ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Landscape Zone Priorities

Thurnham Villa and Honeyhills Wood

2.1.1 The area of study is located close to the south-eastern border of the North Downs Landscape Zone, where it meets the Wealden Greensand Landscape Zone.

2.1.2 Thurnham Villa was identified in the CTRL Archaeological Research Strategy as a Key Study Area for Research Objective 2.4, Towns and their rural landscapes 100 BC-AD 1700. Research Objective 2.4 was subdivided into three sub-periods: (i) *c* 100 BC-AD 410; (ii) *c* AD 410-1100; (iii) *c* AD 1100-1700.

2.1.3 The WSI (URL 1998) highlighted three primary archaeological concerns for the study area under the Landscape Zone Priorities. These covered themes of palaeo-environment, rural economy and ritual/ceremonial landscape use throughout all periods represented in the archaeological record:

- (i) Evidence was to be retrieved to allow the reconstruction of the palaeo-environment and the interaction with past communities through 'on-site' and 'off-site' studies.
- (ii) Evidence was to be recovered to elucidate the basis of the rural economy of the area for all time periods, with emphasis on the organisation and division of the landscape, settlement morphology and function, agricultural regimes and natural resource exploitation, early industrialisation, trade and the effect of the Roman administration.
- (iii) Evidence was to be sought to elucidate the ritual and ceremonial use of the landscape.

Hockers Lane WB SDI

2.1.4 The Landscape Zone Priorities were set out in the WSI (URS 1999b). Data were to be sought to address the following issues:

- Reconstruction of the palaeo-environment, and study of the spatial organisation of the landscape and change through time, with particular reference to later agriculturalists (2000-1000BC) and the LIA-ERB transition
- Change and continuity in burial practices over the LIA-ERB transition
- The rural economy, with particular emphasis on the recovery of material and environmental remains. Highlighted themes for investigation included the organisation of the landscape, settlement morphology and function, agricultural regimes, natural resource exploitation, trade and the effects of the rise and decline of the Roman administration.

2.2 Fieldwork Event Aims

Thurnham Roman Villa

2.2.1 The aims of the fieldwork event, as stated in the WSI for Thurnham Villa (URL 1998) were:

- 1. To recover the plan and a dated occupation sequence for all phases of the villa's development, examining the transition between the Iron Age and Romano-British periods, the reasons why the site developed into a villa, and the reasons for the villa's decline

- 2. To establish the status, economic orientation and patterns of contact and trade of the settlement, examining the function of features and structures and the presence of functional zones. Artefact assemblages were to be recovered to elucidate these fieldwork aims
- 3. To elucidate the villa's interaction with, and influence on, its hinterland and other rural settlements;
- 4. To compare evidence from Thurnham with the cereal economy of the region and wider areas and to investigate the apparent continuation of emmer wheat from the Iron Age into the Roman period
- 5. To determine the contemporaneous local environment of the villa.

Honeyhills Wood

2.2.2 Only broad aims were initially put forward in the WSI for the Honeyhills Wood fieldwork event, that were to be subject to revision following trench excavation across the earthworks and interior of the woodland. These were as follows:

- To establish the date and method of construction of the earthen banks;
- To establish changes to the local environment through the recovery of palaeo-environmental indicators from any buried soil horizons;
- To recover artefact assemblages if these were found to be present;
- To establish the presence or absence of deposits relating to Thurnham Villa surviving beneath the existing tree cover.

2.3 Fieldwork Methodology and Summary of Excavation Results

Fieldwork Methodology

Thurnham Roman Villa (including the WB SDS)

2.3.1 Fieldwork was carried out in accordance with the methodology specified in the WSI (URL 1998). Prior to the start of the excavation at Thurnham a metal detector survey was undertaken by members of local metal detecting groups under the supervision of the OAU. Each find was three dimensionally located.

2.3.2 The 3.2ha area stripped at Thurnham (see Figure 2) was completed in several stages. Initially the topsoil and subsoil were machine stripped to the specified site boundary, spoil being stored within the northern temporary land-take boundary. Due to the difficult weather conditions encountered throughout the winter months and the large numbers of staff, marquees and polytunnels were erected over the main villa building and temple to allow all-weather working.

2.3.3 Detailed excavation was undertaken within a core area at the western end of the site encompassing the Scheduled Ancient Monument. The eastern boundary of this area was defined by the limit of significant remains suggested by the evaluation. A strip, map and sample exercise was specified for the remainder of the site adjacent to the M20 carriageway. Sparse features within this area were planned and sampled to establish date, character and, where appropriate, phase relationships.

2.3.4 The area of the corn-drier and 14-post structure to the south-east of the site partly fell within the strip, map and sample area but due to its significance for understanding the full operations of the villa complex, the immediate area of these structures was incorporated into the detailed excavation work. This was agreed as a result of on site meetings with the contractor, RLE and the statutory consultees.

2.3.5 The detailed excavation boundaries were extended on two occasions to reveal the full plan of crucial features or buildings and to answer specific questions. After the initial stripping, the site boundary diagonally bisected the aisled building revealing only half of the structure within the excavation. This area was extended west and north to reveal the full outline of the building. The area was also extended westwards to reveal the large soil spread/feature and the line of the Late Iron Age enclosure ditches.

2.3.6 Similarly the footpath adjacent to the site boundary and the corn-drier/14-post structure excavation area was removed by machine after the diversion of the footpath to reveal the southern side of the building.

2.3.7 Detailed works, often including 100% excavation, and single context planning at a 1:20 scale were undertaken for the more complex and stratified occupation and construction deposits associated with each of the four structures (villa, temple, aisled building and 14-post structure). The variation in the percentage of excavation across the site, between these deposits and other features of the same phases, could bias the data, but was essential to achieve the main objectives outlined. Assessment results suggests that this has not adversely affected the overall site results or aims.

2.3.8 The non-structural or occupation deposits were excavated as necessary, to retrieve secure dating evidence for each of the features, to determine stratigraphic relationships where these existed, and to establish a relative and absolute chronology for the development of the site. This excavation equated to approximately 15-20% of all linear boundary features associated with the Iron Age and villa enclosures.

2.3.9 Environmental samples were recovered from deposits deemed to have a high potential within each of the main buildings and from deposits in the enclosure ditches associated with each phase. Samples were also taken from a representative range of other feature-types across the site. Each sample was retrieved from secure undisturbed contexts where possible.

2.3.10 Well 11010, to the east of the 14-post structure, was excavated to a total specified depth of 3.7m below the surface level, and considerably below the immediate construction impact level. This was subject to on-site discussions with the contractor, RLE and the statutory consultees, who agreed this was essential to retrieve an extensive waterlogged environmental sequence. This was considered one of the main site priorities to achieve the aims set out in the WSI at site level, and within the Landscape Zone Priorities. An additional method statement was produced by OAU prior to the excavation of this feature.

2.3.11 A single infant inhumation encountered to the west of the villa building was excavated following OAU and URL procedures for the excavation of cremations and inhumations (URL 1998).

2.3.12 Following the completion of the main detailed excavations of the villa and temple buildings, these areas were again machined to remove the remaining portions of excavated deposits to the surface of the natural geology. This was to establish if any preceding Iron Age deposits existed below the Roman levels.

2.3.13 On the completion of all excavation, deeply excavated holes (such as well 11010) were backfilled with graded material, and other excavated sections were levelled with subsoil to remove all trip hazards.

Honeyhills Wood

2.3.14 Fieldwork was undertaken in accordance with the methodology specified in the WSI (URL 1998). Excavation within Honeyhills Wood was based upon a targeted approach with trenches excavated across each of the extant earthworks within the line of the CTRL boundary. Further trenches were excavated across the interior woodland area to evaluate the possibility of remains associated with the villa complex extending into the woodland.

2.3.15 The trench excavations were completed in two episodes with five being machine-excavated within the standing woodland cover. These were positioned within the spaces between standing trees. Each of the trenches was hand cleaned and identified features were excavated prior to backfilling.

2.3.16 Due to the limitations imposed by the tree spacing during the primary trench investigations and the lack of positive results, the excavation of an additional trench was agreed by RLE and the statutory consultees to further investigate the ditch and bank earthwork located nearest to the villa. Following the removal of the tree cover, a single trench (TT3735) was positioned over the best-preserved portion of the earthwork which was subsequently hand excavated and recorded.

Watching Brief Areas: Thurnham Roman Villa, Hockers Lane, and Thurnham Lane to West of Crismill Lane

2.3.17 The watching briefs were carried out in accordance with the methodology specified in the WSI (URS 1999b). During the course of the watching brief, a previously unknown significant discovery was made at Hockers Lane (chainage 62+800). All intersections and secure sections were excavated and recorded with environmental samples recovered Further stripping work and limited recording was also undertaken at the excavated site of Thurnham Roman Villa along the former south-western boundary hedge line.

Summary of Excavation Results

Thurnham Roman Villa and Honeyhills Wood

2.3.18 The excavation of Thurnham Villa and its immediate surroundings uncovered evidence for a sequence of Late Iron Age and Roman occupation from the 1st century BC to the early 5th century AD. Much of the evidence was concentrated within the area of the Scheduled Ancient Monument at the north-western end of the site. Figures 2 and 3 show the excavated features in plan, with shading indicating provisional phasing; Figure 6 shows the provisional construction sequence of the main villa house.

2.3.19 A Late Iron Age phase was identified with the shallow remains of circular and four-post structures set within a large rectilinear enclosure. This extended south beyond the boundary with the M20 and, along with the circular structures, had not been identified by the previous investigations.

2.3.20 The Roman sequence comprises a number of distinct phases, with associated boundaries defining and extending the villa enclosure. The first house, hereafter referred to as the ‘proto-villa’, using the generally accepted terminology for this type of romanised building, is thought to have been constructed around AD 50 or shortly thereafter. A stone-built square temple-like structure, approximately contemporary with the proto-villa, was added on the east side of the enclosure. The

southern end of this building had been excavated in 1958 (shown as a broken line on Figures 2 and 3).

2.3.21 Towards the end of the first quarter of the 2nd century, a larger, stone-built villa house was constructed over the romanised building. The southern end of this building had been recovered during the 1958 excavations (marked with a broken line on Figures 2 and 3). A large aisled building was added during the mid 2nd century to the north of the temple and main house, lying within the enclosure.

2.3.22 During the mid to late 2nd century a number of alterations were made to the villa house. A new 14-post building was added to the complex, located towards the base of the slight knoll upon which the villa was set, outside the enclosure boundaries. The presence of further structures was suggested outside the affected area as a result of the earlier evaluation.

2.3.23 The level of occupation at the villa appeared to go into decline during the early to mid 3rd century. The aisled building appeared to go out of occupation around the middle of the 3rd century.

2.3.24 During the late 3rd century, the central room of the main house was in use as a smithy, although this activity appears to have ceased by the end of the 3rd century. A corn-drier was found at the north-west corner of the 14-post structure, which may have been demolished around the end of the 3rd century. The corn-drier appears to have continued in use until around AD 370. An oven was located within the main house, and backfilled in the later 4th century; the function of this oven is at present uncertain. Evidence suggests continuing modest levels of activity until the very end of the 4th century and the beginning of the 5th.

2.3.25 Isolated prehistoric features, including a probable Bronze Age waterhole, and medieval remains associated with Corbier Hall, were scattered over the low-lying south-eastern part of the site.

2.3.26 The targeted trench excavations within Honeyhills Wood produced little evidence other than the already identified earthworks and these failed to produce convincing dating evidence. A single abraded middle-late Iron Age sherd was recovered from a stratified context sealed below upcast associated with a ditch that lay 85m west of, and parallel to, the villa building. A further very small abraded sherd dated *c* AD 40-70 was recovered from a similar context associated with a slight ditch and bank on the same alignment approximately 150m to the west across the centre of the woodland.

Hocker's Lane WB SDI

2.3.27 During the course of the 420 contract watching brief stripping between Hocker's Lane and Honeyhills Wood, a two-phase ditched enclosure dating to the Late Iron Age and early Roman period was discovered at chainage 62+800 (Figure 4). The excavation suggested a D-shaped or circular enclosure with internal divisions, although much of this remained outside the impact of the CTRL works, and thus remains preserved *in situ*. Pits and postholes were located within the enclosure, but no obvious structures were present.

2.3.28 A short length of worn surfaced trackway accompanied by a single parallel aligned ditch dated to the early Roman period was discovered east of Sittingbourne Road, at chainage 62+300. A circular spread of soil and debris similarly dated to the late 1st century AD was located 50m to the north-east of the ditch and trackway. Both of these discoveries correspond to the location of previously revealed 'pits and ditches'

of the same period found during the construction of a gas pipeline east of Sittingbourne Road (Syddell 1967; URL 1994, OAU 1060).

2.3.29 Some of the remains discovered at Hockers Lane were exposed during the removal of the soil cover by bulldozer, and this may limit the accuracy of the data retrieved, as it is very likely that only the most visually obvious deposits and features were recognised and recorded. This applies particularly to the trackway and spread. The enclosure SDI site excavated within the same watching brief was stripped under appropriate conditions to gain maximum archaeological visibility.

Thurnham Lane to West of Crismill Lane WBG

2.3.30 No archaeological remains were encountered within this area.

2.4 Assessment Methodology

2.4.1 This assessment report was commissioned by URS following the specification for such reports produced by RLE, as discussed with English Heritage and Kent County Council (URS 2000). This specification follows national guidelines prepared by English Heritage and provides additional information regarding level of detail required and format. The production of this assessment report was managed by Stuart Foreman (project manager) and Carol Allen (team leader). The majority of specialist work was undertaken by qualified external specialists, with the remainder of the work completed by in-house experts.

3. FACTUAL DATA AND QUANTIFICATION

3.1 The Stratigraphic Record

Thurnham Roman Villa and Honeyhills Wood

Stratigraphy: truncation, intrusion and contamination

3.1.1 The survival level of the stratigraphy at Thurnham Villa proved to be better than anticipated. Comparison with the 1933 and 1958 excavations demonstrated that only limited plough truncation had affected the main house since then, perhaps impacting no more than 50-100mm upon the 1933 level. Each of the other buildings and structures also demonstrated a good level of survival with *in situ* floor and occupation levels present.

3.1.2 The presence of a buried soil horizon, thought to be of Iron Age date or earlier, and preserved beneath and around each structure, also demonstrated that only limited plough truncation had occurred in these areas. Truncation was deepest across the eastern end of the aisled building where natural clay had been revealed, whereas *in situ* surfaces survived at the western end of the building. Elsewhere the presence of the buried soil demonstrated that the shallow penannular gullies, particularly 12500, had not suffered substantial truncation and were probably preserved close to their original dimensions. In other areas of the site, however, the buried soil horizon had been truncated by ploughing to the level of the underlying clay.

3.1.3 Historical intrusions into the stratigraphy were generally absent with only limited stone robbing confined to the footprint of the wall foundations of the main house and aisled building. Prior to the excavation, the historical references to stone and 'pavement' removal had suggested a considerable amount of disturbance had occurred across the villa building (Anon. 1839, Charles 1844). This proved misleading with the interior of each room demonstrating *in situ* deposits, although these were not actual floor surfaces, which were genuinely absent from the main house.

3.1.4 Some of the boundary ditches had been re-cut, notably the eastern side of the Iron Age and villa enclosure, but little other truncation of the features had occurred. The main areas of truncation, intrusion and likely contamination were limited to the areas which had been subjected to the highest levels of activity or occupation, and these were clearly identifiable during the excavation.

3.1.5 In room 20000, used as a smithy within the villa building, late 3rd century sherds were found in deposits of an early 2nd century date. Similarly the corn-drier area produced residual dating evidence. However, in all cases where intrusion and truncation had occurred in antiquity, the stratigraphic sequence of the deposits was adequate to establish the relative chronology.

Paper and Digital Archive

3.1.6 A total of 3455 context records, 670 section drawings, and 241 plans were produced during the Thurnham Villa excavation. All 1:50 site plans have been digitised (61 in total). The four main buildings and structures were planned at 1:20 to record construction and surface detail. None of these has been digitised and this will be required to produce detailed complete site digital plans.

3.1.7 Datasets of the records and finds have been compiled although substantial cross checking of the context record is required, particularly at a sub-group level to ensure a coherent and usable dataset archive. The updated archive index is listed in Table 2, in section 3.5 below.

3.1.8 A total of 45 context records, 6 trench plans and 9 section drawings were produced during the Honeyhills Wood trench excavations. All context records have been entered into datasets. Due to the lack of features, none of the plans has been digitised although each trench has been positioned on a digital drawing with reference to the earthworks shown on the existing earthwork survey digital drawings.

Provisional Phase Summary and stratigraphic groups

3.1.9 Owing to the lack of dating evidence, no provisional phasing has been established for the earthworks in Honeyhills Wood. The only comment that can be offered is that the ditches 85m and 150m west of the villa were aligned parallel to it, and the limited dating evidence available suggests that they were constructed at some time after AD 43, and that they were no longer serving as boundaries at the time of the creation of the Thurnham and Detling estate map of 1709.

3.1.10 The following summary therefore relates only to provisional phasing and grouping established for Thurnham Roman Villa (ARC THM 98) incorporating information from the Thurnham Roman Villa WB SDS.

3.1.11 The excavation and assessment have provisionally identified a number of phases based both upon the dating evidence retrieved from excavated features and the stratigraphic relationships between them. Much of the occupation falls between the Late Iron Age and late Roman periods (*c* 50 BC-AD 420) and the division of this period into the phases of the villa's occupation is based upon the securely dated stratigraphic relationships. The principal phased features are shown on Figure 2. Figure 3 shows the main villa complex in more detail, and Figure 6 shows the provisional construction sequence for the main villa house. The provisional phase sequence is as follows:

1 Earlier Prehistoric

2 Late Iron Age-Early Roman (*c* 50 BC-AD 50)

3 Proto-Villa Phase: Early Roman (*c* AD 50-120)

4 Villa Complex Remodelling (*c* AD 120-150)

5 Final Structural Additions to the Villa (*c* AD 150-200)

6 Decline of the Villa Complex (*c* AD 200-250)

7 Late 3rd-4th century Smithy and Occupation of the Villa Complex

8 Medieval

9 Post-Medieval and Modern

Phase 1 Earlier Prehistoric

3.1.12 Evidence of the earliest activity on site was generally sparse. A large ramped waterhole 10288 (Figure 2), located in the south-east part of the site, about 75m west of Thurnham Lane, is thought likely to be of Bronze Age date. The dating of

this feature is problematic. It produced a bronze pin and a small bronze dirk or knife blade from context 10294 that are datable to the Middle Bronze Age. Several non-diagnostic flint flakes were recovered from the lower fills of the feature. However, medieval pottery was also found in context 10292. A radiocarbon determination on red deer bone from the waterhole has given a date of cal AD 978-1155 (95% confidence level). While it is clear that the feature has been extensively disturbed, the occurrence of the only two Bronze Age artefacts from the site in this single feature makes it highly likely that it is, indeed, of this date.

3.1.13 A number of discrete pits, filled with burnt flint and charcoal, and scattered across the south-eastern end of the site, may also be of prehistoric date. Due to the lack of artefacts and of associations with other features it was considered that radiocarbon dating of the features would not be of benefit. A cremation deposit placed in a shallow pit in this area and sealed by a medieval soil was undated.

3.1.14 Struck flint was present across the site, mainly as residual finds in later contexts or collected from the spoil heaps. In addition, a sparse scatter of *in situ* struck flint was present on the surface of the pre-Roman soil preserved beneath the villa layers, and had been subject to considerable disturbance.

Phase 2 Late Iron Age-Early Roman (*c* 50 BC-AD 50)

3.1.15 Permanent occupation on the site was established during the 1st century BC. In phase 2A a sinuous ditch (11470) was recorded, aligned SW-NE across the area of the plateau at the north-western end of the site; this provides the starting point of the stratigraphic sequence.

3.1.16 Following substantial tree clearance, and the silting of ditch 11470, phase 2B was defined by the establishment of a sub-rectangular ditched enclosure, 10840, which substantially re-cut the line of former ditch 11470. Traces of two penannular gullies, 11600 and 12500, representing roundhouses, and two four-post structures were located within the enclosure.

3.1.17 Some plough truncation had occurred over gully 11600 but the complete penannular gully 12500 was preserved largely to its true depth, and to a width of 12m; this is indicated by the presence of a buried soil horizon, which partly survived within this area due to the later construction of the adjacent temple building. Deposits associated with the temple exterior also sealed the entrance terminal of the penannular gully. The juxtaposition of this roundhouse and the possible temple suggests there may have been a functional continuity between the two.

3.1.18 A north-south aligned ditch, 20170, was located to the west of the enclosure, and is thought likely to be contemporary with its latest phase. The exact stratigraphic relationship between the ditch and the enclosure is not known, since there was no intersection within the excavated area and both features continued beyond the southern limit of the excavation.

Phase 3 Proto-Villa Phase: Early Roman (*c* AD 50-120)

3.1.19 A substantial remodelling of the site occurred in the early Roman period, and the stratigraphic and pottery evidence points to a very early post-conquest date (see Appendix 1.1). The Late Iron Age enclosure ditch 10840 was entirely levelled with clay, and the southern half of ditch 20170 was levelled with clay. The proto-villa was then constructed over the line of the backfilled portion of ditch 20170, with a new, more substantial ditch (20400) excavated as a rear boundary diverting the

remaining open portion of ditch 20170. A timber palisade or fence line, 20490, accompanied this ditch.

3.1.20 Only the rear portion of the proto-villa had survived, where the addition of a corridor to the later stone villa had preserved it. Much of the plan of these remains had previously been revealed during the 1933 excavations although the features were thought at that time to relate to the corridor of the later villa (Ashbee 1986).

3.1.21 Excavation demonstrated that sleeper beams of the proto-villa had been set upon a basal plinth of flint nodules, laid directly onto the surface of the contemporary soil horizon and the clay backfills of ditch 20170. Three central rooms were defined by the flint nodule plinths with additional rooms, possibly wings, at either end. The wings were defined by the presence of floor surfaces and the voids of the removed sleeper beams. Compacted silt clay had been used to floor the majority of the building, and crushed tile had been utilised to surface the interior of the southern (possible wing) room. The crushed tile surface was exposed and mostly removed during the 1933 excavation.

3.1.22 Quantities of thin, painted plaster were recovered from the surface of the floors and from within the shallow voids remaining after the removal of the sleeper beams. The beams were presumably dismantled following the construction of the stone villa which replaced the proto-villa. The painted plaster is to be the subject of a separate assessment report. Painted plaster was also seen in the archive of an earlier excavation, at Maidstone Museum.

3.1.23 Of the same phase as the proto-villa was a rectangular building constructed on the line of the eastern arm of the former enclosure ditch. As with the construction of the proto-villa, the area was first levelled, with redeposited clay sealing the backfilled enclosure ditch, and this then provided securely stratified contexts. The pottery from the clay levelling puts the date of construction to a time approximately after AD 50, and thus makes this of about the same date as the proto-villa.

3.1.24 The ground plan of this building strongly suggests that this may be a temple site, the shallow foundations of which supported a single surviving drystone course of ragstone blocks. Floor surfaces of crushed tile, chalk and flint cobbles were well preserved within the building although these were invariably clean and few finds were retrieved from the interior.

3.1.25 The additional narrow strip exposed along the extreme south-western edge of the proposed temple during the watching brief phase added a significant detail to the excavations by demonstrating the physical link between the 1958 and 1998 excavations.

3.1.26 A short-lived replacement eastern boundary of the new proto-villa enclosure was defined by a narrow gully or possible fence line, 10770. The north side of the enclosure was defined by a post-row, 12360, and a gully, 15420, which enlarged the size of the former enclosure. This boundary seems to have been replaced a little later, possibly about AD 70, by a re-cut of Late Iron Age ditch 10840, which was extended northwards (recorded as 10660). The interpretation of this sequence of ditches is difficult due to re-cutting and truncation.

Phase 4 Villa Complex Remodelling (*c* AD 120-150)

3.1.27 Further development followed during the first half of the 2nd century AD which can be divided into two distinct construction episodes.

3.1.28 Towards the end of the first quarter of the 2nd century a larger, stone-built villa was constructed, to replace the proto-villa. To enable the new villa to be located behind the proto-villa, boundary ditch 20400 was levelled by means of substantial dumping and clay backfilling, and this raised the area slightly prior to the new construction. Assessment analysis and interpretation of the stratigraphic sequence suggests that the proto-villa remained standing during the initial construction of the stone villa, and was only demolished immediately after the core of the new building had been completed. The primary phase of the stone-built villa is indicated on Figure 6 as construction phase A.

3.1.29 The primary stone villa foundations were characterised by a construction method different to that employed in the later additions. Alternating layers of ragstone blocks and flint nodules were packed with clay with a substantial basal course of ragstone blocks acting as a raft. These deepened substantially where they crossed the line of the former boundary ditch and may have supported a two-storey building. A rear projecting wing was added to the northern end of the building at which point the proto villa was probably dismantled and a corridor added to the front of the villa, partially over the former building.

3.1.30 There were no internal features or floor levels contemporary with this occupation of the building. However, the imposition of late 3rd century levels directly upon the early 2nd century pre-construction clay levelling layers clearly shows that this was due to a genuine absence of floors rather than later truncation. It is possible that the floors of this phase consisted of slightly raised wooden planking, although there is no longer any evidence for this.

3.1.31 The southern end of the building was excavated and subsequently removed in 1958 for the construction of the Maidstone bypass, later the M20. The published record (Pirie 1961) suggests that, together with the 1998 excavated remains, the primary stone villa building formed a symmetrical ground plan.

3.1.32 As with earlier phases, a ditch boundary, 10610, was added to the rear or west side of the villa, once more enlarging the villa enclosure, and was accompanied by a fence line, 10580.

3.1.33 Within the complex to the east of the villa in the northern part of the excavated area, a large aisled building was constructed, most probably during the mid 2nd century. This lay partly over the northern arm of the Late Iron Age enclosure ditch. A complex sequence of gullies and deep pits of Late Iron Age and early Roman date within this area had also either silted or been backfilled with clay prior to the construction.

3.1.34 Twelve massive postholes supported the aisled building with shallow flint nodule and loose mortar foundations for its outer walls which had largely been robbed away. A partition between the two western postholes defined a separate room within which a neatly constructed oven (15280) sat upon a crushed tufa floor. Ash deposits (15214) associated with the oven sealed much of the floor surface. The remainder of the building had no such surfaces and it was clear that the eastern end had suffered much more plough truncation.

3.1.35 A circular stone-lined well surrounded by a cobbled surface, 12370, was located to the north-west of the aisled building. Four early Roman pottery sherds were recovered from the uppermost construction backfill around the well shaft which had finally ceased to function by the mid 4th century.

3.1.36 The eastern boundary of the villa enclosure was redefined by a substantial fence (post row 10980). Each post was securely packed with large ragstone blocks and several of the posts were cut into the surface of the former boundary ditches.

Phase 5 Final Structural Additions to the Villa (*c* AD 150-200)

3.1.37 The final structural additions and boundary alterations to the villa complex took place approximately in the mid-late 2nd century. Structural alterations to the main house consisted of the addition of a wing room to the north-eastern end of the building, level with the front of the existing corridor wall. The eastern wall of the earlier rear projecting wing was removed and replaced to the west during the construction of this additional room. A range of rooms was also added along the rear of the main house although as a result of increased plough truncation and the associated lack of stratigraphy this cannot be precisely dated. Both of these additions were characterised by loose flint nodule foundations which lacked both the clay packing and ragstone base seen in the primary stone construction phase. These additions are shown on Figure 6 as construction phase B.

3.1.38 The final addition to the main house was a large square room and apse, butting against the wing room added to the north-eastern end. The addition of the square room and apse can be firmly dated by the construction of the shallow flint nodule and loose mortar foundations across a partially backfilled pit, 20185. Construction debris from the wall was used to backfill and level this pit, and pottery included in the debris provides a secure date of construction of around AD 180+. Evidence from the 1958 excavation of the bath house range similarly suggests that this was added during the late 2nd or at the latest, early 3rd century. These additions are shown on Figure 6 as construction phase C.

3.1.39 The boundaries of the enclosure changed little during this period, with ditch 10610 behind the villa remaining in use until it was levelled with a series of localised dumps of tile, bone and pottery probably in the late 2nd century. A single infant inhumation within a stone-lined grave, accompanied by two pottery vessels, was placed between the villa and this boundary during the late 2nd century.

3.1.40 Along the eastern enclosure boundary, post row 10760 replaced 10980. Subsequently this post row seems to have been, at least in part, replaced by a length of ditch, 12545, along the eastern side of the temple. The ditch clearly truncated a number of the postholes within this row placing it within the mid-late 2nd century phase at the earliest. However, the pottery from the ditch fills is dated to the Flavian period with a number of fresh sherds from single vessels present in the lower fills. As the ditch lies close to the temple, it is possible that the assemblage may reflect an ‘antique’ collection. More research is required to establish the function and relationship of the temple and adjacent features.

3.1.41 Outside the villa complex, activity was mostly confined to a subsidiary area to the south-east of the enclosure at the foot of the slope. During the mid-late 2nd century a large 14-post timber structure, 11250, was erected. This had both exterior and internal flint nodule cobbled surfaces, perimeter drainage gullies (11090 and 11240) and a central flint-filled drainage channel (11210). This seems most likely to be some kind of agricultural building.

3.1.42 A circular stone-lined well (11010) to the east of the 14-post structure may have been constructed during this phase, although excavation to a depth of 3.7m failed to reach any primary deposits or provide firm evidence for its true date of construction.

3.1.43 In addition a cobbled and slightly aggered trackway approached the villa complex from the east across the low-lying ground (Figure 2). The date of its construction remains unclear due to a lack of datable material although associated gullies suggest that it had certainly been established by phase 5 and continued in use through the 3rd and 4th centuries.

Phase 6 Decline of the Villa Complex (*c* AD 200-250)

3.1.44 Few further additions or alterations were made to the villa complex and by the end of this phase the level of occupation seems to have been in decline. The bath house range, exposed during the 1958 excavation, may have been built as late as the early 3rd century. This requires further investigation of the finds within Maidstone Museum, but could reflect the final substantial activity around the villa.

3.1.45 The stratigraphy of the eastern ditch and posthole boundaries suggests that it was during this period that the temple collapsed or was demolished, infilling ditch 12545 with large quantities of tegulae and imbrices. The date, function and relationship of the temple and ditches requires further research.

3.1.46 Occupation of the aisled building also appears to have ceased around the mid 3rd century, with a soil layer sealing the surfaces within the building, although plough truncation within part of this building may have removed later deposits. The consistent mid 3rd century cut-off date of all the assemblages across the building would, however, suggest that this reflects a true end of occupation.

Phase 7 Smithy Within the Villa and Final Occupation (late 3rd to 4th century)

3.1.47 The later periods of settlement saw the decline of the villa complex and a change in the character of the occupation. The room in the centre of the villa building, 20000, became an area for iron smithing, evidenced by the scorched remnants of the hearths and associated debris. The late 3rd century deposits associated with this activity sat directly upon the early 2nd century clay levelling layers which pre-dated the construction of the stone villa, confirming the absence of floor levels for the stone villa. This indicates too that no truncation of the clay levelling layers within the core of the villa had taken place.

3.1.48 It seems likely that some other flooring was used during the occupation of the stone villa, possibly wooden planking, but there is no evidence for this. This would, however, explain the lack of early floor or occupation deposits associated with the primary occupation. A silty soil layer finally accumulated over the disused hearths at the end of the 3rd century.

3.1.49 The 14-post timber structure may have been demolished or removed, as a corn-drier was constructed over the western postholes of the former structure. Alternatively, the building may have been modified for the insertion of the corn-drier. A number of re-used tufa blocks were incorporated into the fabric of the corn-drier, presumed to have been transported from the bath house range, the collapse of which was dated to the late 3rd century (Pirie 1958). The corn-drier went out of use about AD 370.

3.1.50 The trackway access to the complex may have been maintained at this time, as several late Roman sherds were recovered from the fills of ditches 10620 and 10330 east of the corn-drier area (see Figure 2) although larger quantities of 2nd century material were also recovered. The few later finds may therefore reflect the final silting of the ditch.

3.1.51 Within the villa in the later 4th century, in room 20030, an oven of uncertain function was backfilled with burnt debris. A scatter of 4th century finds across the site from the surface of silted or infilled features also attests to, possibly sporadic, occupation.

3.1.52 No further features or recognisable structures were constructed on the site after this period, although a cluster of late 4th and early 5th century pottery was recovered from the surface of a soil layer sealing the cobbled area (11170) adjacent to the corn- drier.

3.1.53 The focus of activity during this period may have been well 11010 (Figure 3) where a concerted attempt seems to have been made to maintain a water source. A succession of coppiced stakes were placed around the interior circumference of the stone shaft lining. These were clearly pushed into and supported by the silts accumulating within the well and organic material was packed into the voids between the stones behind the stakes.

3.1.54 From one of these slender hazel stakes a final radiocarbon date of cal AD 259-539 has now been obtained (95% confidence level).

Phase 8 Medieval

3.1.55 Occupation ceased within the area of the site until the late 11th to 13th centuries. The medieval activity was probably associated with Corbier Hall to the north-east of the site boundary. Related medieval activity was represented within the excavated site by two discrete but linked concentrations of postholes and gullies to the immediate south-west of the scheduled area, which may have been part of structures (Figure 2).

3.1.56 The presumed moat ditch, which linked into a modern culvert at its north-western limit, did not provide any evidence of a medieval date, and the upper fills contained modern material. Traces of the moat were still visible during the 1933 excavation of the villa, and the moat was finally levelled in the 1950s for agriculture (Ashbee 1986, 156). Pottery from medieval features gave dates consistently between the late 11th and the 13th centuries.

Phase 9 Post-Medieval and Modern

3.1.57 Later activities across the site were limited to changing patterns of land-use as the focus for settlement moved north towards the existing village of Thurnham. The land-use was represented by a series of field boundaries and drainage ditches shown on the tithe map of 1825 and 2nd edition OS map of 1895. These marked the southern limit of Corbier Hall Wood, a belt of woodland that had become established between the sites of Corbier Hall and Honeyhills Wood. The later of these boundaries was still in use during the 1958 excavation.

3.1.58 The immediate area around the villa building was used for cultivation during the 19th century, itself the occasion for the rediscovery of the villa site during the ‘breaking up of the foundations for use of the area for hop cultivation’ (Anon 1839, 122). It was probably also during this period that land drains using tile and ragstone fragments were installed across the villa area.

3.1.59 The woodland and the existing boundaries were finally removed and levelled during the mid 20th century when the land was turned over entirely to agricultural production.

Hocker's Lane

Stratigraphy

3.1.60 The enclosure site (Figures 1 and 4) was situated on level ground at chainage 62+800, and had not been deep ploughed in recent times. The features uncovered within this area were generally well preserved although re-cutting of the earlier enclosure removed the definable limits of this phase. Adequate lengths of undisturbed features from each phase were available for investigation.

3.1.61 The features discovered at chainage 62+300 (Figure 1) may have been truncated during the exposure of the site, but those excavated were well preserved with a slightly sunken trackway surface surviving. The proximity of a parallel drainage ditch to an adjacent cobbled surface suggested little truncation had occurred.

Paper and Digital Archive

3.1.62 The watching brief produced 273 context records, 78 section drawings and 3 plans (see Table 2 in section 3.5 below). All of the plans have been digitised and related to the CTRL corridor and datasets for the context records have been compiled.

Provisional Phase Summary and stratigraphic groups

3.1.63 Three phases of occupation were identified. This was represented by two early phases at the enclosure site (chainage 62+800) and a single later phase represented by the trackway, ditch and soil spread *c* 500m to the north-west (chainage 62+300). These were:

1 Late Iron Age Enclosure (*c* 0-AD 50)

2 Pre-Flavian Enclosure Re-Cut (*c* AD 40-60)

3 Features at Chainage 62+300 (*c* AD 60-200)

Phases 1 and 2 Enclosure Site at Chainage 62+800

3.1.64 An area 70 x 50m was stripped to investigate the area of Late Iron Age/early Romano-British occupation discovered during routine monitoring to the east of Hocker's Lane. The excavation of this site identified two phases of Late Iron Age/early Romano-British enclosure ditches with internal divisions. The principal provisionally phased features are shown on Figure 4. All of the pottery recovered from the ditches falls within a tight date range between the late Iron Age and about AD 60 suggesting that the site was only occupied for a short period before and after the conquest with a complete absence of Flavian and later pottery showing abandonment by the late 1st century AD.

3.1.65 No buildings were identified within the enclosure and the isolated postholes and short lengths of gully across the interior may relate to internal divisions, possibly for small paddock areas.

3.1.66 The recutting of the outer ditch clearly defined two phases of activity. The tight date range of the pottery, and the otherwise limited stratigraphic relationships, suggest that no further subdivision exists.

Phase 3 Features at Chainage 62+300

3.1.67 During the topsoil stripping for an access road from the main trace to Sittingbourne Road, a slightly sunken and worn flint cobbled trackway (71) was revealed with a parallel ditch (74), which contained 2nd century pottery. The trackway was aligned in a north-east to south-west direction although no continuation was seen during the monitoring of stripping in Horish Wood. It can therefore be assumed that the trackway stopped or turned before reaching the wood or has been truncated within the wood.

3.1.68 A circular spread of soil and a possible spread of building debris containing much late 1st to early 2nd century material was located approximately 50m to the north-east of the trackway.

3.1.69 These features coincide with the concentration of Late Iron Age and early Roman pits and ditches encountered during the laying of a gas pipeline (Syddell 1967), suggesting the presence of a settlement of this date in the immediate vicinity to the north of Horish Wood.

Thurnham Lane to West of Crismill Lane (Chainage 63+900-66+350)

3.1.70 No archaeological remains were encountered within the watching brief limits.

3.2 The Artefactual Record

Late Iron Age and Roman Pottery - Appendix 1.1

3.2.1 A total of 561 sherds (4469g) of Late Iron Age pottery was recovered from two successive enclosure ditch systems and a small number of other features at Thurnham Villa. The first Late Iron Age enclosure phase (2A) produced a number of small assemblages dominated by local glauconitic sand tempered wares. The second phase, 2B, yielded both Late Iron Age glauconitic and a small quantity of pre-Flavian Roman material.

3.2.2 A total of 883 sherds (4411g) of Late Iron Age and early Roman pottery was recovered from the Hockers Lane enclosure site at chainage 62+800. The earlier pottery was again dominated by local glauconitic sand tempered ware, with smaller quantities of 'Belgic' grog-tempered fabrics. These wares were also present in the later assemblages, with the addition of sand and calcined-flint tempered fabric, *Terra Rubra* and Patchgrove ware. A marked absence of sherds in Upchurch fineware suggests that occupation terminated before AD 60. Although the excavation results at this site were limited, the pottery provides the largest assemblage of earlier Late Iron Age forms yet recovered from any of the similarly dated CTRL sites. Sherds of Middle Iron Age character were also present in the assemblage.

3.2.3 Small amounts (49 sherds, 885g) of Roman pottery from the Hockers Lane watching brief were recovered from the trackway ditch and soil spread identified at chainage 62+300. This material is of interest in that it dates from the late 1st and 2nd century and could indicate a transfer of settlement to this site from the earlier enclosure.

3.2.4 At Thurnham the pottery assemblage suggests that occupation intensified with the development of the site into a proto-villa complex. This phase 3 occupation dated *c* AD 50-120 produced a total of 2609 sherds (27,500g) of pottery retrieved from 91 contexts. A number of these contexts are critical for dating the construction of the proto-villa and possible temple, and the assessment results point to a remarkably

early date for this activity, between AD 50 and AD 70. The phase 3 assemblage marks a departure from supply by a limited number of local potteries to a far greater range of Romanised wares from production sites at Upchurch and elsewhere along the North Kent coast and to a lesser degree from Canterbury. However, supply of south Gaulish samian and other imported finewares to the proto-villa appears to have been on a very limited scale.

3.2.5 The pottery assemblages from phases 4 to 6 were contemporary with the construction and main occupation of the stone villa, AD 120-250, and comprise 3910 sherds, weighing 42,785g. Pottery was retrieved from features that included the aisled building, the extended enclosure ditches and the 14-post structure south-east of the villa enclosure. Pottery supply during this period was still largely from kilns on the north Kent coast flanking the Medway estuary, with vessels in BB2 fabric R14 and the 'scorched' LR2 group of sandy cooking wares added to their repertoire during the later 2nd century.

3.2.6 The phase 7 occupation, *c* AD 250-400+, is characterised by a decline in the amounts of pottery supplied to Thurnham (1933 sherds, 17,449g). This seems to reflect a reduction in the level of occupation on the site, with only localised activity taking place. This trend was particularly well reflected from AD 370+, when the deposition of pottery seems to have become largely restricted to activities around the oven within the main villa house, and around the corn-drier. The wheel-turned coarse and finewares from Kent sources gradually disappear and are replaced by finewares from the Oxfordshire kilns, and coarse kitchen wares from the Alice Holt/Farnham and Overwey kilns, on the Hampshire/Surrey border.

Medieval and Post Medieval Pottery - Appendix 1.2

3.2.7 A total of 291 sherds with a total weight of 3022g were recovered from the main excavations at Thurnham Villa, and 2 sherds (48g) of post-medieval red earthenware were found during the watching brief at Thurnham Lane to West of Crismill Lane (located at chainage 65+700).

3.2.8 Almost all the pottery recovered from Thurnham Villa is medieval, and datable to the period from the 11th to the 13th centuries. It is highly probable that it is associated with Corbier Hall which lay to the north-east of the site boundary. A few post-medieval sherds are also apparent. All the fabric types are well known in the region, the great majority of sherds being in E Kent shelly-sandy ware (171 sherds) and in Ashford Potters Corner shell-filled sandy ware (73 sherds).

Ceramic Building Material - Appendix 1.3

3.2.9 A substantial quantity of ceramic building material was recovered from the excavations at Thurnham Villa, most of which was well stratified in Roman deposits. Approximately two-thirds of the material, weighing 490kg, was examined for the assessment. The scan has shown that most of the ceramic building material is roofing tile, but small quantities of brick, box flue and hollow voussoirs were also present; broken tile fragments resembling tesserae have also been noted. Two major fabric types were identified. The earlier, white to pale orange in colour, strongly resembles tiles from the kilns at Eccles Roman villa, and seems to have been used for the proto-villa and possible temple. The later type, an orange fabric, is associated with the stone villa and the 14-post structure; its source is at present unknown. A lesser quantity of material, totalling 4.44kg, came from the watching brief sites, and was briefly scanned. All of this material was Roman with the exception of some post-medieval roof tile in one context from Hockers Lane watching brief.

Fired Clay - Appendix 1.4

3.2.10 A limited quantity of fired clay, 4.591kg from Thurnham Villa, 0.466kg from Honeyhills Wood and 0.032kg from Hockers Lane, was recovered from the excavations. All is fragmentary and most is very abraded. Some is well stratified in Roman deposits, but some may come from pre-Roman occupation. The material from Thurnham Roman villa includes what appears to be keyed wall rendering and vitrified hearth debris, clay with wattle or other timber impressions, and four fragments from a salt container datable to the period 50 BC-AD 70. The material from Hockers Lane includes what may be a fragmentary artefact.

Plaster and Mortar - Appendix 1.5

3.2.11 Almost 23kg of plaster and lime mortar was recovered from the excavations. All is fragmentary, but the material examined includes Roman roofing mortar, wall plaster and probable *opus signinum* flooring and wall renderings. Most is well stratified in Roman deposits.

Worked Flint - Appendix 2.1

3.2.12 A small assemblage of 334 pieces of flint (plus sieved material) was recovered from excavations at Thurnham Roman villa, from the watching brief SDI at Hockers Lane, and from the watching briefs between chainage 62+200 and chainage 66+350. Most of the material was redeposited or from unstratified contexts. It provides evidence for sporadic Mesolithic to Bronze Age activity along the route with a small concentration of Neolithic and Bronze Age material around the site of the villa at Thurnham.

Humanly Modified and Unworked Stone -Appendix 2.2

3.2.13 Eighteen potential rotary querns or millstone fragments were recovered from various contexts associated with the villa complex. They are manufactured from Hertfordshire Puddingstone, Lava, Greensand and Millstone Grit. Three of the eighteen are identified as millstones, two of Millstone Grit and one of Greensand. In addition to the four identifiable lava quern fragments, approximately 50 small friable weathered lava fragments were recovered, all of which are likely to have derived from rotary querns or millstones. Other worked stone was represented by four whetstones, two each in ironstone and Greensand.

3.2.14 In addition, the presence of large chunks of Greensand indicates that this stone was used for building and possibly flooring purposes. A single piece of Greensand may have been a roof slab, although no suspension hole was present.

3.2.15 This assemblage of rotary querns and millstones is comparatively large, and represents a good variety of materials. Commonly, Romano-British sites in Kent produce querns of some, but not all, of the lithologies present at Thurnham.

Shale - Appendix 2.3

3.2.16 A fragment of a shale spindlewhorl was recovered from the cobbled surface outside the aisled building.

Calcareous Tufa - Appendix 2.4

3.2.17 An assemblage of calcareous tufa was recovered from the excavations at Thurnham Villa, consisting of 106 fragments, of which eleven are blocks with cut faces, probably all reused. The total weight of the material is 43.754kg. Some of the blocks

are wedge-shaped, which suggests that they may originally have been shaped as voussoirs. It is all likely to be of Roman date.

Roman Glass - Appendix 3

3.2.18 The Roman glass recovered during the excavations at Thurnham Villa consisted of 84 fragments from vessels, one fragment from a 4th century window pane, six beads and one setting from an item of jewellery such as a finger ring. The vessel glass ranges in date from the mid to later 1st century to the 4th century. The majority probably belongs to the 1st to mid 2nd century. Otherwise 2nd to 3rd century material appears rare, whereas 4th century material is moderately well represented. Most of the forms and types recovered are common ones, but there are two unusual vessels and one unusual bead within the assemblage.

Iron Age and Roman Coins - Appendix 4.1

3.2.19 Two Iron Age and 49 Roman coins were recovered from Thurnham Villa, 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 to 2nd century pieces were mostly poorly preserved. The most notable characteristic of the group was a high incidence of early 4th century coins. Later 4th century material was generally poorly represented, but did include a silver siliqua of Honorius, dated 395-402.

3.2.20 A single coin was recovered from Hockers Lane. This was an Iron Age bronze potin dated to the first half of the 1st century BC.

Post-Roman Coins - Appendix 4.2

3.2.21 Three post-Roman coins were found at Thurnham Villa, and all were metal-detector finds. One was a medieval silver cut halfpenny of Henry I and the other two were post-medieval. One was a copper halfpenny of William III, and the other a copper halfpenny of George IV.

Bronze Age Metalwork - Appendix 4.3

3.2.22 Two items of metalwork of identifiably Middle Bronze Age type were recovered during the excavations at Thurnham Villa, from waterhole 10288 in the south-east of the site. These were a small, tapered blade of a dirk or knife, and a small pin with a crook-shaped head.

Roman Metalwork - Copper Alloy, Iron and Lead - Appendix 4.4

3.2.23 The metal assemblage from the main excavations at Thurnham Villa, from the watching brief at Thurnham Villa and from the excavation at Hockers Lane, excluding coins, consists of 1073 items, of which 785 are iron nails. The two items from Hockers Lane comprise a nail and a single copper alloy fragment.

3.2.24 The Thurnham assemblage includes 51 items of personal equipment, 7 toilet implements, 6 items of household equipment, 8 items associated with transport, 25 knives and tools and 49 fasteners and fittings. There are also single items associated with recreation, agriculture, and writing. Two pieces of copper alloy come from figurines or statuary. A bowl handle and a lunulate horse harness pendant are of types that tend to have military associations. The remainder of the assemblage consists of relatively undiagnostic fragments.

3.2.25 In date this is predominantly a 1st to 2nd century assemblage, with only a single item that might be of 4th century date. There are also two items that are of medieval (12th to 14th century date).

Slag and Metal Working Debris - Appendix 5

3.2.26 A moderate quantity of iron slag was recovered during the excavation at Thurnham villa. Much of this assemblage consisted of debris redeposited within the fills of features of different dates. However, it was noticeable that slag most frequently occurred within the phase 2 Late Iron Age features and was generally absent in any quantity until phase 7 when room 20000 of the villa was used as a smithy. This room contained a number of *in situ* hearths and quantities of slag and hammerscale. The presence of hammerscale within this room confirms it was being used for secondary iron smithing throughout the late 3rd century.

Worked Bone - Appendix 6

3.2.27 The worked bone consists of 12 items, all from the excavations at Thurnham Villa. There are five fittings and inlays from boxes or other pieces of furniture, four hair pins, one shaft fragment from a hair-pin or needle, and two counters. The closely dated material is all of 1st to 2nd century date.

Waterlogged Wood - Appendix 7

3.2.28 A total of 91 pieces of worked and unworked wood were recovered from waterlogged deposits within well 11010 during the excavations at Thurnham villa. They represent both incidentally occurring and structural timbers and provide different types of evidence. This includes the constructional technique of the well represented by a substantial form of planked box-construction supporting the upper circular stone well shaft. The planks forming this construction were of oak and were reused structural timbers. A later sequence of well use was represented by slender stakes placed around the interior of the well shaft in successive tiers. In addition to this a large sample of material was retrieved from the well fills and includes natural branches, burnt wood, wood working chips and chopped rods of wattle type probably deriving from the stake lining.

3.3 The Environmental Record

Human Remains - Appendix 8

3.3.1 The assemblage of human bone comprised the partial remains of two infant skeletons and a single deposit of cremated human bone, all from the excavations at Thurnham Villa.

3.3.2 The cremated deposit was undated, but its proximity to the probable Bronze Age waterhole may indicate a similar date. The deposit was unenclosed and there were no accompanying grave goods.

3.3.3 Infant skeleton 10633 is of some significance as it was formally buried in a wooden coffin represented by staining and iron nails, which was placed in a stone-lined cist. At least three courses of limestone were present. The infant was accompanied by two pottery vessels, a flint flake and a portion of cattle rib. The bone appeared to have been intentionally placed next to the head and faint gnaw marks were present. It is not clear whether they were made by a human or animal. The vessels were identified as a small pentice beaker in Thameside greyware and a BB2 straight-sided

dish of Monaghan type 5E1.5 dated *c* AD 170 - 230. This burial is therefore likely to date to the late 2nd century.

3.3.4 The second infant skeleton was found in the top fill (20431) of proto-villa boundary ditch 20400. Pottery from the top fill was datable to the period AD 70-100, suggesting an early Roman date for the burial.

Animal Bone - Appendix 9

3.3.5 A total of 7085 fragments of animal bone were recovered by hand from excavations at Thurnham Roman Villa, of which 3728 (31,429g) were assessed thoroughly, whilst the remainder was scanned. Many of these fragments were reassembled, reducing the count of assessed fragments to 2743. A further 3525 fragments of bone were recovered from sieved environmental samples of which 2528 fragments (1637g) were assessed, while the remainder was scanned. Reassembly reduced the fragment count of assessed sieved samples to 2459.

3.3.6 The condition of the bone was variable throughout all phases of occupation, and the majority of bones showed pitting, probably due to plant roots. There was also a considerable degree of fragmentation present across the site, which contributed to the high number of unidentified fragments. Overall, 625 fragments (20,755g) of hand retrieved bone could be identified to species, representing 22.7% of the assessed material. Of the sieved fragments, 263 (560g) were identified to species, representing 10.7% of the assessed material.

3.3.7 Very little bone was recovered from phase 1, comprising three fragments of cattle bone and the proximal half of a red deer metatarsal from the probable Bronze Age waterhole. The red deer metatarsal has given a radiocarbon date of cal AD 978-1155 (at 95% confidence level).

3.3.8 Cattle and sheep dominate the Late Iron Age and Roman assemblages, with some evidence that sheep were more numerous during the earlier part of this period. The latest Roman assemblages, phase 7 (see Appendix Table 9.3), suggest a marked change in animal husbandry, with pig emerging as a main species.

3.3.9 The best-preserved group of animal bone was found within waterlogged well 11010, dated to the later and the latest Roman period. This included the complete skeleton of a roe deer, a partial skeleton of a tawny owl, part of a pig, part of a horse skull, part of an immature roe deer and red deer antler fragments.

3.3.10 Only a small number of bones from the medieval and post-medieval features were identified to species and provide little information regarding the economy of the site other than the presence of the main domestic species for this period.

Charred Plant Remains and Charcoal - Appendix 10.1

Thurnham Villa and Honeyhills Wood

3.3.11 A total of 249 samples were taken from Thurnham Villa main site, and one from Honeyhills Wood. The sampling strategy on site was designed to ensure that deposits from all major feature types and periods were represented. Features sampled include the corn-drier, postholes, pits, ditches, ovens and hearths.

3.3.12 All samples have been assessed. The single sample from Honeyhills Wood contained only occasional Pomoideae charcoal, with no charred seeds or chaff present. Of the samples taken from the Thurnham Villa main site, a total of 33 show useful quantities of remains. Six samples have produced very large assemblages of

cereal remains with in excess of 1000 items. The cereal remains noted included hulled barley and spelt wheat, with some evidence for the cultivation of emmer wheat and possible oats. In addition possible cash crops may be represented, including pulses, and flax is also present. The deposits suggest that the cereal production was operated on a large scale.

Hockers Lane

3.3.13 A total of 29 samples were taken during the excavations, to recover material from the full type- and date-range of features present. Of these, 26 samples were assessed. Cereal remains were present only at low concentrations and in only 10 samples; species represented included spelt wheat, possible emmer wheat and barley. The evidence suggests very small scale cereal processing by comparison with Thurnham Villa, and the potential cash crops noted at the villa are absent from the Hockers Lane assemblages. The limited range of species at Hockers Lane is well attested for Late Iron Age and Romano-British sites in southern Britain.

Waterlogged Plant Remains- Appendix 10.2

3.3.14 Ten deposits at Thurnham Villa were bulk-sampled for waterlogged remains; of these, nine were late Roman fills of well 11010, and the tenth was the basal fill of the nearby pit, 10570. A rapid scan of the samples was undertaken, and seven were selected for assessment. Summaries of the mollusca and insects present are given in sections 3.3.17 and 3.3.18 below. The well deposits are thought to cover the late occupation and possible abandonment of the site during the 4th century.

3.3.15 The single sample from pit 10570 and the uppermost sample from the well produced no waterlogged remains. The remaining five assessed samples, all from well 11010, contain very well-preserved plant remains. This is a very good range of material which includes species from the immediate environment of the well, the site around it and the wider woodland environment. There appears to be more of an emphasis on ruderal species within the lower deposits, and an increase in woodland species in the upper deposits. Waterlogged flax was also present in the well fills.

Pollen Analysis - Appendix 11

3.3.16 Three monolith profiles were taken from the sediment fills of the late Roman well, 11010, at Thurnham Villa. Pollen was present in two of the three profiles. One of these has good pollen preservation due to its waterlogged state. Tree pollen predominates, particularly ash, which is usually underrepresented in pollen spectra, and thus presents exceptional values. Oak and *Corylus* (probably hazel) were also present. Cereal pollen is scarce. Taken together, this evidence tends to support the view that woodland regeneration was taking place at this point in the villa's history.

Molluscs - Appendix 12

3.3.17 Shells of land snails were present in four of the seven samples for waterlogged remains that were selected for assessment from the late Roman fills of well 11010 at Thurnham Villa (see 3.3.15 above). The majority were species of woodland or shaded habitats. There were very few shells of open-country species. As no other waterlogged deposits were present on the site, no other samples were assessed for the presence of molluscs or insects.

Insects- Appendix 13

3.3.18 The same four samples were found to contain high concentrations of well-preserved insect remains. Assessment revealed rich and diverse assemblages of both woodland and open-country insects. Of particular interest is the occurrence of honey bee in one of the samples.

Oyster Shell - Appendix 14

3.3.19 Only small quantities of oyster and other marine mollusc shells were recovered from the excavations at Thurnham Roman Villa. Generally their state of preservation is poor and the numbers of measurable and recordable shells are too few to permit statistical comparisons of their characteristics on either an intrasite or intersite basis. However, on a presence or absence basis, areas and phases of consumption and disposal can be delimited.

3.3.20 The exception to this general situation is the sample of oyster shells from context 20174 which has sufficient material of adequate quality to permit comparisons of size and infestation with other oyster samples from archaeological or modern sources.

3.4 Dating

Radiocarbon dating - Appendix 17

3.4.1 A small hazel stake (*Corylus avellana*) was sent for radiometric measurement. The sample originated in the upper part of well 11010, close to the later Roman corn-drier in the south-east of the Roman villa complex. The result given, with 95.4% confidence, is cal AD 259-539.

3.4.2 A second radiocarbon determination on red deer bone from the possible Bronze Age waterhole at Thurnham Villa has been dated to cal AD 978-1155 (95% confidence level).

3.5 Archive Storage and Curation

3.5.1 All items and records from the fieldwork events that form the subject of this assessment report are listed below in Table 2.

Table 2: Record of the archive: ARC THM 98, ARC HHW 98, ARC 420/99 62+200-63+000, ARC 420/99 63+000-63+400, ARC 420/99 63+400-63+900, ARC 420/99 63+900-66+350

ITEM	NUMBER OF ITEMS OR BOXES OR OTHER	NUMBER OF FRAGMENTS/ LITRES	CONDITION (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
THURNHAM ROMAN VILLA (ARC THM98)			
Contexts records	3247		I
A1 plans	194		I,D
A4 plans	47		I
A1 sections	16		I
A4 sections	670		I
Small finds	1037		I
Films (monochrome) S=slide; PR=print	72		I
Films (Colour) S=slide; PR=print	72		I
Flint (boxes)	6 size 3, 1 size 4	1202	W
Pottery (boxes)	16 size 1, 4 size 2	16013	W,M
Fired clay (boxes)	1 size 2	329	W
CBM (boxes)	148 size 2	15280	W
Stone (boxes)	11 size 2, 2 size 7	1080	W
Metalwork (boxes)	17 plastic size 8 1 plastic size 4	1414	
Glass (boxes)	1 size 3	99	W,M
Slag (boxes)	4 size 2	1155	W
Human Bone (boxes)	1 size 3		W,M
Animal Bone (boxes)	11 size 1, 3 size 2	10610	W,M
Misc.	1 size 3	10	W,M
Soil samples (10L buckets)	585		P
Soil Samples (No. contexts)	200		P
Soil samples (pollen)	3		P
Soil samples (hammerscale)	175		P
Soil Samples (1 kg macros)	15		P
Monolith/kubiena tins	1		P
THURNHAM ROMAN VILLA WBSDS			
Context records	53		I
A4 plans	2		
A1 plans	1		I,D
A4 sections	6		I
Small finds	1		
Films (monochrome) S=slide; PR=print	Part of WB photo set		
Films (colour) S=slide; PR=print	Part of WB photo set		
Pottery	1 size 4	6	W,M
Soil samples (No.)			
Soil samples (bags/tubs)			
HONEYHILLS WOOD (ARC HHW98)			
Context records	48		I
A4 plans	4		I
A1 plans	1		I,D
A4 sections	9		I
Films (monochrome) S=slide; PR=print	1		I
Films (colour)	1		I

ITEM	NUMBER OF ITEMS OR BOXES OR OTHER	NUMBER OF FRAGMENTS/ LITRES	CONDITION (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
S=slide; PR=print			
Pottery	1 size 5	2	W,M
Soil samples (No.)	1		
Soil samples (bags/tubs)	2	20L	P
HONEYHILLS WOOD WBG (ARC 420/ 63+000-63+400/ 99			
Context records	2		I
A4 plans	2		I,D
Films (monochrome) S=slide; PR=print	Part of WB photo set		I
Films (colour) S=slide; PR=print	Part of WB photo set		I
Shell	1 size 4	3	W
HOCKERS LANE (ARC 420/ 62+200-63+000/ 99)			
Context records	273		I
A4 plans	6		I
A1 plans	1		I,D
A4 sections	78		I
Films (monochrome) S=slide; PR=print	Part of WB photo set		I
Films (colour) S=slide; PR=print	Part of WB photo set		I
Flint (boxes)	1 size 3	120	W,M
Pottery (boxes)	1 size 1	875	W,M
Fired clay (boxes)	See Misc.	48	W,M
CBM (boxes)	See Misc.	19	W,M
Stone (boxes)	See Misc.	18	W,M
Metalwork (boxes)	1 size 4	3	
Glass (boxes)	.See Misc.	1	W,M
Slag (boxes)	.See Misc.	6	
Human Bone (boxes)			
Animal Bone (boxes)	1 size 1	1351	W,M
Misc.	1 size 2		
Soil Samples (No.)	29		P
Soil Samples (bags/tubs)	95	950	P
THURNHAM LANE TO WEST OF CRISMILL LANE WBG (ARC 420/ 63+900-66+350/99)			
Context records	11		I
A4 plans	6		I
A4 sections	1		I
Films (monochrome) S=slide; PR=print	Part of WB photo set		I
Films (colour) S=slide; PR=print	Part of WB photo set		I
Pottery	1 size 4	7	W,M

Key to box sizes

Cardboard boxes

Size 1 = Bulk box	391mm x 238mm x 210mm	0.020 m^3
Size 2 = Half box	391mm x 238mm x 100mm	0.009 m^3
Size 3 = Quarter box	386mm x 108 mm x 100mm	0.004 m^3
Size 4 = Eighth box	213 mm x 102 mm x 80 mm	0.002 m^3
Size 5 = Sixteenth box	110mm x 88 mm x 60 mm	

Conservation Requirements - Appendix 16

3.5.2 From Thurnham Roman Villa, a number of objects, 55 coins, 112 of copper alloy, 33 of lead alloy, 1214 of iron, one of shale and 4 of waterlogged wood were assessed for conservation requirements. In addition, there are five boxes of waterlogged wood samples retained for species identification, dating and analysis.

3.5.3 From Hocker's Lane one coin, one object of copper alloy, and one of iron were examined for conservation requirements.

3.5.4 The wet organic materials (shale and wood) require stabilisation by freeze-drying if they are to be retained in the long-term. The current storage arrangements are adequate for medium-term study requirements, and the materials should not deteriorate seriously over a period of 6 months or so.

3.5.5 The metalwork has no immediate or long-term conservation requirements other than investigative conservation, although the present storage conditions require rigorous curation.

3.5.6 Recommendations for investigative conservation, retention and disposal have been made by the relevant specialists. Investigative conservation requirements are set out in Appendix 16.

3.5.7 In general, specialists have recommended that material is retained until the implications of all CTRL archaeological projects are assessed and established. Within bulk finds categories, certain material that has no potential for further work could be discarded at this stage. This includes unstratified Late Iron Age and Roman pottery (151 sherds, 2907g), unworked stone and natural flint.

3.6 Previous Excavations Archive

Maidstone Museum - Appendix 15.1

Thurnham Roman Villa

3.6.1 The 19th century investigations and two excavations in 1933 and 1958 have each produced artefactual material which now resides as an archive in Maidstone Museum. The archive also includes the paper records from the 1958 excavation. Maidstone Museum holds 14 boxes of finds (see Appendix Table 51.1); the 1958 paper archive contains 8 site drawings, 2 site notebooks, 10 photographs and miscellaneous administrative records.

Hockers Lane

3.6.2 The features discovered at chainage 62+300 probably belong to the late Iron Age and Roman settlement discovered in 1967 during the laying of a gas pipeline (Syddell 1967). No material relating to this site was located at Maidstone Museum and the only information located was Syddell's published note (1967), and the Sites and Monuments Record.

4. STATEMENT OF POTENTIAL

4.1 Stratigraphic Potential

Thurnham Roman Villa and Honeyhills Wood

4.1.1 The fieldwork was undertaken in accordance with the CTRL Research Strategy, set out in the WSI (URS 1998). The Fieldwork Event Aims and Landscape Zone Priorities were derived from this strategy, and those identified as relevant to Thurnham Villa and Honeyhills Wood are set out in section 2 of this report, above. The present section reviews the success of the fieldwork events and post-excavation assessment in providing stratigraphic data to address the Fieldwork Event Aims so far, and the potential of the stratigraphic data to support further analysis relating to these aims. Following this, consideration is given to the potential of the stratigraphic data to address the broader landscape issues identified as Landscape Zone Priorities.

Honeyhills Wood

4.1.2 Trenching and watching brief work in Honeyhills Wood has demonstrated that Roman occupation did not extend into the area of the present woodland. The clear delineation of the western boundary of the villa enclosure by a palisade and ditch therefore seems to represent a real edge of occupation. This suggests that the woodland may well have been in existence during the Roman occupation at Thurnham villa. In this context, it is worth noting the evidence for tree clearance on the villa site at the time of the establishment of the Late Iron Age settlement, and the evidence for woodland regeneration around the site of well 11010 in the late Roman period. There is unlikely to be much scope for further work on the Honeyhills stratigraphic data.

Thurnham Villa

Fieldwork Event Aims

4.1.3 By contrast, the results from the fieldwork events and post-excavation assessment relating to Thurnham Villa are very promising.

4.1.4 Fieldwork Event Aim 1 (cf section 2.2.1 above) was to establish a plan and dated occupation sequence for all phases of the villa's development, examining the transition between the Iron Age and Romano-British periods, the reasons why the site developed into a villa, and the reasons for the villa's decline.

4.1.5 The stratigraphic data, and the provisional grouping and phasing established at post-excavation assessment stage, provide evidence for a long sequence of activity at the site, from the Middle Bronze Age through to the post-medieval period. This includes evidence for periods of abandonment. The sequence is set out in detail in section 3.1, above.

4.1.6 Truncation on site was limited (see section 3.1, above) and good stratigraphic information was preserved over much of the site. The stratigraphic data offer excellent potential to refine the provisional dated occupation sequence further, and to examine in detail the critical periods identified as priorities in the Fieldwork Event Aims; that is, the transition between the Iron Age and Romano-British periods, the later development of the villa, and the villa's decline. Good stratigraphic sequences and relationships have been recorded in the critical areas of the site, and these should provide sufficient data to reconstruct the relative

chronology of construction, occupation and destruction for most features throughout the entire sequence of occupation. Good evidence is available within the finds assemblages to add absolute chronological data in many areas of the site. Full written, drawn and photographic records of the form and composition of all significant features and deposits are available in archive and will allow detailed consideration of their function, appearance, affinities and interrelationships. The particular potential of the stratigraphic data for the three critical points in the sequence is as follows.

4.1.7 Good sequences of ditch infilling and levelling underlie the construction levels of both the proto-villa and the temple, and good pottery assemblages are available in these areas. It is anticipated that this will allow detailed analysis of the critical dating for the Late Iron Age to early Roman transition. Stratigraphic data relating to the Late Iron Age enclosure and the proto-villa enclosure, and their respective constituent buildings and structures, are sufficient to support analysis and comparison of these two successive establishments. The scope of this research will, however, be restricted by the lack of evidence for the south part of the Late Iron Age enclosure, and the likelihood that only a part of the proto-villa building has survived. Critical further evidence for the proto-villa should be available in the 1958 archive, since its remains were recorded at that time, although they were considered to have formed part of the later stone-built structure.

4.1.8 The stratigraphic data provide a clear sequence for the development of the villa in the 2nd and earlier 3rd centuries, and much information about the form of individual buildings and structures. Analysed in association with information from the finds and environmental assemblages, these data should provide good evidence for the developmental sequence of the villa and how these developments enhanced or changed the villa's social and economic capacity. This should suggest reasons why the site was developed in this particular way.

4.1.9 The stratigraphic data provide good information regarding the later phases of Roman occupation, from the mid 3rd century to the late 4th or early 5th century. Evidence is of two kinds: firstly, for the disuse, abandonment and possible collapse of individual buildings and structures, and secondly, for new or continuing activity in limited areas of the site. Analysed in association with information from the finds and environmental assemblages, these data should be adequate to identify the ways in which the villa complex was modified at this time, and the uses that were being made of it. Further refinement of the dating of activity in this period should also be achieved.

4.1.10 Stratigraphic data for the medieval occupation at the site have been assessed. Good records exist of a number of postholes and linear features that are probably to be associated with the re-establishment of occupation at Corbier Hall. Further analysis of this stratigraphy in conjunction with the evidence from pottery and small finds should refine present understanding of the nature and dating of this activity. Corbier Hall was a moated site, and another moated site was more extensively studied as part of the CTRL project, at Parsonage Farm, Westwell. This investigation concentrated primarily on the area within the moat, although some external features were investigated, and would form a potentially useful basis for comparison. At present, there is only a poor understanding of the types of features that were often located outside moated enclosures in the medieval period.

4.1.11 Stratigraphic data for prehistoric activity on the site have been assessed. The lack of stratigraphic relationships between these features, and the lack of datable finds, suggests that the potential for further analysis will be limited. However, plotting of

finds and features in relation to other prehistoric finds in the vicinity (known from the Sites and Monuments Record and CTRL surface artefact collections) may give some indication of the character of earlier prehistoric activity in the area.

4.1.12 Evidence for activity in the post-medieval period is sparse, and the features recorded on site add nothing to the information that is already available from cartographic sources. There is little potential for further stratigraphic analysis for the features of this date.

4.1.13 It should be stressed, however, that certain areas of the site displayed very complex stratigraphy. This was particularly true of the enclosure ditch sequences, sequences relating to the temple, and sequences relating to extensions to the main stone villa house. In addition, it remains unclear whether the 14-post structure was completely demolished, or only modified, prior to the construction of the corn-drier. Although the provisional sequence presented in this assessment is thought to be accurate in general terms, considerable further stratigraphic analysis would be necessary to arrive at a definitive interpretation.

4.1.14 Fieldwork Event Aim 2 (cf section 2.2.1 above) was to establish the status, economic orientation and patterns of contact and trade of the settlement, examining the function of features and structures and the presence of functional zones. Artefact assemblages were to be recovered to elucidate these fieldwork aims.

4.1.15 The very full written, drawn and photographic record available in the CTRL project archive, together with the evidence of the finds assemblages, provides good information for examining the form and appearance, and therefore the probable function and status, of features and structures. It is likely that the form of all major structures in the complex will be recoverable, and there are also good data relating to phases of modification. The interpretation of the early rectangular building as a temple remains provisional at this point, and it is thought likely that considerable further work on the stratigraphic data and on possible comparanda will be necessary to achieve a firm identification.

4.1.16 The main evidence for the identification of functional zones is likely to come from the finds and environmental material, but further study of the stratigraphic data will confirm and add to existing evidence for features such as hearths, ovens, livestock accommodation and working surfaces.

4.1.17 The chief contribution of the stratigraphic data to the Fieldwork Event Aims relating to economic orientation and patterns of contact and trade is likely to be the provision of a good occupation sequence, and information regarding the changing status and function of the site. This will support analysis of the sources of finds reaching the site at different periods of time. However, the stratigraphic data could make a direct contribution to this line of research in terms of building materials present in excavated structures, and the form, function and affinities of the different building and structure types recorded on the site.

4.1.18 Fieldwork Event Aim 3 (cf section 2.2.1 above) was to elucidate the villa's interaction with, and influence on, its hinterland and other rural settlements.

4.1.19 The definition of the villa complex plan, of the types and functions of buildings present, and of changes over time will be necessary to support further analysis of the villa's interaction with, and influence on, its hinterland and other rural settlements. The plan of the complex and its component parts, their chronology and their affinities can be considered in relation to other known rural settlements, both

romanised and non-romanised, within the region and beyond. This is considered further in the overall statement of potential, below. The stratigraphic data available are adequate to provide reliable information about the Thurnham complex, which will support useful comparison with other sites elsewhere.

4.1.20 Fieldwork Event Aims 4 and 5 were concerned with the cereal economy of the region, and the contemporaneous local environment of the villa. As with the study of the villa's hinterland (see above), the stratigraphic data have the potential to contribute to these aims by providing a securely dated sequence of occupation for the features and structures on the site. This will ensure that the provenance and dating of environmental remains is well understood, thus enhancing their value for analysis and interpretation.

4.1.21 In general, in relation to all Fieldwork Event Aims, the stratigraphic data recovered during the CTRL fieldwork at the site could be usefully enhanced by the integration of the records of the 1958 fieldwork, relating to the southern ends of the main villa house and the temple. The extent of these records is set out in Appendix 17, and is summarised in section 3.6, above.

Landscape Zone Priorities

4.1.22 Within the scope of Research Objective 2.4, sub-period (i) *c* 100 BC-AD 410, the stratigraphic data will provide very good information to support a number of broader landscape issues, as follows.

4.1.23 The Landscape Zone Priority for which Thurnham Villa perhaps offers the greatest potential is that of elucidation of the basis of the rural economy of the area during the Late Iron Age and Roman periods. Areas of particular concern were identified as the organisation and division of the landscape, settlement morphology and function, agricultural regimes and natural resource exploitation, early industrialisation, trade and the effect of the Roman administration.

4.1.24 Good stratigraphic data are available from Thurnham Villa to date and characterise the types of buildings and structures present on the site at different stages in its history. This information will support further analysis of the way in which the rise and perceived 'decline' of the villa complex may reflect changes in the organisation and division of the landscape, and particularly in the size, ownership and economic orientation of rural estates during this period.

4.1.25 The excavations at Thurnham Villa recovered evidence for the size and nature of the enclosures associated with the Late Iron Age settlement and the villa, and for the buildings and structures located within them. Evidence was also recovered for a trackway, certainly in use in the Roman period. These data have some potential for further study in terms of the organisation and division of the local landscape. However, other direct excavated evidence for the organisation of the local landscape is limited, since the earthwork trenching in Honeyhills Wood failed to provide reliable evidence for the date of the banks and ditches, and no evidence of possible field boundaries was recovered during the Thurnham Lane to West of Crismill Lane watching brief. The excavated evidence can be combined with that from current and historic mapping, in order to try and identify earlier land division features which are fossilised within the present landscape.

4.1.26 Stratigraphic data demonstrating the transition from the Late Iron Age settlement to the romanised villa, and the form and status of the villa complex at different phases of its development, will directly address landscape questions relating to settlement

morphology and function. A very relevant research question would be, for example, to what extent the proto-villa complex exceeded or replicated the capacity of the Late Iron Age enclosure. Potential shortfalls in the relevant stratigraphic data have been noted above, but data should be available, for example, to compare the relative sizes of the enclosures, the buildings, and the structures within them, and to draw some conclusions about their social and economic capacity.

4.1.27 The evidence for continuing occupation of the site at a reduced level during the later 3rd century and 4th century will be of particular value, both for studies of settlement morphology and function, and for study of organisation and division of the landscape. Stratigraphic evidence will be highly relevant, both to demonstrate abandonment of parts of the villa complex, and to demonstrate new and continuing activity and its date. This will provide evidence for wider consideration of such factors, for example, as absentee landlords and the amalgamation of estates in the later Roman period.

4.1.28 The evidence for tree clearance associated with the establishment of the Late Iron Age settlement, and woodland regeneration in the late Roman period, will also be of value in terms of understanding wider landscape development.

4.1.29 Good stratigraphic data have been recovered relating to structures and features associated with different kinds of economic activity (predominantly agriculture and iron working). Further study of the stratigraphic data, together with the finds and environmental assemblages, will refine present understanding of the activities undertaken on the site, of their scale and duration, of their raw material types and sources and their products, and of the agricultural or craft processes that were carried out. This has the potential to provide excellent primary data relating to Thurnham Villa's role in the contemporary rural economy, to the study of natural resource exploitation and to the study of agricultural regimes.

4.1.30 Materials used in the construction of buildings and structures on the site provide direct evidence of natural resource exploitation, and there is evidence for change over time (see Appendices 1.3-1.5, and Appendix 2.2). Further analysis of stratigraphic data relating to these buildings and structures has the potential to clarify the evidence for chronological change, and to identify shifting patterns of natural resource exploitation.

4.1.31 The establishment of a securely dated occupation sequence for the site will underpin study of patterns of contact and trade over time, both during the Late Iron Age and the Roman period; this will in turn contribute to the wider study of trade and the effect of the Roman administration at landscape level.

4.1.32 Further stratigraphic study of the form and affinities of the possible temple will contribute to the CTRL project's broader aims relating to ritual and ceremonial use of the landscape.

4.1.33 Within the scope of Research Objective 2.4, sub-periods (ii) *c* AD 410-1100 and (iii) *c* AD 1100-1700, the stratigraphic data have the potential to demonstrate the abandonment of the site during sub-period (ii), and the re-establishment of occupation at the beginning of sub-period (iii). This will contribute to wider study of landscape change through time, and may reflect the effects of population increase.

4.1.34 The stratigraphic data relating to probable Middle Bronze Age activity at the site have some potential to contribute to research aims related to farming communities

in the period 2000-100 BC. The negative evidence relating to Early-Mid Iron Age occupation at the site is also of interest in this respect.

Hocker's Lane WB SDI

4.1.35 The Landscape Zone Priorities for Hockers Lane are set out in section 2 of this report, above.

4.1.36 The stratigraphic data relating to the two-phase enclosure have limited potential for further analysis, owing to the relative lack of stratigraphic relationships between the features. Limited further work to refine the sequence already established, and to characterise the general nature of the features, would be of value. The potential value of this work derives from the fact that Hockers Lane provides an important contemporary comparator for Thurnham Villa. It represents a nearby Late Iron Age settlement site that apparently went out of use around the time of construction of the proto-villa. This is potentially of considerable significance as evidence for the Late Iron Age to early Roman transition, and would repay effort to derive the maximum benefit from the data available.

4.1.37 There is very little potential for further stratigraphic analysis of the Hocker's Lane phase 3 features identified *c* 500m to the north-west of the enclosure site. Nevertheless, these features represent another very important comparator for Thurnham Villa, as they appear to relate to a more extensive area of Late Iron Age and Roman occupation that must have coexisted with Thurnham Villa (Syddell 1967; see also Figure 1). It has been noted in Appendix 17, and in section 3.6 above, that attempts to locate the records of previous excavations in this area have so far been unsuccessful. Nevertheless, their potential value as evidence for the Late Iron Age and early Roman settlement pattern in the area is considerable, and would justify more extensive enquiry further afield.

4.2 Artefactual Potential

4.2.1 Artefacts were recovered during the course of the fieldwork events in accordance with the Fieldwork Event Aims for the sites. These are set out in section 2 of this report, above, and in more specific terms for each assemblage in the relevant appendices (below). The present section summarises the potential of each assemblage to contribute to further research in pursuit of the Fieldwork Event Aims, and, at a more general level, the Landscape Zone Priorities of the CTRL Research Strategy. Except where otherwise stated, the identified potential of the assemblages relates primarily to Time Sub-Period (i) of Research Objective 2.4, *c* 100 BC-AD 410.

Iron Age and Roman Pottery (Appendix 1)

4.2.2 The pottery is the primary dating evidence for much of the stratigraphic sequence at Thurnham Villa, and is therefore a key element for the establishment of the plan and dated occupation sequence. Sixty four assemblages have been identified as critical for the establishment of a securely dated sequence for the villa's occupation. Further analysis of proportions of vessels, fabrics and forms within these assemblages, in conjunction with further stratigraphic analysis, will potentially clarify and refine the dating of the most important contexts and stratigraphic sequences.

4.2.3 In addition, re-examination of the pottery from Pirie's earlier excavations on the site in 1958 has the potential to supplement the information from the CTRL excavations.

Similarly the results of the 1996 evaluation will require integration into the final analysis (URL 1997a) (Appendices 1.1.58 and 15.1.11).

4.2.4 More detailed examination of pottery assemblages, and spatial analysis of different pottery types, will potentially provide information about the function of features and structures and the presence of functional zones on site. This study has both a spatial and a chronological dimension, with the potential to illuminate both the use of space within a villa complex, and changes in the function and status of the villa complex and its structures over time. Such information has the potential to contribute to wider study, related to Landscape Zone aims, of settlement morphology and function, natural resource exploitation, and the effect of the Roman administration.

4.2.5 Further study of the pottery assemblages and comparative material from within the CTRL project and beyond will indicate how patterns in pottery supply changed over time, from the Late Iron Age through to the end of the Roman period. This information is potentially key to an examination of the economic orientation and patterns of contact and trade of the villa over time, its interaction with its hinterland, and the effect of the Roman administration.

4.2.6 The pottery assemblages from Hockers Lane are small, but they provide important evidence for the study of the Late Iron Age to early Romano-British transition in this landscape. The presence of Middle Iron Age sherds is also of considerable interest, since material of this date was not present at Thurnham Villa. The assemblages have some potential for limited further analysis of fabrics, forms and vessel types present, which may help to refine the dating of the enclosure, and to characterise its function and status.

4.2.7 In terms of new research aims for the CTRL project, the phased Late Iron Age occupation at both Hocker's Lane and Thurnham Villa has the potential to provide a preliminary Late Iron Age ceramic sequence for this area of Kent and a dated corpus of local glauconitic wares.

Medieval and Post-Medieval Pottery (Appendix 1.2)

4.2.8 The small assemblage has some potential to assist in refining the dating and characterisation of the medieval features excavated on the site. All the forms and fabrics are well known in the area, and although this pottery can contribute to the overall Fieldwork Aims for dating and characterisation of activity, it has no further potential in terms of the Landscape Zone Priorities for Time Sub-Period (iii), *c* AD 1100-1700 and requires no further work in this respect.

Ceramic Building Materials (Appendix 1.3)

4.2.9 The assemblage from Thurnham Roman Villa will help to associate tile from different sources with different phases of the complex. One of the most interesting results of the scan was to show that the sources of the tile used on the site changed through time, with the whitish Eccles type fabric predominant in the proto-villa and 'temple', and orange tiles being used in the rebuilt villa and later structures. More detailed analysis of the fabrics and tile types from the site has good potential to provide evidence relating to economic links and trading patterns through the period of occupation of the site.

4.2.10 Further study of the tile can also throw light on the probable appearance, and thus the status and function, of the structures on the site.

Fired Clay (Appendix 1.4)

4.2.11 The assessment scan indicated that most of the fired clay is very abraded and unlikely to provide much information about how it was used, although the material with keying and other impressions from Thurnham Roman Villa may contribute to our knowledge of the construction, function and appearance of some of the structures. The possible artefact from Hockers Lane may provide dating information if it can be identified.

Plaster and Mortar (Appendix 1.5)

4.2.12 The range of constructional mortars, which includes roofing, flooring and walling, should contribute to our knowledge of the construction, status and appearance of some of the structures. The precise composition of the mortars appears to vary, and this variability may help to clarify the building phases on the site.

Worked Flint (Appendix 2.1)

4.2.13 The worked flint recovered from Thurnham and the watching brief areas has limited potential to contribute to the research aims of the project, given the relatively small assemblage and the redeposited nature of much of the material. Broad dating has been provided by the diagnostic pieces present and technological aspects. The flint would benefit from spatial study, particularly comparing the excavated assemblage to the scatter recovered during field walking, which may reveal activity areas. This would provide evidence for study of early farming communities in the region in the period 2000-100 BC. However, given the provenance of the majority of the material little other analysis work is likely to be of significant benefit.

Humanly Modified and Unworked Stone (Appendix 2.2)

4.2.14 The relatively large quantity of rotary querns and the variety of materials present suggest a typical Roman assemblage for this region of Kent (Black 1987), although Thurnham demonstrates a wide range of lithologies compared with other sites. The presence of Hertfordshire Pudding Stone is of interest, as it tends to occur on earlier sites in the region.

4.2.15 Further typological and lithological study of the rotary querns and comparable material will be of considerable value for studying the economic orientation and patterns of contact and trade of the villa, including possible trading routes.

4.2.16 This material, combined with the charred cereal remains, will also be of importance in establishing the economic significance of agricultural production at the villa. The presence of millstone fragments is of significance in suggesting larger scale production. Comparison to villa sites in Kent such as Keston and Darenth (Philp 1973 & 1991) where Millstone Grit millstones were also present and other villas on a wider scale such as Stanwick, Northamptonshire, where a rotary mill structure was excavated, will be valid for establishing the relative status of the site.

4.2.17 Further study of the types and lithologies of the worked stone in conjunction with more detailed stratigrapic analysis will help to identify any chronological or spatial indicators that could aid the recognition of functional zones.

4.2.18 Further study of the spatial distribution of building stone may help with the reconstruction of the form of buildings and features on site, and therefore illuminate their probable status and function.

4.2.19 In terms of new research objectives for the CTRL project, the rotary querns and millstones represent an important assemblage for the region, both in terms of the wide variety of lithologies present, and in terms of the excellent contextual information available to support the analysis. It would be appropriate to make the results of any further study available for wider dissemination.

The shale spindlewhorl (Appendix 2.3)

4.2.20 The fragment of shale spindlewhorl from Thurham Villa provides limited evidence for spinning, for which there is little evidence elsewhere in the artefactual record. Further analysis of its provenance and of associated finds may help to identify functional zoning on the site. It also provides evidence of natural resource exploitation, for which further evidence may be available at comparable sites.

Calcareous Tufa (Appendix 2.4)

4.2.21 The calcareous tufa recovered at Thurnham Villa is likely to have been re-used from earlier Roman structures on the site, and may help to provide information on the construction, status and function of the buildings. Further study of the stratigraphic context is required to examine the original use, re-use and eventual discard of this material.

Roman Glass (Appendix 3.1)

4.2.22 The vessel glass recovered from the villa can undoubtedly help to date the sequence of occupation, as relatively closely dated fragments have been found in contexts where pottery dating is absent.

4.2.23 The evidence for glass use that can be seen will contribute to elucidating the status of the site, and its patterns of contact and trade. The relative rarity of 2nd to 3rd century material, for example, at a time when occupation and activity was at its peak on the site would be unusual on a national scale.

4.2.24 Interesting glass vessels are also available at Maidstone Museum from previous excavations and these have the potential to provide additional information, both in relation to the dating of buildings and structures, and in terms of the overall pattern of glass use and glass supply at the site.

4.2.25 In terms of new research aims for the CTRL project, the assemblage has the potential to contribute to synthetic studies of glass supply and use on rural sites. The unusual vessels and bead will also be useful additions to the corpus of items known to have been used in Roman Britain.

Iron Age, Roman and Post-Roman Coins(Appendix 4.1)

4.2.26 The Iron Age and Roman coins from Thurnham Villa, together with the single Iron Age coin from Hockers Lane, provide important dating evidence for the contexts from which they derive and for informing interpretation of the overall chronological development of the site. Further cleaning of 23 coins should increase their potential usefulness for dating purposes, and may potentially help to refine the dating of a number of contexts.

4.2.27 The coins can be compared with other assemblages from Kent to determine the degree to which this pattern of coin loss in the Iron Age and Roman periods is typical of the region. This study will help to illuminate the status of the site over time, and its patterns of contact and trade. Given the relatively high representation

of early 4th century coins in the assemblage, it will also provide useful data for studying the perceived decline of the villa in the later Roman period.

Post-Roman coins (Appendix 4.2)

4.2.28 The coins have no potential for further work in themselves, but the coin of Henry I is of potential significance for dating the resumption of activity on the site in the medieval period. It should be taken into account in further study of the stratigraphy and artefacts relating to this period.

Bronze Age Metalwork (Appendix 4.3)

4.2.29 The unexpected recovery of Bronze Age metalwork from a waterhole is likely to contribute important information for the understanding of Bronze Age depositional practices, and thus for the study of ceremonial and ritual use of the landscape. The recovery of metalwork from this type of context is unusual, and although it is one in which placed deposits consisting of a range of materials are often found, it is also one in which metalwork is usually excluded. The potential of the group is somewhat reduced by the presence of intrusive medieval pottery and animal bone from the waterhole (see section 3.1.12, above). Further study of the waterhole and the metalwork can contribute to the CTRL Research Strategy's broader aims relating to farming communities and ritual and ceremonial use of the landscape in Time Period 2000-100 BC.

4.2.30 In terms of new research aims for the CTRL project, the metalwork is of considerable interest. The Middle Bronze Age period is partly characterised by the specialised deposition of metalwork on dry land and in wet places, in which deposition involves distinct categories of object (weapons, tools, ornaments) in a range of conditions (Bradley 1990). The evidence from Thurnham will contribute new and important information for understanding these patterns.

Roman Metalwork - Copper Alloy, Iron and Lead (Appendix 4.4)

4.2.31 The metalwork has some potential for contributing to the establishment of the dated occupation sequence for the villa's development.

4.2.32 It has a higher potential for establishing the status, economic orientation and patterns of contact and trade of the settlement. It will be particularly useful for examining the status of the proto-villa, as there are hints that it might be another example of the villas built by members of the native elite who had seen service in the Roman army as postulated by Black (1994).

4.2.33 The assemblage of metalwork from the smithy has potential to add useful information to the metallurgical study, particularly in terms of the kinds of objects that were reforged or produced on the site. This might provide some indication of the status of metalworking that was being undertaken, and therefore of its social and economic context. This will be of particular interest for examining the character of later Roman occupation during the perceived 'decline' of the settlement in the later 3rd century.

4.2.34 In terms of new research aims for the CTRL project, the metalwork also has the potential to contribute usefully to regional syntheses of material culture, especially in establishing the local pattern of brooch wearing.

Slag and Metal Working Debris (Appendix 5)

4.2.35 The assemblage of iron working slag and debris from the villa and preceding Late Iron Age phases has the potential to add to the interpretation and evidence of the changing pattern of occupation at the site. This is particularly true for the Late Iron Age-Roman transition with the establishment of the proto-villa complex. This change was marked by the apparent absence of metalworking debris associated with the early Roman phases.

4.2.36 Further detailed spatial analysis may yield a picture of the distribution of the iron working within or around the enclosure and answer the question of where the larger types of slag (such as smithing hearth bottoms) were dumped.

4.2.37 Similarly the conversion of room 20000 within the core of the villa to a smithy in the late 3rd century has the potential to inform a discussion of the social changes occurring in rural life in the later Roman period, particularly that affecting villa establishments and the apparent demise of many within this period.

4.2.38 The Thurnham material presents an excellent opportunity to study a very important industry in a rural context. This directly addresses CTRL Landscape Zone Priorities regarding change in the rural economy, patterns of natural resource exploitation and early industrialisation. Evidence may be anticipated for the scale and duration of ironworking activity on site, the periods during which it was taking place, and the type of objects being worked.

Worked Bone (Appendix 6.1)

4.2.39 The worked bone has some potential for contributing to the establishment of the dated occupation sequence for the villa's development. It has a higher potential for establishing the status, economic orientation and patterns of contact and trade of the settlement. The possibility exists that the current spatial distribution of the items is, in part, the product of differential preservation across the site. If it is not, then it may cast useful light on the nature of the activities being carried out in the aisled building.

Waterlogged Wood (Appendix 7)

4.2.40 The structural material from well 11010 warrants careful attention to accurately understand and record the large box structure of the primary construction, and to search for subtle clues as to the role of the later successive tiers of slender stakes. In conjunction with further stratigraphic and artefactual analysis, this may cast light on the changing status and occupation patterns of the villa over time, and in particular the period of its perceived decline during the later 3rd and 4th centuries.

4.2.41 The remaining material provides a background sample of natural and worked wood from the well. It will enable the placing of wood selection for the structures in the context of the species of the immediate surrounding natural treescape. Microscope work will also be able to characterise the growth patterns of the wood and to gauge the presence and nature of woodland management. This would be of value for studies of the contemporaneous local environment of the villa, and patterns of natural resource exploitation.

4.3 Environmental Potential

4.3.1 Environmental remains were recovered during the course of the fieldwork events in accordance with the Fieldwork Event Aims for the sites. These are set out in section

2 of this report, above, and in more specific terms for each assemblage in the relevant appendices (below). The present section summarises the potential of each assemblage to contribute to further research in pursuit of the Fieldwork Event Aims, and, at a more general level, the Landscape Zone Priorities of the CTRL Research Strategy. Except where otherwise stated, the identified potential of the assemblages relates primarily to Time Sub-Period (i) of Research Objective 2.4, *c* 100 BC-AD 410.

Human Bone (Appendix 8)

4.3.2 The human bone generally offers little potential for further work to address the research aims of the project. However, the presence of animal bone in the probable prehistoric cremation suggests potential for limited further work to identify the quantity and species present. Similar deposits are known from the CTRL site at Waterloo Connection. This is of considerable interest for the study of burial practice at this period.

4.3.3 In terms of new research aims for the CTRL project, further limited study of the infant inhumations could be undertaken to determine the age at death. This could provide useful evidence for the study of the practice of infanticide in Roman populations.

Animal Bone (Appendix 9)

4.3.4 The fragmentary state of much of the bone has meant that the percentages identified to species are low, and the assemblage will not support detailed statistical analyses. The poor surface condition of much of the bone means that studies of butchery and pathology cannot be undertaken. Nevertheless, the assemblages do have the potential to provide useful information at a general level about diet, agricultural regimes and natural resource exploitation, and bone disposal patterns may help to characterise structure functions and functional zones. This will be of value, since evidence of this kind is very limited in the region.

4.3.5 In this respect, it is important to note that the animal bone has the potential to complement and augment other environmental evidence relating to agriculture and the palaeo-environment. The need to identify regional diversity in agricultural production during the Iron Age and Roman occupation of the country through the use of environmental indicators has been highlighted by Van der Veen and O'Connor (1998).

4.3.6 During the assessment process, approximately half the animal bone was thoroughly recorded, to the stage where identification of species was possible (see Appendix 10). The remainder of the material has only been scanned. The results of the assessment suggest that analysis of the remainder of the bone would be worthwhile, and would probably approximately double the numbers of fragments identified to species for each phase.

4.3.7 Bird, fish and minor mammal bones are present in good condition, but have not yet been identified to species. It is recommended that this be carried out. This material provides particularly valuable evidence for natural resource exploitation (birding, hunting and fishing), and for the nature of the local environment.

4.3.8 In terms of new research aims for the CTRL project, although the assemblages are small, recording and analysis of the biometric data would be of value for wider studies of possible stock improvement, and the success of farming practices, during the Roman occupation.

4.3.9 The general lack of good animal bone assemblages in the region, both from CTRL sites and elsewhere, has been noted above. Although its potential for statistical analysis is limited, the Thurnham Villa assemblage will nevertheless provide a rare source of useful data for animal husbandry and diet in the region in this period.

Charred Plant Remains and Charcoal (Appendix 10.1)

4.3.10 There is great potential to address some of the original research aims of this site, particularly in understanding of the agricultural activities of a Roman Villa complex. The Iron Age deposits offer less potential for analysis generally providing poorer deposits. The occupation sequence evident throughout the late Iron Age-Romano-British period has potential to shed light on agricultural trends such as increasing crop diversity, or the introduction or increase in garden crops or cash crops.

4.3.11 The corn-drier in particular produced very rich deposits and offers potential for investigation of the function of the structure. Variation in different zones or structures across the site generally also seems to be detectable, and further study will be important for identifying functional zones.

4.3.12 On a regional and national scale there is potential to establish if the patterns for this period in Kent are consistent with elsewhere in southern Britain or if there are any trends visible not seen outside the region.

Waterlogged Plant Remains (Appendix 10.2)

4.3.13 The preservation of the material from the deposits within well 11010 is very good and therefore offers the potential to examine many aspects of the surrounding environment and ecology. The likelihood of the deposits having accumulated over a considerable time span also adds to their potential. This will allow changes in the surrounding local landscape to be recognised and compared with activity in the contemporary settlement, possibly reflecting human impact upon these surroundings. This is of particular relevance for understanding the decline of the villa, as current evidence strongly suggests these samples represent the end of the period of occupation, and possibly the abandonment of the site.

4.3.14 The lower waterlogged deposits also offer some potential for adding to the existing economic data already available from the charred remains. Similarly the presence of flax may add to the charred remains of identified flax adjacent to the well area and can provide evidence of additional activities occurring not previously identified at this site.

4.3.15 The mosses were exceptionally well-preserved and the species and provenance should therefore be identifiable. It is recommended that a sub-sample of the mosses is examined by a recognised expert. The moss was found packed around a secondary wattle lining, and is very likely to have been collected from elsewhere on site for this purpose. Mosses are highly diagnostic of specific woodland habitats, and it is considered likely that further study would enhance understanding of the local environment, and provide additional information on the final use of the well.

Pollen Analysis (Appendix 11)

4.3.16 Pollen has been recovered from the sediments filling Roman well 11010, and provides considerable potential for environmental reconstruction, especially in conjunction with plant macrofossil and insect studies. The pollen assemblage will

have greatest potential if it is considered as part of an integrated study with other environmental material.

Molluscs (Appendix 12)

4.3.17 Further analysis of the molluscs from the late Roman well at Thurnham Villa, together with the other environmental information, has good potential to help present a fuller picture of the environment in the location in this period.

Insects (Appendix 13)

4.3.18 The insects from well 11010 at Thurnham Villa offer excellent potential to address two of the research aims. They can certainly assist with the determination of the site environment and will possibly provide evidence of conditions during the decline of the villa. The quantity and quality of the honey bee remains are of national significance and, as an additional aim, offer the potential for the study of the sub-species of bee kept by the Romans.

Oyster Shell (Appendix 14)

4.3.19 There is potential in one substantial sample of oyster shell from Thurnham, which came from the ditch lying to the rear of the proto-villa. This ditch was sealed when the phase 4 stone villa was constructed. This sample has sufficient material of adequate quality to permit comparisons of size and infestation with other oyster samples from archaeological or modern sources. These comparisons may help to determine whether the oysters were farmed or wild, and indicate the general region from which they originated, thus suggesting the level of exploitation of this marine resource and the direction of trade.

4.4 Previous Excavations Archive

4.4.1 Much of the material retained from the previous excavations at Thurnham and deposited at Maidstone Museum has the potential to enhance the data available from the CTRL excavations. Assessment of the site records has shown that a limited reconsideration of the previous excavation archives, including digitising of the plans and reexamination of the site records and artefacts, would be of considerable benefit in aiding the understanding and interpretation of the buildings. For example, further information should be obtainable regarding the plan of the proto-villa, even though this was not recognised as such during the 1958 fieldwork. It is not proposed to carry out detailed integration of previous excavation records with the CTRL project archive.

4.4.2 The ground plan of the rectangular, temple-like building, could not be even partially understood without examining plans within the 1958 archive. As an additional aim, some examination of the stratigraphy of these excavations will be of considerable benefit in establishing comparative levels of truncation between the excavations. This will provide empirical data on the long-term effects of modern ploughing on the archaeological resource.

4.4.3 As outlined (3.6) much unpublished artefactual material exists within the archive. Re-examination of the major finds categories would be of considerable benefit in augmenting information from the CTRL assemblages regarding the dating of the main villa house and the temple, the status of the villa at different periods of its history, and its patterns of contact and trade. A brief assessment of the published pottery suggests that re-examination of all stratified material in the light of current ceramic knowledge will be of benefit for refining the dating of the buildings.

4.4.4 The 35-40 pieces of Roman glass from the 1958 archive would add important new dating information to that available from the CTRL excavations, and would enhance understanding of the patterns of supply, and the status of the site.

4.4.5 The largest single group of finds comprises the painted plaster collected from each of the earlier excavations, all of which is unpublished, and some of which exhibits clear decoration. This should be combined with information on the painted plaster from the current excavations.

4.4.6 The archive includes a small group of unpublished Mesolithic flints (*c* 50-100), including a pick, recovered from the field to the south and west of Thurnham church to the immediate north of the CTRL boundary (URL 1994 OAU Nos. 1062 and 1063). Together with similarly dated material produced from the site at Sandway Road (ARC SWR 99), these could add to a survey of Mesolithic activity in the region.

4.5 Conservation

4.5.1 Investigative conservation of selected objects such as coins, brooches, statuary and a number of currently unidentifable objects will enhance their potential for analysis, for example by clearing corrosion from surfaces in order to expose detail of decoration or manufacture not clearly visible on X-rays. This will enhance the dating potential of these objects, and allow more detailed consideration of their likely sources and affinities. This will contribute to project aims regarding the establishment of a dated occupation sequence, and understanding of patterns of contact and trade.

4.5.2 The wet organic materials require stabilisation if they are to be retained in the long-term (16.1.16).

4.6 Dating Potential

Radiocarbon

4.6.1 The chronology of the material culture of the Romano-British period is generally well understood, although sometimes within rather broad limits. The pottery, ceramic building material, coin and small finds assemblages from Thurnham Villa and from Hockers Lane offer a good range of well-dated types across the entire period of occupation. It is therefore considered that further radiocarbon dating would have little potential to refine the dating information available from these sources.

4.7 Overall Potential

4.7.1 The fieldwork events that form the subject of this assessment form a coherent landscape group, whose potential is greatest when they are considered together rather than separately. Accordingly, in the following statement of overall potential, information for Hockers Lane and Thurnham Villa has been integrated.

4.7.2 Thurnham Roman Villa was identified as a Key Study Area for Research Objective 2.4, Towns and their rural landscapes 100 BC-AD 1700. The key themes and ideas that have emerged as a result of the fieldwork events and the post-excavation assessment suggest that there is excellent potential to address most areas of research interest that were identified in the Fieldwork Event Aims and the Landscape Zone Priorities (see section 2, above). The principal contribution of the site will be to sub-

period (i) *c* 100 BC-AD 410, although information relevant to the other two sub-periods is also present.

Fieldwork Event Aim 1: to recover a plan and dated occupation sequence for all phases of the villa's development

4.7.3 In summary form, the following dated occupation sequence has been established:

- the creation of a waterhole at the Thurnham Villa site in the Middle Bronze Age, in which a special deposit of metalwork may have been placed, and probable prehistoric activity of uncertain date in the vicinity in the form of a cremation and a number of pits containing burnt flint and charcoal
- a probable hiatus in occupation during the Late Bronze Age and Early-Mid Iron Age on the site at Thurnham Villa, with slight hints of Middle Iron Age occupation at Hockers Lane
- the establishment of permanent settlement on the Thurnham Villa site in the Late Iron Age, in association with tree clearance; a Late Iron Age enclosure at Hockers Lane and further occupation 500m to the north-west
- the levelling of the Late Iron Age enclosure ditches at Thurnham Villa and the construction of a romanised house and probable temple in the mid 1st century AD; the abandonment of the enclosure at Hockers Lane; continuing occupation 500m to the north-west
- the development of the Thurnham Villa site during the 2nd and possibly early 3rd century into a Roman villa complex with trackway access from the east, comprising a main house rebuilt in stone, with an attached bath house, a probable temple, an aisled building and a probable agricultural building, with accompanying wells and external surfaces; occupation continuing at the north-west point of the Hockers Lane watching brief, until at least the early 2nd century
- a substantial decline in the scale of occupation at Thurnham Villa from the mid 3rd century
- iron smithing at Thurnham Villa during the later 3rd century
- probable continuing lower-level activity at Thurnham Villa during the 4th century, evidenced by a corn-drier, an oven and the restoration of a well
- the abandonment of the Thurnham Villa site in the early 5th century
- a hiatus in occupation during the Anglo-Saxon period
- the re-establishment of occupation, probably at Corbier Hall, at some point between the late 11th and 13th centuries
- sparse evidence for land division at Thurnham Villa in the post-medieval period.

4.7.4 There is excellent potential to refine and confirm this sequence of occupation, the plan of the complex at different phases of its life, and the dating of these phases of activity. Stratigraphy was well preserved over much of the site, and good excavated sequences demonstrate the processes of construction, occupation and destruction. Closely datable stratified material is present in many finds assemblages, and more detailed analysis of datable material present in important contexts should help to resolve existing uncertainties.

Fieldwork Event Aim 1: the transition between the Iron Age and the Romano-British periods

4.7.5 The evidence for the transition between the Iron Age and Romano-British periods at Thurnham has significant potential for further study. The early date at which the transition seems to have occurred at Thurnham, and the evidence for the direct substitution of a romanised for a non-romanised complex, make the site of particular interest. There is considerable research interest in the nature of change in this

period. It remains unclear, for example, how far romanised villas were constructed by newcomers, whether Roman or from elsewhere in the empire (for example Gaul), or by pro-Roman elements of the native elite. It also remains unclear to what degree villas reflect significant change in the economy, social relations, and the use of land, or to what extent there was essentially continuity between the later Iron Age and Roman period. These questions would be central to further analysis of Thurnham.

4.7.6 The proto-villa was founded relatively soon after the Roman conquest, and this early date makes it unlikely that the form of the building would have been inspired by Romano-British examples. The architecture of the proto-villa may suggest links with Gaul, and the form of the temple is highly suggestive of such connections. Alternatively, timber construction on stone foundations was characteristic of military architecture, and this may have been the model that was being copied. Detailed comparison of the architecture of the earliest romanised buildings at Thurnham with contemporary structures on other sites may demonstrate where its closest affinities lie.

4.7.7 Closer analysis of the finds assemblages from the Late Iron Age settlement and from the proto-villa and temple would also highlight any evidence for continuity, or for significant changes, in the status and cultural affinities of the inhabitants of the site. The presence of painted plaster from the proto-villa is of interest, as this is generally taken as a sign of Romanisation. Hilary Cool notes the presence of objects suggestive of military connections, and finds assemblages that may be securely linked with proto-villa occupation occurred in the fill of ditch 20400.

4.7.8 Evidence for change in the agricultural regime of the site during this transitional period may not be so clear, as the animal bone is not well preserved, and the Late Iron Age charred plant samples generally provided poorer material than samples of later dates. Nevertheless, a general characterisation of the broad nature of the agricultural regimes would be of value, both as evidence for the agricultural context of the settlements, and as a contribution to the very limited data available for the region.

4.7.9 Evidence for change in sources of supply and patterns of trade at this time should also be available within the finds assemblages. The use for the proto-villa of tiles that may have been made at the villa at Eccles is potentially a key indicator of local relationships after the conquest. Similar evidence is likely to be available from the pottery assemblage; the appearance of Upchurch fineware, for example, suggests some reorientation from the earlier predominance of local coarsewares in the Late Iron Age assemblages. Further analysis of the worked stone reaching the site in this period may also suggest expansion and reorientation of trading contacts, as will the small finds assemblages.

4.7.10 There is also considerable potential for inter-site study of this transition. Inter-site comparison will provide a means to refine and assess the nature of the transition at Thurnham. For example, how ‘luxurious’ is the proto-villa compared with other contemporary houses, both romanised and non-romanised? How wealthy does the estate seem to have been? Was its economic basis the same as comparable contemporary sites, or was it different? Was its pattern of contact and trade the same as that of other sites, or was it different?

4.7.11 Within the CTRL project, the nearby site at Hockers Lane provides a very important comparator for Thurnham. Hockers Lane may have been an older settlement than Thurnham (suggested by the presence of Middle Iron Age pottery), but the enclosure went out of use around the time of the foundation of the proto-villa. The

trackway and soil spread identified to the north-west appear to form part of a Late Iron Age and Roman settlement that coexisted with Thurnham at least into the 2nd century AD. Further research into the previous excavations at the site might cast light on the nature of this settlement, and what its relationship with Thurnham may have been.

4.7.12 The nearby villa at Eccles is of major significance for comparative purposes. Eccles has been characterised by Detsicas (1983, 120) as the major villa-estate of the Medway valley. Eccles was, like Thurnham, an early villa (founded *c* AD 55 and substantially reconstructed *c* AD 65; cf Black 1987, 141) constructed on an Iron Age site, but one which seems to have developed on a much larger scale. No definitive publication of this site has yet been produced, but information is available from interim reports, and draft reports may be available in archive (P Salway pers. comm.). The dating of the Iron Age settlement at Eccles remains unclear (cf Detsicas 1983, 120), but if it was contemporary with the Late Iron Age settlement at Thurnham this raises the interesting possibility that the early Roman occupation at these two sites was perpetuating a Late Iron Age estate structure.

4.7.13 Slightly further afield, the CTRL site at South of Snarkhurst Wood provides comparable evidence from a non-villa rural settlement of Late Iron Age to very early Roman date. Directly comparable evidence should also be available from the CTRL site at Northumberland Bottom. Both these sites appear to have been the location of industrial or craft activity, evidenced by kilns and ovens, from the Late Iron Age into the 2nd century AD, and it is suggested that Northumberland Bottom may have been a pottery manufacturing site supplying the nearby small town of Vagniacae (Springhead).

4.7.14 In addition to directly addressing major components of the CTRL Research Strategy, as discussed above, evidence for Late Iron Age to Roman continuity at rural settlements, and villa foundation in the south-east in the 1st century AD, have been identified by the Society for the Promotion of Roman Studies (1985, 12) as high absolute research priorities for Romano-British studies. Thurnham is highly relevant in both respects. In terms of national research priorities, therefore, it would be appropriate to consider the evidence from Thurnham in a wider context, comparing and contrasting it with sites further afield where continuity between the Iron Age and the Romano-British period has been demonstrated. The villa at Gorhambury, St Albans (Neal *et al* 1990) is an obvious and outstanding comparator. The Medway Valley is particularly rich in remains of this period, and detailed study of the Thurnham villa site may help to explain why this is the case.

Fieldwork Event Aim 1: why did the site develop into a villa?

4.7.15 The particular value of the CTRL excavations at Thurnham has been the recovery of evidence for the full extent of successive complexes, rather than simply for the main house. This has not often been the case in previous villa excavations, and information about villa complexes is therefore much rarer than information about villa houses. Consequently, Thurnham represents an unusually large body of well recorded data to inform analysis of how and why the villa developed as it did.

4.7.16 The excavated evidence from Thurnham has the potential to show how and when the main villa house was modified and extended, and how and when subsidiary buildings were added to the complex. Present evidence suggests the addition of the aisled building in the period AD 120-150 and the 14-post building (possibly at the same time as the bath house) during the later 2nd century. Further study of these buildings and associated features, together with study of comparable structures

elsewhere, will clarify their form, function and affinities. This should suggest reasons why the villa complex was developed in this way - for example, was the aisled building added to provide additional living or working space? Did its function change following the addition of the 14-post structure? How far does the development of the villa complex follow formal classical models? Recent work on architecture in Roman Britain (Johnson 1996) will be of substantial benefit here in considering decoration, two-storey structures, facades etc.

4.7.17 There is mounting evidence (P Booth, OAU, pers. comm.) for a characteristic regional style of 14-post structure, seen at Thurnham, which was also present at Keston, has recently been recorded in the CTRL Area 440 watching brief at Bower Road, Smeeth, and was present at the Westhawk Farm site at Ashford. Further analysis may help to characterise this distinctive architectural type, and identify additional examples.

4.7.18 The extensive finds and environmental information available for this period will contribute to this study at three levels. Firstly, the identification of specific functional zones on the site. Secondly, the characterisation of the general economic and agricultural regime of the site at different phases of its development. Thirdly, the level and pattern of trade of the villa, indicating, for example, periods of increasing status and prosperity. From this, it should be possible to draw conclusions about the reasons why the villa developed as it did.

4.7.19 The range of comparative material for inter-site studies increases greatly during this period, with considerable numbers of villas known in Kent and Sussex dating from the late 1st and 2nd century (cf Black 1987, fig. 18), and many more elsewhere. Comparison of the developments at Thurnham with other villa sites would be essential to provide a measure of how typical, or atypical, Thurnham's development was. Questions that could be addressed might include how successful Thurnham was compared with other sites, and what the relative status of its owners might have been. Where possible, studies of the economic base of comparable villas would provide very interesting information. It is acknowledged, however, that many villa excavations took place a long time ago, and few have succeeded in revealing the range of buildings and structures present at Thurnham. Considerable numbers of villa excavations also remain unpublished. Inter-site comparisons will inevitably have to focus on the best reported, and best excavated, sites. In the immediate vicinity, the villas at Eccles, Keston (Philp *et al* 1991) and The Mount, Maidstone (Houliston 1999), are likely to be the most relevant comparators. Further afield, Gorhambury again provides an excellent parallel.

4.7.20 Comparisons, where possible, should also be undertaken with non-villa rural sites in the vicinity. Figure 5 shows the extent of Iron Age and Roman occupation in the vicinity of Thurnham (from the Kent Sites and Monuments Record). This suggests that there is considerable potential for characterising the local landscape, and identifying a possible hierarchy of settlement within which Thurnham Villa operated. In addition to the sites on Figure 5, comparison with the CTRL site at Northumberland Bottom will also be valid for this period. There will also be valuable comparable evidence at the recently discovered Area 440 watching brief site at Bower Road, Smeeth, where a 14-post structure and associated enclosure ditches are probably datable to the 2nd century; no villa is currently known in this area.

Fieldwork Event Aim 1: reasons for the villa's decline

4.7.21 The excavated evidence from Thurnham has good potential for further study of the perceived decline of the villa, which seems to have begun around AD 200-250. Thereafter, occupation at a reduced level was apparent until the late 4th or early 5th century. The statements of potential for the stratigraphy, finds and environmental assemblages emphasise the quality of material available to inform interpretation of Thurnham's history during this very uncertain period.

4.7.22 Further detailed study of the stratigraphic and finds data should refine present understanding of the extent and sequence of disuse, abandonment and possible collapse of buildings. Against this, there is good evidence that elements of the site were being deliberately maintained; for example, Keys has commented that the main villa house roof was probably still on in the late 3rd century, and a corn-drier and oven were in use into the late 4th century.

4.7.23 Rather than assuming the abandonment of the villa, followed by low-level 'squatter' occupation, further research should address the possibility that the villa was being maintained as a viable productive unit. It is, for example, highly likely that the perceived decline could be attributable to a change of ownership at this time, which led to Thurnham's amalgamation with other estates. The apparent collapse of the temple and the broken 'antique' pottery associated with this would be consistent with the site's passing under new ownership, and the perceived decline of the principal buildings may reflect the fact that the new owner lived elsewhere. Consideration should also be given to the possibility that timber buildings were inhabited once the stone buildings became too difficult to maintain. Evidence to support this possibility should be sought during the process of detailed analysis of the stratigraphic evidence.

4.7.24 Alternatively, it may be possible that the perceived decline reflects a real retraction in settlement, perhaps dating from the mid 3rd century, and attributable to general insecurity in the face of barbarian threats and internal political conflict. Further possible evidence for this may be evident in the wider local settlement pattern at this time (see below).

4.7.25 Further study should also aim to achieve a more precise identification of the final cessation of activity at the site, and the likely extent and effect of local woodland regeneration at this time, which is suggested by the waterlogged plant, pollen and insect remains (see Appendices 10-13). The site was apparently abandoned during the Anglo-Saxon period. The point at which abandonment occurred would be of considerable interest for the study of the Romano-British to Anglo-Saxon transition, particularly the extent to which Romano-British settlements persisted into the early to mid 5th century.

4.7.26 Further consideration needs to be given to the apparent anomalies in the finds assemblages for this period. While pottery is perceived as being in steep decline, Booth has noted a relative frequency of early 4th century coins on the site, and Cool notes the presence of Roman window glass of 4th century type. Preliminary analysis of the distribution of coins suggests that most occur in stratigraphically late contexts, including soil layers and robber trenches, and also within room 20000 of the main villa house, which seems to have been used as a smithy in the late 3rd century. Spatially, the coins occur in association with all the main buildings.

4.7.27 The environmental assemblages offer good potential for studying the late Roman activity, since many of the best samples have come from structures and features in

use at this time. Evidence should be sought for the scale and range of agricultural activity, whether any change or retrenchment is apparent compared with earlier periods, and whether any decline can be perceived as the late Roman period progressed. Comparative studies with other sites will help shed light on how typical or atypical the Thurnham evidence is, although good sequences from Roman wells are very rare, and the best comparator is likely to be Barton Court Farm, Oxon.

4.7.28 Inter-site studies will also be of particular value for this period. Evidence from villas has a tendency to polarise during the later Roman period, with some showing evidence for considerable prosperity and expansion, while others follow the pattern observed at Thurnham. It is perhaps more important at this period than any other to attempt to view Thurnham in its wider local and regional context. Analysis of the pattern of prosperity and decline at contemporary villas in the region may be a very important indicator of change in patterns of villa estate ownership, and general political and economic conditions.

4.7.29 Evidence should also be considered for change in the local and regional non-villa settlement pattern, although present information suggests that this is likely to be limited. Few CTRL sites have yielded clear evidence of 3rd and 4th century activity, and none is comparable with Thurnham. The apparent rarity of late Roman rural settlement is a problematic issue that can probably only be addressed by a synthetic study of pottery, coinage and settlement patterns at a regional level. Some evidence of very late Romano-British activity and possibly very early Anglo-Saxon activity is reported from North of Saltwood Tunnel, and there is some evidence for 3rd and 4th century activity at the Waterloo Connection Roman cemetery. However, it is notable that this is at a much lower level than in earlier periods.

4.7.30 Nationally, Thurnham has high potential for contributing to study of the late Roman period. There is mounting evidence for widespread decline in rural settlement and towns in Kent, and elsewhere in south-east Britain, which contrasts with evidence for late recovery and development in other regions. The nature of the Roman decline in the province of Britain from *c* AD 350 is not well understood, and has been identified by English Heritage (1991, 36) as a national and regional academic priority. It would therefore be appropriate to consider the Thurnham evidence in a wider context, and undertaken comparisons with good published parallels from beyond the immediate region. A very similar sequence of decline was noted, for example, at the villa of Boxmoor, Herts (Neal nd).

Fieldwork Event Aim 2: to establish the status, economic orientation and patterns of contact and trade of the settlement, examining the function of features and structures and the presence of functional zones.

4.7.31 The very good potential for establishing the status of the settlement, the function of features and structures and the presence of functional zones has been alluded to above, in the review of potential for studying the origins, development and decline of the villa complex. Good stratigraphic data exist for identifying both the types of buildings and features present on the site, and the presence of functional zones characterised by features such as hearths, ovens and working surfaces. The specialist contributors have identified potential within the finds and environmental assemblages to supplement this information from the study of finds distributions across the site, the presence of materials such as plaster and tile in building debris, and concentrations of plant remains in features such as the corn-drier and the oven in the aisled building.

4.7.32 The finds and environmental assemblages will also provide the principal source of evidence for the study of the economic orientation of the settlement, and its patterns of contact and trade. There is very good potential to achieve worthwhile results from this study. Traded artefacts such as pottery, querns and millstones, glass and metalwork provide good evidence for sources of supply and trade routes, and for change in patterns of contact over time. Building materials such as tile and stone can provide similar evidence for procurement sources, local and regional trading contacts and exploitation of natural resources. The deposit of oysters from the Late Iron Age ditch 20170 provides evidence for food procurement in the Late Iron Age to early Roman period.

4.7.33 Specialists have emphasised the need for studies of patterns of contact and trade to be undertaken on an inter-site basis wherever possible, allowing the Thurnham assemblages to be seen in the context of trading systems and supply sources evidenced at other sites.

Fieldwork Event Aim 3: to elucidate the villa's interaction with, and influence on, its hinterland and other rural settlements

4.7.34 The potential for elucidating the villa's interaction with, and influence on, its hinterland and other rural settlements has been alluded to above, in the review of evidence for the origins, development and decline of the villa complex.

4.7.35 Evidence to address this Fieldwork Event Aim is likely to be of three kinds. Firstly, there is evidence for the exploitation of locally available resources such as stone, woodland and wild animals. Comparison of material from different phases of the settlement's development, and inter-site comparison, may highlight evidence for the initiation, intensification or cessation of exploitation of local resources. This will contribute to study of the way in which the establishment of romanised villas affected their hinterland in terms, for example, of stimulating demand for new or high quality products, and efficient means of transport. The need for good building stone, for example, is likely to have stimulated quarrying, and quality timber would have been required for the main structures. Wood from the late Roman well at Thurnham is likely to show evidence for woodland management in the vicinity. The requirement for large scale carriage of materials over considerable distances also argues for the establishment of permanent and reliable transport routes, and consideration could be given to the evidence for Roman roads, trackways and water routes in the vicinity.

4.7.36 Secondly, the evidence for agricultural activity at Thurnham will suggest the nature and level of exploitation of arable and pastoral land locally. The assessment results both for charred plant remains and for worked stone suggest that cereal production may have been carried out on a large scale at Thurnham, with evidence for substantial quantities of cereals on the site, and probable milling. Evidence in the environmental assemblages for the presence of possible garden and cash crops is also suggestive of change in the villa's hinterland, related to extensive exploitation of the estate's productive capacity. The Honeyhills Wood results suggest that, on the west at least, the villa complex was bounded by woodland, which raises the interesting question of where the villa's fields were situated. The trackway approaching the villa complex from the east may have given access to the fields, for example. Comparison with sites such as Barton Court Farm, and studies of Roman field systems elsewhere may suggest possible models of field size and layout. It is also likely that topographical study of later land use patterns from cartographic sources, and study of place- and fieldnames, will suggest where the best arable and pasture land was located. To date the available cartographic research is that

contained within the Assessment of Historic and Cultural Effects (URL 1994). More detailed consideration of the Thurnham landscape, including areas outside the CTRL corridor, would be required for such a study.

4.7.37 Thirdly, inter-site comparison will provide evidence for the local landscape context of Thurnham, and for the hierarchy and chronology of settlement in the area. Detailed consideration of the potential for inter-site comparison has been set out above. It will be important to consider the villa's interaction with sites of all types in the vicinity, the range of which is illustrated on Figure 5, and to consider how much of this landscape belonged to Thurnham Villa. A number of potential lines of enquiry immediately suggest themselves. For example, is there any evidence for where the estate workers would have lived, particularly during the proto-villa phase, when there would hardly seem to have been accommodation for them within the villa complex itself, unless one or more of the roundhouses was still standing? Similarly, is there any evidence of a small cemetery on the estate, where the villa's inhabitants were generally buried, since only two infant graves have come to light on the excavated site itself?

Fieldwork Event Aims 4 and 5: to consider the evidence for the cereal economy of the region, and to determine the contemporaneous local environment of the villa

4.7.38 There is considerable potential within the environmental assemblages to address these two aims. Charred plant samples with good representations of cereals have been recovered from Roman features, and show evidence for a range of crops. Generally, the Iron Age samples showed poorer preservation, and the potential for comparing the Iron Age and the Roman cereal economies may therefore be more limited than had been hoped. However, comparisons between the Thurnham assemblages and those from other CTRL sites, including Snarkhurst Wood and the Early Iron Age material from White Horse Stone, will be useful.

4.7.39 The waterlogged remains offer some potential for adding to economic data available from the charred remains, and in addition offer very good potential for environmental reconstruction. Pollen, molluscs and insects from the same waterlogged sequences will all contribute to this study, which will therefore be able to draw on a wide variety of sources of information. This should allow a very accurate reconstruction of the environment and ecology of the site in the late Roman period.

Landscape Zone Priorities (i): the reconstruction of the palaeo-environment and the interaction with past communities through 'on-site' and 'off-site' studies

4.7.40 A small assemblage of worked flint recovered from Thurnham Villa is of broadly Neolithic to Bronze Age date. A single piece of Mesolithic date was recovered during the watching brief at Thurnham, and other material of Mesolithic date is present in the archives of earlier excavations. Combined with the material recovered during the 1994 Surface Collection Survey, this material may repay spatial analysis to reveal activity areas. This would provide information to contribute to wider study of the interaction of Mesolithic, Neolithic and Bronze Age communities with the palaeo-environment.

Landscape Zone Priorities (ii): to elucidate the basis of the rural economy of the area for all time periods, with emphasis on the organisation and division of the landscape, settlement morphology and function, agricultural regimes and natural resource exploitation, early industrialisation, trade and the effect of the Roman administration

4.7.41 Thurnham Villa and Hockers Lane have produced substantial evidence to address this Landscape Zone Priority.

4.7.42 Evidence of arable activity and animal husbandry and of the procurement and working of naturally occurring resources such as iron, stone and wood is well represented. Further study and analysis of this material has the potential to make a significant contribution to the study of the rural economy of the area during the Late Iron Age and Roman period. Evidence for tree clearance on site in the Late Iron Age, intensive agricultural and natural resource exploitation during the Roman period, the regeneration of woodland and abandonment of the site during the Anglo-Saxon period, and the re-establishment of settlement between the 11th and 13th centuries, suggests patterns of land use that may be related to population growth and increasing pressure on resources.

4.7.43 Elsewhere within the CTRL excavations, evidence for this period is widespread, but much more limited in its extent. It is likely that comparisons of the general nature and chronology of activity can be made between the Thurnham group of sites and smaller fieldwork events such as South of Beechbrook Wood, Boys Hall Balancing Pond, Chapel Mill Lenham, East of Station Road, Bower Road, West of Blind Lane, Pilgrim's Way, East of Boarley Farm, East of Newlands and the A20 Diversion, Holm Hill. Few of these sites have produced substantial evidence of settlements, but trackways, pits, field ditches and possible structures have been identified. The spatial and chronological relationships of these sites, and their general nature, will be of value in assessing the density of settlement in this period across varying Landscape Zones, and in reviewing evidence for late Roman retraction in settlement. The evidence from the watching briefs, particularly negative evidence demonstrating absence of remains, will be of value to confirm the validity of the concentrations of activity that have been identified. Further information should be available from topographic study, for example of map evidence and field- and placenames. This study will contribute to understanding of the organisation and division of the landscape at this time, of settlement morphology and function, and of natural resource exploitation. To date the available cartographic research is that contained within the Assessment of Historic and Cultural Effects (URL 1994). More detailed consideration of the Thurnham landscape, including areas outside the CTRL corridor, would be required for such a study.

4.7.44 More detailed comparisons should be possible with the sites that have produced more extensive Late Iron Age and Roman evidence. These should allow more extended consideration of points of similarity and contrast in the function, development and chronology of activity. Sites likely to offer greatest potential as comparators for Thurnham are Northumberland Bottom, Bower Road Smeeth (Area 440 watching brief) and South of Snarkhurst Wood. Comparisons with the evidence from the Waterloo Connection Roman cemetery should illuminate differences in pottery sourcing and supply.

4.7.45 Thurnham Villa offers considerable potential to study the organisation and division of landscape within its own local region. This is considered in detail in the review of potential to address the Fieldwork Event Aims, above. In summary, further study of the villa in its wider local context, and in conjunction with significant local

comparanda (including local villas) may help to identify a hierarchy of settlement in the region, and the organisation of the landscape into estates and productive sites aimed at intense exploitation of its resources. Evidence for change over time may be apparent.

4.7.46 Thurnham provides substantial evidence of traded goods, and the potential for studying the sources of supply and possible trade routes has been considered in detail under the Fieldwork Event Aims above. In summary, there are numerous assemblages of finds that will have reached the site as traded commodities. Investigation of the sourcing of material should provide good evidence for the patterns of trade operating within the Landscape Zone at different periods of time.

4.7.47 Thurnham also provides good potential to study the effects of the Roman administration. It provides evidence for settlement before the arrival of the Romans, evidence for distinctive changes following the conquest and a sequence of development that followed a romanised pattern, and then a long period of perceived decline at a time when the Roman administration was weakening. Further study of the nature of activity at the villa, and the pattern of settlement in the region, at these different periods should provide good primary evidence for the effects of the Roman adminstration on this area.

Landscape Zone Priority (iii): to elucidate the ritual and ceremonial use of the landscape

4.7.48 A probable placed deposit of Middle Bronze Age metalwork has been identified at Thurnham Villa, and will have potential to contribute to this Landscape Zone Priority.

4.7.49 The presence of the possible early Roman temple at Thurnham is of considerable interest. Its association with an 'antique' collection of pottery suggests that the temple may have been associated with veneration of ancestors (K Painter and P Salway, pers. comm.), and its proximity to a Late Iron Age roundhouse may possibly suggest evidence for some form of continuity. The further study of this temple and its affinities will be of considerable interest for the ritual and ceremonial use of the landscape at this period.

Other research aims

4.7.50 The following additional research aims have been identified during the course of the assessment.

4.7.51 Study of the effects of plough damage on archaeological sites.

4.7.52 The Late Iron Age pottery from Thurnham, Hockers Lane and Snarkhurst Wood has the potential to form the basis of a preliminary ceramic sequence and dated corpus of Late Iron Age glauconitic wares.

4.7.53 The humanly modified stone assemblage from Thurnham is important in regional terms, and would represent a valuable contribution to understanding of this material type.

4.7.54 The glass assemblage has the potential to contribute to synthetic studies of glass supply and use on rural sites, and to add to the corpus of known items from Roman Britain.

4.7.55 The special deposit of Middle Bronze Age metalwork will contribute new and important information for understanding specialist deposition of metalwork in this period.

4.7.56 The Roman metalwork has the potential to contribute usefully to regional syntheses of material culture, especially in establishing the local pattern of brooch wearing.

4.7.57 The infant inhumations have the potential to provide further data for the study of infanticide in the Roman period.

4.7.58 The general lack of good animal bone assemblages for the region suggests that the Thurnham Villa assemblage would provide useful data on animal husbandry, stock improvement and the success of farming practices in the area in the Roman period.

4.7.59 The charred plant assemblages merit comparison with other assemblages on a regional and national scale, to establish how far the patterns for this region in Kent are consistent with elsewhere in southern Britain.

4.7.60 There are few previous studies of pollen obtained from wells. Whilst it is clear that the pollen has the potential for providing information on the local vegetation, the taphonomy is not well understood. The Thurnham study would provide valuable comparative data.

4.7.61 The well preserved remains of honey bees represent an assemblage of national significance for understanding the types of bees kept by the Romans.

Popular Publication

4.7.62 Thurnham represents an obvious and recognisable feature to enhance public knowledge of archaeology. The villa could form a basis for reconstruction of life on the agricultural estate from the time of the Iron Age through to the time of the Roman villa estate, together with reconstruction drawings of each phase of the site. The artefactual and environmental remains could all contribute to this in demonstrating the range and location of activities occurring. The domestic, religious and agricultural buildings excavated would also allow a varied representation of the occupation associated with the villa. The contrast with the Late Iron Age would illustrate the effects of the Roman conquest on the native population. Emphasis on the landscape element of the study would allow a wider area to feature in the book, and draw in the interest of more local people.

4.8 Updated Research Aims and Objectives

4.8.1 This section follows recent guidance from English Heritage regarding the formulation of updated project aims (English Heritage nd, 2-3). This recommends that it is helpful, when appropriate, to treat *aims* as major themes or goals to which specific *objectives* contribute, and that it is helpful, when appropriate, to think of aims and objectives as questions.

4.8.2 The following updated research aims and objectives are derived from the overall statement of potential set out in section 4.7 above. At the present stage of assessment, these necessarily emphasise the presence, absence and sufficiency of data to support further analysis of components of the archaeological record. Such further analysis would be undertaken with two primary objectives in view; to add to archaeological knowledge in the areas prioritised within the CTRL research strategy, but also to understand and explain how people lived in this region in the past. Thus, in the interpretation and presentation of the results, more emphasis

would be placed on the people of Thurnham and their community. Aspects for consideration would include:

- the size and structure of households
- different types of housing and how people perceived space and used it to express social relations
- daily life at Thurnham Villa, diet, standards of living, heating, glazing, furniture, interior decoration, bathing, hygiene, costume and personal adornment, pastimes
- people's occupations and how they provided or obtained their food, fuel, building materials and other necessities of life
- religious beliefs and practices, and attitudes to (for example) ancestors, infants and social inferiors
- people's perceptions and expression of their status, and their social and cultural identity; how should we interpret the introduction or adoption of romanised forms of life at the villa
- the political, economic and social factors that affected people's lives; what the Roman conquest and occupation meant for the local British, the pressure to produce surplus, increasing prosperity and opportunity for some
- the effect of political change on social organisation and the local social hierarchy; was there a change in the way the community was structured, who lived where and with whom
- did the arrival of the Romans 'open up' the world for the local community; did the local people come into contact with foreign culture, goods and beliefs; did they travel more widely; did they have more contact with other areas in terms of access to a wider variety of traded goods
- did attitudes to the natural environment change? The preliminary evidence suggests that there was pressure for more intensive exploitation of the local landscape from the Late Iron Age until the later 3rd century AD
- who lived or worked at the villa in the late 3rd and 4th centuries; what was the standard of living of these people, in comparison with the villa's occupants in its heyday.

4.8.3 *Updated Research Aim 1*: To refine and confirm the plans and dated occupation sequences for Thurnham Villa and Hockers Lane.

4.8.4 *Updated Research Aim 2*: What is the nature of the transition from the Iron Age to the Romano-British period at these sites?

- Objective 1: What does the architectural style of the early Roman buildings suggest about the cultural background and affinities of the builder of the proto-villa?
- Objective 2: Do the finds assemblages suggest change or continuity in the status and cultural affinities of the inhabitants of the Late Iron Age and early Roman complexes? Is there evidence for change in sources of supply at this time, and what might their significance be?
- Objective 3: Do the environmental and animal bone assemblages suggest change in the agricultural regime at this time?
- Objective 4: Does the form of the early Roman complex suggest significant change in its social and economic capacity?
- Objective 5: Do changes in the local settlement pattern appear to coincide with the establishment of the proto-villa, and what do they suggest about the nature of the early Roman estate?
- Objective 6: How typical or unusual is Thurnham in comparison with other sites at a regional and national level, where there is direct evidence for early Roman

occupation succeeding Late Iron Age settlement? What does this imply about the nature of this transition at Thurnham?

4.8.5 *Updated Research Aim 2*: Why did the site develop into a villa?

- Objective 1: What buildings and structures were added to the villa complex during the period *c* AD 120- AD 200/250, and what can be deduced about their status and function?
- Objective 2: Do these additions reflect change in the social composition of the villa complex population?
- Objective 3: Do these additions reflect change in the agricultural capacity of the villa?
- Objective 4: How far do the additions to the villa complex reflect intensification in the estate's agricultural regime, or increasing prosperity, as evidenced by the environmental and finds assemblages?
- Objective 5: Is the development of the villa complex reflected in contemporary changes in the local landscape? If so, what is their likely significance?
- Objective 6: Is the development of the Thurnham complex typical or unusual in comparison with developments at contemporary villa sites, both regionally and further afield? What does this imply about the economic basis and status of the Thurnham establishment?
- Objective 7: How far can the 14-post structure be characterised as a specific regional building form?

4.8.6 *Updated Research Aim 3*: Did the villa decline in the later Roman period, and what factors seem to have influenced the apparent change in the nature of occupation and use?

- Objective 1: Which buildings and structures went out of use in this period, and which were in use? Is there evidence for modification of buildings or structures to maintain the estate's functional capacity, or to permit habitation? Were new buildings or structures added?
- Objective 2: Were people living on the site at this time? Is there evidence for change in ownership of the estate?
- Objective 3: What activities were undertaken on the site during this period? How does this differ from the earlier Roman pattern? Can their economic importance be characterised?
- Objective 4: What is the likely significance of the presence of 4th century window glass and early 4th century coins at the site?
- Objective 5: What is the evidence for agricultural activity at this time? Does this suggest any change or retrenchment from the earlier pattern?
- Objective 6: Are there changes in the scale or nature of occupation at other local sites? What does this imply about the nature of the changes at Thurnham?
- Objective 7: What was the character of the local environment and ecology during the late Roman period, and how does this compare with the evidence for earlier periods?
- Objective 8: At what point does all occupation on site appear to have ceased?
- Objective 9: How typical or unusual is Thurnham compared with contemporary sites in the region and further afield, and what does this imply about the nature of the late Roman changes at Thurnham?

4.8.7 *Updated Research Aim 4*: How does the evidence at Thurnham reflect patterns of contact and trade in the region, and further afield, during the Late Iron Age and Roman period?

4.8.8 *Updated Research Aim 5*: How did the villa interact with its hinterland and other rural settlements, and what was its influence on them?

- Objective 1: Did the foundation and development of the villa affect the way in which natural resources such as wood, stone, wild animals or water were exploited?
- Objective 2: What evidence for communication routes is reflected in the sourcing and distribution of traded commodities at the site?
- Objective 3: How was the villa's estate laid out in the surrounding landscape? Where were the arable fields and the pasture? Where were the water sources? Where were the occupants of the villa buried? Where did the estate workers live?
- Objective 4: Is there evidence that the Roman period saw intensive agricultural exploitation of the villa's hinterland? What effect might this have had on local ecology and the local settlement pattern?

4.8.9 *Updated Research Aim 6*: What was the nature of the cereal economy of the region, and is there any evidence for change over time?

4.8.10 *Updated Research Aim 7*: What was the local environment of the villa, and did this change over time?

4.8.11 *Updated Research Aim 8*: What does the evidence from Thurnham suggest about the activity of Mesolithic, Neolithic and Bronze Age communities in the area?

4.8.12 *Updated Research Aim 9*: Does the pattern of occupation and abandonment seen at Thurnham Villa correspond to wider patterns of land clearance and exploitation of secondary or marginal land at times of increasing economic pressure?

4.8.13 *Updated Research Aim 10*: How were natural resources such as iron, stone, wood, water and agricultural land exploited at Thurnham Villa, and did this change over time? Is there evidence for agricultural intensification, improvement and diversification? Why?

4.8.14 *Updated Research Aim 11*: What is the character of Late Iron Age and Roman occupation in this area? Is there evidence for the spatial organisation of settlements in the landscape, for specialisation of function, for change over time? How dense was occupation in the area during this period? Does this change over time?

4.8.15 *Updated Research Aim 12*: Is there evidence for a hierarchy of settlement in this region, and for the existence of recognisable estates? Is there evidence for change at the Late Iron Age/early Roman transition, or during the decline of Roman influence?

4.8.16 *Updated Research Aim 13*: What were the patterns of trade in the region during the Late Iron Age and Roman period?

4.8.17 *Updated Research Aim 14*: Does the evidence from Thurnham show the effects of the Roman administration, and if so, how?

4.8.18 *Additional research aims* identified by specialist contributors that are beyond the scope of the original CTRL Landscape Zone Priorities and Fieldwork Event Aims are set out between section 4.7.50 and section 4.7.62 above. Consideration should be given to adding some or all of these to the project updated research aims, prior to the finalisation of the updated project design.

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APPENDIX 1 - CERAMICS

1.1 Assessment of the Late Iron Age and Roman Pottery

by Malcolm Lyne

Thurnham Roman Villa Excavation (ARC THM 98)

Introduction

1.1.1 Pottery assemblages of mainly Late Iron Age and Roman date (*c* 50 BC-AD 400+) were retrieved during excavation works at Thurnham Roman Villa.

1.1.2 Most of the pottery was hand-retrieved on site, with further material being recovered from the sieving of environmental samples (see section 1.1.6 below).

1.1.3 The recovery and study of pottery was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to aid the establishment of a dated occupation sequence for all phases of the villa's development. It was also designed to elucidate the status, economic orientation and patterns of contact and trade of the settlement.

Methodology

1.1.4 In order to aid the establishment of a provisional dated occupation sequence for the villa, all pottery assemblages were subjected to general sherd count, weighing and spot dating. Sixty four key assemblages were selected from contexts that were critical for the dating of the various site phases and these were further quantified by numbers of sherds and their weights per fabric. These key pottery groups account for 7% of the assemblages, 23.5% of the sherds and 20.2% of their total weight (including the pottery retrieved from sieving).

1.1.5 Fabrics were identified with the aid of a x8 lens with built-in metric scale for determining the sizes, nature, form and frequency of inclusions. Finer fabrics were further examined using a x30 magnification pocket microscope with built in artificial illumination source and all were classified using the Canterbury Archaeological Trust's coding where applicable (Macpherson-Grant *et al.* 1995).

Quantifications

1.1.6 The excavation yielded 14,623 sherds (137,329g) from 876 contexts, of which 14,202 (134,136g) were of Late Iron Age and Roman date. Later pottery was separately assessed (see section 1.2, below). In addition 163 contexts from the sieving of environmental samples produced a further 1518 sherds (5165g), including 38 contexts that had previously not produced any pottery. The numbers of sherds and their weights per context, together with assemblage spot dates, are listed in Table 1.1 which presents the quantification and spot dates for the bulk pottery assemblages, and Table 1.2 which lists the pottery recovered from sieving.

1.1.7 Table 1.3 summarises pottery quantities by phase, and this evidence suggests that there was an increase in the volumes of pottery in use during the years after AD 43 compared with the preceding *c* 50-100 years of Late Iron Age occupation. This level of pottery supply continued throughout the period *c* AD 120-250. The sherd counts and weights of pottery from phase 7 features, *c* AD 250-400+, show a marked

decline which was also reflected in the activity on site with only localised occupation across the villa complex.

1.1.8 This trend was particularly well reflected from AD 370+ within this phase when the deposition of pottery seems to have become largely restricted to activities around the oven within the villa building and occupation around the corn-drier. Sampling of the ditch fills, particularly of phases 3 and 4, will have affected the totals excavated, but the pottery recovered still accurately reflects activity on the site. A consistent 15-20% of ditch fills were excavated throughout the site.

1.1.9 Tables 1.4 and 1.5 record the detailed breakdown of key excavated and sieved assemblages of pottery respectively by forms, numbers of sherds and their weights per fabric.

1.1.10 The assemblages recorded in these tables are discussed in detail in the following section but lack of Gallo-Belgic imports and later Roman Samian ware on the site should be noted. Most of the fineware platters, bowls, beakers and flagons supplied during the Roman period are in Upchurch grey and oxidised fabrics R16 and R17.

1.1.11 These finewares make up 21% of all of the quantified pottery from the phase 3 ditch 10660 by sherd count compared with only 0.5% Samian. This can be compared with the similar 24% fabric R16 and R17 sherds and higher 6% Samian from the phase 4 ditch 10610. This probably reflects the position of 10610 directly behind the main villa house.

1.1.12 The value of the Upchurch finewares to the occupier of the villa can be measured by the fact that all of such wares from the late 2nd century fills of the *c* AD 130-150 dug boundary ditch 10610 are of forms dated *c* AD 70-130 and therefore were up to 100 years old at the time of being discarded.

Provenance

Phase 2: Late Iron Age

1.1.13 The pottery of this phase comes from two successive ditch systems and associated features. Amounts of pottery are small in total but are important in that they have the potential to allow subdivision of the Late Iron Age ceramics from the site into two phases of development.

1.1.14 Phase 2A comprises the 189 sherds (1427g) of pottery from ditch 11470. The pottery from cuts 11651 and 11887 across this ditch was identified in the key assemblages and quantified by form and fabric (Table 1.4). This analysis indicates supply of 'Belgic' grog-tempered, flint-and-grog-tempered and glauconitic sand tempered pottery including bead-rim and everted-rim jars to the site during the period *c* 50 BC-0. Amounts of pottery are too small for meaningful detailed analysis (90 sherds from the key assemblages) but the sequence of fills in cut 11651 (Table 1.4) suggests that supply of vessels in the glauconitic-sand filled fabric B9.1 became more significant during the latter part of the phase.

1.1.15 Most phase 2B pottery was recovered from enclosure ditch 10840 and penannular gullies 11600 and 12500, with smaller quantities from tree-throw holes and other features. The enclosure ditch produced 397 sherds (3507g) from 12 excavated sections across it. Detailed quantification was undertaken on 115 sherds from cuts 10907, 11459, 12063 and 15289 representing the three sides of the enclosure ditch.

1.1.16 The assemblage is dominated by glauconitic sand tempered wares (58%) with much smaller quantities of 'Belgic' grog-tempered ware. The glauconitic wares are largely made up of barrel-shaped bead-rimmed jars of Thompson's types B2-2 and B2-3 with corrugated shoulders. It is notable that these types are absent from the phase 2A ditch assemblage and this material can probably be dated to the early 1st century AD.

1.1.17 Cut 15289 across the north-eastern side of the enclosure ditch differs from the others in producing an assemblage extending beyond the Late Iron Age and into the pre-Flavian period indicating that the ditch remained open for a short period after the Roman conquest. The post-conquest material includes fine early Upchurch grey and oxidised Hoo type wares and South Gaulish Samian.

1.1.18 The 13 sherds (38g) from the penannular gully 12500 and 18 sherds (88g) from penannular gully 11600 include glauconitic sand-tempered wares which need not be later than AD 50 in date. A single abraded early Roman sherd was recovered from the surface of fill 11607 within gully 11600. While this does not constitute firm dating evidence, it is entirely possible that this feature may have survived into the early Roman period.

1.1.19 A large number of features also produced small Late Iron Age pottery assemblages but cannot as yet be allocated to any specific sub-phase. Few of these features produced more than 10 sherds but rim and pot profile fragments were recovered from contexts 10906, 11399, 11798, 12047, 12398, 12402, 15218, 15286, 15328, 15401 and 15410 within the Late Iron Age settlement enclosure.

Phase 3: The Proto-Villa and Temple *c* AD 50-120

1.1.20 The early Roman pottery assemblages derive from two new buildings and associated boundaries replacing the Late Iron Age enclosure.

The Proto-Villa

1.1.21 The proto-villa yielded an interesting sequence of pot groups. The earliest assemblage group in the sequence comes from ditch 20170 below the building. The small assemblage of 33 sherds (152g) from this feature mostly includes material which need not be later than *c* AD 50 placing this ditch within the Late Iron Age phase 2B. However, the uppermost clay backfill of the ditch upon which the proto-villa was constructed contained 3 sherds (9g) of pre-Flavian pottery.

1.1.22 The construction contexts for the proto-villa also had very little pottery incorporated in them but context 20476, the clay bedding for the floor within the central room, produced 9 sherds (23g) of similarly dated *c* AD 50-70 pottery. This material includes fragments from a South Gaulish Samian Dr.29 bowl, two different oxidised Hoo flagons and a Gallo-Belgic Whiteware example. A further assemblage of 43 sherds (156g) comes from the floor surface 20087 extending throughout the building. This ranges in date between *c* AD 60 and 180.

Ditch 20400

1.1.23 A considerably larger amount of pottery comes from the fills of boundary ditch sub-group 20400 to the rear of the proto-villa and provides a stratified sequence contemporaneous with the life span of the building. The 10 sherds from primary fill 20176 could all fit within the period AD 50-60 and include an imitation butt-beaker in sandy black soot-soaked native fabric. The secondary clay backfill (20175) yielded 54 sherds (715g) of similar date, including a native butt-beaker with traces

of bitumen or resin on its exterior, possibly traded to the site loaded with some kind of produce. The other sherds include two fragments from a *Terra Rubra* girth beaker and another butt-beaker in grey Upchurch fabric.

1.1.24 The 267 sherds from the dumped rubbish backfill 20174 above 20175 include large fresh sherds from a variety of *c* AD 60-140 dated vessels. Most of the pottery consists of fine grey Upchurch beakers, bowls and platters with just a little South Gaulish and Martres de Veyre Samian. The coarsewares come from a variety of sources, amongst which is 'Belgic' grog-tempered pottery that includes single vessels in Canterbury fabrics R5 and R9. The fabric R5 vessel is of indeterminate form but the other is an oxidised sandy flagon. The upper fills 20169 and 20168 produced pottery of similar date and mark the end of the proto-villa occupation immediately prior to the construction of the phase 4 villa.

The possible Temple building

1.1.25 The small amounts of pottery from the construction contexts 10870, 11451 and 11713 all fit within the period AD 0-70. The Late Iron Age type sherds in fabrics B2, B5, B8 and B9.1 make up the bulk of the material and suggest a construction date nearer AD 50 than 70. This could, however, reflect proximity to the entrance of the preceding Iron Age penannular gully 12500. The 21 sherds (79g) from the crushed tile path 10809 (sub-group 10780) surrounding the temple similarly date to this period. A Gillam 238 mortarium rim of a type dated *c* AD 80-140 also from the tile path (context 11829) indicates this was maintained in use allowing later material to become incorporated into the surface.

Ditches and Gullies on the south-east side of the possible Temple building

1.1.26 Gully 10770 produced 30 sherds (400g) of *c* AD 43-70 dated pottery from the fill of excavated cut 11593 and represents the earliest assemblage in the sequence. The bulk of the sherds are in 'Belgic' grog-tempered ware and include a lid of Canterbury Form 32 suggesting the gully was a feature of the same date as the temple.

1.1.27 The secondary fill 11325 (within ditch sub-group12545) produced 22 sherds of freshly broken pre-Flavian pottery, including a number of sherds from a bead-rim jar. The pottery from the upper fill 10935 largely consists of Flavian-early 2nd century sherds, suggesting that this ditch was an early replacement for gully 10770 alongside the temple. However, the stratigraphic sequence for this ditch shows that this was the latest boundary to be added, post-dating both post rows 10760 and 10980. This places ditch 12545 firmly within phase 5 and therefore strongly suggests that the pottery assemblage must have been an antique collection.

1.1.28 The considerably larger group assemblage of 381 sherds (3291g) from ditch 10660 has a Flavian-early 2nd century date range, although the presence of small numbers of sherds from BB2 bowls and dishes (2%) extends the dumping of rubbish into this feature into the mid 2nd century.

Phases 4-6: Villa complex remodelling and occupation *c* AD 120-250

The Stone Villa

1.1.29 The date for the construction of the stone villa replacement of the proto-villa relies upon the stratigraphic sequence of deposits which were used to level ditch 20400, which was the boundary ditch from the preceding proto-villa phase. Considerable clay deposits were made across ditch 20400 to level the ground immediately prior to the construction of the villa.

1.1.30 The assemblages from contexts 20174, 20168 and 20169 demonstrate that levelling of ditch 20400 occurred no later than AD 140, as discussed above. Clay deposits 20111 sealing these fills produced a further 46 sherds (358g) of similarly dated pottery although 4 sherds (62g) of a jar in distinctive Thameside greyware variant LR2.2 were also recovered from the deposit. Jars in this fabric are very common in 3rd century assemblages from the Eccles villa and are unlikely to be earlier than *c* AD 180. Therefore these sherds must be intrusive from the later use of the overlying villa room as a smithy. The group assemblage from the clay levelling deposits suggests a construction date within the period *c* AD 120-130.

1.1.31 The final structural addition of a room and apse at the north-eastern end of the villa was also well dated by an assemblage of 14 sherds (88g) from rubble and mortar deposit 20045 infilling pit 20185, across which the northern wall of the room was constructed. This was dated to AD 180+ by the inclusion of black burnished ware (BB2; fabric R14) and Thameside greyware variant LR2.2.

Ditch 10610, north-west of the villa enclosure, and fence lines 10760 and 10580

1.1.32 The upper fill of cut 10605 across ditch 10610 yielded 284 sherds (2862g) of pottery with a similar *c* AD 70-200 date-range to that from Ditch 10660. However, the preponderance of sherds from BB2 open forms (48%) of Hadrianic to Antonine date, coupled with the paucity of exclusively 1st century sherds (6%), does suggest that this ditch was dug in the early-mid 2nd century as a replacement for ditch 20400, thus providing the rear boundary for the new villa building.

1.1.33 The postholes from villa enclosure fence-line 10580 produced 33 sherds (122g) of pottery. The relationship of this fence-line with ditch 10610, and the pottery evidence, leaves little doubt that this was installed during the early-mid 2nd century. Post pipe fill 10565 yielded a fragment from a BB2 dish of late 2nd century date showing the fence had been in existence some time before this date. Posthole boundary 10980 produced an AD 130-200 assemblage and post row 10760 produced an AD 170-230 assemblage suggesting 10760 replaced 10980 in the late 2nd or early 3rd century. Pottery assemblages from all three post rows included a high proportion of residual late Iron Age - late 1st century material.

Aisled Building

1.1.34 Small groups of pottery were recovered from the postholes of the aisled building, the largest being 18 sherds from posthole 15070, which were broadly datable to the mid 2nd to 3rd century. In general there is insufficient material to date the construction of the aisled building very closely, but the much more substantial 380 sherds (1883g) from soil layer 15001 sealing the floor level in the south-west end of the building have a date range of *c* AD 120-250/270. If the few rubbish survivals and the early 2nd century Upchurch finewares remaining in use are discounted the likely construction date is *c* AD150 for the building and a life-span extending into the mid 3rd century.

The 14-post structure

1.1.35 Amounts of pottery from this building are quite small but the 21 sherds from the fill (11241) of posthole 11242 includes BB2 of *c* AD 120-200 date as does the packing for post-pad 11269 (fill 11267). The fill (11094) of posthole 11125 included material of probable early 3rd century date and suggests that this building was contemporaneous with the aisled building.

Infant burial 10640

1.1.36 A stone-lined grave containing an infant inhumation included two pottery vessels. These comprise a small pentice beaker in Thameside greyware and a BB2 straight-sided dish of Monaghan (1987) type 5E1.5 dated *c* AD170-230 and thus date the burial to the late 2nd century.

Phase 7: Smithy within the villa, and late occupation of the villa complex *c* AD 250-400+

Industrial Activity within Room 20000

1.1.37 The occupation sequence within this large interior room of the villa bounded by walls 20003, 20004, 20005 and 20022 gives good dating evidence for the later industrial activity within the building.

1.1.38 A layer of flint nodules, 20109, directly above the 2nd century deposit 20111 produced 69 sherds (567g) of pottery including indented beaker sherds of early 3rd century date in fine Upchurch fabric R16 and a BB2 developed beaded-and-flanged bowl no earlier in date than *c* AD 240. The imposition of this deposit directly upon the early-mid 2nd century layer 20111, without intervening layers within a core room of the villa, suggests a probable wooden plank floor had been removed at this point to allow the ensuing industrial use of the room. This action is firmly dated mid-late 3rd century.

1.1.39 A mixed dump of burnt clay, 20112, probably resulting from the clearance and use of hearths within the room yielded a further 41 sherds (322g) of mainly non-diagnostic pottery but included 11 fragments from 3rd century jars in the 'scorched' LR2.2 fabric and 2 pieces from an AD 220-300 dated BB1 straight-sided dish. The latter is likely to have arrived in Kent during the period AD 250-300 (Lyne 1994).

1.1.40 The 36 sherds (232g) of pottery from the silty deposit 20089 sealing 20109 and 20112 include sherds of *c* AD 270-300+ date. A developed beaded-and-flanged BB1 bowl from Dorset (*c* AD 270-300+), a sherd in late Roman handmade grog-tempered ware (*c* AD 270-400) and Oxfordshire red colour-coat beaker fragments are all included within this assemblage.

1.1.41 From the charcoal-rich soil layer 20058 sealing the smithy hearths within the room came a further 185 sherds (1526g) of pottery, all of which, apart from 4 residual sherds, can be placed within the period AD 270-370 and include large numbers of late Thameside and West Kent greyware jar fragments (51%). Alice Holt/Farnham industry white-slipped greywares (Lyne and Jefferies 1979) appear for the first time but form an insignificant element in the assemblage (4%). Other wares include late Roman grog-tempered jars (16%). A very unusual roughcast beaker sherd in New Forest purple-colour-coat fabric, which is not in Fulford's corpus (1975), is unlikely to be later than AD 300. There are no sherds which need be later than AD 370.

Oven within Villa Room 20030

1.1.42 The oven within the small room defined by walls 20003, 20024, 20025 and 20026 produced the latest pottery assemblage from the villa building. The 90 sherds (1150g) from two backfills (20037 and 20067) of the feature are dominated by Canterbury grog-tempered wares of post-AD 370 date (26%), Alice Holt/Farnham industry greywares (37%) and horizontally-rilled jars and other forms in sandy buff Overwey/Portchester D fabric (12%). Oxfordshire red colour-coated bowl and

white-slipped mortarium sherds, as well as a Hadham oxidised flagon fragment, account for nearly all of the other pieces. Five sherds are residual.

1.1.43 This is a typical post-AD 370 pottery assemblage for Kent and dates to after the collapse of the West Kent greyware industries when available pottery was virtually restricted to local handmade grog-tempered coarsewares from a variety of sources in east and west Kent and better quality wares from much further afield to the west.

Corn-drier 10340

1.1.44 There are problems dating this feature. The pottery suggests a Flavian date for the corn-drier, but the stratigraphic evidence (in particular the relationship of the corn-drier to the 14-post building) indicates that the corn-drier cannot have been built before the mid to late 3rd century. The Flavian pottery must therefore be residual.

1.1.45 The collapse of the corn-drier is well dated to the late 4th century as an area of rubble debris spread adjacent to it (10347) produced 33 sherds (228g) of post-AD 370 pottery similar in nature to that from the villa oven.

1.1.46 Soil 11044, to the north of the corn-drier, yielded 429 sherds (3539g) of late 4th and possibly early 5th century pottery, including a number of fresh sherds from two hook-rimmed jars in fabric LR1.1, three everted-rim jars in over-fired fabric LR2.3 and a horizontally-rilled jar in Alice Holt/Farnham greyware. A developed beaded-and-flanged bowl and a convex-sided dish in a coarse local variant of Alice Holt/Farnham ware, a burnt C100 type Oxfordshire red colour-coat mortarium (Young 1977) and fragments from a buff horizontally-rilled jar in Overwey/Portchester D fabric are also present in the assemblage. A high percentage of residual sherds derived from the fills of ditch 11090 beneath the soil are also present in the assemblage. The fill of a cart-rut (11191) cut into this soil produced a further 21 sherds (199g) of post-AD 370 pottery, including one fragment in possible early Saxon soot-soaked handmade black fabric fired brown externally. This sherd is important in suggesting that activity around the corn-drier continued well into the 5th century.

Conservation

1.1.47 Further analysis of the pottery would not conflict with long term storage. All of the pottery should be retained until the implications of all the CTRL archaeology projects have been assessed, with the exception of the unstratified material (151 sherds, 2907 g). The only conservation requirements apply to contexts 10497, 10498, 10499 and 12377 from which up to four individual vessels could be reconstructed.

Comparative material

1.1.48 Very little material of Late Iron Age date from the Medway region has been published to modern standards. The publication of the pots from the Aylesford and Swarling cemeteries (Evans 1890; Bushe-Fox 1925) gives a good range of Late Iron Age pot forms for the region. However, the fabric descriptions for the individual vessels are imprecise, as they remain in the later re-examination of the pottery by Birchall (1965). A small assemblage from Court Lodge Farm, Teston (Ocock 1974) is almost certainly in glauconitic fabric B9.1 but the published fabric descriptions are deficient. The best recent appraisal of the Late Iron Age pottery from mid-Kent is that by Thompson (1982, 11-12) which lists sites where she identified glauconitic wares, and there is a useful updating in Pollard (1988, 31).

1.1.49 CTRL sites in the immediate vicinity which will provide directly comparable material are Hockers Lane and Snarkhurst Wood. Further afield, the Late Iron Age pottery from Northumberland Bottom is likely to prove a good comparable assemblage, and Late Iron Age/early Roman pottery was present at Saltwood. Most CTRL sites in the vicinity of Thurnham have produced very small assemblages of Late Iron Age pottery, which would have little or no comparative value. Perhaps the single exception is South of Beechbrook Wood, where the majority of 8 boxes of pottery is thought to be of Late Iron Age and early Roman date (URS 1999).

1.1.50 Other unpublished sites in Kent examined by this author at Harrietsham (Lyne forthcoming (a)) and Eccles (Lyne forthcoming (b)) would be directly comparable.

1.1.51 The early Roman *c* AD 50-250 dated pottery assemblages from the villa also lack local parallels published to modern standards. The one exception is the Maidstone Mount villa (Kelly 1993) where an assemblage of mid-late 3rd century date from phase 2 construction deposits has been quantified by Estimated Vessel Equivalents (EVEs) and can be compared with similarly dated assemblages from Thurnham.

1.1.52 Comparative assemblages from other CTRL sites will be much as for the Late Iron Age (above), although for the earlier Roman period it will also be possible to compare and contrast the Thurnham Villa assemblage with the contemporary material from the small town at Springhead that was retrieved from the cemetery at Pepper Hill.

1.1.53 The late Roman pottery is similar to assemblages from all over central and eastern Kent, particularly those dated to after AD 370 when most wares of any quality were supplied from the Alice Holt/Farnham, Overwey and Oxfordshire kilns outside and well to the west of the county. Local pottery was largely restricted to handmade grog-tempered wares from sources in both east and west Kent (Lyne 1994). Similar pot groups are published from Lullingstone villa (Pollard 1987) and Canterbury (Pollard 1995).

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

1.1.54 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

1.1.55 The 64 key assemblages quantified in Tables 1.4 and 1.5 are critical for the establishment of a securely dated sequence for the villa's occupation. Further analysis of proportions of vessels, fabrics and forms within these assemblages, in conjunction with further stratigraphic analysis, will potentially clarify and refine these key points. As this material provides primary evidence for the dating of the sequence, it should be made available for wider dissemination.

1.1.56 Important additional ceramic dating evidence exists within Pirie's archive (1961), and the reexamination of selected key assemblages would provide further evidence for the dating of the southern end of the stone villa and temple building.

1.1.57 More detailed examination of pottery assemblages, and spatial analysis of different pottery types, will potentially provide information about the function of features and structures and the presence of functional zones on site. This study has both a spatial and a chronological dimension, with the potential to illuminate both the use of space within a villa complex, and changes in the function and status of the villa complex and its structures over time. Such information has the potential to contribute to

wider study, related to Landscape Zone aims, of settlement morphology and function, natural resource exploitation, and the effect of the Roman administration.

1.1.58 The presence of the possible temple may imply a ritual element in ceramic assemblages related to it. This was strongly suggested by a probable 'antique' Flavian assemblage recovered from ditch 12545 by the temple. This ditch infilled in the early 3rd century some 150-200 years later than the date of the assemblage. Further research into this assemblage and comparative material will assist in the interpretation and characterisation of the building, and its affinities within the wider contemporary world. The examination of ritual and ceremonial use of the landscape was highlighted as a Landscape Zone Aim of the CTRL project.

1.1.59 Further study of the pottery assemblages and comparative material from within the CTRL project and beyond will indicate how patterns in pottery supply changed over time, from the Late Iron Age through to the end of the Roman period. Going's maps to illustrate changing patterns of pottery supply to Roman Chelmsford (1987, figs 52-9) illustrate the potential value of this type of study. This information is potentially key to an examination of the economic orientation and patterns of contact and trade of the villa over time, its interaction with its hinterland, and the effect of the Roman administration.

New research aims and objectives for the CTRL archaeology project

1.1.60 The relatively small sizes of most pottery assemblages from the site restricts their potential to address new research aims and objectives for the CTRL archaeology project other than in the sphere of pottery supply.

1.1.61 The range and variety of Late Iron Age glauconitic wares from this site, and from Hockers Lane and Snarkhurst Wood, has the potential to allow the development of a basic corpus of forms. This would be of considerable benefit for the archaeology of the region, since very little material of this date from the Medway region has been published to modern standards.

Thurnham Roman Villa Watching Brief (WB SDS 420/99 63+400-63+900).

1.1.62 The watching brief produced 6 sherds of pottery from an additional stripped area of 310m² along the extreme edge of the south-western former hedgeline boundary of the detailed excavated area. This comprised 5 sherds from clay silt layer 297 sealed by a surface 296 within the corridor of the temple and 1 sherd from pre-villa subsoil context 310.

1.1.63 The sherds from below the chalk surface are for the most part Late Iron Age in date but also include a rim sherd from a Central Gaulish Samian Dr.44 bowl (*c* AD 130-200). The sherd from the pre-villa subsoil is a jar body sherd in 'Belgic' grog-tempered fabric B2.

1.1.64 The small amount of material and the circumstances of its retrieval make it of very limited value. The Dr.44 sherd might suggest that the chalk floor was a later addition to the temple, or it may simply be intrusive in this context.

Honeyhills Wood (ARC HHW 98)

1.1.65 Limited targeted trenching undertaken within Honeyhills Wood retrieved two sherds of pottery from the bank formed by the upcast of a ditch.

1.1.66 Both sherds are abraded. One is in an under-fired brown-black fabric with silt-sized quartz and the other is a minute piece which may be calcined flint and quartz sand

tempered MLIA2 fabric dated *c* AD 40-70. The nearest parallels to the fabric of the first sherd are from fill of the feature 255 at nearby Hockers Lane, which belongs to the earlier part of the late Iron Age tradition.

1.1.67 Both of these sherds are clearly earlier than the construction of the earthwork and date it to any period after AD 40.

1.1.68 This material offers no potential for further study.

Hocker's Lane (WB SDI ARC 420/99 62+200-63+000)

Introduction

1.1.69 A number of small pottery assemblages ranging in date between the Late Iron Age and *c* AD 70 were recovered during the excavation of an enclosure at chainage 62+800. In addition a small assemblage of late 1st and 2nd century material was recovered from a discrete group of features 500m to the north-west at chainage 62+300.

1.1.70 The majority of the pottery was recovered by hand retrieval on site. Smaller amounts of pottery were also recovered from the sieving of environmental samples and incorporated into the assessment.

1.1.71 The fieldwork was carried out in accordance with the Landscape Zone Priorities set out in the WSI (URS 1999b), which are summarised in section 2.1.4 of the main document, above. Material remains were particularly to be sought for the study of the rural economy, the organisation of the landscape and change through time (particularly at the LIA-ERB transition), settlement morphology and function, trade and the effects of the Roman administration.

Methodology

1.1.72 In order to assist provisional phasing and dating, all pottery assemblages were subjected to general sherd count, weighing and spot dating. None of the assemblages was large enough to need more detailed work for assessment purposes.

1.1.73 Fabrics were identified using a x8 magnification lens with built-in metric scale for determining the sizes, nature, form and frequency of inclusions and were classified using the Canterbury Archaeological Trust's coding where applicable (Macpherson-Grant *et al* 1995).

Quantifications

1.1.74 The excavations yielded 932 sherds (5296g) of pottery from 63 Late Iron Age and Roman contexts, including 118 small fragments (216g) recovered by sieving. Table 1.6 gives a breakdown of this material by context and the spot dates for the various assemblages, while Table 1.7 gives the overall quantification by phase.

1.1.75 The earlier forms of pottery within the Late Iron Age assemblages include considerable numbers of weak-profiled and other closed forms in glauconitic fabric B9.1 (45% by sherd count), as well as smaller quantities of sherds in 'Belgic' grog-tempered fabrics B1 and B2 (17%). The rest of the fragments include not only handmade calcined-flint tempered sherds of Middle Iron Age character but an appreciable number of fragments from poorly finished handmade vessels in an under-fired brown-black fabric with silt-sized quartz (probably natural to the clay) and the occasional fossil shell, soft ferrous and seed husk inclusion.

1.1.76 The pre-Flavian assemblages are still dominated by glauconitic fabric B9.1 (48%) with 'Belgic' grog-tempered B1, B2 and B2.1 fabrics also present, but these are now joined by bead-rimmed jars in sand and calcined-flint tempered fabric MLIA2 (11%), *Terra Rubra* and Patchgrove ware. A marked absence of sherds in Upchurch fineware fabrics R16 and R17 suggests that occupation terminated before AD 60.

1.1.77 Much of the material in the two later assemblages from the features located at chainage 62+300 is residual. However, this includes late 1st and 2nd century sherds from Upchurch R16 fabric beakers, BB2 'pie-dishes', a South Gaulish Samian Dr.18/31 platter and an oxidised flagon from the Canterbury kilns.

Provenance

Phase 1: *c* AD 0-50

1.1.78 Nearly all of the earlier Late Iron Age pottery fabrics and forms derive from the possible fence setting 255 and posthole 40. The material from feature 255 does not constitute a particularly good assemblage as there is a total lack of diagnostic sherds in the early fabrics. Rim sherds from five pots in fabric B9.1 were recovered and this, coupled with a lack of good assemblages of these forms elsewhere, makes the pottery of more significance related to the research objectives than it would have been otherwise. Significantly a small quantity of later Late Iron Age sherds are also present within this feature showing the earlier forms did continue into the later Iron Age. The material from posthole 40 makes up some of the deficiencies as it includes rim sherds from two bead-rim jars in the earlier fabrics.

1.1.79 The majority of the later Late Iron Age pottery comes from the truncated remains of the earliest enclosure ditches 109 and 274 and internal divisions, ditch 244 and gully 209. The pottery assemblages from the various cuts across these features are individually small and deficient in diagnostic fragments, although some rim sherds are present.

Phase 2: *c* AD 40-60

1.1.80 The latest enclosure ditch 134/273 produced 121 sherds (656g) of pottery which, although not a particularly large assemblage, includes rim sherds from a butt-beaker copy in glauconitic fabric B9.1 and a Gallo-Belgic platter copy in the very-fine 'Belgic' grog-tempered fabric B1. Assemblages from cuts across other features of this phase are similarly small.

Phase 3: Late 1st - 2nd century (chainage 62+300)

1.1.81 The pottery assemblage from the trackway ditch displays a high degree of residuality whilst the adjacent soil spread probably dates from the late 1st century.

Conservation

1.1.82 Further analysis is limited in scope and would not conflict with long term storage. No conservation is required and all of the material should be retained pending a final decision regarding further study.

Comparative material

1.1.83 Very little Late Iron Age pottery from this area has been published to modern standards. Existing published sources, and probable comparable assemblages from CTRL excavations, are detailed under the assessment of Thurnham Villa, section 1.1.48, above. The CTRL sites of this period, such as Snarkhurst Wood and

Thurnham Villa, provide a representative transect through the distribution zone for the local glauconitic B9.1, B9.2 and B9.3 wares.

Potential for further work

CTRL Landscape Zone Aims and Fieldwork Event Aims

1.1.84 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims for the project.

1.1.85 The pottery from this site shows that the Hockers Lane enclosure was established at the turn of the millennia or earlier, with continued occupation until *c* AD 60 when it was abandoned. The presence of later Roman pottery 500m to the north-west at chainage 62+300 suggests that the occupation focus may have moved at this point. The proximity of the Thurnham Villa and its development into a proto-villa complex concomitant with the abandonment of the Hockers Lane enclosure also suggests interesting implications for the prevailing settlement patterns occurring during the early Roman period of the region. This pattern of occupation is repeated on several late Iron Age farmstead sites in south-east Britain such as Ructstalls Hill, Basingstoke (Oliver and Applin 1979) and may indicate a movement of rural populations from native farmsteads within livestock enclosures to small Romanised villas nearby.

1.1.86 Thus, although the pottery assemblages are small they provide important evidence for the study of the Late Iron Age to early Roman transition in this landscape. The presence of Middle Iron Age sherds is also of considerable interest, since material of this date was not present at Thurnham Villa. The assemblages have some potential for limited further analysis of fabrics, forms and vessel types present, which may help to refine the dating of the enclosure, and to characterise its function and status.

1.1.87 As a primary source of evidence for the dating of the features, the pottery results should be made available for wider dissemination.

New research aims and objectives for the CTRL archaeology project

1.1.88 The range and variety of Late Iron Age glauconitic wares from this site, and from Thurnham Villa and Snarkhurst Wood, has the potential to allow the development of a basic corpus of forms. This would be of considerable benefit for the archaeology of the region, since very little material of this date from the Medway region has been published to modern standards.

East of Thurnham Lane to West of Crismill Lane (WBG ARC 420/99 63+900-66+350)

1.1.89 The watching brief along this stripped section produced five sherds of Late Iron Age date in glauconitic fabric B9.1 from the colluvial subsoil at 64+800. This material is very comminuted and may be from field-marling.

1.1.90 This material offers no potential for further study.

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1.2 Assessment of the Post-Roman Pottery

by Paul Blinkhorn

Thurnham Roman Villa (ARC THM 98)

Introduction

1.2.1 A post-Roman pottery assemblage of mainly late 11th to 13th century date was retrieved during excavation works at Thurnham Roman Villa.

1.2.2 Most of the pottery was hand-retrieved on site, with further material being recovered from the sieving of environmental samples.

1.2.3 The recovery and study of pottery was undertaken in accordance with the Landscape Zone Priorities and Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to aid the establishment of a dated occupation sequence for all phases of the site's development. It was also designed to elucidate the status, economic orientation and patterns of contact and trade of the site.

Methodology

1.2.4 To assist with the establishment of a dated occupation sequence for the site, all sherds were counted, weighed and spot dated by context. The pottery was recorded using the codes and chronologies of the Canterbury Archaeological Trust (CAT) Fabric Series for the county of Kent (Cotter forthcoming a and b). John Cotter and Nigel Macpherson-Grant of the Canterbury Archaeological Trust assisted in identifying and dating this material.

Quantification

1.2.5 The pottery assemblage comprised 291 sherds with a total weight of 3022g. Five sherds (85g) were 18th century or later, and the remainder were medieval or early post-medieval, with the majority of the assemblage consisting of wares dating from the later 11th to 13th centuries.

1.2.6 Most assemblages comprised the fragmentary remains of a small number of fairly large sherds from individual vessels, indicating that most were well-stratified, and deposited near their point of breakage. The total quantity of pottery is shown in Table 1.8.

1.2.7 The following fabric types were noted, and the quantity of MNV of each is shown:

EM3A, E Kent shelly-sandy ware, 1075/1100-1200/25. 171 sherds, 1457 g, MNV= 1.07.
EM.M5, Ashford Potters Corner shell-filled sandy ware, 1125/50-1225/50. 73 sherds, 1085 g, MNV = 0.94.
M5, London-type ware, 1140-1375. 28 sherds, 248 g, MNV = 0.
M38A, N or W Kent Sandy ware, Maidstone kiln? 1175/1200-1400. 2 sherds, 13 g, MNV = 0.
M38B, N or W Kent fine sandy ware, 1225/50 – 1400. 7 sherds, 35 g, MNV = 0.10.
M40B, Ashford/Wealden sandy ware, ?1200/25 – 1400. 1 sherd, 3 g, MNV = 0.
PM1, Red earthenware, 1550-1800. 3 sherds, 88 g.
PM40, Chinese porcelain, 1725-1775/1800. 2 sherds, 28 g.
PM43, Creamware, 1740-80. 1 sherd, 26 g.
LPM10, modern English Stoneware, 1800-1940. 1 sherd, 19 g.

LPM7BJ, Bone china, transfer printed, 1770-1925+. 1 sherd, 12 g

Provenance

1.2.8 The medieval and post-medieval pottery was recovered from the south-east end of the site, immediately south of the SAM of Corbier Hall. A number of concentrations of postholes and gullies were excavated in this area, which may have formed medieval structures (see section 3.1.55 of the main report, above).

Conservation

1.2.9 The pottery requires no specific conservation. Since it is likely to be associated with the nearby SAM of Corbier Hall, it should be retained for future reference.

Comparative Material

1.2.10 Within the CTRL project, the most significant comparable assemblages are likely to exist at Parsonage Farm Westwell, Mersham, and Northumberland Bottom. Elsewhere, comparable assemblages exist from Townhall Street, Dover and from St Gregory's Priory Canterbury (Cotter forthcoming a and b). Since the fabric types present at Thurnham are all well-known in the region, however, comparative studies are likely to produce little new information.

Potential for further work

CTRL Landscape Zone Aims and Fieldwork Event Aims

1.2.11 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

1.2.12 The small size of the assemblage limits its potential for further work, as does its lack of relevance to the substantial Roman remains that form the primary interest of the site.

1.2.13 The principal interest of the material is in dating the reestablishment of occupation on the site after a lengthy hiatus. Both this apparent 500-year hiatus in occupation, and the circumstances of reoccupation between the late 11th and 13th centuries, are of direct relevance to the Landscape Zone Aims Research Objective 4, sub-periods (ii) and (iii).

1.2.14 Limited further analysis of fabrics and forms, and proportions of vessels, in conjunction with further stratigraphic analysis, will refine and secure the dating of the medieval features encountered on the site. It may also provide an indication of their status and function. To date, very little information is available about Corbier Hall, and the Thurnham Villa assemblage, providing dating material and possible evidence for status, has the potential to provide an insight into the circumstances of its foundation.

1.2.15 Since the assemblage provides dating evidence for the SAM of Corbier Hall, it should be made available for wider dissemination.

Thurnham Lane (ARC 420/99, 65+700)

1.2.16 Two sherds (48g) of post-Roman pottery were recovered from context 34 in the watching brief. These were post-medieval red earthenware (PM1 in the CAT Fabric series).

1.2.17 The material has no potential for further study.

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1.3 Assessment of the Ceramic Building Materials

by Susan Pringle

Introduction

1.3.1 A substantial quantity of ceramic building material was recovered during excavation works at Thurnham Villa.

1.3.2 The majority of the material was hand retrieved on site, with a small quantity recovered during sieving of samples. All the material selected for assessment was hand retrieved.

1.3.3 The recovery and study of ceramic building material was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to aid the establishment of a dated occupation sequence for all phases of the villa's development. It was also designed to elucidate the status, economic orientation and patterns of contact and trade of the settlement, and the function of features and structures.

Methodology

1.3.4 Approximately two-thirds of the material was scanned for the assessment. The aim was to include material from contexts with a wide chronological and spatial range, and particularly from those which were well stratified and of possible significance for the dating and development of the site. To this end, the largest deposits were randomly sampled by the selection of a proportion of the relevant boxes, usually between 25% and 50%, by members of the OAU staff. Table 1.9 sets out the areas and contexts represented in the scan.

1.3.5 Ceramic building material was divided by form, and fragments counted and weighed. Table 1.10 sets out the counts and weights for each securely identified tile type seen in the assessment. The presence of distinctive fabric types has been noted, but no analytical work has been carried out on the fabrics, as this task is more appropriately carried out at the next stage. Other information recorded includes the presence of combing, tally or signature marks, the presence or absence of glaze, and any complete dimensions.

Quantifications

1.3.6 The total weight of ceramic building material scanned for the assessment is 489.771kg; also present was 1.006g of fired clay. All the assessed material is listed on Table 1.11. An additional 472.025kg of building materials were also found on the site. These are listed by box number, context and weight on Table 1.12, but were not scanned for the assessment report.

Roman building material

Fabrics

1.3.7 Detailed fabric work has not been carried out on the material; however, two major fabric groups and a number of minor fabric types were noted (fabric numbers are temporary):

Group 1: White, cream, yellow or pale orange in colour, with inclusions of medium rose or clear quartz sand, with occasional red or white clay pellets or streaks. This strongly

resembles the tiles from the kilns at the Eccles Roman villa (Canterbury fabric no.8). Roof tile and brick were noted in this fabric. Date range in Kent *c* AD 50-60/1 to the early 2nd century.
Group 2: Orange in colour, with a fine, powdery texture, and fairly fine moulding sand. Source not known. Roof tile and brick were noted in this fabric.
Group 3: Dark orange/red, with coarse to very coarse inclusions of quartz, rock fragments, iron-rich clay and calcium carbonate. Roof tile, brick, flue tile and voussoirs were present in this fabric.
Group 4: Light orange with cream silty streaks, sparse quartz and red iron-rich inclusions.
Group 5: Well-fired red fabrics with varying quantities of dark red or purple iron-rich inclusions and quartz.
Group 6: Fine red fabric with few inclusions and medium-sized moulding sand (close to London fabric 2452).
Others: Small amounts of several other fabrics or fabric groups were also present:

1.3.8 The Eccles-type fabric, group 1 above, seems to be associated with the early phases of construction on the site, particularly the proto-villa and the temple; it also appeared in the aisled building, although this may be re-use. It continued to be used or re-used for construction throughout the period of Roman occupation.

1.3.9 The orange fabric, group 2 above, seems to have been in use somewhat later and is associated with the stone villa in phases 4 and 5, and with the 14-post building and the corn-drier. It appears to have been the principal type in use during the mid 2nd and 3rd centuries.

1.3.10 The other fabrics tend to appear in the 2nd century on, although as they were probably re-used, they may already have been present elsewhere on the site in the 1st century. Small amounts of red and orange tile were noted in some early contexts.

Tile types

1.3.11 The roof tile (tegulae and imbrices) accounted for approximately 96% by count and 93% by weight of the assessed assemblage; bricks accounted for approximately 2% by count and 5% by weight, and cavity walling (box flues and voussoirs) for approximately 1% by count and 2% by weight. A small number of possible ceramic tesserae accounted for less than 1% of the count and weight, although their frequency has probably been underestimated, as they are not easily differentiated from other small fragments of tile.

1.3.12 Roof tile (tegulae and imbrices) occurs from all areas and phases of the site. Complete or almost complete tiles were noted in both the Eccles type (1) and the orange (2) fabrics. Although their primary purpose is for roofing, tegulae can be de-flanged and re-used in place of bricks, and for paving, and there is evidence that this was taking place.

1.3.13 Bricks occur in temporary fabric numbers 1, 2 and 3. They were present in all phases, and from the areas of the main villa house, the aisled building and the 14-post structure. Fabric 1, the Eccles type, is mainly concentrated in the area of the aisled building, although it is also found in the proto-villa. The brick from the main villa house is mainly in fabrics 2 or 3, with fabric 2 also being associated with the corn-drier. Bricks were usually made for use in hypocausts or as wall bonding material, but they were also used decoratively in facades.

1.3.14 Box flue tiles and hollow voussoirs were noted from the areas of the main villa house and the 14-post structure in phase 5. It is likely that they were re-used in the corn-drier and possibly in association with metalworking in the final phase of the villa. Almost all are in fabric 3, with combed faces. Two fragments were noted with

unusual angled cuts in a plain face, perhaps part of a butterfly-shaped vent. They are a distinctive type, and parallels should be immediately obvious. As almost all the flue tiles and voussoirs seem to be in fabric 3, it is likely that they all come from the same source, and may have been re-used from the bath-house. Alternatively, they could have been brought in from another site for re-use.

1.3.15 Possible tesserae were noted in several contexts, some of which were in the area of the 14-post structure. Most were made from tile in the light yellow fabric 1, with a few in orange fabric 2. They would have formed light-coloured tessellated floors.

Post-Roman building material

1.3.16 Post-Roman roof tile (peg and curved tiles) accounts for approximately 1% of the assemblage by count and under 1% by weight. Post-medieval brick is equally scarce, accounting for less than 1% by count and weight.

Peg or plain tile

1.3.17 Several fragments were noted, of which the most common was a clean red fabric with fine moulding sand. Whitish and pink tiles made from marly clays were also noted. Sources are not known. No complete tiles, or complete dimensions, were noted.

1.3.18 Most of the tile came from the area of the 14-post structure, and there was also a scrap from the temple. Peg tile, presumably intrusive, was noted in two contexts which are in Roman phases, 10647 (internal surface of the temple) and 11107 (fill of ditch 11090).

1.3.19 All the peg tile scanned for the assessment is unglazed, and nail holes where present are angular, either square or diamond-shaped, which suggests that the material is late- or post-medieval. Precise dating of this type of tile is difficult, but it is likely to be post-1500.

Brick

1.3.20 Three fragments of brick were recorded, from contexts 11000, 11737 and 11774. All are in a red sandy fabric. One fragment, from context 11737, is shaped, but is too small to provide much information. The brick assemblage is consistent with early post-medieval occupation in the vicinity, perhaps from the second half of the 15th century to the late 17th or early 18th century.

Provenance

1.3.21 The provenance of the material is excellent, with large deposits having come from well-sealed contexts which provide good phasing and dating evidence.

1.3.22 The condition of the material is on the whole good, with many large fragments which may allow the recording of complete dimensions - useful for establishing a tile typology for the site. However some of the fabrics are poorly fired, and damage caused by washing with too hard a brush can be seen on many of the tiles. This has resulted in the surfaces having been abraded with a resultant loss of the details which can provide evidence for the use and re-use of the material.

Conservation

1.3.23 There are no special requirements for long term storage, other than the use of robust packaging materials and a dry environment.

1.3.24 At this stage all the material should be retained until final decisions are taken about the scope of further research. In the future, if the tile is fully recorded and quantified by fabric and form, the majority can be discarded. The following should be retained: samples of all the fabrics; tiles in rare fabrics; complete tiles; tiles with distinctive markings, such as combing, tally marks, signature marks or stamps; tiles of unusual shape or form, including those with nail holes; tiles which have been re-used as artefacts. The quantity that would be retained according to these criteria is likely to be equivalent to between 10% and 20% of the assemblage.

Comparative material

1.3.25 An important source of comparative material are the excavations of the Roman villa at Eccles for which fourteen interim reports have been published. Kilns at the villa, which is situated just over 8km north-west of Thurnham, and is thought to date from *c* AD 55-65 (Detsicas 1974, 121-3), are the likely source of the tile used in the proto-villa and temple at Thurnham. For the later phases, the material from The Mount Villa at Maidstone may be useful for comparative material (Harrison 1999).

1.3.26 Other CTRL sites of this period have generally produced rather small quantities of ceramic building material, very little of which is thought to relate to *in situ* activity. In general, its value for comparative analysis with the Thurnham assemblage will be very limited. Roman ceramic building material from South of Snarkhurst Wood is a comparable, albeit very small, assemblage.

1.3.27 It should be emphasized that further work is needed to define a fabric type series and a tile typology before comparative work can be carried out. This will enable comparisons to be made with the Canterbury Archaeological Trust's tile fabric type series. This could provide information on the date ranges of the fabrics from Thurnham, and other sites where similar tiles have been found. Some of these fabric types occur in London, which suggests that they may be travelling some distance.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

1.3.28 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

1.3.29 The Landscape Zone Priorities and Fieldwork Event Aims prioritised the recovery of evidence for the transition between the Iron Age and Romano-British periods. If the tile used in phase 3 at Thurnham for the construction of the proto-villa and the temple can be shown to have come from the kilns at the Eccles villa, this would suggest a relationship between the Thurnham structures and the Eccles estate, which could help to elucidate the developments at Thurnham during the 1st century AD. The villa at Eccles may have had an important role in controlling the quarrying and export of building materials, particularly Kentish ragstone, to London at this time.

1.3.30 The Fieldwork Event Aims suggested that evidence should be sought for the reasons why the site developed into a stone villa. It appears from the assessment that the tile used in the rebuilding of the villa was from a different source than that used in the earlier phase. As occupation at Eccles is thought to have been continuous, this change in the tile supply suggests that there may have been a change in the ownership of the site, perhaps reflecting a change in the economic or political situation in the area. Further work on the tile from the stone villa may cast light on this possible change by identifying the source of the new material.

1.3.31 Further study of the tile can throw light on the probable appearance, and thus the status, of the structures on the site.

1.3.32 The tile fabrics provide evidence for the sources of the building materials. The tile can thus also be used to illuminate the status, economic orientation and patterns of contact and trade of the settlement.

1.3.33 Study of the tile will also elucidate the interaction with, and influence of, the villa with its hinterland and other rural settlements. In addition to the supply of tile from the two main sources, smaller amounts of material from other sources are also present. Analysis of the material may suggest links with other local settlements.

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1.4 Assessment of the Fired Clay

by Susan Pringle

Introduction

1.4.1 A relatively small quantity of fired clay material, 706 fragments, weighing 5.089kg, was recovered during the recent excavation works at Thurnham Villa, Honeyhills Wood and Hockers Lane.

1.4.2 The majority of the material was hand retrieved on site. Smaller quantities were recovered from sieving of samples. In addition to the fired clay identified on site and in sieving, further fired clay was also identified during the pottery, ceramic building material and plaster/mortar assessments. The present author has integrated into this assessment all the fired clay that she identified during her scans of the ceramic building material and plaster/mortar. A small quantity of fired clay noted by Malcolm Lyne during the pottery assessment has been added to this assessment report by the Project Manager.

1.4.3 The recovery and study of the fired clay was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken principally to aid the analysis of the status and function of features and structures and the presence of functional zones.

Methodology

1.4.4 Since only a relatively small quantity of material was recovered from the three sites, it was all examined for this assessment. There is, however, likely to be more fired clay amongst the ceramic building materials that were not assessed (approximately one-third of the material, by box).

1.4.5 The fragments have been counted and weighed, and notes made of the most distinctive fabrics and any unusual inclusions. Exceptionally reduced (blackened) or vitrified material has been noted. The presence of original surfaces, imprints and tempering has been noted. No analytical work has been carried out on the fabrics. The data were entered on an Excel database. All the material has been retained.

Quantification

Thurnham Roman Villa

1.4.6 The total weight of fired clay material scanned for the assessment is 4.591kg, which includes 1.006kg recorded in the scan of the ceramic building material and 244g from the plaster/mortar. Table 1.13 shows the contexts and quantities of fired clay building materials.

1.4.7 The clay fabrics present fall into two broad groups: a whitish marly clay with a high calcareous content, and a fine brown silty clay. The latter generally has few inclusions apart from fine gold mica and a little coarse sand, although a sub-group with less mica, more coarse sand and occasional flint flakes was also present.

Material of interest

1.4.8 *Keyed clay walling*. This is a fine micaceous clay or daub with fine gold mica, with flat surfaces, combed probably to provide keying for wall plaster; it comes from

contexts 15283 and 15294, which are fills of a feature of uncertain function (15282) in the area of the aisled building. The teeth of the comb are approximately 8mm wide. The fragments are too small to determine if any pattern was used. The material was reduced, which would be consistent with its having been buried following the collapse of the building in a fire.

1.4.9 *Vitrified daub*. Three small fragments of daub with surface vitrification occurred in context 10857, and two fragments in 10994. This is likely to be the result of intense heating in oxydising conditions, and they are probably from hearths, possibly those where some industrial process was taking place. Both contexts are located outside the north wall of the main villa house.

1.4.10 *Wattle or timber impressions*. Wattle or timber impressions were noted as follows: flat timber from context 10796 (fill of ditch 10873) and wattles or posts from contexts 15395 (occupation spread in the aisled building) and 15397 (fill of a foundation cut for the aisled building).

1.4.11 *Very reduced material*. Material which has been burnt black, probably from being fired in anaerobic conditions, was present in the following contexts: 11219, 11486, 11574, 12047, 12270, 15283 and 15284. The material occurred in a wide range of features and no significant concentrations are apparent.

1.4.12 *Coated material*. White calcareous fired clay with what appears to be the remains of a coat of fine, brown, micaceous daub occurs in contexts 15073 and 15106, in the area of the aisled building. These may be the vestiges of some sort of cob walling which has been rendered with daub. Further analysis would be necessary to establish whether they are associated with the keyed walling from this area.

1.4.13 Small fragments of fired clay with mortar attached were noted in contexts 15082, 15126, 15391, 20042, 20044, 20046, 20056, 20076, 20079, 20082 and 20087. These come from the main villa house and the aisled building, and probably represent either destruction material from clay walls with mortar render, or fired clay reused in floors.

1.4.14 A further 57 fragments (368g) of fired daub were noted by Malcolm Lyne during the assessment of the Iron Age and Roman pottery. This material came from context 20087, a floor surface of the proto-villa.

1.4.15 Four fragments of salt container weighing 14g were identified by Malcolm Lyne during his assessment of the pottery. He notes that the salt container is in fabric BER15, which is datable to the period 50 BC-AD 70. It derives from context 15001, an occupation layer at the south-west end of the aisled building.

Honeyhills Wood

1.4.16 A single fragment of clay containing white flint flakes was recovered. The only feature of interest is a group of four fingernail impressions in the surface of the clay, but these may be post-depositional.

Hockers Lane

1.4.17 A total of 48 fragments of fired clay and daub weighing 0.466kg were recovered from nine contexts. Two main fabrics are represented, a whitish clay and an orange clay. Abundant organic inclusions were noted in the material from contexts 63 and 83, and that from the latter has a smoothed surface and may be an artefact. No other datable or potentially datable material is present.

Provenance

1.4.18 Material was recovered from the areas of the main villa house, the temple, the aisled building and the 14-post structure at Thurnham Roman villa. Much of the material appears to have been re-used as surfacing or packing material in a variety of contexts, during all phases of the villas development. Nevertheless, some groups occur in well-sealed contexts and provide useful phasing and dating evidence, particularly for the earlier phases.

Conservation

1.4.19 The condition of the material is on the whole fairly poor as much of it is fragmentary and abraded. There are also brush-marks on many of the fragments, caused by washing with too hard a brush. This has resulted in loss of surface detail which is essential to interpret the use of the material.

1.4.20 Further analysis of the material may be needed, so it should not be placed in long term storage until this has been carried out. There are no special requirements for long term storage, other than the use of robust packaging materials and a dry environment.

1.4.21 All the material should be retained pending a final decision about the scope of future work. In the future, if the fired clay is fully recorded and quantified by fabric, the majority can be discarded. The following should be retained: samples of all the fabrics; artefacts; material with distinctive markings, such as combing, lath, wattle or fabric impressions; material with whitewash, plaster or mortar adhering to it. The quantity retained according to these criteria would probably be equivalent to between 10% and 20% of the assemblage.

Comparative material

1.4.22 Probably the best source of comparative material is the other local North Kentish sites excavated in the course of the Channel Tunnel Rail Link project, although it appears that quantities will be very limited. Small quantities of daub were recovered from the Late Iron Age/Roman rural site at South of Snarkhurst Wood. Four fragments of fired clay from a possible furnace, pyre or kiln base were noted at Chapel Mill. Comparison with material from other local villa sites such as Eccles and Maidstone The Mount might be of value for keyed clay walling and coated material, as evidence for construction techniques and materials.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

1.4.23 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

1.4.24 The assemblage has the potential to provide information on the types of structures and activities on the site. This in turn will help with understanding the function of features and structures, and the presence of functional zones. In order to achieve this, the material should be analysed in relation to the stratigraphic sequence to determine the following:

- the occurrence of fired clay in pre-Roman, specifically Iron Age, deposits;

- the uses of fired clay in the Roman period, evidence for keyed clay walling having been noted in the scan;
- the presence and likely function of fired clay in post-Roman contexts.
- New research aims and objectives for the CTRL archaeology project

1.4.25 Inter-site comparison should also be undertaken in order to detect chronological patterning in the use of unfired building materials in the Iron Age, Roman and post-Roman periods in the area.

1.5 Assessment of the Plaster and Mortar

by Susan Pringle

Introduction

1.5.1 Just under 23kg of plaster and mortar, including *opus signinum* mortars, were recovered during recent excavation works at Thurnham Villa.

1.5.2 The majority of the material was hand retrieved on site, with smaller quantities being recovered from sample sieving.

1.5.3 The recovery and study of the material was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to aid the establishment of a dated occupation sequence for all phases of the villa's development. It was also designed to help establish the function of features and structures and the presence of functional zones, and to cast light on the probable status and patterns of contact of the settlement.

Methodology

1.5.4 In order to aid the establishment of a provisional dated occupation sequence for the villa, all the plaster and mortar from the site, with the exception of the decorated wall plaster, has been examined. The fragments have been counted and weighed, and notes made of the colour, texture, inclusions and the presence of original surfaces or imprints. No analytical work has been carried out on the fabrics. The data have been entered on an Access database. All the material has been retained.

Quantification

1.5.5 The total weight of plaster and mortar scanned for the assessment is 22.9kg (494 fragments). The types fall into three broad groups: lime mortars with mainly quartz sand aggregate (12.6kg, 211 fragments), *opus signinum* mortars with a significant content of ceramic building material chips in a matrix of lime mortar (8.2kg, 245 fragments), and plaster (2.1kg, 38 fragments). The term 'plaster' is used here to describe both painted wall plaster, ie. lime mortar finished with a layer of fine-grained plaster and paint, and (possible) stucco, made from fine lime plaster with little or no aggregate.

1.5.6 The great majority (92%) of the mortar was recovered in the area of the main villa house. Several different types of mortars are present, including:

1. A pale yellow matrix with aggregate of colourless quartz sand in sparse to moderate quantities and white lime inclusions. Imprints of imbrices on the material from context 20077 indicates that this was used as roofing mortar.

2. A darker yellow or pink matrix containing aggregate of very coarse rose quartz sand and occasional rock fragments, including iron-rich sandstones. The red and pink versions may have become oxidised from being burnt at some time. This type of mortar was used as a backing for painted wall plaster from context 20198.

3. A white matrix with colourless quartz sand. Some fragments have concave surfaces, and probably represent roofing mortar (context 11641).

4. A whitish matrix with abundant, well-sorted quartz sand. A fragment with fine sand (context 10343) and a second example with medium sand (context 11776) are typical of the mortar used as backing layers for good quality wall plaster.

1.5.7 The *opus signinum* mortars also vary in appearance. Most have orange or red tile flecks, but context 20184 contains coarse pale yellow *opus signinum* chips. Some fragments have flat surfaces and abrasion consistent with use as flooring, but a coarse version of the mortar from 20077 also has convex and concave surfaces, and a fine version from context 20084 has convex mouldings. *Opus signinum* mortars have hydraulic properties, and are often associated with bath-houses and cisterns.

1.5.8 A small assemblage of fragmentary decorated painted wall plaster has been sent for specialist conservation assessment, which is the subject of a separate report.

Provenance

1.5.9 The site of the main villa house accounts for 92% of all the material, and has by far the largest quantities of all types of plaster and mortar. However, almost 10% of the mortar (by weight) comes from the area of the temple, and small quantities of both mortar and *opus signinum* mortar are associated with the aisled building. The majority of the material is thus likely to be of Roman date, and to have been used in the Roman structures on the site.

Conservation

1.5.10 The condition of the material is reasonable although much of it is fragmentary and abraded. The plaster with painted surfaces has been sponged lightly with water for this scan, and further cleaning is probably not necessary.

1.5.11 Further analysis of the material may be needed, so it should not be placed in long term storage until this has been carried out. There are no special requirements for long term storage, other than the use of robust packaging materials and a dry environment.

1.5.12 All the material should be retained pending a final decision regarding further analysis. In the future, if the plaster and mortar are fully recorded and quantified by fabric, the majority can be discarded. The following should be retained: samples of all the fabrics; material with original surfaces and impressions of building materials. The quantity retained according to these criteria would probably be equivalent to between 10% and 20% of the assemblage.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

1.5.13 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

1.5.14 Further analysis of different plaster and mortar types has the potential to help refine the provisional dated occupation sequence, and to provide further information on the likely form, and therefore status and function, of different structures on the site. It may also provide additional information regarding the patterns of contact of the villa. In order to achieve this, the material should be analysed in relation to the stratigraphic sequence in order to determine the following:

- the uses of plaster and mortar in the Roman period, evidence for roofing, walling and possibly flooring having been noted in the scan;

- the patterns of occurrence of the various mortar types over the site, with a view to establishing chronological links;
- the presence and likely origin of plaster and mortar in post-Roman contexts.

APPENDIX 2 - LITHICS

2.1 Assessment of the Flint

by Philippa Bradley

Introduction

2.1.1 A small assemblage of flint was recovered from excavations at Thurnham Roman Villa (ARC THM 98), Honeyhills Wood (ARC HHW 98), Hockers Lane (ARC 420/99 62+200-63+000), the watching brief at Thurnham Villa (ARC 420/99 63+400-63+900) and the watching brief from Thurnham Lane to West of Crismill Lane (ARC 420/99 63+900-66+350).

2.1.2 A total of 334 pieces of flint were hand retrieved at Thurnham Villa, and a further 730 pieces were recovered by sample sieving. In addition, 7 pieces of flint were hand-retrieved from Hockers Lane, with a further 120 small pieces from sample sieving (located at chainage 62+800).

2.1.3 The recovery and study of flint was undertaken in accordance with the Fieldwork Event Aims for the sites, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to aid the establishment of a dated occupation sequence for all phases of activity identified. It was also designed to address wider Landscape Zone Priorities concerning the reconstruction of the palaeo-environment and the interaction with past communities, and spatial organisation of landscape and change through time with particular reference to later agriculturalists (2000-1000BC).

Methodology

2.1.4 All material was rapidly scanned for diagnostic pieces. The sieved material contained no diagnostic pieces, and no further work has been carried out on it at this stage. The hand retrieved material was subject to rapid scanning and recording, with information regarding dating, technology and general condition being noted.

Quantification

2.1.5 The overall quantification of the flint assemblages from the five sites is shown in Table 2.1, and broken down by site and context in Tables 2.2 to 2.6.

2.1.6 The 334 pieces of recorded hand retrieved flint from Thurnham Villa are summarised by context in Table 2.2.

2.1.7 The 730 pieces of sieved material from Thurnham Villa contained no diagnostic pieces, but there were a few flakes and chips and a high proportion of natural material.

2.1.8 The material from Hockers Lane contained no diagnostic pieces, but there were a few flakes and chips and a high proportion of natural material.

2.1.9 Overall, diagnostic artefacts were limited, but the technology of many the common retouched pieces (scrapers, knives, piercers and awls) would support a broad Neolithic-Bronze Age range. Some of the retouched pieces (such as a denticulated scraper from context 11594) may be of mid-later Bronze Age date, whilst some of the neater, more carefully worked pieces are likely to be of later Neolithic-early Bronze Age date.

Provenance

2.1.10 The majority of the flint at all sites was either redeposited in later features, or from unstratified contexts. The flint from the excavations at Thurnham Villa showed a noticeable concentration of material from the west of the site but this may simply reflect excavation biases.

2.1.11 At Thurnham Villa, seven flakes were recovered from fill 10292 of the prehistoric waterhole 10288, although these are not closely datable. From fill 10294 of the same feature, there was a worn end scraper of Neolithic or Bronze Age date. This piece is likely to have been redeposited as the feature, a waterhole, is of middle Bronze Age date, and it is unlikely that the scraper would be contemporary.

2.1.12 Context 20132, a buried soil horizon, produced four flakes, but these are not closely datable. The material is probably also redeposited, since the soil horizon is dated to the Late Iron Age to AD 70+.

2.1.13 Context 20360 produced a small group of redeposited Neolithic or Bronze Age flintwork including scrapers, a piercer and a core. This context was a buried soil horizon beneath the villa construction levelling layers, and is dated to the Late Iron Age to around AD 50. Other Neolithic and Bronze Age material came from a range of secondary contexts, and the material is demonstrably residual. These contexts include: modern and topsoil layers (10397 and 10706), the late Roman corndrier (11049), the boundary ditch of the main villa building (11331), natural disturbance (11594), a medieval ditch (11794), layers and features associated with the aisled building (12099, 12361 and 12373), and a charcoal-rich late Roman layer in room 20000 of the main villa building (20058).

2.1.14 The material from the other fieldwork events is of similar character to that from the main Thurnham Villa excavations. However, a rod or edge blunted microlith of probable later Mesolithic date was recovered during the Thurnham Villa watching brief (located at chainage 63+500). It probably represents a chance loss as no other probable Mesolithic material was identified.

Conservation

2.1.15 The flint is packed appropriately for long-term storage. Some of the burnt unworked flint is fragmenting but little can be done to prevent this. It is recommended that any natural material be discarded during the analysis phase. It should also be considered whether all of the burnt unworked material needs to be retained; any worked and subsequently burnt pieces will have been identified during the assessment, as all of this material will have been scanned. Therefore it may be appropriate to discard some of this material retaining a selection for the archive.

Condition

2.1.16 The majority of the material was redeposited in later features or came from unstratified contexts. Therefore most of the flint has suffered some post-depositional damage; cortication is mostly light to medium, a couple of pieces are more heavily corticated. The burnt unworked flint recovered was very heavily calcined, and either grey, white or reddish tinged.

Comparative material

2.1.17 The nature of the material suggests there will be little scope for comparative study, but the assemblage should be compared with the scatter recovered in this area during the 1994 Surface Collection Survey (URL 1995).

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

2.1.18 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

2.1.19 These assemblages have relatively low potential to address the Fieldwork Event Aims and CTRL Landscape Zone Priorities. Most of the material was redeposited or from unstratified contexts, and excavation biases will inevitably have skewed the retrieval of material.

2.1.20 The flint does not greatly aid the interpretation or dating of the sites. However, it does point to sporadic Mesolithic-Bronze Age activity in the area. Spatial study of the material, combined with the scatter recovered during field walking, may reveal activity areas. This contributes to the wider CTRL Landscape Zone Priorities concerning the activities of past human communities in the palaeo-environment, and the spatial organisation of the landscape in the context of later agriculturalists, 2000-1000 BC.

2.1.21 Given the provenance of the majority of the material little other further work is likely to be useful.

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2.2 Assessment of the Humanly Modified and Unworked Stone

by Ruth Shaffrey (nee Saunders)

Introduction

2.2.1 Assemblages of humanly modified and unworked stone were recovered during excavation and watching brief works at Thurnham Roman Villa (ARC THM 98), Hockers Lane (ARC 420/99 62+200-63+000) and Thurnham Lane to West of Crismill Lane (WBG ARC 420/99 63+900-66+350).

2.2.2 The material was hand retrieved on site.

2.2.3 The recovery and study of the stone was undertaken in accordance with the Fieldwork Event Aims for the sites, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to assist interpretation of the function of features and structures and the recognition of functional zones; it was also recovered to provide evidence for the status, economic orientation and patterns of contact and trade of the settlements.

Methodology

2.2.4 All retained stone was examined, in order to exclude the typically large body of unworked specimens from further consideration. Worked stone was then recorded by context, with details of geology, probable function and features of note.

Quantification

2.2.5 Approximately 450 fragments of stone were recovered. Tables 2.7, 2.8 and 2.9 summarise worked stone from Thurnham Villa; Table 2.10 lists burnt unworked stone, and Table 2.11 other unworked stone, from the same site. Table 2.12 lists stone from the watching brief at Thurnham Lane to West of Crismill Lane, and Table 2.13 that from Hockers Lane.

2.2.6 The assemblage included twelve fragments of rotary querns or millstones, with an additional six potential quern fragments. Of the twelve definite quern fragments, three were of Hertfordshire Puddingstone, four were of lava, three were of Greensand and two were of Millstone Grit. Of the six possible quern fragments, two were of a sandstone, two were of Greensand and two were of Millstone Grit. Three of these rotary querns may equally have been millstones - two of Millstone Grit, from a rubble layer (context 11422) and from the area of the cobbled surface around the well outside the Aisled Building (context 12361), and one of Greensand from context 11031, rubble from the corn-drier.

2.2.7 In addition to the four identifiable quern fragments of lava, there were approximately 50 small fragments of lava from various contexts. These were all very weathered and friable. Although they do not retain any original features, they are most likely to be fragments from rotary querns or millstones.

2.2.8 Several specimens of Greensand appear to have been used, or to have been intended for use, in building. There are several large square or rectangular chunks from contexts such as 11027 and 11031, rubble from the demolition of the corn-drier, a fill of ditch 11470 (context 11492), and a pit fill (context 12347). There is also a large collection of thinner slabs of Greensand, some of which were certainly exploited, probably as flooring since they demonstrate wear on one or both faces. In

addition to this, one slab of Greensand may have been cut for a roof slab, though there is no suspension hole to prove it was ever actually used in this way.

2.2.9 One small cube of ironstone may have been a tessera and there are four whetstones made from ironstone (from contexts 10864 and 10684, rubble spread north of the temple) and Greensand (from contexts 10685, rubble spread north of the temple, and 15111) .

2.2.10 A wide variety of lithologies is represented, comprising Hertfordshire Puddingstone, lava, Greensand, Millstone Grit and Sarsen. The Greensand and the Sarsen would have been available fairly locally but the other stone types would have been imported varying distances from Hertfordshire (Puddingstone), Derbyshire (Millstone Grit) and the Rhineland (lava).

Provenance

2.2.11 Much of the worked stone was recovered from the fills of ditches, from rubble spreads and from layers within the enclosure at Thurnham Villa. A number of pieces were found in the area of the rubble spread around the well outside the Aisled Building. Very little was found in contexts within the individual buildings, although a number of fragments came from area of the 14-post structure, from contexts associated with the demolition of the corn-drier.

Conservation

2.2.12 No conservation is required. There is no reason to retain any of the material listed in the unworked stone tables. The remainder of the material should be retained until the implications of all the CTRL archaeological projects have been assessed.

Comparative Material

2.2.13 The main artefact types recovered during the excavations at Thurnham are the rotary querns and millstones. The materials exploited, the Millstone Grit, lava, Greensand, Sarsen and Hertfordshire Puddingstone are not unusual in Kent and were widely used during the Roman period in this area. Of these materials, lava, Greensand and Millstone Grit were the commonest.

2.2.14 Lava has been found at the CTRL site at Pepper Hill/Waterloo Connection (Shaffrey 2000). Lava is also widely known from other sites, including Springhead Roman small town (Roe 1999, 31), but especially in eastern Kent where sites include Church Field, Snodland where one fragment was found (Ocock and Sydell 1967, 213-214) and Fawkham, which produced “irregular lumps” of lava querns (Philp 1964, 72).

2.2.15 Millstone Grit is an equally common quern material in Kent and has been found on nearby sites including The Mount Villa, Maidstone (Kelly 1993, 228) and Joyden’s Wood (Tester and Caiger 1955, 182). This stone was also a favoured millstone material, hence the name, and millstone fragments such as those found here occur at sites across Kent including The Mount Villa, Maidstone (Kelly 1993, 228) and Keston Villa (Philp *et al* 1991, 180).

2.2.16 Hertfordshire Puddingstone is less common than lava, Millstone Grit and Greensand and it is harder to find comparisons. It tends to occur on earlier sites and on those which have the widest range of other lithologies such as the Roman Villa at Keston, further to the west, which produced two fragments of Puddingstone querns along with Greensand, Lava and Millstone Grit (Philp *et al*, 1991, 179). Other examples

include one quern from Fordcroft, Orpington which may be made from Hertfordshire Puddingstone (Tester 1970, 68-69) and another at Oliver Crescent, Farningham (Priest and Cumberland 1931 69-70, quoted in Black 1987, 177).

2.2.17 Greensand was locally available and has been found at sites including the Romano-British farmstead at Fawkham (Philp 1964, 72) and Joyden's Wood (Tester and Caiger 1955, 182).

2.2.18 Sarsen is another locally available material but one which is rarely seen on other sites in Kent and its occurrence here is therefore slightly unusual.

2.2.19 The variety of materials exploited indicate the wide connections of the site. Commonly Romano-British sites in Kent produce querns of some, but not all the above materials. Other sites with a wide range of lithologies include Canterbury, where excavations in the Marlowe Car Park found querns of Greensand, Millstone Grit and lava (Blockley et al 1995, 1206) but not Sarsen or Hertfordshire Puddingstone. Nearer by at Springhead, meanwhile, the variety of lithologies used is more comparable, with querns of lava, Millstone Grit, Greensand and Hertfordshire Puddingstone (Roe 1999, 31).

2.2.20 With the exception of the lava identified at Pepper Hill/Waterloo Connection, no other comparable assemblages of worked stone are known to the author from any other CTRL sites.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

2.2.21 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

2.2.22 The worked stone assemblage from Thurnham Villa offers good potential to address a number of the Fieldwork Event Aims for the site. There is a markedly wide variety of lithologies present, and a relatively large number of rotary querns. The presence of millstones is of considerable interest, and may indicate that large-scale production was taking place on the site. The presence of Hertfordshire Pudding Stone is also of note, since it tends to occur on earlier sites in the region.

2.2.23 Further typological and lithological study of the rotary querns and comparable material will be of considerable value for studying the economic orientation and patterns of contact and trade of the villa, including possible trading routes.

2.2.24 Further study of the types and lithologies of the worked stone in conjunction with more detailed stratigrapic analysis will help to identify any chronological or spatial indicators that could aid the recognition of functional zones, and of change over time in both patterns of trade and the economic orientation of the villa itself.

2.2.25 The study of millstones and querns at the site, in conjunction with the study of cereal assemblages, will be of interest for determining the nature and scale of agricultural production at the site.

2.2.26 Further study of the spatial distribution of building stone may help with the reconstruction of the form of buildings and features on site, and therefore illuminate their probable status and function.

New research aims and objectives for the CTRL archaeology project

2.2.27 The rotary querns and millstones represent an important assemblage for the region, both in terms of the wide variety of lithologies present, and in terms of the excellent contextual information available to support the analysis. It would be appropriate to make the results of any further study available for wider dissemination.

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2.3 Assessment of the Worked Shale

2.3.1 The following note has been added by the Project Manager.

2.3.2 A fragment of a shale spindlewhorl (SF 10970) was recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

2.3.3 The object has been assessed by Leigh Allen (Finds Manager, OAU) and Fiona Roe (senior worked stone specialist for OAU CTRL assessments).

Quantification, conservation and comparative material

2.3.4 The object is a fragment of a shale spindlewhorl with a biconical section, with a diameter of *c* 42mm and a thickness of 14mm. It was recovered from context 12631, which is associated with the cobbled surface 12370 and the well immediately west of the aisled building.

2.3.5 Spindlewhorls are a common find on sites of this period, and were used in spinning. They were made from any materials readily to hand, including fragments of bone and broken pottery.

2.3.6 The object is currently being kept waterlogged and would require stabilisation if it is to be kept for long-term preservation or display.

2.3.7 The shale probably originated from Kimmeridge, but local sources exist in Kent. Limited further study of the object would probably identify its geological source.

2.3.8 Little information is currently available on shale from other CTRL sites, as it often tends to be recognised during assessment of other assemblages. Two fragments of shale were recovered from a single pit at White Horse Stone, comprising a finished bracelet fragment and a rough-out for a second. This suggests that the material may have been worked or finished on site during the early Iron Age.

2.3.9 Comparable material has also been recovered from OAU excavations at Westhawk Farm, Ashford, where jewellery was found made from local lignite resembling jet. This may suggest evidence for a local industry in this period.

Potential for further work

2.3.10 The object provides limited evidence for spinning on site, for which there is little evidence elsewhere in the artefactual record.

2.3.11 Its provenance is of interest. Hilary Cool has noted a concentration of copper alloy and bone hair pins in the vicinity of the aisled building, which she suggests may be evidence that it was a place where women regularly gathered. Further analysis of the provenance of the spindlewhorl in conjunction with other artefacts in the vicinity may provide further evidence for this interesting suggestion. Spinning and weaving were undoubtedly a significant part of women's daily routine in this period. This has the potential to contribute to Fieldwork Event Aims related to the function of features and structures, and the presence of functional zones on the site.

2.3.12 A search of published sources and results from other CTRL sites may show how commonly shale was used as a material on Late Iron Age and Roman sites in the region. This would provide evidence for the scale of exploitation of this natural resource, and whether there is any sign of change associated with the Roman conquest.

2.4 Assessment of the Calcareous Tufa

by Susan Pringle

Introduction

2.4.1 A small quantity of calcareous tufa was recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

2.4.2 The material was hand retrieved on site.

2.4.3 The recovery and study of the tufa was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. It was designed to contribute to understanding of the form of buildings and structures on the site, and therefore to the study of their status and function.

Methodology

2.4.4 Since the assemblage was relatively small, all the material was scanned and a basic record was made.

Quantification

2.4.5 A total of 106 fragments, weighing 43.7kg, were assessed. The quantity of material by context is shown in Table 2.14.

Provenance

2.4.6 The material is distributed across the site, with most coming from the area of the 14-post structure (including seven worked blocks), where it was re-used in the construction of the corn-drier. Tufa blocks also came from the areas of the main villa house and the aisled building. Table 2.15 shows the distribution of calcareous tufa by site area.

Conservation

2.4.7 The condition of the material is good. There are no special requirements for long term storage, other than the use of robust packaging materials and a dry environment.

2.4.8 At this stage, all the worked material should be retained, but the rubble can be discarded. In the future, if the blocks are fully recorded and, if necessary, photographed, the majority could be discarded.

Potential for further analysis

2.4.9 The assemblage has some potential for reconstructing the form of buildings, which will contribute to Fieldwork Event Aims regarding the function of buildings and the status of the site.

Additional note supplied by the Project Manager

2.4.10 Calcareous tufa forms naturally in the vicinity, being known, for example, at Maidstone (pers. comm. Fiona Roe). The occurrence of this stone at Thurnham can therefore be seen as an example of highly specialised natural resource exploitation, and this will be of particular interest if the occurrence of tufa can be securely linked with the earliest Romanised buildings.

APPENDIX 3 - GLASS

3.1 Assessment of the Glass

by Hilary Cool

Introduction

3.1.1 A total of 94 items of glass were recovered from excavation works at Thurnham Roman Villa and Hockers Lane (ARC THM 98 and WBSDI ARC 420 99 62+200-63+000). Only one fragment of glass was recovered from Hockers Lane, and as this was a base fragment from a modern bottle it will not be further considered.

3.1.2 The majority of the glass was recovered by hand excavation with only 10 items being retrieved from samples. Therefore the majority of the assemblage can be identified by form. Vessel glass from samples is frequently too small for any useful analysis.

3.1.3 The recovery and study of glass was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to contribute towards establishing a dated occupation sequence for the villa's development and determining the status, economic orientation and patterns of contact and trade of the site.

Methodology

3.1.4 As the assemblage was relatively small, all the glass was inspected. A basic archive catalogue was created following the guidelines set out by the Roman Finds Group and Finds Research Group (RFG & FRG 1993). This will provide sufficient information about the less diagnostic fragments for a full catalogue at the analysis stage, and the fragments themselves would not need to be inspected again.

Quantification

3.1.5 The glass is summarised in Table 3.1 and the range of Roman material is briefly described in the sub-sections that follow. One of the modern bottle fragments originated in Phase 3 context 20051, and must therefore be intrusive. Table 3.2 provides dating and descriptions for glass from all contexts.

The Roman vessel glass

3.1.6 The vessel glass is dominated by blue/green bottle fragments (Isings Form 50 and 51). Most come from the prismatic (probably square) form but there is also at least one hexagonal and one cylindrical bottle present. Fragments from the general prismatic form cannot be closely dated within the 1st to 3rd century period, but cylindrical and large hexagonal bottles went out of use early in the 2nd century.

3.1.7 A range of vessel types including tablewares is represented amongst the other fragments. Based on an inspection of the types and colours present, 1st to early 2nd century material was recovered from contexts 10413 (area of the 14-post structure), 20174 (fill of ditch 20400), and the interior of the main villa house (contexts 20048 and 20058); 2nd and 3rd century material from contexts 10487 and 11331 (boundary ditch group 10610), and the area of the Aisled Building (contexts 15186 and 15188); and 4th century material came from the area of the 14-post structure (contexts 10338 and 10339), 10347 (gully group 11240), demolition/collapse east of

the temple (context 10934), and the surface/well area area west of the Aisled Building (contexts 11394 and 12361). It is noticeable that forms that are normally very numerous during the later 2nd to 3rd centuries, such as the cylindrical cup of Isings Form 85b, have not been identified.

3.1.8 In general the vessel types are common ones but two are worthy of special note as being uncommon: a shallow dish of possible 2nd to 3rd century date from 10487 (boundary ditch group 10610) and a 4th century cylindrical bottle with faceted decoration from 11394 (the surface/well area west of the Aisled Building). The latter indicates a considerably later date for the context than the pottery spot date has provided.

Window glass

3.1.9 The only fragment of window glass came from context 10772 (late Roman rubble spread south of the main villa building) and was of the 4th century blown variety

Objects

3.1.10 Most of the glass objects are beads. They include a 1st to early 2nd century frit melon bead (context 20089, main villa house interior), and two glass beads of common types that are not closely datable within the Roman period (contexts 11394, Aisled Building, and the temple, 10870). Tiny beads such as those found in the soil sample from the backfill of the infant grave have most often been found in 4th century graves. The most unusual item is a fragmentary polychrome bead from 20058 (main villa house interior). On initial inspection this appears to have far more in common with the large gaudy beads of the later 5th to 7th century period, than to any Roman bead. Given the closely dated context it comes from, however, a Roman date seems to be required for it.

3.1.11 The only other glass object is a plano-convex artefact from context 20002 (main vill house interior). This seems too small to be a counter, and is likely to be a setting probably from a finger-ring. A 2nd century date would be most likely for this piece.

Provenance

3.1.12 Approximately 75% of the assemblage comes from phased contexts but there are no significant concentrations of material, and it will be apparent from context listings above that glass was found in all areas of the site. The glass associated with primary occupation deposits or features tends to be either from blue/green bottles or is relatively undiagnostic. A complete unguent bottle rim from the backfill of ditch 20400 (context 20174) is of some interest as this is from a type that goes out of use during the Flavian period. These were disposable containers valued for their content, and examples are unlikely to have remained in use into the 2nd century. This piece may provide valuable evidence for the dating of this deposit and the occupation of the proto-villa.

Conservation

3.1.13 This Roman glass is chemically stable and needs no conservation input. The glass is in good condition and will not have suffered from differential preservation on different parts of the site.The current packaging is adequate for long term storage. It is not normal practice to discard Roman glass.

Comparative material

3.1.14 Glass is recorded as having been found during excavations at Thurnham Villa in 1933 (Ashbee 1986, 153), but the descriptions provided are not sufficient for the forms to be identified. Approximately 35-40 fragments of vessel glass and one bead are now in the Maidstone Museum and could be studied.

3.1.15 There is a growing published corpus of Roman glass from domestic sites in Kent. The biggest assemblages are those from Canterbury (Shepherd 1995) and the villa at Lullingstone (Cool and Price 1987), but many other sites have produced smaller assemblages, for example, Springhead (Charlesworth 1958; 1959; 1960 *etc*). In addition to these the OAU excavations at Westhawk Farm Ashford, Kent have produced a moderate sized assemblage of fragments. These are due to be assessed this summer and will thus also be available for consideration.

3.1.16 No comparable assemblages are known to the author from other CTRL sites. A small quantity of glass (probably mostly beads) is reported from the cemetery at Pepper Hill/Waterloo Connection, and this should provide some comparative material. No glass is reported from the Late Iron Age/early Roman site at Northumberland Bottom. Glass beads are likely to occur in the Anglo-Saxon cemetery at Cuxton, although it is reported that no vessel glass fragments have been found there (URS 1999). Anglo-Saxon glass beads and vessels have been recovered from Saltwood.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

3.1.17 The glass from this site can contribute to the original Fieldwork Event Aims by assisting with dating the occupation sequence for the villa's development. In many cases where the fragments are relatively closely dated they agree with pottery spot dates, although in some instances the glass will refine the dating suggested by the pottery. As noted above (3.1.8) in one context (11394, the spread west of the Aisled Building) there is a wide discrepancy between the pottery and the glass dates, with the latter suggesting the context is later than proposed. A similar discrepancy is noted in context 10934, from the temple. In addition, closely datable fragments have been found in contexts that are unphased and/or without spot dates (such as Finds Reference context numbers 10338-9, from the area of the 14-post structure). Further integrated analysis would be carried out to review the dating of glass from problem contexts in conjunction with the dating of other artefacts present.

3.1.18 The glass will also assist in establishing the status, economic orientation and patterns of contact and trade of the settlement. The normal patterns of vessel glass usage on different types of sites (Cool and Baxter 1999) have begun to be established. The pattern seen at Thurnham in the later 1st to early 2nd century seems to be what can be expected on a relatively modest rural site. Unusually, there is little glass that can be assigned to the later 2nd to 3rd centuries. This might suggest either that the rubbish associated with this period was being disposed of elsewhere, or there was a diminution in the glass supply to the site.

3.1.19 It would be most helpful to examine the glass from the 1933 excavations to see if this pattern holds true for the rest of the assemblage. If so, it will be possible to explore the phenomenon by establishing whether the common varieties were normally available in the broad locality. This would be achieved by examining comparable assemblages from sites such as those noted above. The results, in

conjunction with information about the contemporaneous supply of pottery to the site, would be likely to provide insights into the degree of prosperity at Thurnham, as well as its patterns of contact and trade. The lack of a single fragment of window glass of the type that would have been contemporaneous with the stone villa, suggests the building may have been modest and lacked glazed windows.

New research aims and objectives for the CTRL archaeology project

3.1.20 The pattern of use of glass in Roman Britain, on different sites at different times, is being investigated as noted above (3.1.18). A distinct difference between rural and urban sites can be discerned but exploring it fully is problematic because the glass from such sites has often not been studied in detail (Cool & Baxter 1999, 84) The production of a quantified catalogue of the vessel glass from this site would thus be a valuable addition to our knowledge and contribute to future synthetic study.

3.1.21 The comparable sites suggested in 3.1.16 above will provide a very valuable group of small rural quantified assemblages from this area. These can eventually be compared to similar groups of assemblages elsewhere. The present author has worked on and quantified similar groups from Bedfordshire, West Yorkshire and Merseyside, and it is clear that regional differences are starting to emerge.

3.1.22 The two uncommon vessel fragments and the polychrome bead described above will make a valuable contribution to the *corpus* of glass vessels and beads known from Britain, especially as the bead and the dish are stratified and can thus be independently dated.

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APPENDIX 4 - METALWORK

4.1 Assessment of the Iron Age and Roman Coins

by Paul Booth

Introduction

4.1.1 Two Iron Age and 49 Roman coins were recovered during excavation works at Thurnham Roman villa site (ARC THM 98). A single Iron Age coin was recovered during excavations at Hockers Lane (ARC 420/99 62+200-63+000).

4.1.2 The coins were recovered in hand excavation but many were located by metal detector used in conjunction with hand excavation. The use of the metal detector means that a high rate of recovery of coins can be assumed, increasing their basic value as dating evidence.

4.1.3 The recovery and study of the coins was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The principal purpose of recovering coins was to assist the establishment of a dated occupation sequence for all phases of the villa's development. The overall pattern of coin loss is also of value for interpreting change in the status, economic orientation and patterns of contact and trade of the site over time.

Methodology

4.1.4 All the coins were X-rayed and then examined briefly. The condition of the coins was very variable: full identification was possible in some cases with relatively little work, but in other cases close dating was not possible owing to the degree of wear, corrosion or encrustation. Coins were dated as closely as possible, and the need for further specialist cleaning in order to facilitate identification has been indicated in Table 4.1.

Quantification

4.1.5 Details of the date and context for each coin found at Thurnham Villa are provided in Table 4.1. These 51 coins (including surface and metal detector finds) can be broken down by approximate period as shown in Table 4.2.

4.1.6 The assemblage is too small for detailed comment on chronological trends, particularly until the dating of some coins can be refined. The relative frequency of early 4th century issues is notable, however. These were often in quite good condition and many could be identified quite precisely. The apparent rarity of later 4th century coins can only be confirmed after further work on the unspecified 4th century issues. A siliqua of Honorius (AD 395-402) in good condition was the only silver coin in the assemblage.

4.1.7 The quantity of coins is reasonably typical for villas in Kent and the south-east; however, it is very small by comparison with villas in the west and the midlands, where much larger numbers of 4th century coins are normally found. The small size of the coin assemblage therefore tends to support the impression of low-level 4th century activity, and suggests that this reflects a regional pattern.

4.1.8 A single coin (SF2, context 186) was recovered from Hockers Lane. This was a Class I potin, of Mack (1975) Type 12. The coin is broken into three pieces, but is otherwise in good condition. A date in the first half of the 1st century BC is likely.

Provenance

4.1.9 Coins were recovered from all areas of the site, and no analysis has been carried out at this stage to determine whether there are any significant patterns, although preliminary results suggest this is unlikely. Coins from the area of the temple included ?mid 1st century and ?late 1st to mid 2nd century, 3rd to 4th century and 4th century material; coins from the area of the main villa house were of 2nd, 3rd and 4th century date; 2nd and 4th century coins were recovered from the area east of the Aisled Building; a worn ?2nd century coin was recovered from context 10616, part of ditch group 10610; and a number of 4th century coins came from the 14-post structure and the area of the corn-drier.

Conservation

4.1.10 In general the early Roman coins (some of which are only tentatively assigned to the 1st-2nd centuries) are in poor condition while later material is more often better-preserved. Twenty three coins require specialist cleaning in order to improve their identification, but consolidation work is unlikely to be appropriate. It is not general practice to discard Roman coins.

Comparative Material

4.1.11 Particular points of comparison will be with assemblages from other villa sites in Kent, including published data from Darenth, Faversham, Keston and Lullingstone and unpublished information from sites such as Eccles, if available. More nearly adjacent villas and other rural settlement assemblages can also be checked for relevant comparative data. These might include sites such as Teston and Maidstone Barracks. From within the CTRL project, useful numbers of Roman coins were recovered at Pepper Hill/Waterloo Connection, and Roman coins are also reported as having been found during metal detecting at Northumberland Bottom.

Potential for further work

4.1.12 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

4.1.13 The coins are most important for dating the contexts from which they derive and for informing interpretation of the overall chronological development of Thurnham Villa. The coins which require cleaning (see above), plus a further 15 coins, will need more detailed examination to maximise the information recovered, particularly with regard to dating.

4.1.14 Thirteen coins require no further examination. The records of these and the records for the remaining coins, updated in the light of cleaning and more detailed examination, can be used to refine understanding of the chronological sequence of the villa. They can be compared with other assemblages from Kent to determine the degree to which the pattern of coin loss observed at Thurnham is typical of the region and thus to inform interpretation of the sequence and of social and economic aspects of the site.

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4.2 Assessment of the Post-Roman Coins

by Martin Allen

Introduction

4.2.1 Three post-Roman coins were recovered during excavation works at Thurnham Villa.

4.2.2 All were metal detector finds.

4.2.3 The recovery and study of coins was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The principal purpose of recovering coins was to assist the establishment of a dated occupation sequence for all phases of the villa's development. The overall pattern of coin loss is also of value for interpreting change in the status, economic orientation and patterns of contact and trade of the site over time.

Methodology

4.2.4 In order to assist in the dating of the site, all coins were examined and identified.

Quantification

4.2.5 Details of the three coins are given in Table 4.3, and a brief commentary on each is given below.

4.2.6 A silver cut halfpenny of Henry I (1100-35) was found. This is a coin of *BMC* type x, which can be tentatively dated to *c* 1117-19 (Blackburn 1991, 72). It was struck in Winchester by the moneyer Stigant, and probably deposited no later than *c* 1140. Coins of Henry I had almost completely disappeared from circulation by *c* 1140 (Archibald 1988, 279) providing a probable terminus for this coin. The Lincoln hoard, deposited *c* 1130, had 186 coins of type x in a total of at least 744, but 1065 coins in the Prestwich hoard of *c* 1141 did not include type x.

4.2.7 A copper halfpenny of William III (1689-1702) was minted 1695-1701. The withdrawal of copper coins minted before 1797 was completed in 1817 (Craig 1953, 324-5), when these coins of William III were demonetised and so it was probably deposited no later than that date.

4.2.8 A copper halfpenny of George IV (1820-30) was minted 1825-7. This coin was deposited no later than 1869, when the withdrawal of copper coins of 1797-1860 effectively ended.

Provenance

4.2.9 All coins were metal detector finds. The coin of Henry I was recovered from a medieval occupation layer in the south-east of the site. The halfpenny of William III came from a buried post-medieval ploughsoil, while the halfpenny of George IV was unstratified.

Conservation

4.2.10 No further work is required on these coins. It is not normal practice to discard coins.

Comparative material

4.2.11 Comparative studies of these coins would provide little information of relevance to the CTRL project's aims.

Potential for further work

4.2.12 The coin of Henry I is potentially of considerable interest for dating the reestablishment of occupation on the Thurnham Villa site in the medieval period. This has direct relevance for the Landscape Zone Priorities Research Objective 2.4, sub-periods (ii) and (iii). While no further work is required on the coin itself, it should be taken into account in further study of the stratigraphy and finds assemblages from the medieval contexts. It will be important to establish whether the coin can be associated with contemporary activity at the site, or whether it is more likely to be an isolated chance loss.

4.2.13 The two post-medieval halfpennies have no potential to contribute to the research aims of the CTRL project.

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4.3 Assessment of the Bronze Age Metalwork

by Peter Northover

Introduction

4.3.1 Two items of metalwork of identifiably Bronze Age type were recovered during excavation works at Thurnham Roman Villa (ARC THM 98). They comprise a small, tapered blade with probable lozenge section and notched butt, and a small pin with shepherd's crook head.

4.3.2 The objects were hand retrieved on site.

4.3.3 The recovery and study of metalwork was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. Recovery of metalwork was undertaken to help date the occupation sequence for all phases of site's development. It was also designed to elucidate the status, economic orientation and patterns of contact and trade of the settlement, and to elucidate ritual and ceremonial use of the landscape.

Methodology

4.3.4 As there are only two items, they have been visually examined and recorded, and a search for possible parallels has been undertaken in order to refine the dating.

Quantification

4.3.5 Two bronze artefacts were found within the waterhole. The first is a small dirk or knife blade (sf 10071). It has a small slender blade with sub-lozenge shaped section. The blade has a concave outline and narrow arch butt with a rivet notch on either side, but it is thought that a small nick at the top of the butt does not represent another rivet-notch. It has a rusty brown patina over dull light green corrosion products. It is 84mm long and the blade width is 22mm.

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

4.3.7 Knife-daggers were catalogued by Gerloff (1975, nos 237-346), and her illustrations show that almost no knife-daggers have a lozenge section blade, and none at all have side rivet-notches. A Middle Bronze Age parallel is possible, and Burgess and Gerloff (1981) show that rivet notches are most common among the dirks and rapiers of Group IV, especially Type Cutts, with many blades re-worked for hafting. However, these blades all have some form of mid-rib however broad and flat, so it seems unlikely that the Thurnham blade belongs to this group. Burgess and Gerloff (1981, 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 blades may have been wrongly attributed but it seems reasonable to place the Thurnham blade in this group.

4.3.8 The second artefact was a crook-headed pin (sf 10072). This is a slender pin with sharp point and two bends in the shaft. The head of the shaft is bent over in a simple crook but not recurved. It has a rusty brown patina over dull light green corrosion products, and is 90mm long.

4.3.9 This pin does not fall within a well-defined type. It could be regarded as a simplified roll-headed pin, which could date it to any period from the beginning of the Middle Bronze Age onwards. Alternatively, it could be a prototype or derivative of a shepherd's crook pin, for which a date no earlier than the last phase of the Middle Bronze Age would apply. Even more likely, though, is the probability that the pin has been re-worked from a damaged example of an unidentified type. A Middle Bronze Age date is still feasible but it is necessary for this to be demonstrated.

Provenance

4.3.10 Both bronze artefacts were found within a waterhole (10288) with a ramped access, which lay in the south-east of the site. 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 (at 95% confidence level). Despite the presence of this later material, the interpretation of this feature as a Bronze Age ritual deposit in a waterhole is still preferred, on the grounds that the association of two Bronze Age artefacts in this way, by pure chance, is extremely unlikely.

Conservation

4.3.11 The items are suitably packaged for long term storage. No special conservation is required. Bronze Age metalwork is exceptionally rare, and it would not be considered good practice to discard these objects.

Comparative material

4.3.12 The dirk or knife blade does not fall into a well-defined typology but it can be compared with other similar items, of which numerous examples have been catalogued by Burgess and Gerloff (1981). It may be necessary also to look for parallels in adjacent regions of France (Blanchet 1984).

4.3.13 No modern synthesis of British Bronze Age pins is available to take account of a variety of finds from excavations, but for the present O'Connor (1980, 75, 124, 200) provides the most useful review.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

4.3.14 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

4.3.15 Both pin and blade have a similar patina attributable to their shared environment, but they are not necessarily of similar composition. As noted above, the blade has been re-worked, most probably from a small Group II dirk. The original date of manufacture of the blade would be in the Acton Park period of the Middle Bronze Age (MBA I), perhaps the 16th/15th centuries BC. The time of deposition of the blade could, of course, be significantly later.

4.3.16 The pin has probably also been re-worked but the original type cannot be directly identified, and the date of manufacture cannot be deduced from its form.

4.3.17 There is a robust chronology for bronze compositions now available for the British Middle Bronze Age, and therefore the possibility of a dating via the composition is very strong. An analysis may well give some idea of the origin of the pin as well, as it would for the blade. For the latter it would also be possible to confirm, or

otherwise, the identification as a Group II dirk. A compositional analysis is therefore recommended for both items.

4.3.18 More precise information regarding the dating and probable origins of these objects will enhance understanding of the date of the waterhole, the nature of the activity associated with it, and its probable affinities. Although of no relevance to the principal Fieldwork Event Aims of the site, this information will be valuable for the study of wider Landscape Zone Priorities, in particular ritual and ceremonial use of the landscape, and the interaction of past communities with the palaeo-environment.

New research aims and objectives for the CTRL archaeology project

4.3.19 The association, worn condition and recovery of these two objects from within a waterhole is likely to add important information for the understanding of the specialised nature and complex patterning of Middle Bronze Age metalwork deposition.

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4.4 Assessment of the Roman Metalwork - Copper Alloy, Iron and Lead

by Hilary Cool

Introduction

4.4.1 A total of 1069 metal objects were recovered during excavation works at Thurnham Roman Villa (ARC THM 98), with a further 2 objects from the watching brief at Thurnham Roman Villa (ARC 420/99 63+400-63+900) and 2 objects from Hockers Lane (ARC 420/99 62+200-63+000). Two of the items from the excavations at Thurnham Villa have provisionally been identified as being of Middle Bronze Age date (sf 10071-2). These are the subject of a separate assessment.

4.4.2 Virtually all of the items were recovered by hand excavation with only 38 coming from sieved samples.

4.4.3 The recovery and study of metalwork was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to assist with establishing a dated occupation sequence for the villa's development, and to illuminate the status, economic orientation and patterns of contact and trade of the settlement.

Methodology

4.4.4 In order to assist with the provisional phasing and dating of contexts, and to achieve a more accurate quantification of the different components of the assemblage, all material was rapidly inspected and identified. This has permitted the identification of a large number of iron nails, and miscellaneous fragments which will probably require little further investigation.

4.4.5 The iron work was assessed by inspection of the X-radiographs (with inspection of the iron items where appropriate). The copper alloy was assessed by inspecting the object (with inspection of the appropriate X-radiograph where appropriate). The lead was assessed by inspecting the object.

4.4.6 A basic archive catalogue was produced following the guidelines set out by the Roman Finds Group and Finds Research Group (RFG & FRG 1993).

4.4.7 Where appropriate, entries given in the description have used names derived from standard typologies. For ironwork items this relates to the work of Manning (1985), for hair pins, Cool (1991), and for finger rings, Henig (1974). For brooches the nomenclature of Hattatt has been followed (see for example Hattatt 1989, figs. 154-230).

4.4.8 It should be noted that under count, the number entered does not always equate with the number of fragments. The assemblage contains a very large number of nails and nail fragments which have a tendency to fragment. Where multiple nail fragments have been included as one small find, the count relates to the number of heads represented thus providing minimum number estimate. The number of fragments present when the find was X-rayed is given in the description field.

4.4.9 This catalogue will provide sufficient information about the less diagnostic fragments for a full catalogue at analysis stage, and the fragments themselves would not need to be inspected again.

4.4.10 Where available, the nature of the context and the pottery spot date has been taken into consideration.

Quantification

4.4.11 The metalwork may be considered according to the generally accepted functional categories established by Crummy (1983). The assemblage is dominated by structural items which, with two exceptions, are iron nails. The other most prolific categories are personal ornaments (51 items) and fasteners and fittings (49 items). Other categories represented by moderate numbers of items are toilet implements, furniture and household equipment, transport fittings and tools. Categories represented by very small numbers of items are writing and religious equipment. There is a small amount of debris from metalworking. All the metalwork is listed by context on Table 4.12.

4.4.12 The range in each category is considered in the following sections. The range of types represented and their varying size and conditions, all suggest that that the assemblage does not suffer from any bias due to excavation technique or preservation conditions.

4.4.13 Many items are not inherently datable, but where a date can be assigned on typological grounds virtually all of the items are of Roman date, with the more closely dated ones being of 1st to 2nd century AD date. There is only one item that is probably of 4th century date. Two items of transport equipment can be dated to the 12th to 14th centuries. There is also one lead token or jetton of medieval date (sf 10058) which should be included in the coin report during the analysis stage. There is a small amount of definitely modern material, mainly cartridge cases, from contexts 10038, 10182, 10402, 10408, 10503 and 11738.

Personal equipment

4.4.14 The range of personal equipment is shown in Table 4.4. The most chronologically sensitive pieces are the brooches, hair pins, finger rings and bracelet.

4.4.15 The most numerous brooch types are Hod Hills (sf 10298, 10627, 12361) and Colchester Derivatives (sf 10089, 10857, 10771, 11029). Also present are Aucissa (sf10772), Langton Down (sf10870, 11396) and Nauheim Derivative (sf10966, ARC420 sf 4) brooches. All of these would have been in use mainly in the mid to later 1st century. One brooch may be a single piece Colchester brooch (sf10862) and might be slightly earlier but investigative conservation will be required before this can be confirmed. A small fragment of an enamelled plate brooch (sf 10386) might suggest a 2nd century date. An iron penannular brooch (sf 10474) may also be present but again will need investigative conservation.

4.4.16 The hair pins include three items that may be dated to the later 1st to 2nd centuries (sfs 10878, 10934, 10970) and two other knob-headed examples (sf 10104 and 10649) that are not closely dated within the Roman period.

4.4.17 The finger-rings are a signet-ring of the later 1st to the earlier 3rd century (sf 10549) and a bezel of a 2nd century enamelled ring (sf 10767).

4.4.18 The only bracelet (sf 10365) is a cable twist bracelet in use from the later 1st to the 4th century, but most numerous during the 4th century.

Toilet, household, recreational and writing equipment

4.4.19 The toilet and medical equipment is summarised in Table 4.5. The forms are all Roman ones but do not tend to be chronologically sensitive within that period.

4.4.20 The household items are summarised in Table 4.6. All items are Roman with the exception of the iron drop handle (U/S) which need not be Roman. A handle (sf 10879) came from a large 1st century bowl. Three items (sf 10360, 10390, 10865) appear to have come from elaborate pieces of furniture such as a candelabrum or stool.

4.4.21 The only item that might be associated with recreation is a small lead disc carefully cut from a piece of sheet (sf 11027) which may have acted as a counter.

4.4.22 The only item of writing equipment is a seal box lid of unusual form (sf 10804), probably of 2nd century date.

Transport items

4.4.23 The transport items are summarised in Table 4.7. Two of the horseshoes could be of any date from the medieval to modern period but one fragment (sf 10888) could well be of 12th to 14th century date. A similar date is likely for the spur (sf 10000). The linch pins are typical Roman forms. One of the harness pendants (sf 10713) is of particular interest as it is a 1st to 2nd century lunulate form, normally associated with military activity.

Nails, knives, tools, fasteners and fittings

4.4.24 The assemblage is dominated by iron nails. Quantified according to the method outlined in the methodology, there are 785 from the main excavations and one each from the Thurnham Villa watching brief and from Hockers Lane. Iron nails are not inherently closely datable, but most of these could well be of Roman date. Other structural finds include a holdfast and a wall hook.

4.4.25 Knives and tools are summarised in Table 4.8. This is the category which will need the greatest amount of investigative conservation to confirm and refine the identifications. All those identified appear to be Roman forms.

4.4.26 All the items that fall within the fasteners and fittings category are summarised in Table 4.9. Again many of these items are not inherently closely datable but the range is typical of that found on many Roman sites. Of particular interest is an iron item in need of investigative conservation (sf 10566) that may be a lock bolt of a type more common in copper alloy.

4.4.27 The only item associated with agricultural activities was an iron spade shoe (sf 10974) of a typical Roman form.

Religious items

4.4.28 Religious items may be represented by two pieces of statuary. A large hollow-cast fragment (sf10060) appears to come from the base of large statue. There is also a small solid human foot (sf 10380) from a small figurine possibly of a leaping or dancing figure. A Roman date would be appropriate for each.

Metalworking

4.4.29 Metal working is indicated by two possible fragments of iron slag (sf 10193 and 10181) and three possible fragments of copper alloy casting waste (sf 10902, 10908, 10985). The punch is probably an iron smithing tool.

Miscellaneous

4.4.30 Miscellaneous items are summarised in Table 4.10. Some of the items currently listed merely as objects may be identified after investigative conservation. The bars and rods include a fragment from ARC 420 Hockers Lane (indicated *).

Provenance

4.4.31 Approximately one-third of the assemblage comes from stratified contexts, the broad distribution of which is summarised in Table 4.11. As shown on the table, the most prolific contexts were the fills of ditches 10610 and 20400, the large interior room of the stone villa re-used as a smithy (subgroup 20000) and the soil spread 11030. Two of these are of special interest.

4.4.32 One of the most varied assemblages, in terms of range of items recovered, comes from the fill of ditch 20400. Given the date of the infill of this, the debris in it may well relate to the occupation of the proto-villa. If this is correct, then the recovery of the handle fragment noted above is of some interest as it would have come from a large item of tableware.

4.4.33 The other large varied assemblage comes from the smithy (sub-group 20000). Virtually all of the items are made of iron. Some appear to be broken items and it seems likely that many may be scrap gathered together for re-forging. For example, a very large nail (sf 10812) which contains enough iron for it to be worth re-forging, is twisted and has clearly been extracted from wood and is not a freshly forged item. There may, however, be some residual material amongst the assemblage from this room as this is where the possible Colchester brooch of early to mid 1st century date was found.

4.4.34 Some items are heavily corroded, but there does not appear to be an obvious correlation between these items and any particular context or context type.

Conservation

4.4.35 On the whole the metalwork is in good condition. Full details of the needs for long term storage are itemised below. Approximately 80 items would require further conservation input for full analysis. The amount of input that would be required varies from air abrading selected areas on ironwork items (to establish details), to lightly cleaning surface soil from some copper alloy items (to aid illustration). The precise work required should be decided in consultation with the conservator. None of this work should conflict with long term storage.

4.4.36 The small find numbers of items that would require investigative conservation are as follows:

10060 10089 10126 10131 10142 10165 10212 10219 10275
10283 10298 10360 10365 10380 10385 10389 10390 10393
10464 10465 10474 10521 10549 10558 10566 10567 10617
10620 10627 10629 10636 10649 10701 10713 10727 10751
10757 10758 10761 10764 10767 10772 10774 10776 10779
10786 10788 10796 10798 10801 10802 10804 10809 10818
10830 10838 10840 10847 10850 10862 10865 10870 10878
10879 10889 10890 10899 10974 10975 10987 10988 10999
11002 11003 11006 11029 11033 10337
Sample 10140
plus 3 other items from contexts 11722, 15001, 15272

4.4.37 As it seems likely that many of the items in this assemblage are of Roman date even when not intrinsically closely datable, it would not normally be considered good practice to discard them. Items such as the cartridge cases (sf10101, 10206, 10310-1), and the natural stones and concretions (sf 10584, 10883, sample 10289), however, should be discarded.

Comparative material

4.4.38 Metal finds were recovered from the earlier excavations and will provide useful comparanda for this assemblage. A hair pin recovered in 1958 (Pirie 1961, 170, fig 5.12) may be very similar, for example, to sf 10878.

4.4.39 Locally there are good metalwork assemblages published which would allow the Thurnham material to be set in local context. Examples include those from Canterbury (see for example Blockley *et al* 1995) and Lullingstone (Meates 1987).

4.4.40 More widely there are good publications of the metalwork assemblages from contemporaneous villa sites in southern Britain such as Gorhambury, Herts (Neal et *al* 1990) which will allow the Thurnham material to be set in a regional and national context.

4.4.41 There are few comparable assemblages from other CTRL sites. Roman metalwork has been found in the excavations of the Pepper Hill/Waterloo Connection cemetery, and in both excavations and a preliminary metal detector survey at Northumberland Bottom. Both of these sites should provide reasonable quantities of contemporary material. Elsewhere, however, the metalwork collected from the smaller rural sites has been of very limited potential. A Colchester-type brooch was found at East of Station Road, but generally the metalwork from smaller sites has been scarce, and few datable types are represented. All metalwork recovered from Cuxton cemetery is reported to be of Anglo-Saxon date. The present author has noted in the assessment for South of Snarkhurst Wood that the scarcity of metalwork finds from Late Iron Age/early Roman rural sites may suggest that this type of settlement indeed had very little access to this kind of material, by comparison with contemporary towns or villas.

Potential for further work

4.4.42 The potential of this assemblage can be considered from two aspects, those connected with the original Fieldwork Event Aims and new research aims suggested by the material itself.

CTRL Landscape Zone Priorities and Fieldwork Event Aims

4.4.43 The copper alloy items are more closely datable items than the ironwork. Generally these provide useful supporting evidence to the pottery spot date. In no case do they suggest dates later than that suggested by the pottery spot date, but in a few instances relatively closely dated items have been found in contexts which have no pottery spot dates (contexts 10348, 10503, 10652, 10992, 11546, 11892, 15002, 20169). These may provide useful evidence for refining the date of these contexts. The metalwork thus has some potential for contributing to a dated occupation sequence for the villa's development.

4.4.44 The metalwork assemblage is large enough to make useful contributions to establishing the status, economic orientation and patterns of contact and trade of the settlement. Clearly items such as the fragments of figurine and possibly larger statue indicate a site of some status and wealth, as do the household items noted. An

example showing how the metalwork will contribute to two aspects of this field work aim will be considered in detail below. Other aspects are likely to emerge during the analysis stage when the metalwork can be set more fully within the context of the stratigraphic narrative and the other categories of finds.

4.4.45 Hair pins of 1st to 2nd centuries have strong regional distributions (Cool 1991) and Thurnham is on the boundary between two such areas. There are hints that some of the hair pins from the site may be types typical of the area north of the Thames rather than those of north Kent. Confirmation of this will have to await investigative conservation in the form of selective cleaning to reveal clearer detail of surface treatment, decoration and manufacturing techniques; however, if the attribution is correct then it will clearly have a useful contribution to make to establishing the patterns of contact and trade of the villa's inhabitants.

4.4.46 The bowl represented by the handle noted above not only indicates a lifestyle at the villa of some pretension, but is also of interest because the association of the type with military sites has been noted in the past (Crummy 1983, 73, no 2046). Taken together with the presence of the lunulate pendant, this might hint at some form of military connection for the site. The proto villa might therefore be another example of those villas built by members of the native elite who had seen service in the Roman army as postulated by Black (1994). This line of enquiry should be pursued at analysis stage.

4.4.47 An overview of the assemblage should be compiled relating it to the stratigraphy of the site, and giving special attention to the assemblages noted in ditch 20400 and the smithy site.

4.4.48 It is recommended that distribution plots of the very large nail assemblage be inspected as these may be a useful tool in examining the structures on the site as many are the length typically used when timber clad buildings are being erected.

New research aims and objectives for the CTRL archaeology project

4.4.49 The assemblage will be of value in contributing to synthetic regional studies of material culture. A good example of how it might contribute can be seen by a consideration of the brooch assemblage. All of the bow brooches are types that are conventionally attributed to the 1st century. The types that are conventionally viewed as being typical of the later 1st century to mid 2nd century (trumpets, headstuds and fantails) are conspicuous by their absence. Given brooch wearing habits in the 2nd century in southern Britain, it is unlikely that the inhabitants of Thurnham gave up wearing brooches. There must, therefore, be the possibility that they were continuing to wear 'old-fashioned' brooches. This is a pattern that a cursory examination of the brooches from neighbouring sites also suggests. A pattern *may* be emerging that suggests Kentish brooch use may have a slightly different chronology to that generally accepted. This is certainly the case for northern Britain (Snape 1993, 99) and the south-west (Timby 1998, 223). The wider dissemination of the Thurnham assemblage will clearly have a part to play in establishing such a pattern.

4.4.50 In order to fully extract the potential outlined above, the following steps would be necessary. The identifiable items of individual interest, should be catalogued (approximately 125 items), and the hobnails, the nails and miscellaneous items presented as tables where appropriate. This work should be carried out after the investigative conservation has been completed.

4.4.51 A brief typological discussion placing the material in a chronological and regional/national context should be written. The discussion would be more extended where items could contribute to understanding specific aspects of the occupation.

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APPENDIX 5 - SLAG AND METALWORKING DEBRIS

5.1 Assessment of the Slag and Hammerscale

by Lynne Keys

Introduction

5.1.1 Slag and hammerscale were recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

5.1.2 A quantity of material identified as iron slag was recovered by hand excavation. This slag was collected to determine the type of metalworking which had produced it, and, in the case of Room 20000 within the villa, to determine whether iron smithing was carried out there.

5.1.3 A total of 184 soil samples were taken from two successive phases within Room 20000 of the villa in order to determine whether hammerscale (a micro-slag produced by iron smithing) was present.

5.1.4 The recovery and study of the material was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken to aid the establishment of a dated occupation sequence for all phases of the villa's development, and in particular for the apparent decline of the villa, associated with the onset of metalworking, during the later Roman period. The recovery of evidence for metalworking was also designed to address wider CTRL research aims relating to the rural economy, natural resource exploitation and early industrialisation.

Methodology

5.1.5 Approximately 80% of the whole assemblage of slag was assessed in order to achieve a more accurate quantification of material likely to prove of value for further work. The slag was categorised on the basis of morphology and colour.

5.1.6 Most contexts contained only small amounts of slag, suggesting that these represented scattered residual material in fills of ditches, tree-holes and similar, and would not repay detailed quantification at this stage. The slag from the main villa house contexts, however, forms a considerable part of the total assemblage. As hearths had been excavated in the central room, particular consideration was given to these contexts.

5.1.7 Each type of slag from each context examined was weighed and recorded. Smithing hearth bottoms were individually weighed and each was measured to obtain its length, width and depth.

5.1.8 A total of 40 soil samples with hammerscale were selected from the villa room, to provide a broad overview of the area and the two phases. Most were opened and examined for hammerscale and other micro-slags by running a magnet through the contents.

Quantification

5.1.9 The total amount of slag examined and quantified was almost 14kg. The breakdown by context of each type and its total weight is given in Table 5.1.

5.1.10 From Table 5.1 it will be seen that much of the slag has been allocated to the *undiagnostic* category. This could have been produced by either smelting or smithing, and was broken to such a size that the original form could not be determined.

5.1.11 Smithing hearth bottoms are a type of slag highly diagnostic of smithing activity. Some were found in features of different dates across the site but were virtually absent from the assemblage in the villa room where smithing activity is thought to have taken place. Three were found in the layer (20058) overlying the hearths. This absence of large slags from a smithy is not unusual, since smiths usually removed them in order not to trip over them as they worked. Often the hearths were dumped just outside the building or in other nearby features open at the time of the activity.

5.1.12 In this case, however, unusually the dumps have not been located. One possible explanation is that they were taken some distance away for dumping, which is rare, or they were taken off the site for a specific use elsewhere, such as road metalling.

5.1.13 Hammerscale is a micro-slag not visible to the naked eye when in the soil. However, it is highly diagnostic of smithing activity, often remaining in the area around the anvil and near the hearth when macro-slags have been cleared out of the smithy and dumped elsewhere. It consists of two types: flake (resembling silver fish scales) and sphere (tiny balls). Each type is diagnostic of different types of smithing. Since hammerscale is generally highly magnetic, its detection while excavating can allow the spatial relationship of the anvil to the hearth to be recorded and can pinpoint the smithing activity more precisely (Mills and McDonnell 1992).

5.1.14 The presence of hammerscale, mainly broken flake, in the soil samples from Thurnham reveals the smithing activity consisted mainly of simple hot hammering of pieces of iron to produce objects, or for the repair of objects. Very little high temperature welding was taking place. This implies the smith may have been catering to the requirements of a rural community where the manufacture and repair of agricultural implements, knives and tools would have formed most of the work carried out.

5.1.15 Very little material which could represent a hearth superstructure was present amongst the assemblage examined. There was a small amount of vitrified hearth lining and some cinder (formed at the interface between the alkali fuel ashes and siliceous materials and usually the lighter portion of vitrified hearth lining). More material may be present in other assemblages such as fired clay.

5.1.16 The hearths most often seen in Roman sculptures and illustrations have a raised fire bed on a stone or tile superstructure and these would produce little in the way of vitrified clay. This may be the case for Thurnham. The plans provided at assessment to facilitate study of the slag from Room 20,000 have indications of tile and tufa in some areas immediately near the hearths. It was not clear whether the features designated as “hearth” were actually hearths at floor level or whether they may be burnt areas beneath raised hearths.

5.1.17 A smith relies very much on being able to see the variations in the colour of the metal and therefore the work has to be carried out in a covered, often quite dark, building or room. The implication must be that the roof of Room 20000 was still on and the room was dark, possibly without light from outside. This may be why a central room was chosen for the smithing activity.

5.1.18 Context 20158 contained one piece of stone which could be an iron ore, but this single piece is insufficient to demonstrate smelting activity, and is therefore not likely to affect the interpretation of the most important elements of the assemblage.

Provenance

5.1.19 Undoubtedly, the most useful group is the assemblage from the villa room (Room 20000, phase 7). With evidence of hearths to back up the slag evidence and hammerscale samples, this group will repay further work.

5.1.20 Groups from elsewhere will probably not merit as much attention, although their contexts needs to be examined in more detail.

5.1.21 It is interesting to note that much of the earlier slag is from contexts spot-dated to the Late Iron Age and very early Roman period, for example in fills of the Late Iron Age/Early Roman enclosure ditch 10840, which was levelled with clay before the construction of the proto-villa (for example, contexts 11468, 11475, 12066 and 12320), and in an intedeterminate feature cut by postholes of the Roman post-row 11500.

Conservation

5.1.22 The slag, although unwashed, is stable and unlikely to be affected by any factors of preservation. Iron slag, being fayalitic, requires no special storage conditions and is unlikely to be affected by further analysis. Decisions as to whether the assemblage can be discarded should await final decisions about the analysis and post-excavation stages of the CTRL projects, when other relevant CTRL sites with iron slag have been examined and assessed.

Comparative material

5.1.23 Until very recently very few smithies of any period had been identified. This picture is now changing as techniques to recover more diagnostic evidence become better known. Iron working evidence from the Roman small town of Asthall, Oxon, has recently been published (Booth 1997). However, most examples are not yet published but it appears that Roman smithies can vary greatly in type of building and layout. The two Roman smithies on a site from Borough High Street, Southwark, London (forthcoming in the publication of work along the Jubilee Line) varied in size, type of building, and hearth type. One was a ground level hearth, whilst another was a raised hearth. A villa site, although with iron making rather than iron working, has been published (Fulford and Allen 1992) together with further references. Extensive iron working evidence has been found recently in OAU excavations at Westhawk Farm, Ashford.

5.1.24 The CTRL excavations have made a major contribution to our knowledge of early metalworking sites in the region. An iron smelting kiln was identified at South of Snarkhurst Wood. This is of considerable interest, because the pottery suggests a very close date range for the activity, in the years immediately following the Roman conquest (URS 2000). The presence of a number of Late Iron Age and Roman kilns, ovens and hearths is reported at Northumberland Bottom, although it is not clear whether these are definitely known to have been associated with metalworking. No slag is noted in the archive index (URS 1999). A substantial medieval metalworking site was discovered at Mersham, which may provide useful material for technological comparisons.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

5.1.25 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

5.1.26 The smithing evidence has considerable potential for further study. From the stratigraphic evidence and the hammerscale distribution, it may be possible to reconstruct the form of the smithy. For example, it may be possible to discern where the anvil, bellows and quenching containers were located, and it may be possible to determine more information on the superstructures of the hearths. Hilary Cool notes the presence of a large and varied assemblage of iron objects from the smithy (Appendix 4.4, above), and this provides valuable evidence for the type of objects being repaired or manufactured. Although it is very uncommon, some tools, particularly punches or whetstones, may also have been left behind by the smiths. This suggests considerable potential for integration of evidence from different assemblages.

5.1.27 The Thurnham material therefore presents an excellent opportunity to study a very important industry in a rural context. In this respect, it is interesting to note that there is a suggestion of Late Iron Age metalworking (see 5.1.21, above) as well as the more extensive Roman material. This directly addresses CTRL Landscape Zone Priorities regarding change in the rural economy, patterns of natural resource exploitation and early industrialisation. Evidence may be anticipated for the scale and duration of ironworking activity on site, the periods during which it was taking place, and the type of objects being worked.

5.1.28 There is also the potential to look more closely at the evidence for change in the use of the villa associated with the onset and cessation of ironworking. There is evidence for ironworking on the site in the Late Iron Age, as well as in the later Roman period. The provisional phasing suggests that the smithy was in use for a limited period of time during the late 3rd century to early 4th century. Cross-assemblage study will be extremely valuable as an indicator of the social and economic status of the villa at this time, and this will provide crucial evidence for the perceived decline in the villa's status in the later Roman period.

5.1.29 It should perhaps not be taken for granted that the ironworking was a low status activity reflecting abandonment of the villa. Perhaps access to smiths had become difficult at this time, and the villa owners felt the need to convert one room into a smithy, or it may imply that a smith was so important to the area that one or more acquired the villa buildings and turned the central room into a workplace.

5.1.30 In order to obtain the maximum value from the evidence, the rest of the assemblage not quantified should be examined, together with the remaining samples taken for hammerscale.

5.1.31 The distribution of larger residues, in particular hearth bottoms, may provide evidence for the character of occupation of the main villa house during the late 3rd century. It is normal for residues to be discarded immediately adjacent to the working area. The fact that larger residues were not discarded elsewhere in the villa house may suggest that some rooms remained in use for other purposes, or alternatively that the metalworking activity was of short duration.

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APPENDIX 6 - WORKED BONE

6.1 Assessment of the Worked Bone

By Hilary Cool

Introduction

6.1.1 A small assemblage of worked bone was recovered during excavation works at Thurnham Roman Villa (ARC THM 98). An additional item, a clasp knife with a bone handle (sf 10850) and iron blade, has been included in the assessment of the metalwork.

6.1.2 All of the material was recovered by hand excavation.

6.1.3 The recovery and study of worked bone was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The principle aims to which this material can contribute are the dating of the occupation sequence for the villa's development, and establishing the status, economic orientation and patterns of contact and trade of the settlement.

Methodology

6.1.4 The material was assessed by personal inspection of the items. A basic archive catalogue was compiled following the guidelines set out by the Roman Finds Group and Finds Research Group (RFG & FRG 1993).

6.1.5 Where appropriate, entries given in the description have used names derived from standard typologies. The counters use that of Greep (1995) and the hair pins that of Crummy (1983).

Quantification

6.1.6 The worked bone consists of 12 items. There are five fittings and inlays from boxes or other pieces of furniture, four hair pins, one shaft fragment from a hair-pin or needle, and two counters. The precise range of material is shown in Table 6.1.

6.1.7 The counters and pins are mainly common 1st to 2nd century types. The inlays and fittings are not closely datable within the Roman period.

Provenance

6.1.8 The worked bone shows an interesting spatial distribution with most of the material coming from the vicinity of the aisled building. This type of distribution has not been noted in any of the other categories of material (metalwork and glass) inspected by this writer. In the interim report it was noted (2.5.1) that the animal bone showed varied preservation across the site. The spatial concentration of the worked bone may be reflecting a similar phenomenon.

6.1.9 It is noteworthy that the reports on the earlier excavations (Pirie 1961; Ashbee 1986) make no mention of any worked bone items. They are normally a common find on sites where bone survives well, so this too suggests there may be differential preservation.

6.1.10 The condition of the pieces in the assemblage is good. If the worked bone is suffering from differential preservation as suggested above, however, then the potential of the material will be limited.

Conservation

6.1.11 The bone items need no conservation input. The current packaging is adequate for long term storage.

6.1.12 It is not normal practice to discard Roman worked bone objects.

Comparative material

6.1.13 There is a very large group of worked bone reported on from the Marlowe excavations in Canterbury (Greep 1995). This report provides one of the standard references for the study of worked bone throughout the province, as well as providing useful local *comparanda*.

6.1.14 Very little worked bone has been recovered during the CTRL excavations, and this almost certainly reflects the generally poor preservation of bone in soils of the region. A few objects of worked bone were recovered at Pepper Hill/Waterloo Connection. No worked bone is reported from Northumberland Bottom, although the preservation of animal bone on that site appears to be better than most, and it is possible that worked bone objects will be identified at assessment stage. The four bone items recovered at Cuxton Anglo-Saxon cemetery are reported as in a poor state of preservation, and it was considered likely that other worked bone objects would originally have been present but had not survived.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

6.1.15 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

6.1.16 If the site is suffering from the differential preservation of worked bone, the potential of the assemblage will be low to moderate. This possibility will need to be checked by examining the state of preservation of the animal bone in a range of contexts that normally have large finds assemblages such as ditch 20400.

6.1.17 The worked bone assemblage has some potential for contributing to the establishment of a dated sequence as several of the contexts in which the more closely dated items have been found do not appear to have pottery spot dates (contexts 15001, 15028, 15266, 20002, 20112).

6.1.18 If it is found that the spatial concentration of the bone in the vicinity of the aisled building is not just the result of differential preservation, then the material may help define the nature of the activities that were carried out there. The number of bone hair pins is especially interesting as two of the copper alloy hair pins (sf 10098 and 10104) were also found in the vicinity of this building. As these items are associated with female dress and adornment, such a concentration might suggest the aisled building was a place where females regularly gathered to a greater extent than elsewhere on the site. This would clearly contribute to the fieldwork event aim of establishing the status of the settlement, and perhaps also to identifying functional zones.

6.1.19 It is likely that the greatest potential of the worked bone will emerge when it is considered as an integral part of the whole material culture assemblage. The potential of the hair pin evidence when both the metal and bone pins are considered has already been noted. Similarly, the inlays and furniture fittings provide additional evidence to that of the metal furniture fittings for a lifestyle of some pretension. Again this would contribute to the Fieldwork Event Aim establishing the status of the settlement.

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APPENDIX 7 - WORKED WOOD

7.1 Assessment of the Waterlogged Wood

by Nick Mitchell

Introduction

7.1.1 An assemblage of 91 pieces of waterlogged wood, all from the well 11010, was recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

7.1.2 Since a wood specialist was not available on site all the worked or structural wood which could be safely retrieved was taken for post-excavation assessment. To supplement this a sample of the unworked and randomly occurring wood from the well fills was retrieved to place the structural wood in the context of the species of the nearby treescape.

7.1.3 The recovery and study of the wood was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. In particular, it was hoped to obtain evidence to contribute to a dated occupation sequence for the villa, with particular reference to the period of its decline. Evidence suggested that the well had been one of the last features in use on the site in the later 4th century. Evidence was also sought for the contemporary local environment of the villa.

Methodology

7.1.4 The wood was examined and a brief catalogue compiled quantifying the assemblage and breaking it down into the forms and types of evidence available.

7.1.5 The material from well fills 11982 and 12227 was not considered on site to be a structural or coherent group. All these pieces required cleaning to enable an assessment of further work.

7.1.6 Other material comprises wood which was understood on site to form structures within the well and this has enabled a representative sample to be cleaned and assessed for the further potential of these structural groups.

Quantification

7.1.7 A total of 91 pieces of wood were collected for post-excavation assessment, and this is considered a good and even representation of both structural and incidental types of material which were encountered on site. Table 7.1 quantifies and summarises all the wood present and suggests the proportion which could be identified to species.

7.1.8 There are four very large and jointed *in situ* planks which represent the top layer of a box-frame revetment. The assemblage also includes 35 stakes, many of which were recorded *in situ*, from three separate tiers of stakes that were placed around the sides of the well. Other stakes are casual finds from within the fills and their forms and sizes clearly do not fit those of the outer stake groups.

7.1.9 There are also 17 slender rods, about 16mm in diameter, and these are consistent with wattle rods. In addition there are two wood working chips, 12 pieces of probable branch and four substantial burnt pieces which may be firewood.

Provenance

7.1.10 All the wood comes from the well, 11010. It can be divided into three types of material: the main oak structural pieces towards the base of the well (12208, 12209, 12211 and 12212), the upright stakes in three separate tiers (12140, 12160 and 12170), and the randomly occurring material from the fills (11982, 11984-6 and 12227). These groups will provide different types of evidence as specified below.

7.1.11 The sample provided for post-excavation assessment is a good selection with each of the groups fairly well represented. Most of the wood is in a good state of preservation and all the material assessed for species analysis would provide usable samples. The difficult excavation conditions mean that the stakes of groups 12140, 12160 and 12170 do not all have their worked ends and comparison of the styles of working between the different tiers of stakes may not be well replicated.

Conservation

7.1.12 If the wood was to be stored for longer than six months some of the pieces should be re-assessed for preservation and re-packaged if necessary. The material is well packaged and it is unlikely that evidence will be lost due to evaporation within this period. There are currently no grounds for full conservation of any of these pieces providing that a full record, with photographs, is to be made within 6 months.

Comparative material

7.1.13 No comparable assemblages of waterlogged structural timbers from Roman wells are known from other CTRL sites.

7.1.14 Large lapped-plank constructions of the type seen at the base of this well are one of several forms of well-lining known from Roman Britain. Several variations of such structures are known from Queen Street in London (Wilmott 1982, 1-31) and the example from Thurnham provides further variation to the suggested typology.

7.1.15 Other examples of wells should be researched to investigate any parallel, as yet unknown to the author, for stakes being inserted in successive tiers and a possible function for such an arrangement. This may crucially be found in association with the moss and vegetation lining seen here as 11985. The best parallel is likely to be provided by wattle linings which are common in wells and which can be self-supporting. They are likely to prove less common in high status Roman wells and this phase of construction could be consistent with the perceived down-grading of the site at the end of the Roman period.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

7.1.16 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

7.1.17 A radiocarbon date obtained from one of the wooden stakes confirms that the well was indeed one of the last structures to remain in use on the site (dated cal AD 259-539 at 95% confidence level). As such, it is of considerable importance for the study of the villa's decline, and for the nature and status of occupation on the site at this time. Further analysis of the structural elements from the well lining, and comparison with similar structures at other sites, should help to characterise the well as associated with high- or low-status occupation. This may be seen to change over the well's lifetime.

7.1.18 Some of the randomly occurring wood has been worked, and these contexts should therefore reflect incidental activity in the area that is not normally recovered. This, for example, includes a couple of wood-chips and several pieces of burnt wood which are likely to be firewood. Again, the late date of this material suggests that it will provide rare evidence for activity at the villa during the last stages of its decline.

7.1.19 The randomly occurring wood within the fills will provide background information on the treescape in the immediate area around the well, and contribute to the study of the villa's local environment at this time.

7.1.20 In order to achieve these aims, the structural material should be fully recorded with close attention being given to the three tiers of stakes, which may provide evidence for one or more attempts to prolong the well's active life.

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APPENDIX 8 - HUMAN REMAINS

8.1 Assessment of the Human Remains

by Angela Boyle

Introduction

8.1.1 A small quantity of human bone from three burials was recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

8.1.2 The skeletons were hand excavated. In excavation cremation contexts were subject to 100% recovery as whole-earth samples and subsequently wet-sieved. Material from the >2 mm fraction was retained en masse.

8.1.3 The recovery and study of human remains was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. This material has particular relevance for the study of ritual and ceremonial use of the landscape, in accordance with the Landscape Zone Priorities identified for the CTRL project.

Methodology

8.1.4 Cremated material was quantified by weight and scanned in order to determine age, sex, and potential for further analysis. Given the small size of the assemblage a decision was made to scan all of it. The cremation deposit was recorded on a pro forma record sheet which includes context, context type, period, weight, identifiable fragments, colour and minimum number of individuals. The > 2 mm fraction was scanned with a view to determining whether or not it should be sorted for small fragments of human bone. Inhumations and fragments of disarticulated material were examined to determine preservation, completeness, age and sex where possible.

Quantification

8.1.5 The assemblage comprises the partial remains of two infant skeletons and a single deposit of cremated human bone. Tables 8.1 and 8.2 set out the quantities of material surviving from these burials.

Provenance

8.1.6 The cremation deposit was located in a pit close to the Bronze Age waterhole and it may be of similar date. Skeleton 20431 was found in the top fill of ditch 20428 which predated the villa construction. Skeleton 10633 was buried in a stone-lined grave cut and was accompanied by two pots, a fragment of animal rib and a flint flake. The pottery has been dated to the late 2nd century.

Conservation

8.1.7 The material does not require any conservation for the purposes of long-term storage. Under the terms of the CTRL act, however, all human remains are to be reburied.

Comparative material

8.1.8 The cremation may be of broadly similar date to the small Bronze Age assemblage from Tutt Hill. The skeletons could be compared with the small assemblage from excavations at Springhead (Boyle nd, 33-34) where it was concluded that a normal pattern of infant mortality was represented, that is, there was an absence of clustering around 38-40 weeks. The burial of an infant in a stone cist can be paralleled at a small number of sites in south-east England, at Springhead, Snodland, St Michael's and St Alban's (Philpott 1991, 64).

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

8.1.9 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

8.1.10 The cremation has the potential to provide evidence relating to ritual and ceremonial activity. An average adult cremation can weigh between 1000-2400g if complete (McKinley 1997, 68; observations at modern crematoria). Clearly, then this deposit does not represent the entire remains of one individual. However, the burial of token deposits of cremated material may have been deliberate. Unburnt animal bone has been identified in the assessment of this deposit. The fact that it is unburnt may indicate that it was an accidental inclusion. However, it would be useful to examine all of the bone in detail to determine the quantity of animal bone present (burnt or unburnt) and to identify it to species if possible. The identification of animal bone within human cremations has implications for the study of burial practice of the period. Sheep/goat was present within a proportion of the Iron Age cremation burials at Westhampnett (McKinley *et al* 1997, 73).

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8.1.11 The inhumations are reasonably well preserved. It is recommended that both skeletons be examined in detail in order to provide a more precise age estimate. It is possible to determine neonatal age to within a couple of weeks using long bone lengths. Detailed analysis of the likely age may shed some light on the question of infanticide. An age of *c* 40 weeks is taken to be representative of a full-term infant. In modern populations perinatal deaths (that is, stillbirths and natural deaths in the immediate post-natal period) have a fairly flat age distribution with no marked peak at full term. In contrast most Roman groups do have a very marked peak in deaths at around full term and this is believed to be indicative of infanticide because it does not reflect a 'normal' pattern of neonate mortality. It has been argued elsewhere that a pattern of clustering around 38-40 is suggestive of infanticide as it was generally carried out immediately after birth (Smith and Kahila 1992; Mays 1993).

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APPENDIX 9 - ANIMAL BONE

9.1 Assessment of the Animal Bone

by Bethan Mair Charles

Introduction

9.1.1 A substantial assemblage of animal bone was recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

9.1.2 The majority of the material was hand retrieved on site, but a substantial minority of fragments were recovered from sieving of environmental samples.

9.1.3 The recovery and study of the animal bone was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of animal bone was designed to contribute to study of the status and economic orientation of the villa, and of its interaction with its hinterland, and whether the composition of the bone assemblage reflected change between the Late Iron Age and Romano-British periods. It was also recovered in order to provide information about the local environment of the villa. In terms of the wider Landscape Zone Priorities, animal bone was perceived as important for the study of the rural economy, agricultural regimes, and natural resource exploitation.

Methodology

9.1.4 A total of 7085 fragments of hand retrieved animal bone were recovered, of which 3728 (31,429g) were assessed thoroughly, whilst the remainder was scanned. Many of these fragments were reassembled, reducing the count of assessed fragments to 2743. A further 3525 fragments of bone were recovered from sieved environmental samples of which 2528 fragments (1637g) were assessed, while the remainder was scanned. Reassembly reduced the fragment count of assessed sieved samples to 2459.

9.1.5 The calculation of the species recovered from the site was carried out by the total fragment method. All fragments of bone were counted including elements from the vertebral centrum, ribs and long bone shafts, as well as individual teeth. In addition the minimum number of individuals (MNI) was calculated for the main domestic species. MNI was implemented using the most commonly identified fragments of bone identified from each species according to each phase. Where possible, mandibles were used. However, when the mandibles were not the most numerous elements identified, the long bone elements were used following the calculations suggested by Chaplin (1971).

9.1.6 An attempt was made to separate the sheep and goat bones using the criteria of Boessneck (1969), Prummel and Frisch (1986), in addition to the use of the reference material housed at the OAU. However, since no goat bones were positively identified from the assemblage, all caprine bones have been referred to as sheep in the text.

9.1.7 The ageing of the animals was based on tooth eruption and wear as well as the epiphyseal fusion rates of the long bones. Silver's (1969) tables were used to give timing of epiphyseal closure for cattle, sheep, pigs and horses. Sheep's tooth eruption and wear was measured using a combination of Payne (1973) and Grant's (1982) tables. Cattle tooth eruption and wear was measured using Halstead (1985)

and Grant's (1982) tables. Pig tooth eruption and wear was measured using Higham (1967), Bull and Payne (1982) and Grant (1982), as defined by Hambleton (1999). Horse tooth eruption and wear was measured using Levine's (1982) tables.

9.1.8 The determination of the sex of the cattle and sheep was based on examination of the medial wall of the acetabulum since the majority of innominate bones were incomplete.

9.1.9 Horses were sexed through the recording of the presence of the canine teeth; pigs were sexed through differentiation of tusks.

9.1.10 The measurements taken were those defined by von den Driesch (1976). Since not all the bones were assessed, the measurements of the bones are not discussed in the assessment. However, the results have been tabulated, and are displayed in Tables 9.4-9.15.

Quantification

9.1.11 The condition of the bone was variable throughout all phases of occupation, and the majority of bones showed pitting, probably due to plant roots. There was also a considerable degree of fragmentation present across the site, which contributed to the high number of unidentified fragments. Overall, 625 fragments (20,755g) of hand retrieved bone could be identified to species, representing 22.7% of the assessed material. Of the sieved fragments, 263 (560g) were identified to species, representing 10.7% of the assessed material. The percentages of bone identified to species are shown by phase in Tables 9.1 and 9.2, and by context in Tables 9.16-19. Table 9.3 shows minimum numbers of individuals (MNI) for main domestic species according to phase.

9.1.12 In general the assemblages of identified bones for each phase are small, but allow a number of observations to be made.

Prehistoric (Phase 1)

9.1.13 Very little bone was recovered from phase 1, comprising three fragments of cattle bone and the proximal half of a red deer metatarsal, from fills 10293 and 10294 of the probable Bronze Age waterhole.

Late Iron Age – Early Roman (Phase 2)

9.1.14 Cattle and sheep are the most numerous species represented, followed by pig. The ages of the cattle shown in Tables 9.5 and 9.9 appear to indicate a mixture in ages at death. This suggests that cattle were kept as draught animals as well as for their meat. It is probable that sheep would have been kept for their wool and milk as well as for their meat, although too few identifiable fragments were present in this phase for any clear conclusions to be drawn. The pigs would have been kept for their meat, since they provide little in secondary products.

9.1.15 Four fragments of dog bone were found within contexts 10469 and 10790. It is likely that they were kept as working animals, guard dogs or as pets.

Main Roman occupation (Phases 3 – 7)

9.1.16 Cattle were the most numerous animals kept at the site during all periods of Roman occupation (Table 9.1). However, the minimum number of individuals seen in Table 9.3 shows that sheep appear to have been more numerous during the earlier periods

of occupation. This is also observed in the sieved material (Table 9.2) and is likely to be a result of retrieval bias as well as taphonomic attrition of the smaller bone.

9.1.17 The limited data indicating the age of the sheep suggest that the animals were slaughtered at varying ages, although the majority appear to have been young animals. Maltby's analysis of data from numerous Roman sites (1981) has shown that the majority of sheep tended to be killed during their second or third year. Since some of the sheep at the site, during phase 3 particularly, appear to have been slightly older, it may indicate that sheep were kept for their wool as well as for their meat.

9.1.18 Interestingly, during the later periods of Roman occupation a clear change appears to have occurred in the relative numbers of cattle and pigs kept at the site. Data in Tables 9.2 and 9.3 for phase 7, the latest period of Roman occupation, appear to show a dramatic change in animal husbandry, with pigs becoming the dominant species, followed by cattle. The increase in the cattle may be due to a greater number required for ploughing, indicating a possible increase in arable farming. The pigs are likely to have been the main providers of meat to the site during this period.

9.1.19 Although data are limited, it appears that cattle were kept until mature in all phases of activity. This may reflect an emphasis on the use of the animals for draught purposes rather than for meat production. However, it is possible that the bones from younger individuals have not survived as well.

9.1.20 Pigs have been shown to increase in numbers during the Roman period (King 1978), and a gradual increase is shown at this site. Most of the pigs appear to have been less than two years of age through all phases. It is unlikely that the inhabitants of the site would have wanted to keep the animals beyond two years of age since they did not provide many secondary products, and only a few animals would be required for breeding purposes. Two female pigs were identified from phase 3.

9.1.21 Horses were also kept at the site during most phases of Roman occupation. It is unlikely that the animals would have contributed to the meat economy of the site and they were probably kept for transport, as pack animals and possibly for hunting. They would have been more costly to keep than cattle and may have been a symbol of status. At least some of the horses kept at the site died at a young age, which may indicate that they were being bred on site.

9.1.22 A small number of dog bones were recovered from the early and late periods of Roman occupation.

9.1.23 The majority of wild species present in the assemblage were from Roman deposits and consisted of red deer, roe deer, badger and smaller mammals. The red deer bone consisted mostly of antler fragments found within phase 7 deposits 11026 and 22258.

9.1.24 Four roe deer metapodials (feet bones) were found in phases 3, 5 and 7. A fragment of badger mandible and a canine tooth almost certainly belonging to the same jawbone were found in context 11036 (phase 5). It is possible that the bone was intrusive as a result of animal burrowing. The majority of the small mammal bones including rodent and lagomorph bones were retrieved from the sieved material and will require further analysis for identification to species.

9.1.25 A small quantity of bird and fish bone was recovered from the site, most of which was from the sieved assemblages. The bone has not been identified to species.

9.1.26 The best-preserved group of animal bone was found within waterlogged well 11010, dated to the later and latest Roman period. This included the complete skeleton of a roe deer, a partial skeleton of a tawny owl, part of a pig, part of a horse skull, part of an immature roe deer, and red deer antler fragments.

9.1.27 There were no obvious special deposits from the Roman period of occupation. However, a small fragment of cattle rib was discovered within an infant grave (10634). The bone appeared to have been intentionally placed next to the head, although it is possible that the bone was re-deposited during burial. Faint gnaw marks were found on the bone but, as yet, it is not clear whether they were made by a human or an animal.

Medieval (Phase 8)

9.1.28 Only twenty fragments of identified bone were retrieved from the medieval features. Cattle bones were the most numerous from the assemblage (Table 9.1). However, the MNI indicates that pigs were still the most numerous animals at the site. Two mandibles from young animals suggest it is unlikely that many of the pigs were kept to maturity. A single female pig was identified from the assemblage. It is possible that the bones from smaller animals did not survive as well as the larger bones of the cattle and horses, which would suggest that sheep and pig are underrepresented in the assemblage. It is unlikely that the same percentage of horse and sheep would have been kept.

Post-Medieval to Modern (Phase 9)

9.1.29 Very little bone was collected from this period of occupation. It consisted of three fragments of cattle: rib, vertebra and a tooth from contexts 11000 and 11157.

Provenance

9.1.30 The condition of the bone was graded from 1 to 5 using the criteria stipulated by Lyman (1996). Grade 1 was the best preserved bone and grade 5 indicates that the bone had suffered such structural and attritional damage as to make it unrecognisable. The condition of the bone was quite variable through all periods of occupation. However, the majority of the bone surfaces showed varying degrees of pitting with fine crevices, typical of mining by plant roots. On the whole the bones were judged to be around grade 2 to 3. The best-preserved group of bone came from the waterlogged well 11010.

9.1.31 A high degree of fragmentation was also present throughout the site, which contributed to the high number of unidentified bones and loose teeth. In addition to this, the majority of the bone from the hand collected assemblage were elements from the larger mammals which appears to indicate that the smaller bones did not survive as well.

9.1.32 Very few of the bones from the assemblage had clear butchery marks, which is likely to be a result of the poor surface condition of many of the bones. There were no particular deposits of butchered bone, and the assemblage is likely to represent animals killed for domestic purposes. None of the bones had signs of pathological changes, although this again may be as a result of the condition of the bones.

Conservation

9.1.33 The present packaging of the animal bone in finds boxes in a dry environment is satisfactory for long term storage. It is recommended that all bone is retained until final decisions are made about further analysis.

Comparative material

9.1.34 A number of important studies of animal bone from Iron Age and Roman sites have been published (Maltby 1979: Maltby 1981; Maltby 1984; Grant 1975; Grant 1989; Noddle 1993; Holmes and Rielly 1994). However, the lack of substantial published assemblages in the immediate region suggests that comparanda will have to be sought over a wider area. A small assemblage of animal bone has recently been published from The Mount Roman Villa at Maidstone (Bendrey 1999), which would provide a useful local comparator for Thurnham. It would be of value to look at different types of sites from towns, fortresses and villas in order to contrast diet, supply and farming practices.

9.1.35 Bone survival on other CTRL sites in this area has generally been poor, and it is unlikely that there will be many comparable assemblages. Animal bone from the Late Iron Age/Roman phase at Northumberland Bottom is reported to be in a very good state of preservation (URS 1999), and might therefore be expected to produce good comparative material. The contemporary material from sites closer to Thurnham Villa, such as South of Snarkhurst Wood, is generally in too poor a condition to offer any potential for comparative study. The animal bone from White Horse Stone is in better condition, and may offer evidence for change in animal husbandry between the Early and Late Iron Ages.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

9.1.36 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

9.1.37 The fragmentary state of much of the bone has meant that the percentages identified to species are low, and the assemblage will not support detailed statistical analyses. The poor surface condition of much of the bone means that studies of butchery and pathology cannot be undertaken. Nevertheless, the assemblages do have the potential to provide useful information at a general level about diet, agricultural regimes and natural resource exploitation, and bone disposal patterns may help to characterise structure functions and functional zones. This will be of value, since evidence of this kind is very limited in the region.

9.1.38 In this respect, it is important to note that the animal bone has the potential to complement and augment other environmental evidence relating to agriculture and the palaeo-environment. The need to identify regional diversity in agricultural production during the Iron Age and Roman occupation of the country through the use of environmental indicators has been highlighted by Van der Veen and O'Connor (1998).

9.1.39 The results of the assessment, carried out on approximately half the assemblage, suggest that analysis of the remainder of the bone present from the site would be worthwhile, and would probably approximately double the numbers of identified fragments for each phase.

9.1.40 Bird, fish and minor mammal bones have not yet been identified to species, and it is recommended that this be carried out. This material provides particularly valuable evidence for natural resource exploitation (birding, hunting and fishing), and for the nature of the local environment.

New research aims and objectives for the CTRL archaeology project

9.1.41 Although the assemblages are small, recording and analysis of the biometric data would be of value for wider studies of possible stock improvement, and the success of farming practices, during the Roman occupation.

9.1.42 The general lack of good animal bone assemblages in the region, both from CTRL sites and elsewhere, has been noted above. Although its potential for statistical analysis is limited, the Thurnham Villa assemblage will nevertheless provide a rare source of data for the broad characterisation of animal husbandry and diet, both at the villa itself, and in the region in this period.

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APPENDIX 10 - MACROSCOPIC PLANT REMAINS AND CHARCOAL

by Ruth Pelling

10.1 Assessment of the Charred Plant Remains and Charcoal

Thurnham Roman Villa (ARC THM 98) and Honeyhills Wood (ARC HHW 98)

Introduction

10.1.1 Samples of archaeological deposits were taken during excavation works at Thurnham Roman Villa (ARC THM 98) and Honeyhills Wood (ARC HHW 98) for the recovery of charred plant remains.

10.1.2 The recovery and study of the samples was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The sampling programme aimed to address general questions concerning the diet and cereal economy of the site as well as gaining specific information about the function and nature of individual features, buildings or activity areas. On a wider, regional and national level it was hoped to gain information about the Late Iron Age and Romano-British economy of Kent and to look at the development of agricultural trends through the periods particularly at the time of the Roman conquest.

Methodology

10.1.3 Sampling on site ensured that deposits from all major feature types and phases were represented. Where possible, samples were taken from discrete and secure contexts with the minimum of intrusive material or contamination. Multiple samples were taken from a corn-drier for detailed analysis and interpretation of the function of the feature.

10.1.4 All samples were processed and submitted for assessment of their potential for analysis. Samples were processed by bulk water flotation and flots were collected onto 250μm mesh sieves. Residues were retained on 1mm sieves.

Quantification and Provenance

10.1.5 A total of 249 samples were taken from the Thurnham Villa main site and one sample from Honeyhills Wood. The volume of material processed ranged from 3 to 40 litres. The volume of flots ranged from about 10 ml to 4 litres, but is generally in the region of 50 to 250ml. Table 10.1 shows the number of samples for each feature type. The samples are discussed by feature type. Table 10.2 indicates contexts that contained useful quantities of seeds or chaff.

Ditches

10.1.6 The majority of ditch samples were of Late Iron Age to early Roman date.

10.1.7 The best results were seen in samples from early Roman phase 3 ditches 20400 (the proto-villa boundary) and 10660 (the east side of the enclosure). Sample 10346 (context 12203; ditch 10660) produced a large flot (600ml) with in excess of 1000 items each of grain, chaff and weed seeds. Grain included both *Triticum spelta* (spelt wheat) and *Hordeum vulgare* (barley) as well as some short grained *Triticum* sp. (wheat) which may be either a free-threshing bread type wheat or a short grained spelt. The chaff includes both *T. spelta* and *T. dicoccum* glume bases and *Hordeum*

vulgare rachis. Frequent *Bromus* subsect *Eubromus* (brome grass) seeds were noted amongst the weeds.

10.1.8 Three other samples (10380, 10381, 10383), all from ditch 20400, contained reasonable quantities of material with up to 100 grains and in two cases up to 100 items of chaff. Weeds were noted in all three samples. Cereal remains noted included *Triticum spelta* with some germinated grain and *Hordeum vulgare*. These richer flots produced moderate to well preserved remains.

10.1.9 Of the remaining ditch samples 33 flots produced no charred seeds or chaff and only small quantities of charcoal if any, and 30 produced a limited range of grain and chaff and very few weeds. Flots were generally small and the preservation of remains poor.

10.1.10 Moderate quantities of *Quercus* sp. charcoal were seen in the richer samples and occasional to moderate quantities in other samples. Possible Pomoideae charcoal was noted in one sample.

Structures

10.1.11 Four samples were taken from structures, but the results are poor. Samples 10063 and 10062 both produced small flots (*c* 10ml) with less than 10 items. A *Hordeum vulgare* grain and a *Triticum spelta* glume base were identified. No weeds were noted in either sample. *Quercus* sp. (oak) flecks were noted in both samples. Samples 10276 and 10275 produced slightly bigger flots (400 and 100ml) consisting almost entirely of charcoal. Very occasional cereal grains (less than 10) were noted but no chaff. The charcoal identified included *Quercus* sp. and Pomoideae.

Postholes

10.1.12 Ten posthole samples were assessed, and the flots were generally small. Two samples (10059 and 10664) produced no seeds or chaff. Charred plant remains were generally limited in the remaining samples. Samples 10272 and 10061 contained between 11 and 50 cereal grains while sample 10294 contained a similar number of chaff items. The other samples produced only 1 to 10 items of grain, chaff and/or weed seeds. The cereal species noted in the samples included *Triticum spelta* (spelt wheat) and *Triticum spelta/dicoccum* (spelt/emmer wheat) and *Hordeum vulgare* (barley). *Quercus* sp. charcoal is present in small quantities and possible Pomoideae in sample 10277.

Postpipes

10.1.13 A total of 21 samples were assessed from postpipes. Charred seeds and chaff were noted in all samples, generally in low numbers. Four samples produced more than 11 cereal grains, one of which also produced 51-100 items of chaff and 11-50 weed seeds (sample 10038; postpipe within the aisled building). Cereals identified included *Triticum spelta* (spelt wheat), some of which had germinated, *Hordeum vulgare* (barley) and *Avena* sp. (oats). The chaff was generally dominated by *Triticum spelta* glume bases. In addition to the cereals occasional *Corylus avellana* (hazel nut) shell fragments were noted and *Prunus* sp. (sloe, plum etc.) stones were present in samples 10280 and 10038. Charcoal was noted in all samples, mostly of *Quercus* sp. (oak) but with some Pomoideae and possible *Corylus/Alnus* sp. (hazel/alder).

Gullies

10.1.14 Four samples were assessed from gullies. Sample 10060 produced 11 to 50 items each of grain, chaff and weeds. The remaining samples produced only low levels of remains. Sample 10052 did produce a very large flot but this consisted predominantly of *Quercus* sp. (oak) charcoal. The cereal remains noted in the samples included *Triticum spelta*, some of which had germinated and occasional *Avena* sp. (oats).

Ovens and Hearths

10.1.15 Six oven and 13 hearth samples were assessed. Eight samples produced no seeds or chaff and a further five contained only small quantities levels of material. Three samples, two from hearths and one from an oven, produced more useful quantities of remains each with 50 to 100 grains; the two hearth samples were from the aisled building, while the oven sample was from the late (4th century) oven within the villa building. *Hordeum vulgare* (barley), *Triticum spelta* (spelt wheat) and a short grained *Triticum* sp. (wheat) were all recorded. Chaff was infrequent but does include possible *Triticum aestivum* type rachis as well as *Triticum spelta* glume bases. Weeds were again infrequent. Occasional *Corylus avellana* (hazel nut) shell fragments were noted and a *Vicia/Pisum* sp. (vetch/bean/pea). Charcoal was present in most samples and in large amounts in three. *Quercus* sp. appears to be dominant while *Corylus/Alnus* sp., Pomoideae and *Prunus* sp. may also be present.

Inhumations

10.1.16 Two samples were assessed from early Roman inhumations. Both produced low levels of remains with between 10 and 50 items of grain, and chaff. *Triticum spelta* and *Triticum spelta/dicoccum* were noted and occasional *Quercus* sp. charcoal.

Pits

10.1.17 A total of 20 samples were assessed from pits, mostly of Late Iron Age to Early Roman date. Ten samples contain no charred remains and a further eight samples contain only very small to moderate amounts. Two samples (from contexts 10548 and 12372) produced very large amounts of charred remains; these were from context 10548 (part of feature 10570 in the extreme south-east of the site), and context 12372 (from post-row 11500 north of the main villa house). There were over 1000 chaff items in each and over 100 grains in sample 10378. Weeds were present in fairly low numbers (11 to 50).

10.1.18 Cereals identified include *Triticum spelta*, including germinated grain, *Hordeum vulgare*, *Avena* sp. and *Triticum* cf. *dicoccum* (possible emmer wheat) noted amongst the grain. The very large quantities of chaff were dominated by *T.spelta* glume bases. The pit samples also tended to contain moderate to large amounts of charcoal, mostly *Quercus* sp. with occasional Pomoideae (apple, hawthorn etc.) and possible *Corylus/Alnus* sp. (hazel/alder).

Corn-drier

10.1.19 A total of 12 samples were assessed from the corn-drier, of which six produced useful numbers of remains. The composition appears to vary between samples with different proportions of grain, chaff and weeds. *Triticum spelta* dominated the assemblages, while *Hordeum vulgare* and *Avena* sp. were also noted. Several of the *T.spelta* grains had germinated. In addition to the cereals, *Vicia/Pisum* sp.

(vetch/bean/pea) and *Linum usitassimum* (flax) seeds were also noted in sample 10019.

Well

10.1.20 Two samples from well deposits produced only occasional grain, chaff and weeds. *Triticum spelta*, *Triticum spelta/dicoccum* and *Chenopodium album* (fat hen) were all noted. Occasional charcoal of *Quercus* sp. and Pomoideae were also identified.

Layers

10.1.21 A total of 80 samples were assessed from archaeological layers. Useful quantities of material were present in 14 samples. Up to 50 grains were noted in samples 10022, 10049, 11083, 10016 and 10287 (within the Aisled Building, and in the vicinity of the corn-drier), with 50-100 items of chaff in all but sample 10049 which had in excess of 100 chaff items. Weeds were present in all 6 of these samples although in smaller numbers. Cereal species noted were *Triticum spelta*, including germinated grain, *Hordeum vulgare* and *Avena* sp. *Linum usitassimum* (flax) was present in sample 10023.

10.1.22 Samples 10019 and 10452 (aisled building), 10025 (layer within ditch 10660), and 10414 (layer containing material raked out of oven 15280 in the aisled building) each contained 51-100 grains. Sample 10452 contains more than 100 items of chaff, while the remains of these samples have less than 50 items. All five produced between 11 and 50 weed seeds. Cereals identified included *Triticum spelta*, *Hordeum vulgare*, *Avena* sp., *Triticum dicoccum* and possible free-threshing *Triticum* sp. Occasional *Vicia/Pisum* sp. and *Linum usitassimum* were also noted.

10.1.23 The remaining four samples (10097, 10017, 10024 and 10405), all from the area of the oven in the aisled building, were very rich indeed. Samples 10024 and 10405 contained over 1000 items each of grain and chaff. Weeds, particularly *Bromus* sp. (brome grass) were very numerous in sample 10017 and in particular in 10024. The cereal species identified include *Triticum spelta*, *Triticum dicoccum*, *Hordeum vulgare* and *Avena* sp. Germinated grain and sprouted caryoptiles were present in sample 10017. Charcoal was present in moderate quantities in most samples, generally of *Quercus* sp, with occasional *Corylus/Alnus*, *Prunus spinosa* and Pomoideae charcoal.

10.1.24 The remaining 32 samples had much lower concentrations of remains while seeds and chaff were entirely absent from six samples. The occasional grain and chaff noted included *Hordeum vulgare*, *Triticum spelta* and *Avena* sp. Other items noted include *Prunus spinosa* (sloe) stones, *Vicia/Pisum* sp. (vetch/bean/pea) and *Corylus avellana* (hazel) nut shell.

Other

10.1.25 Six samples from other features were assessed. Two contained no charred seeds or chaff while three contained only limited numbers of grain and virtually no chaff. However, sample 10040 (from a layer overlying the enclosure ditches east of the villa) contained in excess of 100 grains including *Triticum spelta* and *Hordeum vulgare*. Occasional chaff and weeds were also noted. Charcoal present in six samples and in very large quantities in three, was mostly identified as *Quercus* sp. (oak), with occasional Pomoideae (apple/pear/hawthorn etc.) and possible *Prunus spinosa* (sloe).

Honeyhills Wood

10.1.26 The single sample from Honeyhills Wood produced occasional Pomoideae charcoal and a recent (modern) apple core. No charred seeds or chaff were present.

Conservation

10.1.27 The samples are in a stable condition. If kept dry they can and should be archived for storage, until final decisions are made about further analysis.

Comparative material

10.1.28 There is little published botanical material from Roman villa sites in Kent. Comparable published assemblages include The Mount Villa at Maidstone (Robinson 1999), and the Roman small town at Springhead (Campbell nd). As yet unpublished material has been analysed from a Romano-British settlement at Monkton, Mount Pleasant on the Isle of Thanet (R Pelling unpublished).

10.1.29 Further afield, material from a comparative site has been published from Bancroft Roman Villa in Buckinghamshire. Charred plant remains from this site were examined from the villa, mausoleum and a corn-drier (Nye and Jones 1994, 562-565; Pearson and Robinson 1984, 565-584). Several corn-driers from areas across southern Britain have now been sampled (Van der Veen 1989), including a recently excavated structure at Grately, Hampshire, which is associated with a villa and aisled hall (G Campbell pers. comm).

10.1.30 Within the CTRL project similar material although in low levels has been recovered from the Late Iron Age and early Romano-British deposits at South of Snarkhurst Wood, East of Station Road and Church Lane Smeeth. There spelt wheat and barley were the principal cereals represented while low levels of emmer wheat were also noted. Further material which may be contemporary has been reported from South of Beechbrook Road. In the context of the wider Landscape Zone Aims of the CTRL project, these small assemblages will be of value as indicators of the presence or absence of poorly understood crops such as emmer wheat, oats and pulses on sites of different types. Charred plant remains are present in samples taken at Northumberland Bottom, and good material of comparable date may be available here. Good charred plant remains are present from the Early Iron Age site at White Horse Stone and may provide evidence for change between the Early Iron Age and Roman periods.

10.1.31 Published records of Late Iron Age and Romano-British date generally tend to be dominated by spelt wheat with barley and occasionally oats. The role of emmer wheat is not yet understood although good evidence of its cultivation during the Late Iron Age is available from Wilmington in Kent (Hillman 1982) and from outside the region from Hascombe in Surrey (Murphy 1977) and Ham Hill in Somerset (Ede 1991). In the Romano-British period, evidence from sites such as Tiddington (Moffet 1986), or Barton Court Farm (Jones and Robinson 1984) suggests emmer to be a minor crop compared to spelt, possibly even present as a weed of the spelt crop. More recently much larger assemblages were recovered from a site at Mansfield College in Oxford (R Pelling, unpublished) suggesting it was, at least occasionally, deliberately cultivated as a crop.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

10.1.32 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

10.1.33 There is great potential to address some of the original research aims of this site, particularly in understanding of the agricultural regime of a Roman Villa complex. There are good samples available from all phases of Romano-British activity, which have the potential to shed light on agricultural trends such as increasing crop diversity, or the introduction or intensification of garden crops or cash crops.

10.1.34 In terms of assessing the transition from the Iron Age to the Roman period, in general the Iron Age deposits offer less potential for analysis, as the samples generally provide poorer information. Material is available, however, from the Late Iron Age to Early Roman period, which must relate to pre-and post conquest activity.

10.1.35 In terms of assessing the decline of the villa, good samples are available from a number of late contexts, including the corn-drier, the soil layer overlying the smithy, and the late oven inside the main villa house. These samples have the potential to provide valuable information about continuing agricultural exploitation of the site despite its apparent abandonment for occupation. They will provide an interesting contrast with the earlier Roman samples and may show evidence of change in the agricultural regime.

10.1.36 The distribution of rich samples over the site suggests that they have good potential to contribute to analysis of the function of structures, and the existence of functional zones. The corn-drier in particular produced very rich deposits and offers good potential for further investigation of its function.

10.1.37 The Thurnham assemblage can be combined with the evidence from other sites mentioned above, to provide an overview of the representation of species at a variety of different rural settlements of different types. A comparison with the Early Iron Age material from White Horse Stone should also provide useful information regarding change in agricultural regimes.

New research aims and objectives for the CTRL archaeology project

10.1.38 On a regional and national scale there is potential to examine whether the patterns for this period in Kent are consistent with elsewhere in southern Britain or if there are any trends visible not seen outside the region. It has been noted above that there are few published studies of plant remains from this region. The Thurnham assemblage therefore has the potential to provide a valuable addition to understanding of the Roman agricultural regime in Kent.

10.1.39 It is recommended that richer samples are analysed in detail from each category of feature, with samples selected covering the full range of periods. All the corn-drier samples containing charred remains should be analysed.

10.1.40 Samples from the inhumations, the well, and the structures offer little potential for further work.

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Hockers Lane (ARC 420 62+200-63+000)

Introduction

10.1.41 Samples were taken during excavation works at Hockers Lane, for the recovery of charred plant remains and charcoal.

10.1.42 The deposits sampled were of Late Iron Age to early Romano-British date(*c* AD 0–70).

10.1.43 The sampling was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The samples were taken in order to address questions concerning the diet and cereal economy of the

site and particularly to examine any difference in economy and cereal production between Hockers Lane and Thurnham Villa. All the samples examined are listed in Table 10.3.

Methodology

10.1.44 The sampling programme was intended to recover material from the full range of feature type and date excavated. Samples were taken from ditches, pits and layers. Twenty samples, ranging from 3 to 40 litres in volume, were processed by bulk water flotation and the flots collected onto 250μm mesh sieves. Flots were air dried slowly before being submitted for assessment Each flot was assessed by scanning under a binocular microscope at x10 magnification. Any seeds or chaff noted were provisionally identified and an estimate of abundance made. Random fragments of charcoal were fractured and examined in transverse section at x10 and x20 magnification.

Quantification

10.1.45 A total of 26 flots were assessed. Flots were small (10 to 150 ml) and contained frequent roots. Occasional molluscs were present in samples 26 and 29.

10.1.46 Charred plant remains were absent from seven samples, while a further five samples contain no seeds or chaff but did contain occasional charcoal. Two samples produced no cereal remains but occasional *Corylus avellana* (hazel nut) shell fragments and charcoal.

10.1.47 Cereal grain was present in 10 samples, while chaff was present in only two samples. Sample 11 (context 84) produced 10 to 50 items each of cereal grain, chaff and weeds, with between 50 and 100 items in total. The cereal remains included *Triticum spelta* (spelt wheat) glume bases and *Triticum spelta/dicoccum* (spelta/emmer wheat) grain. No charcoal was present in this sample. The remaining samples produced low levels of cereal remains (less than 10 items) which include the grain of *Triticum spelta*, *Triticum spelta/dicoccum* and *Hordeum vulgare* (barley).

10.1.48 Charcoal was present in 11 samples in generally low quantities but with frequent remains in two samples. The taxa identified were *Quercus* sp. and Pomoideae.

Provenance

10.1.49 Sample 11 was taken from a pit fill. The remaining samples which produced low levels of cereal remains were from pits, ditch or gully fills and an archaeological layer. Samples producing *Corylus avellana* fragments were all from ditch or gully fills.

Conservation

10.1.50 The flots are in a stable condition and can be archived, although it is not necessary to retain the flots for long-term storage.

Comparative Material

10.1.51 The range of species recorded during the assessment is well-attested for Late Iron Age and Romano-British sites in southern Britain (see Greig 1991). The small scale of cereal processing represented can be contrasted with Thurnham Villa for which very large scale cereal production is attested. The possible cash crops or oil crops at Thurnham Villa are not represented at Hockers Lane.

Potential for further work

10.1.52 Given the absence of good cereal assemblages and charcoal other than oak and Pomoideae the samples offer no potential for further work. The range of species, spelt wheat and hulled barley, were the cereals most commonly cultivated during the Iron Age and Romano-British period in southern Britain. The samples provide no potential for extending this species list. The remains are characteristic of low levels of redeposited remains of cereal processing activity.

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10.2 Assessment of the Waterlogged Plant Remains

by Ruth Pelling

Thurnham Villa (ARC THM 98)

Introduction

10.2.1 Samples of waterlogged deposits were taken from the well 11010 during excavation works at Thurnham Villa, for the recovery of waterlogged plant and insect remains.

10.2.2 Bulk samples were taken in the field and kept wet in sealed bags and plastic boxes. Sub-samples of 1kg were submitted for assessment of waterlogged plant remains.

10.2.3 The recovery and study of the samples was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The sampling programme aimed to recover evidence for the diet and economy of the site as well as gaining information about the local environment of the well.

Methodology

10.2.4 A sample from each deposit believed to be waterlogged was submitted for assessment. Sub-samples of 200g were processed by a simple wash over technique and collected onto a 250μm mesh. This will not provide an exhaustive species list but should provide sufficient material to assess the presence or absence of waterlogged material, the quality of preservation, the density of any remains and an indication of the range of species or types of material present.

10.2.5 Each flot was then washed through a stack of sieves ranging from 2mm to 250μm mesh size. Each fraction to 500μm was scanned, while still wet, under a binocular microscope at x10 to x20 magnification. Provisional identifications were made and an approximation of abundance on a three point scale (+ = present, ++ = some; +++ = many).

Quantifications

10.2.6 A total of seven samples were assessed. A summary of the material noted in each sample is displayed in Table 10.4. Five samples produced waterlogged material. Two samples (10377 and 10013) produced no waterlogged material, while several *Triticum spelta* (spelt wheat) glume bases were noted in sample 10377.

10.2.7 Samples 10347 (cxt 12227), 10351 (cxt 11516), 10306 (cxt 11984), 10293 (cxt 11982) and 10352 (cxt 11985) all produced waterlogged remains. The species noted during the assessment are displayed in Table 10.5. Woodland or scrub species and species characteristic of ruderal habitats are most numerous in the deposits. The ruderal species are those which are characteristic of disturbed habitats and often nitrogen rich soils, such as might be found within a settlement. Included in this group are *Urtica dioica* (stinging nettle), *Conium maculatum* (hemlock), *Pastinaca sativa* (wild parsnip), and *Carduus/Cirsium* sp. (thistle). True arable weeds are not commonly represented although some of the ruderal species will also occur in cultivated habitats including cereal crops. Large quantities of moss were present in four of the five samples and include at least two species.

10.2.8 The woodland or scrub species represented include wood fragments, and seeds as well as numerous leaf pads and bud scales of unidentifiable species. The wood

identified includes *Fraxinus* sp. (ash), *Quercus* sp. (oak) and Pomoideae (hawthorn, apple, pear etc.). Seeds noted included *Prunus spinosa* (sloe), *Ilex aquifolium* (holly), *Crataegus monogyna* (hawthorn), *Cornus sanguinea* (dogwood), and *Fraxinus excelsior* (ash). The species would suggest the presence of mixed deciduous or oak woodland, with a scrubby component at the margins of the wood or as an under-storey, with holly, sloe, hawthorn and dogwood. Sloe will not tolerate deep shade so is likely to have occurred in clearings or on the wood margins.

10.2.9 The *Prunus spinosa* stones are only tentatively identified at this stage. They have an appropriate surface texture but are large for sloe and very pointed, although too small for other *Prunus* species. As sloe spreads vegetatively as opposed to being seed germinated, it is usual to have many individual plants of the same clone. A slight variation in seed shape would then be seen in all the individuals of one given population. This population appears to be characterised by a pointed stone.

10.2.10 Several of the herbaceous species represented are common within woods or on the wood margins. This group includes *Conium maculatum*, *Arctium* sp. (burdock) and *Lapsana communis* (nipplewort).

10.2.11 Occasional damp or wet ground species were identified. *Eleocharis palustris* (spikerush) requires its roots to be submerged in water for at least part of the year so tends to be associated with seasonally flooded ground, particularly grassland. *Sparganium erectum* (branched bur-reed) is characteristic of wet mud or the shallow water of ponds, ditches etc and ungrazed marshland. Both species are likely to have been growing in wet ground around the well.

10.2.12 In addition to the occasional spelt wheat glume bases, a fragment of capsule of *Linum usitatissimum* (flax) is also possibly derived from a cultivated crop. It will not persist as a weed for very long so certainly suggests the cultivation of flax at some stage, even if not directly derived from the cultivated crop itself.

Provenance

10.2.13 The samples are derived from waterlogged fills which are assumed to relate to the post-abandonment phase of the well (11010), and therefore possibly the later phases of occupation at the site. The samples are listed in Table 10.6. Sample 10347 (context 12227) is the lowest excavated fill of the well and thought to be related to the collapse of the feature. Contexts 11516, 11982 and 11984 are organic deposits containing worked and unworked wood, moss and leaf litter. Context 11985 is associated with the upper tier of stake lining and derives from packing fill between the stake lining and well shaft. It is believed that the well construction dates from the early-mid 2nd century and that it was infilling by the 4th century.

10.2.14 The assessment results may hint that the lower fills, samples 10347 and 10351 have a slightly higher ruderal component that the upper fills. Conversely the upper fills contain greater quantities of woodland and scrub species. Furthermore, the flax capsule, the only good evidence so far of arable activity in the deposits, was identified from the lower fill. This might suggest, therefore, that human activity is attested at the time of the abandonment of the well, while the later fills suggest an increasing regeneration of the local woodland and scrub cover. This needs to be further explored at analysis level.

Conservation

10.2.15 If the samples are to be stored for any length of time before analysis it is recommended that they are refrigerated or kept in a cold store. They can be kept in

such an environment for some time as either unprocessed deposit or processed flot. The samples should certainly be retained pending decisions about final analysis.

Comparative Material

10.2.16 No long waterlogged sequences are known for this date from with the CTRL project or the Kent region. While long well sequences of this type are rare, a similar sequence is known from Barton Court Farm in Abingdon, Oxfordshire (Miles 1984). The mosses from that particular site were very interesting as they were of deliberately collected woodland species used as a filter and packing in the well wall.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

10.2.17 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

10.2.18 Good waterlogged well deposits can provide very useful data not available if only charred remains are recovered. Such remains might include the identification of leafy plants or seeds of foods which require no heat as part of their preparation, such as herbs and spices, as well as habitat information about the microenvironment of the feature and the environment of the wider area. Well deposits can cover some considerable time period so provide a sequence of data relevant to changing environment and activity for many years; in this case perhaps two centuries. The preservation of the material from the Thurnham Villa well deposits is very good.

10.2.19 The very good samples available offer the potential to examine aspects of the surrounding environment of Thurnham Villa towards the end of the period of occupation, and possibly at the abandonment of the site. The lower deposits also offer some potential for adding to the existing economic data already available from the charred remains. This will provide information for the analysis of the decline of the villa, and for the ways in which this decline was reflected on the villa site itself, and in its local environment. Additional evidence for economic activity and the agricultural regime is likely to be obtained, as is evidence relating to the diet (and therefore the status) of the site's inhabitants.

10.2.20 It is recommended that sub-samples of the five deposits are examined in detail for their plant macro-fossils including the wood. It is not possible at this stage to establish if the mosses represent deliberately collected mosses for lining the well and filtering the water, or if they represent mosses growing on the upper wall of the well which have subsequently fallen into it.

10.2.21 The mosses were exceptionally well preserved and the species and provenance should therefore be identifiable. It is likely that some, if not all, of the moss was collected from the surrounding area for use as a water filter in the well. Mosses have very specific habitats, and can provide additional information about woodland environments in the surrounding area. It is recommended that a sub-sample of the mosses is examined by a recognised expert.

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APPENDIX 11 - POLLEN

by Robert Scaife

11.1 Assessment of the Pollen

Thurnham Roman Villa (ARC THM 98)

Introduction

11.1.1 Three monolith profiles were taken from the sediment fills of well 11010 during excavation works at Thurnham Roman Villa.

11.1.2 The recovery and study of the pollen profiles was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The principal aims of the pollen assessment were to ascertain whether pollen and spores were present or absent in the organic fills of this well and thus, the potential of the material for reconstructing the local environment of the villa. In spite of the complex taphonomy of pollen in the fills of wells (Dimbleby 1985; Scaife 1999), the initial research design recognised the environmental potential of the material, especially since the well was in the proximity of a crop processing area and corn-drier.

Methodology

11.1.3 Samples of 1-2ml volume taken at a sampling interval of 80mm were prepared using standard procedures for the extraction of sub-fossil pollen and spores outlined in Moore and Webb (1978) and Moore *et al.* (1991). Pollen counts of 100-150 grains per level of dry land taxa (the pollen sum) were made at each level plus marsh taxa and spores. In some levels, especially higher in the profile, pollen was poorly preserved and sparse and as such, a smaller number of grains was counted.

11.1.4 Data obtained are presented in standard pollen diagram form (Figures 11.1 and 11.2). Percentages have been calculated as follows:

Sum = % total dry land pollen (tdlp)

Marsh/aquatic = % tdlp+sum of marsh/aquatics

Spores = % tdlp+sum of spores

Misc = % tdlp+sum of misc. taxa

11.1.5 Taxonomy in general follows that of Moore and Webb (1978) modified according to Bennett *et al.* (1994) for pollen types and Stace (1992).

Quantification, Provenance and Stratigraphy

11.1.6 Three monolith profiles were taken from two sections of the sediment fills of the Roman well (11010). These were 10302 and 10303 (from section 10590) and 10305 (from section 10591). The overall stratigraphy of these profiles was examined during sub-sampling for pollen analysis, and is shown below. All measurements are depths in mm.

Section 10590

Column 10302 (top column) (no pollen)

Depth mm

0-60mm Dark grey/black silt

60-210mm Grey silt containing chalk fragments and some stones (120 & 180-210mm)

Column 10303 (lower column)

0-360mm Fine grained dark grey clay/silt. Humic. Containing substantial wood (trunk/fragments). Wood at 50-120mm, 200-250mm, 200-360mm

Section 10591

Column 10305

0-330mm Dark detrital/humic organic sediment containing small twigs to 10mm diameter set in black oxidised silt

Pollen profiles

11.1.7 Pollen was present in two of the three profiles. Although this is only an assessment study**,** some variations in the pollen spectra are in evidence and tentative pollen zonation has been carried out. The palynological characteristics of these profiles are shown below.

Profile 10305

11.1.8 Two pollen assemblage zones have been recognised in the 640mm of this profile which contained pollen and spores. These are defined and characterised as follows.

11.1.9 Zone 1: 320mm - 200mm. *Fraxinus*-*Corylus* type-Poaceae**.** Absolute pollen frequencies (apf) range from 35,000 at the base to 165,000 grains/ml. Tree pollen are dominant with *Fraxinus* at high values (to 78%). There are small numbers of *Betula*, *Quercus, Fagus* and *Alnus*. *Corylus avellana* type is the principal shrub (21%) with single records of *Cornus* and *Prunus/Malus* type. There are generally few herbs with Poaceae to 11%. There are few marsh taxa or spores.

11.1.10 Zone 2: 200mm - 0mm. *Quercus*-*Fraxinus*-*Corylus* type. The apf values range from 54,000 to 92,000 grains/ml. *Fraxinus* remains important but declines progressively throughout the zone (av. 50%). There are sporadic occurrences of *Betula, Fagus* and *Pinus*. There is an increase in the numbers and diversity of herbs although overall, numbers remain small compared to tree and shrubs (10-15%). These herbs include Poaceae (<10%) and occasional cereal type pollen. Spores of *Pteridium aquilinum*, monolete/*Dryopteris* type and *Equisetum* occur sporadically.

Profile 10303

11.1.11 Pollen was absent in the upper 80mm of this monolith/section and absolute pollen frequencies were low throughout. Two pollen assemblage zones can, however be delimited in the lower 280mm of this monolith profile.

11.1.12 Zone 1: 320mm - 200mm. *Fraxinus*-*Quercus*-*Corylus* type. The apf values are the highest recorded in this profile at 13,575 grains/ml but decline above. *Fraxinus*

declines sharply from 40% to 6% whilst *Quercus* is expanding (28%). There is a single level (240mm) with a high *Alnus* percentage (20%). *Corylus* type remains the dominant shrub (40%). There are generally few herbs with only small numbers of Poaceae (5-6%) and a sporadic cereal pollen. The intestinal parasite, *Trichuris* was noted at 240mm.

11.1.13 Pollen is less well preserved in this column than in profile 10305, and there is the possibility of differential preservation especially in the upper levels where pollen becomes sparse. This is may be indicated by the increases in spores and pollen of Lactucoideae (dandelion types). The lower half of the profile (zone 1) compares with profile 10305 in having high values of *Fraxinus* (ash). However, unlike 10305, there is a decline from 200mm with *Quercus* and *Corylus* type remaining important. There is a single aberrant peak of alder, the taphonomy of which is conjectural.

11.1.14 Zone 2: 200mm - 80mm. *Quercus*-*Corylus* type-Poaceae. The apf. values are low and diminish upwards through this zone to 6,000 grains/ml. *Quercus* remains important with highest values at 80mm. Herbs become more important with Poaceae to 30% at 80mm. There are peaks of *Ranunculus* type (6%), and Lactucoideae (18%). There are increases in spores of *Pteridium aquilinum* (to 7%) and *Polypodium vulgare*.

General comments

11.1.15 At Thurnham, pollen has been preserved in the water-logged fills of the well, that is, in the lowest levels. Profile 10302 in the upper fills (contexts 10296 and 10297) was devoid of pollen. Microscopic plant debris remaining in these upper sediments was highly oxidised and it is likely that a fluctuating ground water table and drying-out of the sediments has degraded/destroyed the pollen. This similarly applies to the upper levels of monolith 10303 where pollen was similarly absent in the top 80mm.

11.1.16 Profile 10305 was, however, apparently much wetter and consequently, pollen preservation and absolute pollen frequencies much higher. This profile therefore perhaps provides the most useful information.

11.1.17 The most important aspect of this profile are the remarkably high values of *Fraxinus* (ash) pollen. This taxon is usually greatly underrepresented in pollen spectra (Andersen 1970, 1973) and as such these values are exceptional. This clearly relates to the presence of ash seeds which were also recovered from the well. This must relate to the presence of ash woodland locally and overhanging the well, rather than dumped material; consistent numbers throughout the depth of sediment implies longevity of the ash woodland/tree. The presence of *Quercus* (oak) and *Corylus* type (most probably hazel) suggests local woodland growth.

11.1.18 Compared with other well studies (noted below), there are few herbs, with notably little cereal pollen and associated weeds (segetals/ruderals). The latter tends to derive from ordure and similar deposits, which apparently became incorporated into wells. The Thurnham evidence thus suggests that the well was clean. It is also clear that there was little pollen input from the nearby crop-processing area. This is perhaps surprising since pollen incorporated into the husks of cereals (Robinson and Hubbard 1977) will have become liberated during crop-processing procedures.

Comparative material

11.1.19 The taphonomy of pollen wells is complex and the data may be difficult to interpret compared with naturally accumulating peat/sediment sequences. As such, there have been few studies with which to compare the data obtained from the Thurnham well.

Exceptions are the studies of Roman wells by Barber (1976) at Portchester Castle and at Pomeroy Wood, Honiton (Scaife 1999), which have produced pollen data that demonstrate that useful information can be obtained, especially in conjunction with insect and plant macrofossil studies. The contained pollen and spores may come from a variety of sources, derived via 'normal' airborne means or insect vectors, but are likely to derive from areas very close to the site.

11.1.20 However, wells are also likely to contain pollen from secondary sources including human and animal faeces, offal, domestic waste including floor coverings and food remains. All of these may contain considerable quantities of pollen which can strongly influence and bias pollen assemblages (Greig 1981; 1982) if this material was dumped in the well. The presence of such secondary/derived pollen may complicate the interpretation since the possibility of the dominance of this secondary element may have masked 'naturally' derived pollen from which interpretations of the local environment can be made.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

11.1.21 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

11.1.22 From the assessment analysis carried out, it is clear that of the three pollen columns taken/available, the most productive is 10305. This has the highest absolute pollen frequencies and the best pollen preservation, due to its continuously waterlogged state. Subsequent study should concentrate on this sequence.

11.1.23 The pollen assemblages are dominated by ash, which attains remarkably high values. This may relate to very local woodland growing on/above the site. This and other evidence of woodland would seem at odds with the view that this was an active agricultural Roman Villa. Since the sequence comes from the top of the well, this may be evidence of woodland growth on abandonment of the villa. This suggests that the pollen assemblage has good potential to contribute to analysis of the character of the late and post Roman environment of the villa.

11.1.24 Further pollen study, including detailed counting of grains from column 10305, should form an integral part of a fuller environmental analysis which might include study of seeds, wood and insects. Such an integrated study would provide comparative and possibly corroborative data, and would aid the overall interpretation and study of the history of the local landscape.

New research aims and objectives for the CTRL archaeology project

11.1.25 There are few previous studies of pollen obtained from wells. Whilst it is clear that the pollen has the potential for providing information on the local vegetation, the taphonomy is not well understood. Any additional studies would act as valuable comparative data.

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APPENDIX 12 - MOLLUSCS

by Mark Robinson

12.1 Assessment of the Molluscs

12.1.1 Samples taken from the Roman well 11010 at Thurnham Roman Villa for waterlogged plant remains were simultaneously scanned for the presence of molluscs.

12.1.2 Molluscs and insects were present in four of the seven samples assessed (see Table 10.4).

12.1.3 During the assessment of these samples for insect remains (see Appendix 13), the presence of molluscs was noted.

12.1.4 Shells of land snails were present in all four samples (10347, 10351, 10352 and 10293). Their concentration is of the order of 60 shells per kg. The majority are species of woodland or shaded habitats such as *Discus rotundatus, Aegopinella nitidula and Marpessa laminata*. There are very few shells of open-country species.

12.1.5 Some molluscs are highly habitat-sensitive, and can provide additional evidence for subtle variations, both temporal and spatial, in the surrounding environment. The molluscs from the well support the other evidence for local scrub regeneration around the well, and will thus contribute to study of the decline of the villa, and its contemporaneous local environment. Only a small number of samples contained suitable remains, and the study of molluscs should be undertaken in conjunction with other sources of environmental data.

12.1.6 It is recommended that molluscs are extracted from the samples to be analysed for waterlogged macroscopic remains, and identified by species, and reported upon.

APPENDIX 13 - INSECTS

by Mark Robinson

Thurnham Roman Villa SRC THM 98

13.1 Assessment of the Insects

Introduction

13.1.1 A total of seven bulk samples were taken from the late Roman well 11010 during excavation works at Thurnham Villa, for the recovery of waterlogged biological remains. The samples are each of the order of at least 12kg. They are kept wet in sealed plastic bags and boxes.

13.1.2 Sub-samples of 200g were sieved down to 0.25mm for the assessment of waterlogged macroscopic plant remains. Insect remains were noted in four of these sub-samples. A further sub-sample of about 12kg from one of these contexts was washed over onto a 0.25mm sieve to extract organic remains and the flot subjected to paraffin flotation to concentrate the insect remains in it.

13.1.3 The sampling programme was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The retrieval of the insect remains was designed to address two of the Fieldwork Event Aims: investigating the decline of the villa (the well fills excavated possibly belonged to the time of abandonment of the site) and determining the local environment of the site.

Methodology

13.1.4 It was decided that the best approach was to use the assessment of the macroscopic plants to identify samples that contained insect remains. These sub-samples were rather small for a full insect analysis, so a much larger sub-sample from one of the samples (10352) to contain insects was subjected to paraffin flotation to give a wider range of material for assessment.

13.1.5 The flots were scanned under a binocular microscope at magnifications of x10 and x20. The abundance of taxa was recorded in Table 13.1 on a scale of + (present, 1-5 individuals), ++ (some, 6-10 individuals) and +++ (many, 11+ individuals). Nomenclature for Coleoptera (the majority of the insects) follows Kloet and Hincks 1977). The insects were subsequently stored in 70% ethanol.

Quantifications

13.1.6 Four out of a total of seven samples were assessed. Table 13.1 gives the range and abundance of insects in each sample that was assessed. The results show that all the samples assessed will contain sufficiently large assemblages of insects for useful palaeo-environmental analysis. No obvious bias was noted with the recovery of remains.

Provenance

13.1.7 The samples are derived from waterlogged fills which are assumed to relate to the post-abandonment phase of the well and therefore the final stage (4th century AD) of occupation of the site. Samples 10347, 10351 and 10293 represent general fills to

the well, while sample 10352 consists of mossy material from between a stake lining and the well shaft.

13.1.8 The insects from the samples can be divided into a minority which lived in the well, mostly small water beetles such as *Ochthebius* sp. and the majority which were derived from the surrounding terrestrial landscape. The latter group variously fell into the well, flew in or were amongst refuse discarded into it. All four samples assessed represent good groups for analysis.

13.1.9 The terrestrial insects are from a wide range of habitats. Some evidence for woodland is provided by carabid beetles such as *Abax parallelepipedus* and *Patrobus atrorufus*. However, grassland insects such as the grass-feeding bug *Aphrodes* sp. and the elaterid beetle *Agriotes* sp. are also present. The presence of domestic animals is suggested by the scarabaeoid dung beetles *Geotrupes* sp. and *Aphodius* cf. *sphacelatus*. No insects associated with timber structures or indoor habitats have been noted. Of particular interest is the occurrence of numerous examples of workers of *Apis mellifera* (honey bee) in sample 10352.

Conservation

13.1.10 The waterlogged samples are not stable and their organic content will decay over a period of several years unless kept cold. It is therefore recommended that prior to analysis, the samples should be kept refrigerated either as unprocessed samples or processed flots. All samples should be kept until decisions have been taken on further analysis.

Comparative Material

13.1.11 No other waterlogged Roman well deposits are known from the CTRL project or elsewhere in Kent. Probably the best comparative insect sequence is from a 4th century well at the Barton Court Roman Villa, Abingdon, Oxfordshire (Robinson 1986). Very diverse and informative insect assemblages were recovered from the main fills of the well and remains of woodland insects were found in moss which had been packed between the stones of the well lining.

Potential for Further Work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

13.1.12 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

13.1.13 The insect remains are very well preserved. All the samples show good potential to meet the research objectives. The evidence for partly wooded conditions is possibly a reflection of the decline of the villa. The insects certainly show much evidence for the local environment.

13.1.14 It is recommended that further sub-samples from the four samples assessed be subjected to paraffin flotation to extract insect remains such that about 200 individuals of terrestrial Coleoptera (beetles) are available for analysis from each sample. A very detailed environmental reconstruction should be made from their quantitative analysis.

New research aims and objectives for the CTRL archaeology project

13.1.15 One new research aim has emerged from the assessment. Honey bee has been identified from other Roman sites in Britain, for example from Godmanchester,

Cambridgeshire (Robinson unpublished). However, the Thurnham remains are very well preserved and offer the opportunity to establish the sub-species represented by the pattern of their wing venation. It is therefore recommended that the bee wings should be extracted carefully from the flots and examined in detail.

13.1.16 Detailed palaeoenvironmental reconstruction from insect evidence for a Roman villa would certainly be of regional significance for Kent. If the decline of the villa is part of the general early 5th century collapse of Roman Britain, the results would be of national significance. The honey bee evidence is of national significance.

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APPENDIX 14 - SHELL

by Jessica Winder

14.1 Assessment of the Oyster Shell

Introduction

14.1.1 Shells of the common flat oyster *Ostrea edulis* L. together with mussel (?*Mytilus* sp.), whelk (*Buccinum undatum* L.) and common cockle (*Cerastoderma edule* L.) and several unidentifiable bivalves were recovered during excavation works at Thurnham Roman Villa (ARC THM 98).

14.1.2 Shells were recovered by hand retrieval and sieving of bulk samples.

14.1.3 The recovery and study of oyster shell was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. It was hoped that the study of marine molluscs would assist in the understanding of the manipulation and consumption by humans of natural resources and the way in which population increase and concentration might have affected natural resource exploitation and accelerated environmental change.

Methodology

14.1.4 The shells from each context were identified, where possible, and counted. Oyster valves were separated into left and right valves, and further divided into shells suitable or unsuitable for measuring and detailed recording of features. A sub-sample of contexts containing at least 30 measurable left or right valves would be selected as suitable for use in statistical comparisons of size or comparisons of evidence for epibiont infestation (Winder 1993).

Quantifications

14.1.5 Table 14.1 presents the numbers of shells for each context with comments on their condition.

14.1.6 Shell was recovered from 151 contexts, and comprised 954 shells (194 complete or near complete left valves, 292 unmeasurable left valves, 250 complete or near complete right valves and 218 unmeasurable right valves and numerous small or minute fragments). Fragments of a small number of mussel, cockle and unidentifiable bivalve mollusc valves similar to tellins and venerupids were also recovered together with fragments of at least four common whelk and two terrestrial gastropods.

14.1.7 The number of shells and shell fragments in most contexts is very small. Contexts 10084, 10196, 10197, 11641,15001, 15214, 20087 and 20174 are larger individual assemblages of shell from secure stratigraphic positions and dates. However, only the sample from context 20174 contains enough measurable shells (106 left valves and 137 right valves), that is, 30 or more measurable left or right valves, to permit statistically-based comparisons to be made with other samples.

Provenance

14.1.8 The state of preservation of the oyster shells is generally extremely poor with a high degree of breakage, etching, and mechanical wear leading to delamination of the shell structure and the production of numerous small fragments and minute flakes

which cannot be used except as an indication of the presence of the species in the context.

14.1.9 Intact, or nearly complete shells have survived in most contexts (118 of 151 contexts) but only in small numbers. In the eight contexts selected for their secure stratigraphy and dating and larger numbers of shells, only context 20174 has enough of the correct quality of shells to be used in comparisons to perhaps determine provenance. This context is the fill of a ditch sealed by the proto-villa building.

Conservation

14.1.10 Long term storage would not be affected by any further analysis, where this is feasible. Long term storage, should it be deemed necessary or desirable, would require the shells to be kept dry, in sealed polythene bags, with minimisation of mechanical damage. It is suggested that samples comprising only fragmentary shell remains should be discarded.

Comparative material

14.1.11 This assemblage of material is not suitable for intrasite comparisons either on a spatial or temporal basis. Table 14.2 provides a summary of oyster shells recovered in larger numbers from secure contexts attributed to various phases of occupation. The medieval phase and phases 4, 3/4, and 2 do not provide enough measurable/recordable shells to permit reliable statistical analyses to be carried out.

14.1.12 Phase 2/3 is represented by shells from context 20174 which are suitable for use in intersite comparisons.

14.1.13 Archaeological oysters, with which Thurnham Roman Villa shells could be compared, include samples from Roman sites at Halstock Roman Villa, Greyhound Yard, Alington Avenue and Shapwick (all in Dorset); Newport Roman Villa (Isle of Wight); the Brooks and Owslebury (Hampshire); Pudding Lane (London); Tort Hill (Cambridgeshire); North Shoebury, Colchester, and Elms Farm (Essex); Deerton Street Roman Villa (Kent); and the Shires (Leicestershire).

14.1.14 Modern oyster samples, with which Thurnham Roman Villa shells could be compared, include Poole Bay, and Poole Harbour (Dorset); Sowley Ground and Newtown (the Solent, Hampshire); and the rivers Roach and Colne (Essex).

14.1.15 References to the archaeological and modern oyster samples suitable for comparison work can be found in the bibliography. Not all sources of data are published but are held as unpublished or as a primary resource by the specialist.

14.1.16 Although oyster shell has been recovered from numerous other CTRL sites, the quantities and condition of the material make it unlikely that comparable assemblages will be available from this source.

Potential for further work

14.1.17 There is potential for the data assemblage derivable from marine molluscan material from context 20174, a ditch sealed by the proto-villa, to address the original Landscape Zone Aims and the Fieldwork Event Aims.

14.1.18 The study of the oysters could assist in the understanding of the manipulation and consumption by humans of natural resources and the way in which population increase and concentration might have affected natural resource exploitation and accelerated environmental change.

14.1.19 Presence and absence data can indicate, in a qualitative way only, onsite consumption and disposal areas as well as phases of occupation during which shellfish were consumed.

14.1.20 Examination of cut marks and notches on oyster shells in context 20174 could indicate opening techniques and cooking methods.

14.1.21 Recording such features as the degree of irregularity in shape, the presence of attached young oyster spat, the adhesion of other mature oyster shells, size and age ranges and presence of chambering and chalky patches could indicate whether the oysters had been farmed in any way or were from a natural, wild population.

14.1.22 The size distribution in the oyster sample from Thurnham Roman Villa could be compared by parametric two sample t-test and non-parametric Mann Whitney test with other samples. Rejection of the null hypothesis might suggest different source locations and populations.

14.1.23 Comparison of the percentage frequency of evidence for epibiont organisms between Thurnham Roman Villa and other samples using Principal Component Analysis might indicate the coastal source from which the Thurnham oysters had been derived.

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APPENDIX 15 - ARCHIVAL SOURCES

15.1 Assessment of Previous Excavation Archives

by Steve Lawrence

Thurnham Roman Villa (ARC THM 98)

Introduction

15.1.1 Maidstone Museum's archival holdings relating to previous excavations at Thurnham Roman Villa were inspected. No paper records of the 1933 Ashbee excavation appear to exist in the archive. However, the complete paper record of the 1958 Maidstone Bypass excavation is held at the museum. In addition, there are 14 boxes of finds, comprising material from the 19th century excavations by Rugg, the 1933 Ashbee excavations and the entire assemblage from the 1958 excavations.

15.1.2 The archives were inspected in order to ascertain whether they contain data likely to contribute to the Fieldwork Event Aims of the CTRL excavations at the site (ARC THM 98). The records and finds from previous excavations were thought to have the potential to assist with the recovery of the plan and dated occupation sequence for all phases of the villa's development, by supplementing information obtained during the CTRL works. The information from previous excavations was also thought likely to add to data for understanding the status, economic orientation and patterns of contact and trade of the settlement, and for establishing the function of features.

Methodology

15.1.3 Maidstone Museum was visited by the writer in June 2000 to assess the records and finds which were available. A record of the archive was made.

Quantification and description

Records

15.1.4 OS reproduction plan at 1/2500 showing the land-take for the bypass and the contemporary field divisions and woodland. Includes an annotated location of the sheep wash referred to as a possible 'ice house' in the OAU evaluation report.

15.1.5 Scale site plans and sections of Area B (equivalent to ARC THM 98 area of the Temple). The section drawings are clearly annotated and often show more detail than the published drawings. Also unpublished section drawings within this area were present that would be useful in linking the 1958 and 1998 excavations.

15.1.6 Pencil plan drawing of the Area B excavation. This is particularly useful as it shows actual trench locations of the excavation of the Area B building. The published plan gives no indication that only limited sections of the building were actually revealed in 1958. This plan allows a better understanding of the 1958 excavation in light of the 1998 findings.

15.1.7 Detail pencil plan of the Area A excavation showing the trench (box) layout. Slightly more detail than shown on the published plan. Also detailed annotated section drawings, nearly all of which were published. The original drawings do include slightly more detail than it was possible to publish.

15.1.8 There are also two site notebooks. The first has site records giving descriptions of the findings from each box across the villa area. No written records exist for Area B within this notebook and the information on the plans and annotated sections appears more useful than the notes in this pad. The second is a site diary with names, addresses and similar, but nothing of particular archaeological value to the site.

15.1.9 Several small photographs of the 1958 excavation (two in faded colour but otherwise black and white). Most of these were included in the publication.

Finds - General

15.1.10 There are 14 boxes, containing finds from the 19th century excavations by Rugg, the 1933 Ashbee excavation and the complete 1958 finds collection. The boxes are listed in Table 15.1.

15.1.11 One box of Rugg's 19th century finds contains four complete samian vessels, a neck of a wide-necked flagon and approximately half of a small double-handled glass vessel. These appear to represent a cremation grave group although there are no records to suggest this.

Pottery, tile, bone and shell

15.1.12 Pottery made up the bulk of the finds archive with the majority of the material deriving from the 1958 excavation. This was generally bagged and labelled with location descriptions. The majority of the remaining pottery was loose and without clear location.

15.1.13 Several tegulae and box tile fragments came from the 19th century collection. Unfortunately the tile removed from the 1933 excavation, since recognised as being a floor surface associated with the proto-villa, was not present within the archive.

15.1.14 Small quantities of bone and oyster shell accompanied the 1958 material although these are unlikely to add to the 1998 results.

Plaster

15.1.15 Painted plaster, both with and without decoration, represented the second largest quantity of finds present in the archive. Most of this derives from the 19th century and 1933 Ashbee excavations with a smaller quantity recovered from the 1958 excavation. The recovery of the plaster from the 1933 excavations has been described in the published report but otherwise the provenance of the material within the villa is unspecified.

15.1.16 Much of the material was identical to that recovered from the 1998 excavation associated with the proto-villa building although a markedly different type of plaster and style of decoration was also present. All of this material remains unpublished other than a passing mention of its presence in the 20th century excavations.

Glass

15.1.17 Approximately 35-40 mixed vessel sherds of glass from the 1933 and 19th century excavations were included in the archive.

Small finds

15.1.18 A small collection of mixed small finds was also present. This included 11 bags of iron objects, mostly nails and often more than one per bag. Six copper alloy items, mostly published in the 1933 report (published 1986), were present including a hexagonal bead and a small 'ear scoop' labelled as 1833 which have not been published (Table 15.2 below).

15.1.19 A single unpublished glass bead possibly of late Iron Age/early Roman type was also present.

Potential for further work

CTRL Landscape Zone Priorities and Fieldwork Event Aims

15.1.20 The following section discusses potential for further work in the light of the Landscape Zone Priorities and Fieldwork Event Aims.

15.1.21 There is interesting information available within this archive which would augment the evidence from the CTRL excavations, both in respect of the drawn records, and the finds.

15.1.22 Information from the unpublished plans would greatly assist interpretation of the current excavations, particularly of the area of the supposed temple building. This would allow the development of a more complete plan of both the main villa house and of the temple building. In turn, this would help to address questions relating to the function and status of features and structures.

15.1.23 The finds available in the archives would augment the assemblages available from the CTRL excavations, and this is likely to be of particular value for the pottery and glass assemblages. Both excavations were focused closely on individual buildings, and it is expected that finds will be locatable to individual structures, if not to contexts. Both Pirie's (1960) and Ashbee's (1986) reports contain only very summary accounts of the finds, and their published descriptions would be inadequate for comparative purposes. The reexamination of these earlier assemblages by the specialist contributors to the CTRL project would add to the evidence available for a dated occupation sequence, and would provide further data for the study of the status, economic orientations and patterns of contact and trade of the villa over time.

Archive Contents - Detailed List

1958 Paper Archive

Plans

15.1.24 Hand drawn plan of published Figure 1

15.1.25 O.S. reproduction 1/2500 showing land take boundary for the Maidstone Bypass. Shows historic boundaries, woodland and sheepwash.

15.1.26 1908 O.S. 1/2500 of area east of Honeyhills Wood with existing historic boundaries.

Area A records: The Villa

15.1.27 Three A3-A2 site pencil plans on graph paper. These show the actual limits of the trench excavations over the southern range of the villa (?the western-most plan of

the small end room is located on the sheet ii section drawings). These are also annotated with descriptions of some of the contexts.

15.1.28 Two A3 sheets of site pencil section drawings, showing sections A-A, C-C, E-E, and D-D (sheet i). All are well drawn and annotated with context descriptions and often show more detail than can be extrapolated from the published section drawings. Section B-B shows limited additional detail to the published drawing (sheet ii).

Area B records: The Rectangular Building

15.1.29 A single A2 (approx.) site pencil plan showing the excavated trenches across the building. Also 2 small strips of plan are attached to this providing a complete plan of the Area B excavation.

15.1.30 A single A4 synthesised plan of Area B showing the trench layout and the interpretation of the building although the trench layout appears inconsistent with the larger drawing.

15.1.31 There is also an unpublished section drawing from area B showing the walls and accompanying surfaces/layers. Demonstrates a better level of preservation than recorded in the 1998 excavation. Location of the section of the trench excavation not entirely clear without more detailed examination.

Site Records

Context records, site record book and sketch plans

15.1.32 Generally all context records were made as annotations to the pencil site plan. In addition a site record notebook and a site diary are included as part of the site archive.

15.1.33 General comments and sketch plans of the site grid location plan for Area A (useful for understanding the site plan layout and other references to grid locations). A small sketch plan has generally been made for each trench across Area A and these are accompanied by notes on the deposits revealed. It should be noted that these are not detailed.

15.1.34 No records accompany the Area B work although it is clear from the layout of the notebook and a heading for Area B that it was intended to record this in a similar manner.

15.1.35 A section at the rear of the book includes an inventory of finds and locations.

15.1.36 Other miscellaneous paper archives consist of correspondence, invoices and preliminary publication text. The site diary contains similar pieces of administrative information.

Photographs

15.1.37 10 small display mounted photos (x2 colour and x8 B/W no more than 3”x2” or smaller) are also available., and most of these pictures were published in Pirie’s (1960) report as plates I-VII. The three other photographs show detail of the Area A excavation, and most of the photographs are in reasonable condition although slightly faded. It is possible to see detail of the excavated deposits and buildings.

Finds

15.1.38 Table 15.1 gives the box list of bulk finds in Maidstone Museum. Table 15.2 lists small finds in Maidstone Museum.

Hockers Lane

15.1.39 The features excavated at chainage 62+300 now appear to correspond to the remains uncovered during the laying of a gas main (Syddell 1967). This has not been published, other than a note recording its presence, so no site plan is known. No material relating to this site is held at Maidstone Museum. The present author's investigations have so far failed to identify any accessible source of information about this site other than that on the Sites and Monuments Record (SMR TQ 75 NE 78 - KE1953).

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APPENDIX 16 - CONSERVATION REQUIREMENTS

by Vanessa Fell

16.1 Assessment of Conservation Requirements

Thurnham Roman Villa (ARC THM 98 & ARC 420/99 63+400-63+900) and Hockers Lane ARC 420/99 62+200-63+000

Introduction

16.1.1 Finds recovered during watching brief and excavation works at Thurnham Villa and Hockers Lane were assessed for their conservation requirements and long-term stability, as well as for their potential for investigative conservation.

16.1.2 The material assessed was retrieved by both hand excavation and sieving.

16.1.3 The recovery and study of artefact assemblages was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of artefact assemblages was undertaken in order to establish a plan and dated occupation sequence for all phases of the villa's development, and to establish the status, economic orientation and patterns of contact and trade of the settlement. The conservation programme was designed to enhance the potential of the artefact assemblages to address the Fieldwork Event Aims.

Methodology

16.1.4 With the exception of a few modern items such as cartridge cases, all of the metal artefacts were X-rayed and were examined visually or with the aid of a microscope (x10). A selection of the waterlogged wood was examined, as well as the single waterlogged shale fragment.

16.1.5 Bulk finds were not assessed, nor was the painted plaster since this is currently undergoing consolidation treatment elsewhere.

Quantification

16.1.6 The items assessed for conservation requirements are listed Table 16.1.

Provenance

16.1.7 Metalwork includes two Middle Bronze Age finds from a waterhole, but the majority are Roman finds of the 1st and 2nd centuries AD, plus a few medieval items.

16.1.8 The condition of the copper alloy and the silver alloy finds is generally good and many items are well patinated and only superficially corroded and encrusted. Most appear to be stable.

16.1.9 The condition of the ironwork is more variable. A high proportion of items seem to be superficially corroded, with metal surviving extensively. A few items show evidence of fissuring and fracturing. Ironwork in this (little corroded) condition is very likely to continue to corrode and fracture and is therefore potentially unstable.

16.1.10 The waterlogged well timbers appear to be well preserved and fairly robust.

16.1.11 The waterlogged shale fragment appears to be robust.

Conservation

16.1.12 Further archaeological and investigative conservation analysis would not affect the integrity or long-term survival of the artefacts.

16.1.13 The long-term storage requirements for the metalwork are desiccated micro-environments. The present conditions require rigorous curation (below 35% relative humidity for the non-ferrous metalwork; below 15% relative humidity for the iron). Some boxes of ironwork are rather tightly packed and could be divided to make sorting easier and to enable additional packaging to be added if necessary to protect certain finds.

16.1.14 The materials which are currently stored wet (wood and shale) require stabilisation if these are to be retained as part of the material archive. Because wet materials will continue to degrade, museums do not normally accept these untreated. Furthermore, wet organic materials may become a health hazard owing to infestations.

16.1.15 Waterlogged wood and other samples recovered for environmental data or for recording should be discarded if they are not dried out or stabilised.

16.1.16 Long-term storage requirements for archaeological materials and archives are set out in Walker 1990 and MGC 1992.

16.1.17 The conservation requirements for the material archive relate to the wet organic materials, which require stabilisation if they are to be retained in the long-term. The metalwork has no immediate or long-term conservation requirements other than investigative conservation for further analysis.

Comparative material

16.1.18 This information is provided in the detailed specialists' reports.

Potential for further work

16.1.19 Potential for conservation divides into two aspects; investigative conservation of metalwork to assist understanding the development of the villa and its landscape, and stabilisation of the wet materials. The finds specialists have selected artefacts for investigative conservation, as follows.

16.1.20 23 coins require cleaning in order that the site dating can be refined.

16.1.21 Other metalwork selected for examination and analysis comprises the following artefacts: 48 iron, 34 copper or silver alloy, 1 iron/copper alloy composite. This work may include additional X-radiography to support more detailed analysis of individual objects, for example for clarification of section shapes and detail of decoration.

16.1.22 Selective removal of accretions to reveal morphology or surface detail. In particular, brooches and other personal items require decoration and form to be clarified to enable stylistic comparisons. For ironwork, knives and implements are particularly important items for study since their correct identifications to craft will contribute to understanding of the economy and status of the villa.

16.1.23 Identification of organic and mineralised organic materials from selected items where data have archaeological significance, for example knife handles.

16.1.24 Identification of non-ferrous metal platings or inlays on selected copper alloy and ironwork by non-destructive X-ray fluorescence analysis. Confirm any uncertain metal species.

16.1.25 The wet shale fragment requires stabilisation.

16.1.26 Four waterlogged timbers have survived from the Roman well lining. These are re-used timbers. Untreated wet wood will not survive in the long-term and can also encourage mould and other biological infestation within a museum store. There are several options for these timbers.

16.1.27 1) Full recording (by a wood technologist) including detailed examination of tooled areas and evidence of previous use.

16.1.28 2) Stabilisation by freeze-drying. Treatment times are lengthy owing to the need for prior consolidation with a suitable chemical, usually polyethylene glycol. For timbers of these dimensions the total treatment time may therefore be around 18 months or more. The stabilised timbers will then be available for display or storage at ambient conditions. Treatment should start as early as possible since deterioration is progressive, although it should not precede the recording.

16.1.29 3) As for 16.1.26 above, but the recording can be undertaken in conjunction with the freeze-drying programme at certain laboratories.

16.1.30 4) Full recording as 16.1.25. but timbers discarded. This will be appropriate if the timbers are in poor condition, do not retain evidence of woodworking techniques, or if there is no suitable museum store or display area.

16.1.31 In addition, there are five boxes of waterlogged wood samples (one box for species identification, four boxes of stakes for dating and other purposes). The storage is satisfactory for medium-term study requirements and it is probable that they will not be retained in the long-term.

Bibliography

MGC 1992 Standards in the Museum Care of Archaeological Collections, Museums and Galleries Commission

Walker, K, 1990 Guidelines for the preparation of excavation archives for long-term storage, UKIC Archaeology Section

APPENDIX 17 - DATING

17.1 Radiometric Measurements

Introduction

17.1.1 Two samples for radiometric measurements were sent to the Scottish Universities Research and Reactor Centre, East Kilbride. The first was a coppiced hazel (*Corylus avellana*) stake that had been recovered from a stratigraphically late silt fill of well 11010 at Thurnham Roman Villa (sample GU-9077). The second was a 34g fragment of red deer metatarsal from the probable Middle Bronze Age waterhole 10288 (sample AA-39808; GU-9083).

17.1.2 The red deer metatarsal was found to contain insufficient collagen for radiometric dating. It was therefore submitted to the University of Arizona AMS facility for Accelerator Mass Spectrometer dating.

17.1.3 The samples were selected in order to confirm the dating of the late well silts and the waterhole. This was undertaken in accordance with the Fieldwork Event Aims for the site, which included the recovery of a dated occupation sequence for all phases of the site's development.

Results

17.1.4 Copies of the radiocarbon dating certificates are appended to this report.

17.1.5 Sample GU-9077, the hazel stake, has been dated to cal AD 259-539 at the 95% confidence level.

17.1.6 Sample AA-39808 (GU-9083), the red deer metatarsal, has been dated to cal AD 978-1155 at the 95% confidence level.

Potential for further work

17.1.7 The date from the hazel stake broadly confirms the interpretation reached from the stratigraphic data and spot dating, that the well was one of the latest features to remain in use on the site, and was silting up during the 4th century. This dating can be used to inform further analysis of the feature.

17.1.8 It is highly unlikely that further radiocarbon dating will reduce the range of this date. In general, for the Romano-British period, artefacts such as pottery and coins can give a far more precise indication of date than radiocarbon.

17.1.9 The date from the red deer metatarsal is unexpected and suggests that this piece of bone was intrusive; there is little doubt about the general dating and affinities of the Middle Bronze Age metalwork. Further analysis of the stratigraphy will be required to clarify the extent and significance of later disturbance to this feature.

17.1.10 It is considered that there is no potential for further radiocarbon dating.