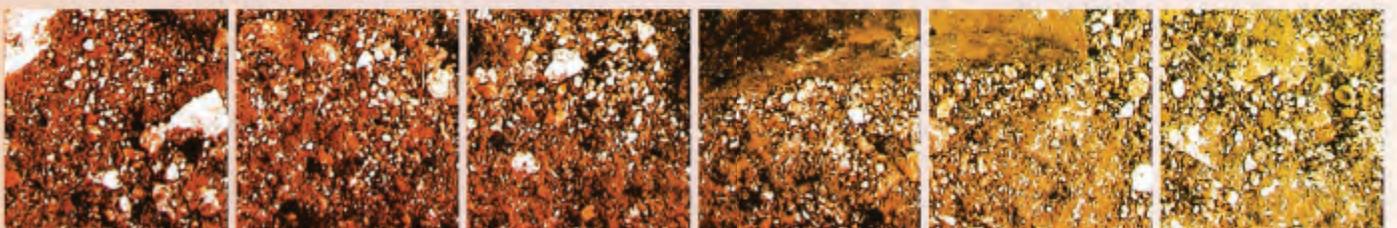
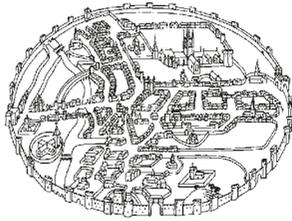


# **CANTERBURY'S ARCHAEOLOGY** **2007 - 2008**

32nd annual report of the Canterbury Archaeological Trust







**CANTERBURY  
ARCHAEOLOGICAL  
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ANNUAL REPORT 2007–2008

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2007  
**CANTERBURY'S**  
GEOLOGY  
2008

# EXCAVATION

## Rhodaus Town, Canterbury

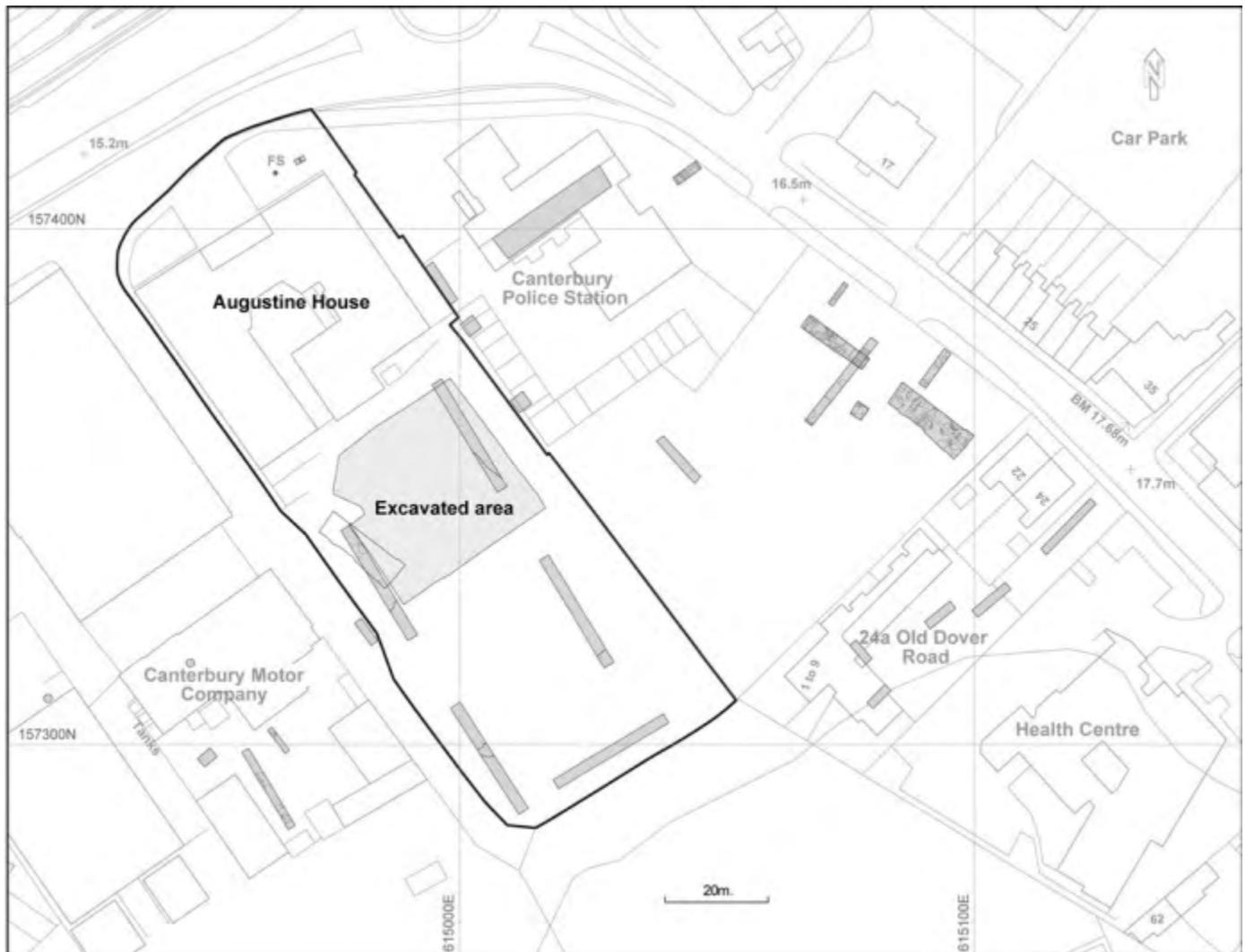
Richard Helm

Significant evidence of Canterbury's Roman suburban past was unearthed at Augustine House during excavations at Rhodaus Town. The work formed part of Canterbury Christ Church University's Augustine House project, a landmark development consisting of the construction of a new £30 million library and student learning and support services centre on the

site of the former Clarkson House (NGR 614991 15732). A 1,059m<sup>2</sup> area located to the rear of the former building was excavated between October 2007 and January 2008, followed by an ongoing programme of archaeological monitoring during the demolition and construction groundworks. The Trust had previously undertaken a desk-based assessment and archaeological evaluation of the development site (Willson 2006; Helm and Boden 2008), and adjacent works below the police station (Diack 2005;

Hicks 1999; Linklater 2003) and to the rear of 24a Old Dover Road (Hicks 2002), had already indicated the rich archaeological potential of the proposed development area.

The development occupies a rectangular plot situated south-east of the city wall, fronting Rhodaus Town. The local geology is Head Brickearth, surviving between 1.8m and 0.8m below the existing ground surface level, overlying outcropping River Terrace Gravels.





Late Iron Age/Romano-British (120 BC–AD 43).

### Earliest activity

A small quantity of worked flint artefacts, including waste flakes and a core, was recovered from the surface of the Head Brickearth confirming the presence of prehistoric activity in the immediate vicinity.

On-site occupation at Augustine House appears to begin sometime during the later Iron Age/Roman transition (*c* 100 BC–AD 43), with a growing intensification of activity in the early Roman period (*c* AD 43–100). Features included some sixteen pits, a linear, north-east to south-west aligned gully segment, and two post-holes. In addition, a number of stake-holes identified during the excavation might be attributed to this earliest activity, indicative of fenced enclosures or possible timber structures.

### Early Roman land divisions

At some point during the mid to late first century AD the land use at Augustine House changed. Two parallel ditches, aligned north-east to south-west, traversed the site, spaced approximately 14m apart. The ditches, with an average width of 0.6m and surviving depth of 0.3m, probably represent the subdivision of the site into formal land divisions. It is possible that these divisions extended to an earlier trackway or road frontage forming the predecessor of Roman Watling Street (Millett 2007, 157).

Comparable evidence for early land organisation has been identified at Market Way, on the north-east outskirts of Canterbury (Helm 2005, 11) and at

Wincheap to the south-west (Anderson 1995; 1997), both dated to the transitional late Iron Age and early Roman period.

### Roman quarries

Both the northern and southern land plots defined by the boundary ditches had evidence for extensive quarrying extending up to, and in places partially

truncating, the plot boundaries. There was no evidence of quarrying in the central land plot. Sections excavated through the quarry backfills indicated that they were broadly contemporary, with the earlier fills dating between the early second and third centuries AD, and backfilling continuing intermittently into the early fourth century AD. Comparable evidence for intensive early Roman quarrying was identified below the Canterbury Police Station site (Diack 2005; Gollop 2002; Linklater 2003), including a *c* 4m deep quarry identified by the late Frank Jenkins (1964), and it is probable that this industry would have provided at least one source for the raw materials required during the formal development of the town between *c* AD 80–120 (Millett 2007, 157; Pratt 2004, 22).

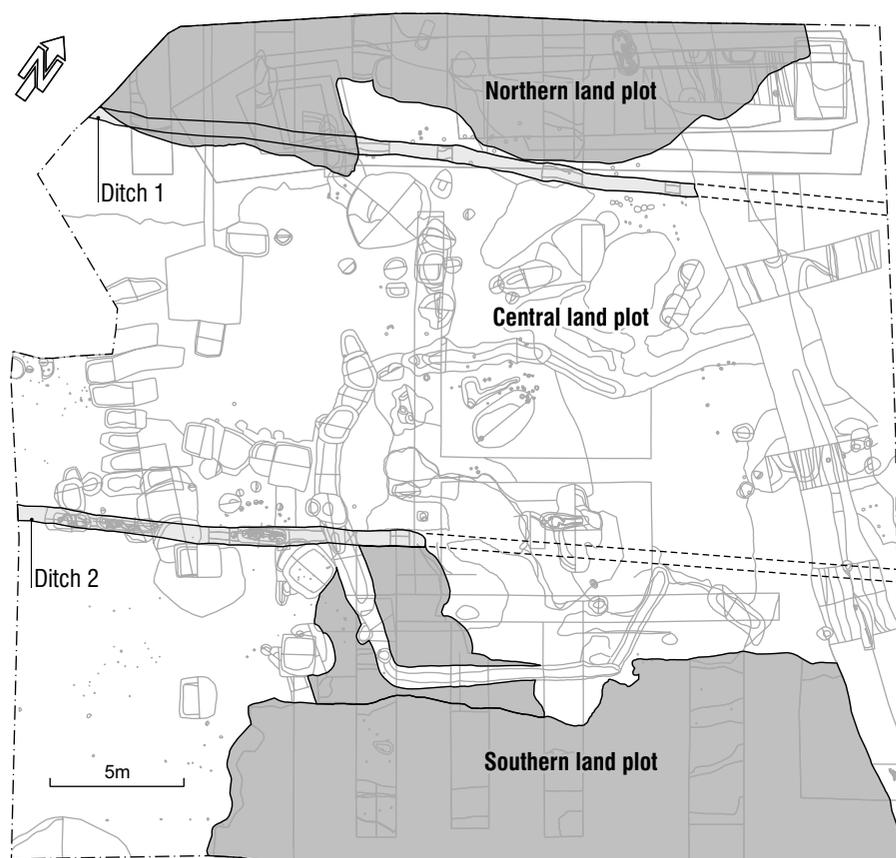
None of the quarries was exposed to its full extent, but evidence for quarrying was seen to extend across the southern half of the development area (Helm and Boden 2008). The depth of the quarries varied between 0.7 and 2.3m with the final depth dependant on whether each quarry was being excavated for the extraction of just brickearth or both brickearth and the underlying gravels. Variations in morphology might indicate that the quarries were not a continuous industry, active all year around, but rather were excavated on the basis of supply-on-demand. Hence in at least one instance, the edge of an earlier quarry appears to have been truncated when a new, adjacent quarry, was established. However, further post-excavation work and specialist assessment of the finds recovered from the backfilled quarries are required before the chronological variations in this industry might be better understood.

### Roman inhumation burials

During the late Roman period (*c* AD 200–410), following the abandonment and partial backfilling of the quarries, five inhumation burials were positioned within the excavated area. Three of these burials truncated and were aligned with the presumably still significant southern boundary ditch, and a



Aerial view of the Augustine House excavations, looking north-east.



Early Roman land plots & quarries (AD 43–200).

fourth burial on the same alignment was located to the north-east. A fifth burial, on a north-west to south-east alignment, was identified in the eastern corner of the site.

The placement of burials within and close to boundary ditches is a common pattern in Roman Britain and is generally seen as a functional/practical means of disposing the dead in areas where there would be less disruption to the activities of the living (Esmonde Cleary 2000, 137–8). Comparable placement of late Roman burials has been noted on other suburban sites, notably at Ilchester, where burials have been inserted into the 'backlands' of plots fronting the Fosse Way, and are suggested to be burials of members of the family inhabiting or owning the properties (Esmond Cleary 2000; Leach 1994). Additional burials located to the south-west,

below the Canterbury Motor Company (Helm and Boden 2008; Jarman 1999; Pratt 1999), and to the north, below Rhodaus Town (Andrews 1985, 137) indicate that this dispersed pattern of burial extends between the larger formal cemeteries postulated at Wincheap to the south-west, and Watling Street to the south-east. A similar pattern is present for the north-east suburbs of Canterbury, extending from the formal cemetery at St Dunstons (Diack 2003a), along North Lane (Rady forthcoming), as far as Market Way (Helm 2005; Rady 2001).

Preliminary assessment of the Augustine House skeletons suggests that they were all adults and, where their sex was determinable, were male. None of the burials had evidence for grave furniture, and there was no uniformity evident in the treatment and positioning of the bodies, the skeletons facing

north-east, south-west or south-east, and the bodies being placed either in an extended or a flexed supine position. Pottery recovered from the grave fills was provisionally dated to the late third century AD.

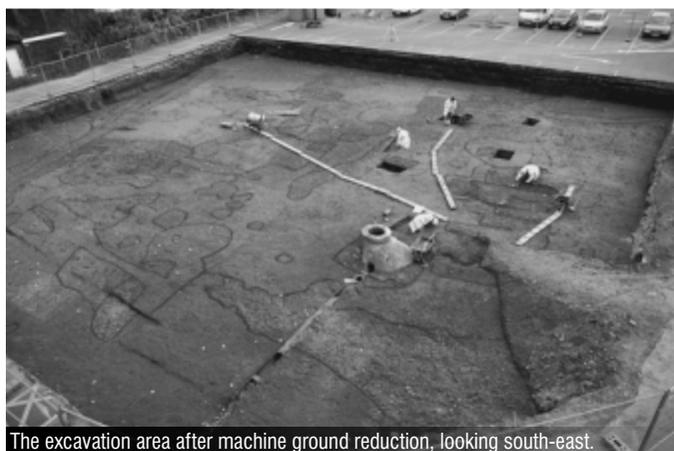
### Late Roman polygonal enclosure

At a date probably later than the burials, an irregular polygonal enclosure formed of interlinking shallow gullies, was superimposed across the backfilled southern boundary ditch, its axis roughly aligned with the three inhumation burials cut into the boundary's backfill to the south-west, with the fourth north-east to south-west aligned burial situated within the enclosure itself.

The gullies were between 0.68 to 1.10m wide and varied between 0.2 and 0.8m in depth, forming seven potential sides of an irregular octagon, the eighth side being left unenclosed to form a north-east facing entrance. The resulting internal dimensions measured approximately 11 by 11m, with the north-east entrance measuring 6.4m wide (though this measurement might be reduced as the two easternmost gullies were truncated).

Immediately facing the open north-east facing side were two opposing linear features, approximately 2.6m long by 0.9m wide, the northern one (Linear 1) formed of three intercutting post-pits, the southern one (Linear 2), partly truncated, apparently forming a shallow gully segment. Both features appear to 'point' towards the enclosure's north-east facing entrance and perhaps represent a formal entrance structure fronting the enclosure. A further series of four post-holes, aligned in front of the entrance in opposing pairs, each pair spaced approximately 4.5m apart, would also seem to be associated with the entrance. Pottery recovered from deposits and fills within the sub-octagonal structure was principally of early fourth-century date, with some residual sherds of late first- to third-century date.

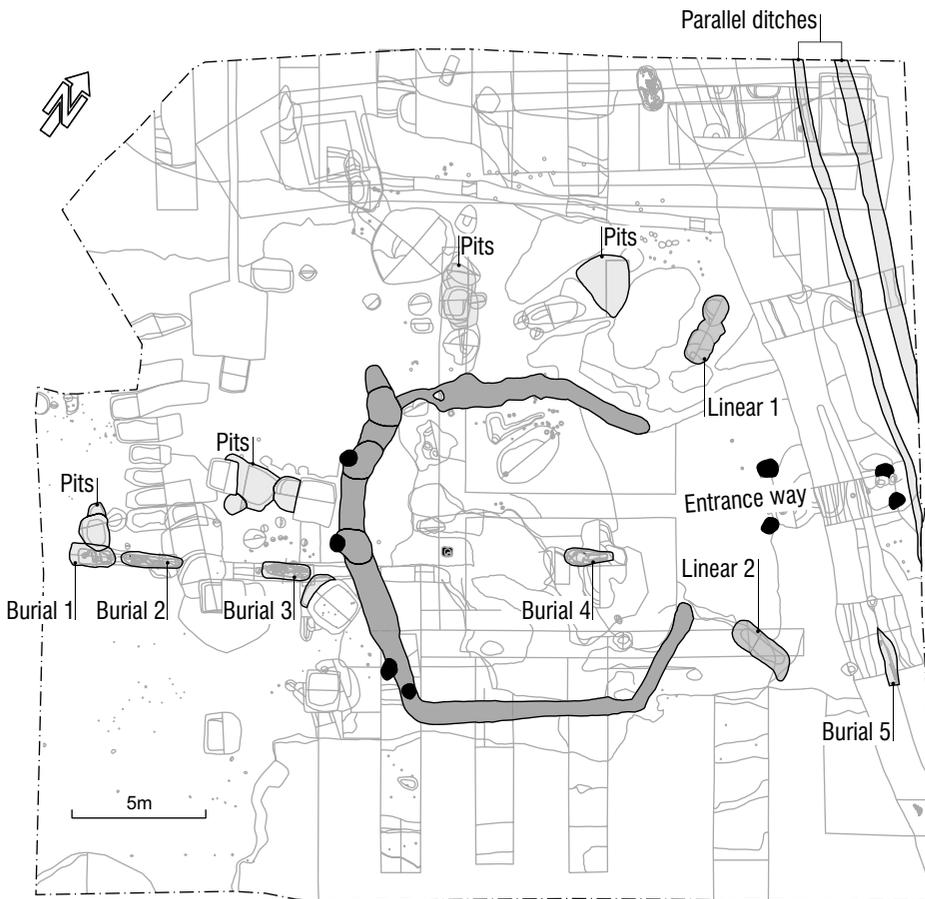
Reconstruction of the polygonal enclosure is difficult; it is unclear whether the gullies represent the remnants of robbed out wall footings, timber ground beams, or the eaves drip of a superstructure that has left no trace, though the apparent deliberate deposition of coins and other objects (see below) suggest the enclosure gullies were left open. Four post-holes were recorded at the south-west side of the polygon forming potential structural elements, and a single shallow post-hole was recorded within



The excavation area after machine ground reduction, looking south-east.



View of excavation, looking west.



● Postholes  
Late Roman (AD 200–400).

the enclosure's interior, but attempts to equate these features as evidence for a superstructure have inevitably been speculative.

While a direct physical association between the polygonal enclosure and the inhumation burials could not be proven, the spatial arrangement might suggest that the enclosure and the burials relate to each other. Roman polygonal structures are commonly interpreted as shrines or temples (Lewis 1966; Rudling 2008), but an association with burials as demonstrated at Augustine House

is rare (Esmonde Cleary 2000), and would perhaps suggest an alternative interpretation as a mausoleum. However, a concentration of some 212 Roman coins distributed within the fills of the enclosure's gully indicate that the enclosure formed a focus for the placement of votive offerings. With the exception of one silver *nummus*, the coins were all of copper alloy, and were all small denomination with a date range of between AD 307 and AD 361. Despite the close date range, there was no evidence to suggest that the assemblage constituted a single,



A selection of the coins from the polygonal structure.

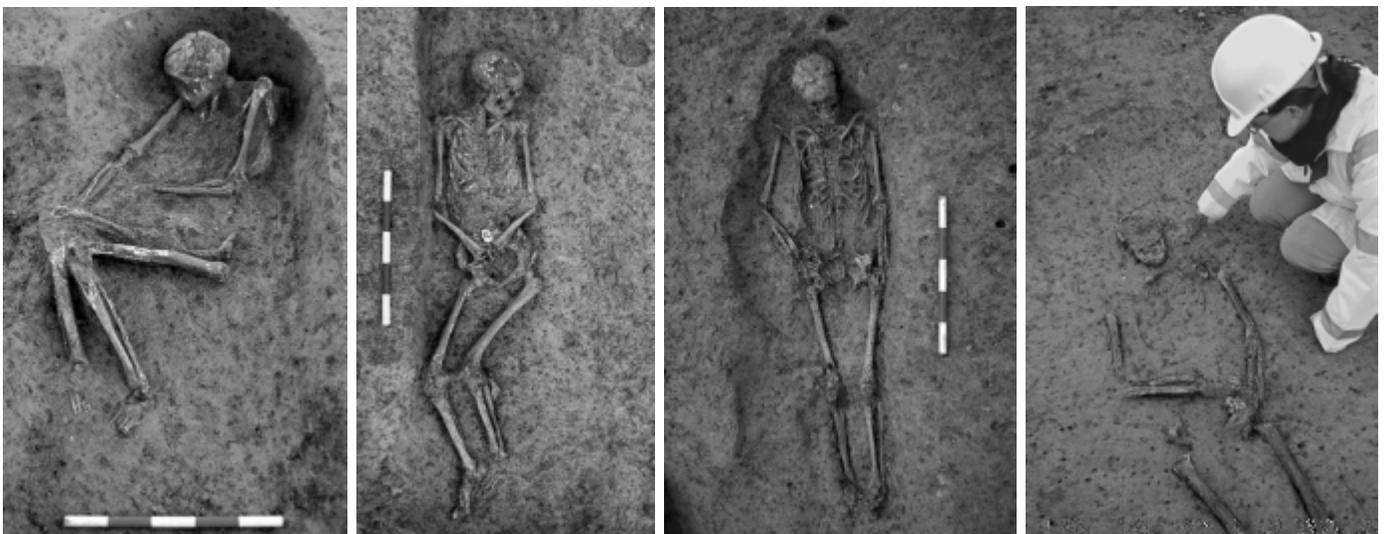


Roman inhumation burial 5, truncated by later medieval ditch, looking south-west. Scale 0.5m.

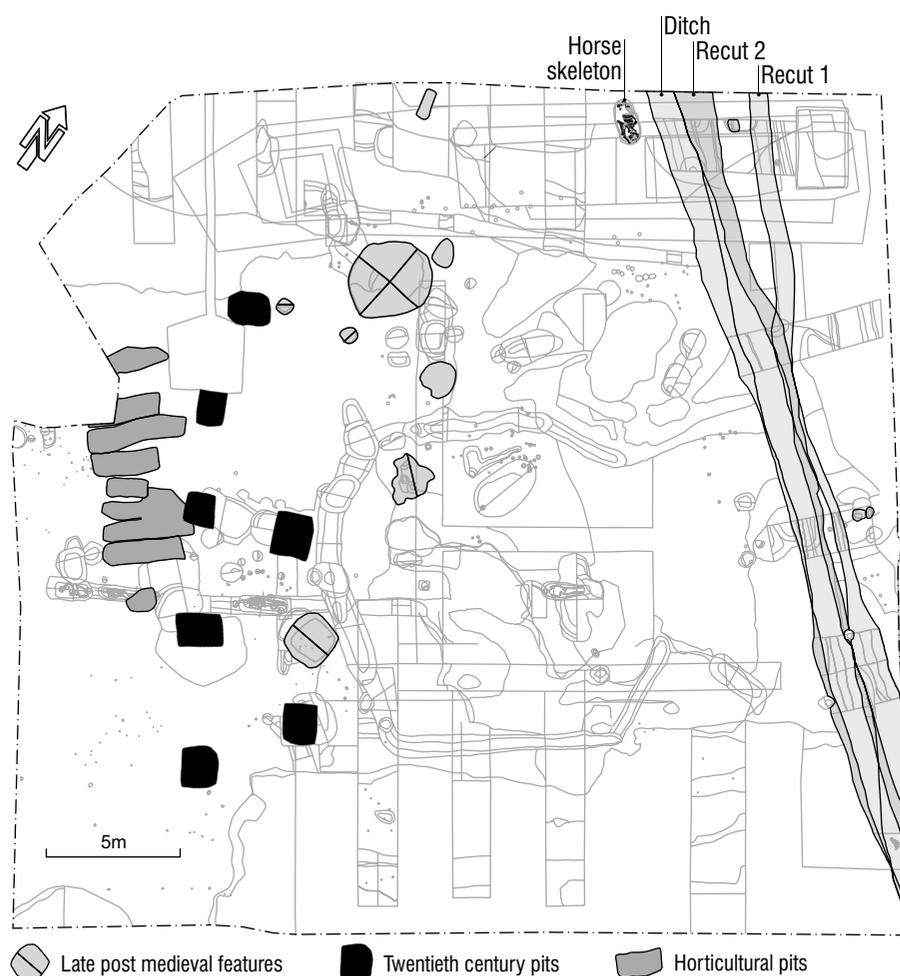
grouped deposition within a container such as a purse or bag; rather the distribution indicated multiple depositions of individual coins or small groups of coins, deposited with a general focus around the western side of the enclosure.

In addition to the deposition of coins, items of footwear also appeared to have been purposefully placed within the enclosure's gully. The footwear is represented by concentrations of hobnails, and in at least three instances the hobnails survived *in situ* preserving the shape of the sole, and were placed either singularly, or in one case, as a pair.

If the coins and footwear have been placed as votive objects then it would seem more apt that the enclosure and any associated superstructure be classed as a 'temple-mausoleum', with the enclosure perhaps representing the *temenos* or outer enclosure, surrounding a *cella*, or inner sanctum, represented by an internal superstructure that could not be traced.



Roman inhumation burials 1–4 (L to R). Scale 0.5m.



Medieval to modern (AD1050+).

If the identification is correct, then the findings from Augustine House will prove to be an important addition to the Roman map of Canterbury.

Systematic sampling of the enclosure fills was undertaken during excavation of the enclosure, and it is hoped that data from these samples might indicate whether other votive offerings, such as charred plant and seed remains, were present (see p 48).

### Parallel ditches

Approximately 8.5m north-east of the polygonal enclosure, a pair of parallel ditches, aligned north-east to south-west, marked a later boundary, separating the polygonal enclosure from the frontage of Watling Street, some 67m to the north-east. The gullies were spaced approximately 0.9m apart; the western ditch was around 0.28m wide and the eastern 0.60m and both ditches were between 0.11m and 0.34m deep. Unfortunately, the relationship between these ditches and the polygonal enclosure could not be determined; the area where the ditches would have passed in front of the entrance to the polygonal enclosure had been truncated by a sequence of later medieval ditches. Pottery from the ditch backfills is broadly contemporary with the material recovered from the polygonal enclosure, and it is possible that the boundary represented by the double ditches was associated with the foundation of the enclosure.

### Late Roman pits

Some fourteen pits backfilled with materials dating to the late fourth century were identified outside and to the south-west and west of the area defined by

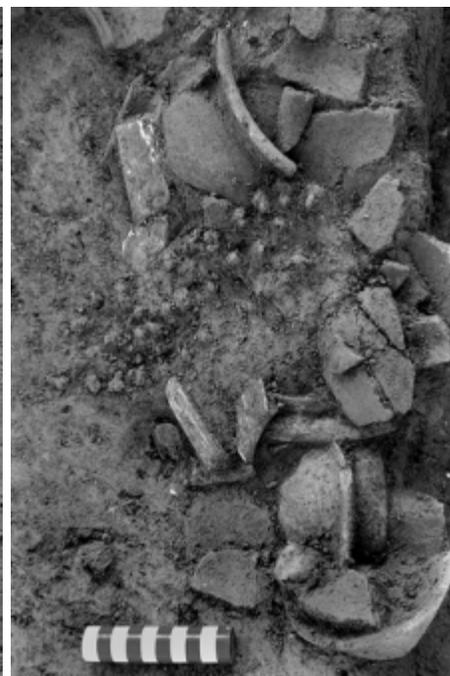
the polygonal enclosure. The material from these pits was later than the polygonal enclosure, and in four instances, the pits truncated the enclosure's backfilled gully, whilst a further pit truncated the western edge of a grave, indicating that the pits post-date the putative temple-mausoleum.

### Medieval farmland

No evidence for early medieval occupation at Augustine House was identified during the excavation, though a small number of residual late Anglo-Saxon pottery sherds (c AD 800–1050) were recovered from later features. More intensive activity, primarily domestic in nature, though with evidence for small-scale industry including metal working, cattle-horn working and perhaps textile dyeing, is recorded from the adjacent sites at Canterbury Police Station (Diack 2005) and 24a Old Dover Road (Hicks 2002), and this would suggest that Augustine House was located to the rear of these properties. A single inhumation burial was also identified at 24a Old Dover Road, dated to the seventh century (Hicks 2002).

A number of features were dated to the later medieval period (c AD 1050–1550). These include a substantial north-west to south-east aligned ditch, traversing the eastern side of the excavated area, and a small number of pit features, one of which contained the partially articulated remains of a horse skeleton.

The ditch showed evidence for at least two separate re-cuts. The original ditch contained pottery provisionally dated to between c AD 1050–1250, whilst the latest re-cut produced material dated to c AD 1250–1550. The ditch runs parallel and some 70m south of Old Dover Road, and is very likely part of a boundary recorded in early property rentals of Christ Church Priory, marking the rear of medieval land holdings fronting Old Dover Road, and the lands of the Dane John Manor to the south-west (Willson 2006).



Votive deposits? Hobnailed footwear, coinage and pottery. Scale 10cm.



Semi-articulated horse skeleton within late medieval rubbish pit, looking north-west. Scale 0.5m.

A small number of features of post-medieval date were identified in the north-west of the excavation. These consisted of shallow, sub-rectangular pits, aligned north-east to south-west. These have been interpreted as market garden/horticultural features.

Despite post-medieval buildings being located on the frontage of Rhodaus Town, no evidence of activity associated with their occupation was identified. Rather, the remainder of the site was overlain by extensive soil horizons, characteristic of agricultural land use, as indicated on early post-medieval maps.

The data generated by the Augustine House Project archaeological works has proved to be of high local significance, and have been far richer and better preserved than anticipated from the desk assessment and evaluation results alone. Once analysis of the results has been completed, the data will have the potential to be of national interest in considering extra-mural developments in Roman towns, encapsulating themes such as death and religion, industry, suburban development and economy.

The archaeological work at Augustine House was carried out by the author, with Ian Anderson, Iain Charles, Angela Cullen, Ryan Diggory, Edward Fitzgerald-Clark, Claire Gannon, Simon Holmes, Tania Holmes, Crispin Jarman, Calum Macleanan, Francis Morgan, Adrian Murphy, Tom Powell, Laura O'Shea, Kerrie Rayfield, Dale Robertson, Don Rudd, Kerri Smith, Tom Sutton, Jessica Twyman, Jamie Williams, Joe Williams and Robert Young. Finds processing was undertaken by Dr Andrew Richardson and Jacqui Lawrence, environmental work by Dr Enid Allison, and preliminary spot dating of pottery by Andrew Savage.

Thanks are extended to the Augustine House project team at Canterbury Christ Church University

for supporting the works and continued interest in the results; Richard Cross, Archaeological Officer, Canterbury City Council for onsite discussions; Dominic DeMoulin, English Heritage Scientific Advisor for guidance on sampling strategies; Dr Chris Pine, Royal Holloway, London, for discussion of the geology exposed in the quarry sections; Chris Barwick and Terry Smith of Ovendens Earth Moving; Vince Thompson of John F Hunt Demolition Ltd; and Anthony Davies of Wates Construction.

## Canterbury Christ Church University Sports Centre, Barton Court Grammar School, Canterbury

Richard Helm

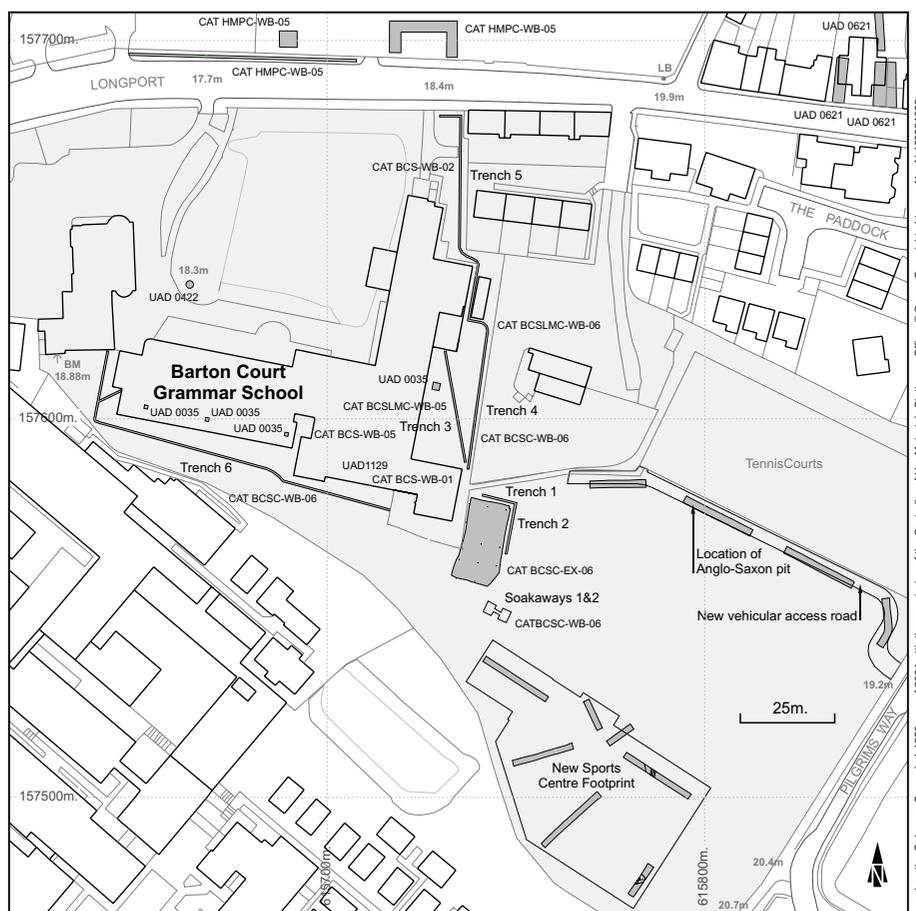
The Trust was commissioned by Canterbury Christ Church University to carry out a programme of archaeological works in preparation of the construction of a new Sports Centre to be located on land at Barton Court Grammar School, Longport, the facility to be jointly shared by the university and school. The new Sports Centre is located to the south-east of the existing school buildings (at NGR 615766 157506), and is bounded by the school playing fields to the north, Pilgrims Way to the east, and Canterbury College to the south.

The archaeological works were carried out in three phases; the first in September 2007,

consisting of seven evaluation trenches excavated within the footprint of the new Sports Centre; the second in May 2008, consisting of four evaluation trenches excavated along the line of a new access road into the school via Pilgrims Way; and the third between May and July 2008, consisting of a watching and recording brief during construction groundworks.

The presence of late prehistoric activity was represented by a small concentration of heavily abraded pottery and flint-working waste recovered from a subsoil above the natural Head Brickearth within the new Sports Centre footprint. Previous investigations at Barton Court Grammar School (Helm 2008) and in the grounds of Canterbury College (Newhook 2008) have shown that a relatively dispersed population occupied this locality during the late Neolithic and Bronze Age periods, presumably utilising the tributary valleys and springs on the southern slopes of the Stour valley.

Surprisingly, no Roman (c AD 43–410) material was identified, despite known Roman activity to the north, flanking the Roman road from Canterbury to Richborough, with evidence for cremation burials focused between Barton Court Grammar School and the Old Session's House, Longport, and quarry pits and a potential masonry structure in the grounds of HM Prison, Longport (Jarman 1997; Linklater 2007). Residual Roman pottery, tile and *imbrex* fragments have been recovered just 15m to the north-west of the new Sports Centre (Helm 2008), and the absence of material here helps to demarcate locally the south-eastern extent of this extra-mural development.



Our earliest evidence for occupation at Barton Court is limited to the mid to late Anglo-Saxon period (c AD 750–850). A rectangular pit, measuring 1.34m wide by 1.15m deep, with vertically cut sides and a flat base, was located below the proposed new access road. The pit contained some eighty-one sherds of mid to late Anglo-Saxon pottery, many of the sherds appearing to constitute part of a single vessel. The sherds were relatively unabraded, indicating rapid deposition. Environmental data recovered from the pit identified traces of human cess, in addition to other waste, including mineralised and charred plant and seed remains, marine fish bone and fish scales, and domesticated mammal and bird bones - all elements characteristic of domestic refuse.

An unusual copper alloy utensil, comprising a round-sectioned handle decorated with moulded

transverse banding, terminating at one end in a perforated oval bowl and a tri-pronged fork at the other, was recovered from the pit fill. Such an item, interpreted as a feasting implement, was likely to have been of high status. Comparable utensils of this type are extremely rare with only three other examples in Britain known so far (Sherlock 2007, 253–4; Webster and Backhouse 1991, 86, no 66p).

It is clear that the land now occupied by Barton Court Grammar School was important during the Anglo-Saxon period, and would have been associated with both the royal 'vill' focused at St Martin's Hill (Rady 1987; Sparey-Green 2003), and from the seventh century onwards, with St Augustine's Abbey as the *barton* or home farm of the abbey (Kelly 1995).



The mid to late Anglo-Saxon pit, looking south-east. Scale: 1m.



A rare copper alloy utensil c. AD 750–850 recovered from the backfilled pit.

Previous work in the school grounds had identified at least four comparable refuse pits also of mid to late Anglo-Saxon date, but as yet no buildings associated with this settlement have been found (Helm 2008; O'Shea 2007). Excavation to the south of the new Sports Centre, at Canterbury College, and still within the lands allocated to the home farm, has also identified early to late Anglo-Saxon features (c AD 410–1050), including a boundary ditch and cess pit, but again no evidence for structures survived (Newhook 2008).

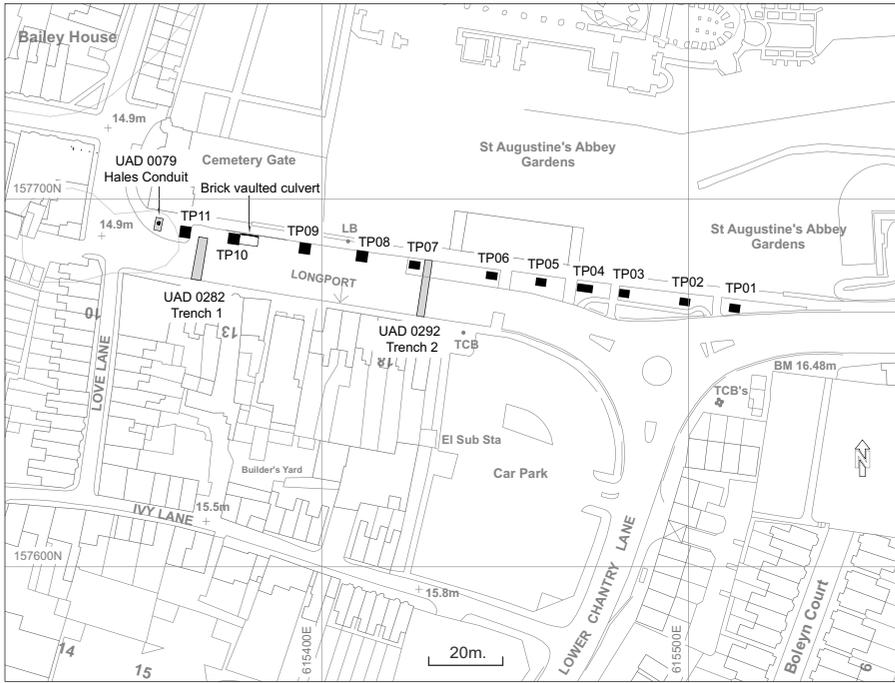
A single refuse pit containing fragmented medieval roof tile (c AD 1250–1550) was identified in the western margins of the proposed development area, below the new access road, but the medieval farm complex itself appears to have been focused in the area now occupied by the existing school buildings. The likely south-eastern extents of the farm were exposed during excavations in 2006/7 (Helm 2008), and the area of the new Sports Centre appears to have been used as agricultural land during the medieval and post-medieval periods.

A number of post-medieval features were identified during the archaeological works, including a north to south aligned field ditch, and a series of large pits containing late post-medieval and modern pottery, brick and tile. The size of these features suggests that they originated as quarries and were later infilled with refuse from the farm. Excavation of the new Sports Centre also demonstrated that the existing ground surface was largely formed of modern redeposited soils forming an artificial terrace between the new Sports Centre and the boundary with Canterbury College.

The archaeological works were directed by the author with the assistance of Dale Robertson. Survey was carried out by Crispin Jarman. Work on finds was carried out by Dr Andrew Richardson, and environmental data assessed by Dr Enid Allison. The Trust would like to acknowledge the support of the staff and students of Barton Court Grammar School; Isobel and Stephen Coomber of Hazle, McCormack and Young, Chartered Architects; and Geert Lohman of Pellikaan Construction Ltd.



Redeposited soils forming an artificial terrace along the south-west boundary with Canterbury College, looking north. Scale: 1m.



## Longport conduit, Canterbury

Richard Helm

During April 2008 Canterbury City Council commissioned the Trust to monitor the digging of eleven tree planting pits along Longport (NGR 615380 157690 centred). The works involved the removal of the existing Horse Chestnut trees (*Aesculus hippocastanum*) situated along the northern side of the road and adjacent to the southern boundary of St Augustine's Abbey, and their replacement with Pin Oak (*Quercus Palustris*).

Each tree planting pit measured approximately 2.5 by 1.5m, and was machine excavated to a depth of approximately 0.7m, exposing modern and later post-medieval deposits. Evaluation work by the Trust in 1996 during exploratory road works by Babbie and Southern Water Services had identified earlier medieval road metallings, in addition to a wall-footing of a medieval timber-framed building, and the



Detail of culvert following removal of damaged bricks showing the unlined base. Scale: 0.5 m.

'Longport ditch', a former boundary between Longport road and St Augustine's Abbey, which was later utilised as an open drain (Pratt 1996). Fortunately, the new tree planting pits were not deep enough to impact on any of this earlier buried archaeology.

However, the works did uncover a brick-built vaulted culvert at the western end of Longport, adjacent to the Hales conduit. The Hales conduit was installed in 1733 by Sir John Hales to provide a public source of water to supplement the existing, but inadequate, public supply derived from the conduit at St Martin's Hill (Jenkins 1980). The Hales conduit is marked by a cast iron tap casing, in the form of a cylindrical pillar with a conical top, located opposite Bailey House at the corner of Longport and Monastery Street. The gift is recorded by a bronze plaque set into the facing wall of Bailey House, and is of the same date.

The culvert, which is aligned roughly north-west to south-east, was exposed for a length of 4.86m and survived immediately below the modern road surface, at a depth of just 0.14m. The culvert is constructed from unfrogged Kentish soft red bricks, with a typical dimension of 0.23 by 0.11 by 0.62m, and bonded with a coarse sandy lime mortar. Due to the shallow depth, during breaking out of the existing road tarmac the ground works inadvertently punctured two holes through the vault of the culvert exposing a relatively



The brick vaulted culvert, looking north-west. Scale: 1m.

silt free, unlined internal chamber with an internal diameter of approximately 0.3m.

Inspection of the bricks and mortar indicate that the structure is broadly contemporary with the Hales conduit. An evaluation of the Hales conduit undertaken by the Trust during resurfacing of the pavement area in August 2000 had exposed a cobbled surface surrounding the cast iron tap casing, and a stone slab setting and base of a waste water drain (Weekes 2000). It appears most probable that the exposed brick culvert formed part of this waste water drain, removing excess water from the public tap.

Following completion of the tree planting works the damage to the culvert was repaired using the original, displaced bricks, and the culvert preserved *in situ*.

## Kings School, St Augustine's Abbey

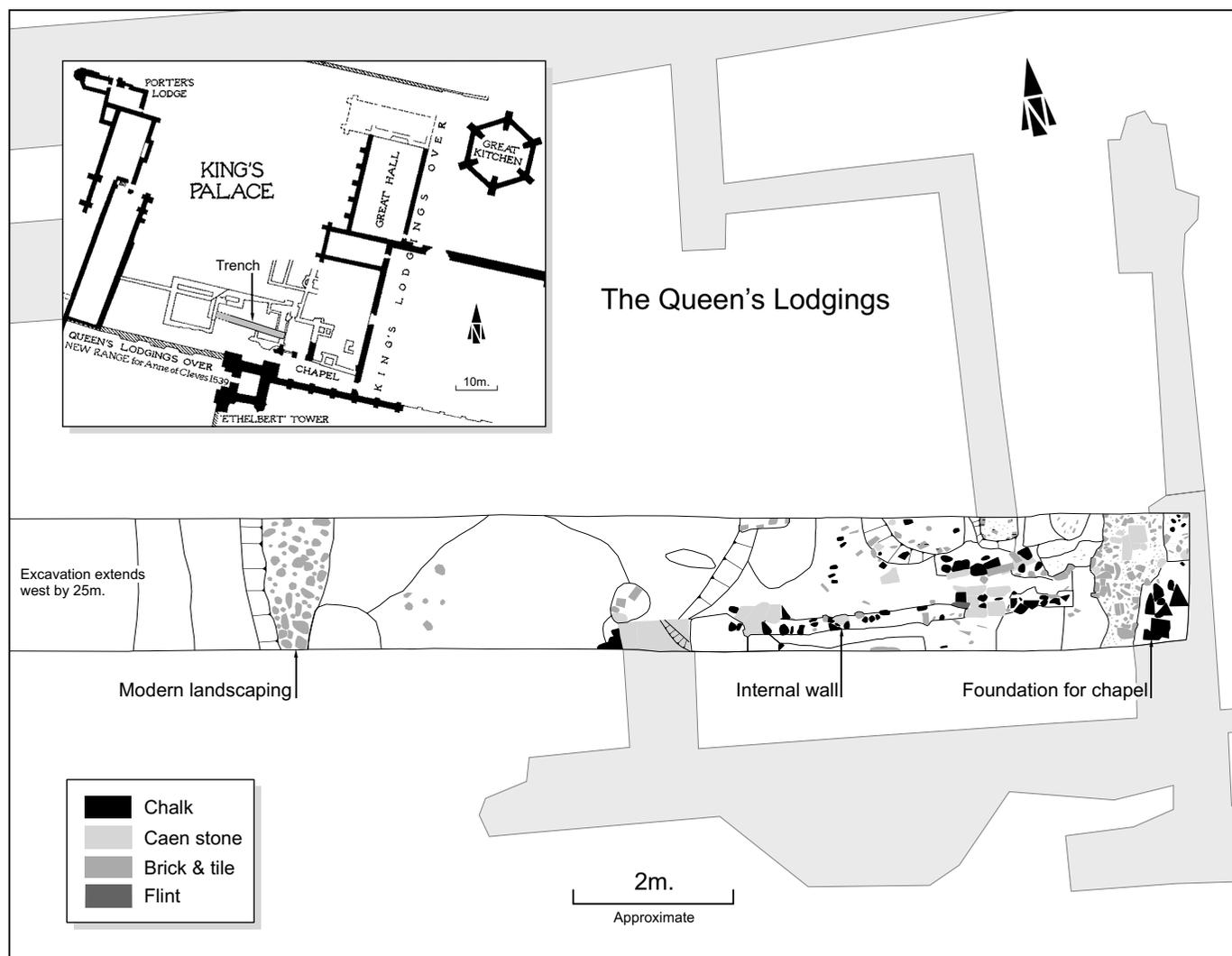
Ross Lane

In July 2007 a watching brief was undertaken during works to construct a ramped footpath allowing disabled access to the Kings School dining room in the former Great Court of St Augustine's Abbey (NGR 615400 157750). A 32m long trench was monitored during which a detailed photographic record was made of the works and some limited archaeological excavation was undertaken.

St Augustine's Abbey has structural remains that span over a thousand years, with the earliest fabric dating to the late sixth or early seventh century. The Great Court formed part of the original cloisters of the abbey and according to a plan measured and drawn by JGP Meaden during landscaping and excavations carried out between 1914 and 1932 by the Rev Canon RU Potts, the footpath was located above sixteenth-century remains forming an important part of the history of the abbey after the Dissolution.



The trench looking east, with the stub of a main wall of the queen's lodgings extending from the southern section and a smaller partition wall beyond. Scale 1m.



Plan of eastern end of excavation with additional walls from the Queen's Lodgings drawn by J G P Meaden early last century.

On 30 July 1538 the Abbey was surrendered to Henry VIII and by October 1539 work had commenced on modifying the Great Court to form the King's New Lodgings or 'the Palace' with the proposed arrival of newly-wed Anne of Cleves in December setting a tight finishing date for the work. Approached from the west the Queen's Lodgings consisted of two chambers and a bed chamber next to the chapel. Fortunately for James Needham, Surveyor of the King's Works, the queen's coming was delayed by bad weather, giving the fresh plaster more days to dry with the aid of charcoal braziers (Sparks 1997).

The earliest features recorded in the exposed trench were the remains of six walls. An early chalk and flint wall uncovered on the eastern extent of the excavation could represent the foundations for the chapel that was located directly to the north of the Ethelbert Tower and incorporated into the Queen's Lodgings.

A substantial stone and flint wall was revealed 0.38m below the present ground level at a depth of 13.92m OD. This represents a stub of wall detailed in the 1920s plan extending south beyond the excavation. A 3m length of a smaller east-west aligned wall, just 0.2m wide, may have formed an internal partition between different rooms and a third wall of Caen stone might represent the exterior of the chambers, though it had been heavily truncated and it

is possible that it formed a rammed mortar and Caen stone floor within the chambers. The feature provided a foundation for a later brick wall

Later demolition and partial levelling of the area could be identified, but it would appear that not all the walls were removed as a drain was installed respecting the line of the internal wall. There then followed a period of further demolition and a build up of refuse material suggesting domestic occupation. Robber pits were dug to retrieve chalk and stone from the earlier walls. The area was sealed by several soil layers that formed during the abandonment of the buildings in the later post-medieval period and then during the redevelopment of the Great Court in the early twentieth century.

Our thanks are extended to the Kings School Canterbury for funding the works and to AE Ansley Builders for their cooperation and consideration of the historic environment.

## St Mary's Church, Northgate, Canterbury

Jess Twyman

From August through to November 2007 a watching brief was maintained within the former St Mary's Church

on behalf of the King's School prior to renovation and upgrading of theatre and studio facilities. Part of the renovation included the laying of a new wooden floor and the installation of telescopic seating. The old floor was removed, allowing for exposed remains beneath to be recorded. Limited excavation was necessary at the eastern end of the hall, where a heavy concrete slab was to be laid to support the new seating.

The earliest feature to be uncovered was part of the Roman town wall which is preserved beneath the fabric of the medieval structure and was incorporated within the north wall of the church. It was hoped that some trace of the Roman Northgate might be found remaining, as anything that may have remained above ground was lost in the 1830s when the church underwent substantial renovation and alteration after





Roman town wall beneath the north wall of the church and the eighteenth-century vault.

the gate was pulled down. Until then the chancel had extended over the Northgate and a short distance further east against the inside of the city wall. Unfortunately, the watching brief confirmed that the eastern end of the Roman wall (the part that would have adjoined the Northgate) had been truncated during construction of the 1830s façade, removing any evidence relating to the gate.

The removal of the wooden flooring revealed a number of features from earlier phases of the church including traces of the medieval south wall. This wall was demolished in the 1830s refit when the church was shortened (with the demolition of the chancel over the gateway) and widened by the construction of a new south aisle which pushed out into Church Street turning the street into the narrow passage which survives today along the southern side of the building. At the western end of the medieval south wall evidence for a doorway was uncovered, with scars of steps leading down onto the original street level. The recording of the medieval wall was of particular

interest; its position has only been postulated until now. Although no direct dating evidence was found, it is possible that the wall dates to the early part of the twelfth century, possibly when the earliest church was first extended (Bennett 1982, 89).

Later features uncovered include an eighteenth-century barrel vault at the eastern end of the church. The brick roof and eastern end of the vault was exposed and appeared to have been built through an earlier vault, almost destroying all trace of it. Other elements from the 1830s refit were recorded, including the stone slab flooring and three substantial post-pads. These were bonded directly onto the remains of the medieval south wall, most likely to give support to the roof when the ancient wall was demolished and St Mary's Church extended.

## No 1 Westgate Grove, Canterbury

### Ross Lane

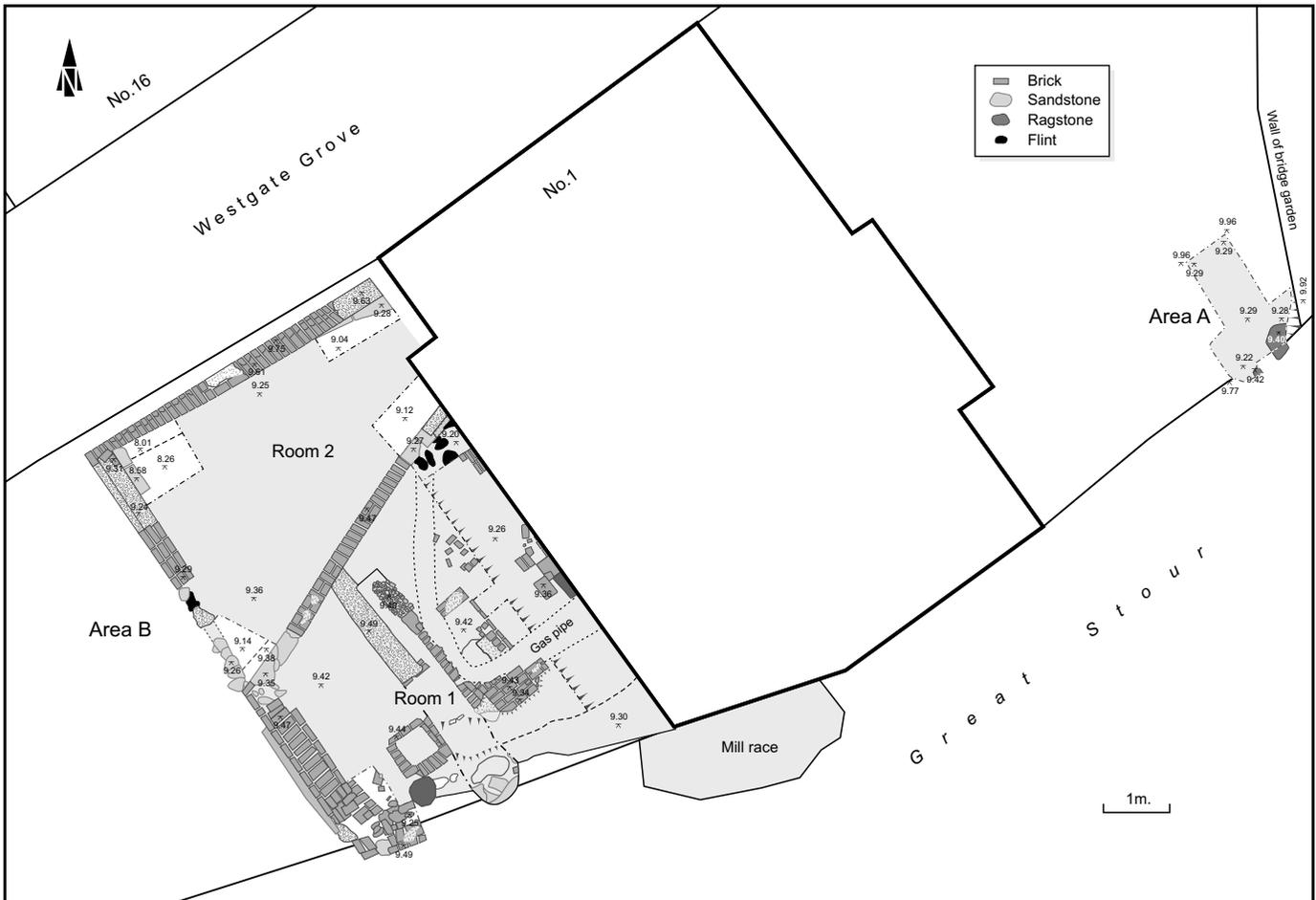
An evaluation excavation was undertaken at No 1 Westgate Grove (NGR 614525 158053) in June 2007. The property sits on the western bank of the River Stour at the former junction of Mill Lane and Cock Lane (now Westgate Grove). Just 50m upstream of the city's Westgate, the location has a long-documented history. On Mill Lane opposite, a row of timber-framed houses date to the eighteenth century. Adjacent to these in Cock Lane, another row of timber-framed buildings make up a patched

historic appearance and date to between the sixteenth and eighteenth century. The former Cock Inn at No 4 is a three tiered seventeenth-century structure. Recent excavation to the rear of No 14 Westgate Grove uncovered three phases of building (Jarman 2005), the earliest of which dated to the fifteenth century.

The present building is likely to be of late seventeenth-century origin, and originally of industrial use, most probably a mill. A mill in this location is first mentioned in the Domesday Book in 1086, but it is likely that there was a mill at this site of late Saxon origin (Somner 1977). It is recorded in several late twelfth- and thirteenth-century priory rentals that the rent owed by the priory to Westgate was 1 *vomer* (summer plough service) or 2d.

The mill appears to have been within the Westgate Ward, outside of the City of Canterbury's district and owned by the Archbishop of Canterbury. From at least the thirteenth century the mill was one of four mills under the archbishop's jurisdiction which involved the guarding of archiepiscopal prisoners, from the time of their capture until the meeting of the next hundred court; 'The miller at Westgate was responsible for guarding the prisoners during the day, his fellow millers keeping them close by night'.<sup>1</sup> Mills were used for this purpose in the archbishop's ward from an early period because they were some of the most secure and substantial buildings on the manorial estates.

Various maps show the location of Westgate Mill, the earliest dating to 1588 drawn by William Smith.





View by T W Hastings (1812). Mill buildings are just visible on the left. © Canterbury Museums Service.

There are also several early views of the area. One of the Westgate of c 1792 by J M W Turner includes the mill in the foreground. A timber-framed structure is depicted with ragstone foundations and bricks up to the first floor with a peg-tile roof. What appears to be a wooden sluice bridge runs across the river; this would have been used to control the flow of water under the wheel. This type of mill is characterised as an 'undershot' mill (Fuller and Spain 1986) typical for a river where the volume of flow is large but the head of water slight. The same building, though without the wheel, appears in the above view made by T W Hastings some twenty years later.

The investigation was undertaken in two areas. A small trench (Area A, measuring 2m by 1.6m) was opened to the east of the present building close to the former location of a nineteenth-century bridge across the river to Tower House. Three ragstone blocks forming presumed bridge foundations were

uncovered. Area B was located to the west of the building, extending between the river and Westgate Grove. Parts of at least three phases of building were identified. The earliest identifiable structure was dated no later than the early sixteenth century and was constructed from chalk and flint. The limited nature of the excavation meant that nothing could be established of its nature or full extent, though it was considered likely that it replaced an even earlier structure.

The second phase of construction was attributed to the post-medieval period (1550–1800) and was of Kentish ragstone. Measuring 4.75m wide and 5.2m long, the walls were tool faced and extended beyond the excavated area. The north wall adjacent to Mill Lane appeared to be the earliest and consisted of four courses of ragstone with a height of 1.25m from the base, which lay at a depth of +8.01m OD. At this level a probable floor was revealed, consisting of

waterlogged wooden planks approximately 0.05m thick. A mid seventeenth-century or earlier English bond brick wall was related to this phase of building. The layout of these walls suggests that the structure consisted of two separate rooms.

The third phase of building utilized the substantial ragstone walls of the previous phase as foundations. The identified walls formed part of a brick building, completed with an additional western wall and entrance. It is likely that it formed an extension to the existing building. Within this building two rooms were identified. One contained additional brick structures lying on a foundation of sand, including an open fireplace and brick floor. Within the river a brick wheel race was constructed suggesting the mill was still in use at this time, which from the make-up of the walls was in the late eighteenth century. This would appear to be final stage of construction on the site. A postcard view of 1927 shows the extension behind the existing cottage. It remains unclear when the building was converted from a mill to a domestic residence.

The excavations were supervised by the author with the assistance of Ian Anderson, Iain Charles and Don Rudd, thanks are extended to these and to Charles Lambie who commissioned and participated in the work showing great interest and enthusiasm for the archaeology.

1 Lambeth Palace Library [LBL]: ED 2068; Canterbury Cathedral Archives and Library [CCAL]: Lit MS E24, f.2v.

## Thanet Earth, Monkton

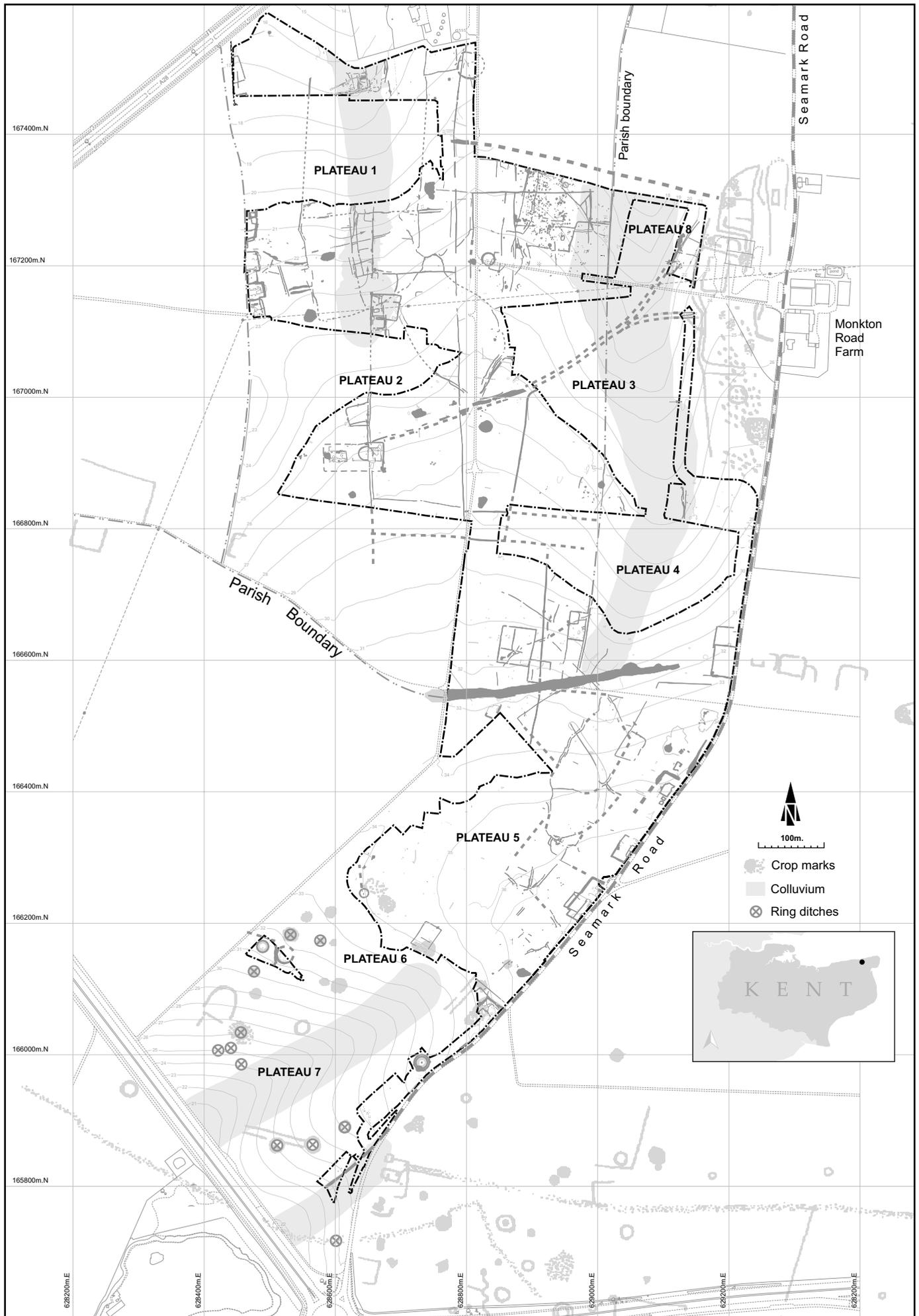
Jon Rady

### Introduction

The development of the country's biggest glasshouse complex by Fresca Group Ltd on land at Monkton Road Farm between Birchington and Monkton on the Isle of Thanet, led to one of the largest open area excavations ever conducted in Kent. In September 2007, Canterbury Archaeological Trust was commissioned by the appointed principal contractor (Fitzpatrick Contractors Ltd) to undertake the archaeological investigation of the site on behalf of the developer.

The 'Thanet Earth' development is extensive, covering 90 hectares (about 220 acres) of previously open agricultural land. Its creation was to involve the erection of seven industrial scale greenhouses (one bigger than Terminal 5 at Heathrow), a packhouse, a research and education centre and the construction or excavation of associated roads, drainage and other infrastructure.

The site (TR 289 667 centred) lies on Upper Chalk subsoil on locally higher ground (between 16 and 37m OD) on the western side of Thanet and extends along the western side of Seamark Road from the Monkton roundabout to the south, up to Monkton Road Farm at the north, with the western part of the site extending further northward to the A28 dual carriageway. From the south the land rises to a high relatively flat zone, roughly covering the central part of the area, then gradually falls away to the north, to



its lowest point at about 16m OD. These slopes are cut by four shallow dry valleys, two on both the north and south sides, all generally trending north–south, with each containing spreads of Head Brickearth according to British Geological Survey; this material proved to be colluvial in origin.

Preparations for glasshouse construction required the formation of eight extensive plateaus, seven for the greenhouses and one for the packhouse (plateaus 1 to 8), each about 80,000 square metres in area. These involved considerable remodelling of the landscape through cut and fill works, hence the necessity for archaeological investigations. The higher parts of each area were to be excavated to formation level, and the resultant spoil placed on the lower areas to form a consistent level horizon across each site. Levels of each plateau were calculated to ensure that no excess material would need to be removed off-site; topsoil was replaced on each site once levelled. Apart from the glasshouse plateaus, seven large ponds (for the collection and re-use of rainwater at each facility), three overflow ponds and a new access road along the eastern side of the site also required substantial excavation of subsoil. The earthworks eventually involved the stripping, storage and replacement of 142,000 cubic metres of topsoil and the excavation, redeposition and compaction of about 740,000 cubic metres of chalk subsoil (approximately two million tonnes).

Due to the high archaeological potential of the area, Kent County Council's Heritage Conservation Group advised Thanet District Council that provision should be made for the preservation *in situ* of known important archaeological remains, and prior to the development, for mitigation by archaeological excavation where preservation was not possible. Thus, the lower parts of each plateau were to remain mostly undisturbed and sealed beneath fill (with the original topsoil left *in situ*), while the higher areas providing the fill and the areas of the ponds and new roads, would all require archaeological examination (this explains the often odd shapes and various sizes of the excavated areas, which were determined not only by the extent of each plateau but by the position of the 'cut/fill' line which followed the physical contours of the landscape). In the event, about 47 hectares (nearly half a million square metres) were examined archaeologically.

The main phase of archaeological works on site, which have just been completed at the time of writing (October 2008) was preceded by extensive trial pitting (under archaeological supervision), fieldwalking and metal detector survey; a large scale formal archaeological evaluation was not deemed necessary. The main investigation, carried out to a specification supplied by Kent County Council's Heritage Conservation Group, commenced in mid October 2007, and has eventually taken exactly a year to complete. This report details the investigations up to the end of April 2008 with a brief summary of the more general results. A more comprehensive description of the archaeological remains will appear next year.

### Archaeological background

Thanet is remarkably rich in archaeological remains and extensive cropmarks, representing archaeological



Plateau 2 and Plateau 4 being topsoil stripped. Note the 'windrows'. Looking east.

features, are known from aerial photographs of the site and its immediate environs. These include an extensive spread of the ring-ditches of prehistoric barrows, whose central mounds have been levelled in antiquity. This barrow cemetery extends well beyond the Thanet Earth site, mainly to the east towards and beyond Manston Airport. Ten of these features were examined (by the Trust in 1994–5), either in whole or in part, prior to the widening of the Monkton to Mount Pleasant section of the A253, just to the south-east of the present site (Bennett *et al* 2008). Somewhere between eight and fifteen cropmark-defined ring-ditches lie within the Thanet Earth site boundary, mostly in the area of the southern greenhouse plateaus 6 and 7. Impacts to all but three of these cropmark sites were avoided in consultation with the Kent County Archaeologist by raising the ground level for the greenhouses in this area (hence the relatively small size of the excavations on plateaus 6 and 7).

Cropmarks across the northern part of the site are generally sparse, although there is a concentration around Monkton Road Farm, which indicate enclosures, other lines of possible trackways and a possible Anglo-Saxon cemetery. For this reason, part of the site east of Plateau 3 was left undisturbed by the development. Further enclosures are represented by cropmarks extending both east and west of the centre of the site along the line of the Monkton parish boundary (the site falls between two parishes; Monkton and St Nicholas-at-Wade) and along parts of Seamark Road.

The excavations prior to the dualling of the A253 in 1994 also revealed Neolithic graves and pits, Beaker period burials, a prehistoric pit alignment, a unique Roman period settlement with associated hollow ways, an Anglo-Saxon cemetery and a small medieval settlement comprising at least four structures, and it was possible that similar remains would exist at the present site. In addition a Scheduled Monument (No 31409) comprising an Anglo-Saxon cemetery and other features is located about 230m to the south-east of the site.

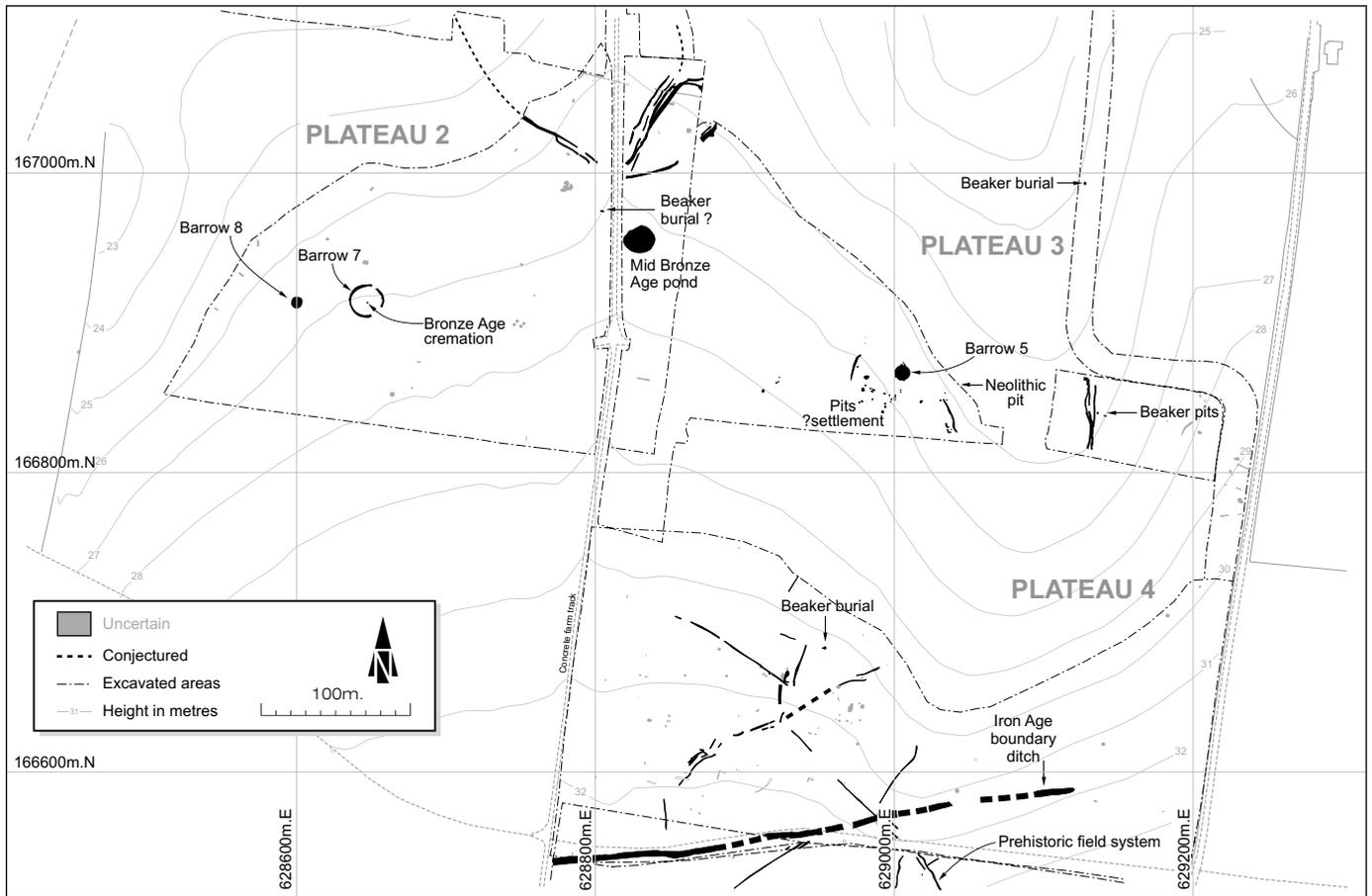
### Strip and map

The strip and map phase of the operation, which was under virtually constant archaeological supervision, commenced on Monday 15 October 2007 with Plateau 4, in the centre of the site (the area to be stripped had previously been set out by Fitzpatrick's surveyors). Further plant was brought in as the work progressed, so work was eventually carried out on a number of plateaus simultaneously. Operations began at 6.30 am and progressed until dark, virtually a twelve-hour day when light allowed.

The method used for the removal of the topsoil on each plateau involved the formation of long bunds or 'windrows' of topsoil. These were formed between the cleared strips so that alternate bands of stripped areas and windrows were formed. The windrows themselves were later removed by large excavators (36- and 46-tonne machines were eventually used for this) and 30-tonne dumpers transported the spoil by running on the windrow itself. One advantage of this system for the archaeologists was that the dumpers did not have to haul on the original, relatively thin topsoil surface, and rutting and disturbance of the subsoil and any possible archaeological features was avoided. For the contractors, because the windrows were of considerable thickness (usually over a metre or more), the system meant that operations could continue, up to a point, in more unfavourable weather conditions.

Archaeological features, or any anomalies that might represent artificial disturbance, were marked out with spray paint and survey flags to assist in their future location, and shortly after exposure were surveyed using a Global Positioning System (GPS).

Operations continued with the topsoil strip of Plateau 2 on Monday 29 October with two 46-tonne machines, followed by Plateau 5 on Thursday 8 November. The topsoil strip of the new access road along the eastern boundary of the site also commenced during the second week of November, and all of these areas (and others) then progressed, often in tandem until they were completed, although priority was given to the



Prehistoric features.

completion of Plateau 4 (destined for the construction of the first greenhouse).

Towards the end of 2007 and into early 2008, the progress of topsoil stripping became more intermittent and more complex. Archaeological excavation had already begun on plateaus 2 and 4 and as areas were cleared, the contractors were allowed to begin the formation of the greenhouse platforms by removing subsoil. In addition, the diversion of a number of major services was required before construction of the greenhouses could begin, which meant that the clearance of easements for their realigned positions was then given priority.

By the end of the first week of April, the bulk of the topsoil strip of the site had been completed,

although further areas to be stripped included most of Plateau 7, the concrete farm tracks that crossed the site which had been used as haul roads, areas of Plateau 8, the remainder of the ponds north of Plateau 5, and parts of Plateau 6, which had been increased in size due to changes in the formation level of that area. The final part of the site (a small corner of Plateau 8) was eventually topsoil stripped at the end of September 2008.

**Excavation**

Generally, prior to any excavation taking place on exposed remains in any area, a sample excavation strategy based on the strip and map plan was

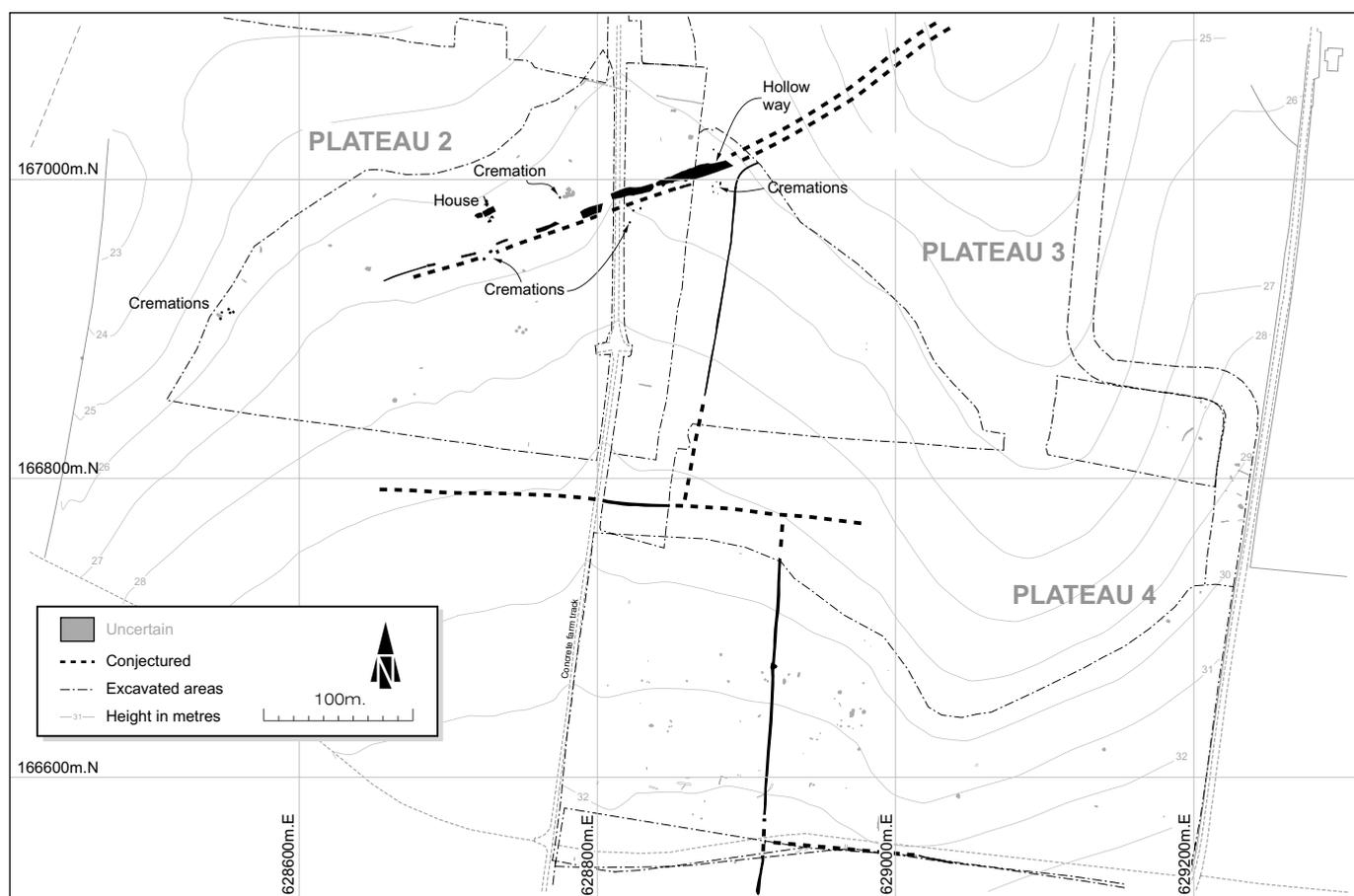
formulated and submitted to KCC for approval. An exception was made for burials or potential burials which were exhumed as quickly as possible after exposure, usually within 24 hours. Briefly, the strategies required various levels of sample excavation dependent on the type or potential significance of the various features exposed. Linear features such as ditches were excavated at a sample of about 10 per cent of their length (normally 2m wide slots every 20m, but also to include all bends and terminal ends), while the complete excavation of structural features (buildings, hearths etc) and burials was required, as well as the investigation of all intersections of features with one another. Certain features which eventually came to light, such as



Recording a sample slot through an enclosure ditch on Plateau 4. The area behind has been reduced to the level of the new greenhouse.



The eastern end of Plateau 4 showing 'periglacial' features and medieval enclosures (left). The white van is next to the Second World War structure which is under excavation.



#### Roman features.

the ring-ditches, or discrete features of significant interest were sampled more intensively, others such as the large quarries, of which nearly twenty were finally located, less so. Excavation and recording of features in the field was carried out in tandem with a detailed environmental sampling strategy (see pp 48–49), with over ten tonnes of soil from hundreds of features having been processed to date.

During the first week of excavation of Plateau 4 an agreement was reached with KCC which was to have a considerable bearing on the way the site was investigated. If the timescales for the construction of the greenhouses and their associated infrastructure were to be met, work on levelling the platforms would need to begin promptly, but after topsoil stripping it became evident that the concentration of archaeological features over each site was too great for this to be achieved, even with a large workforce. However, certain areas were relatively devoid of archaeological remains, and it was agreed that these areas could be handed over to the contractors prior to the completion of the entire plateau, once all the necessary archaeological interventions and recording had been completed. As a result of this agreement, on Friday 14 December, the earthwork contractors began removing the subsoil to formation level at the far western end of Plateau 4 which by this time had been cleared of archaeological features; archaeological work carried on in the immediately adjacent part of the site. This methodology was henceforth used for the remainder of the archaeological fieldwork, with KCC officers visiting regularly to 'sign off' areas.

During the course of the works, seventy-six separate areas were eventually cleared in this manner.

#### Plateau 4

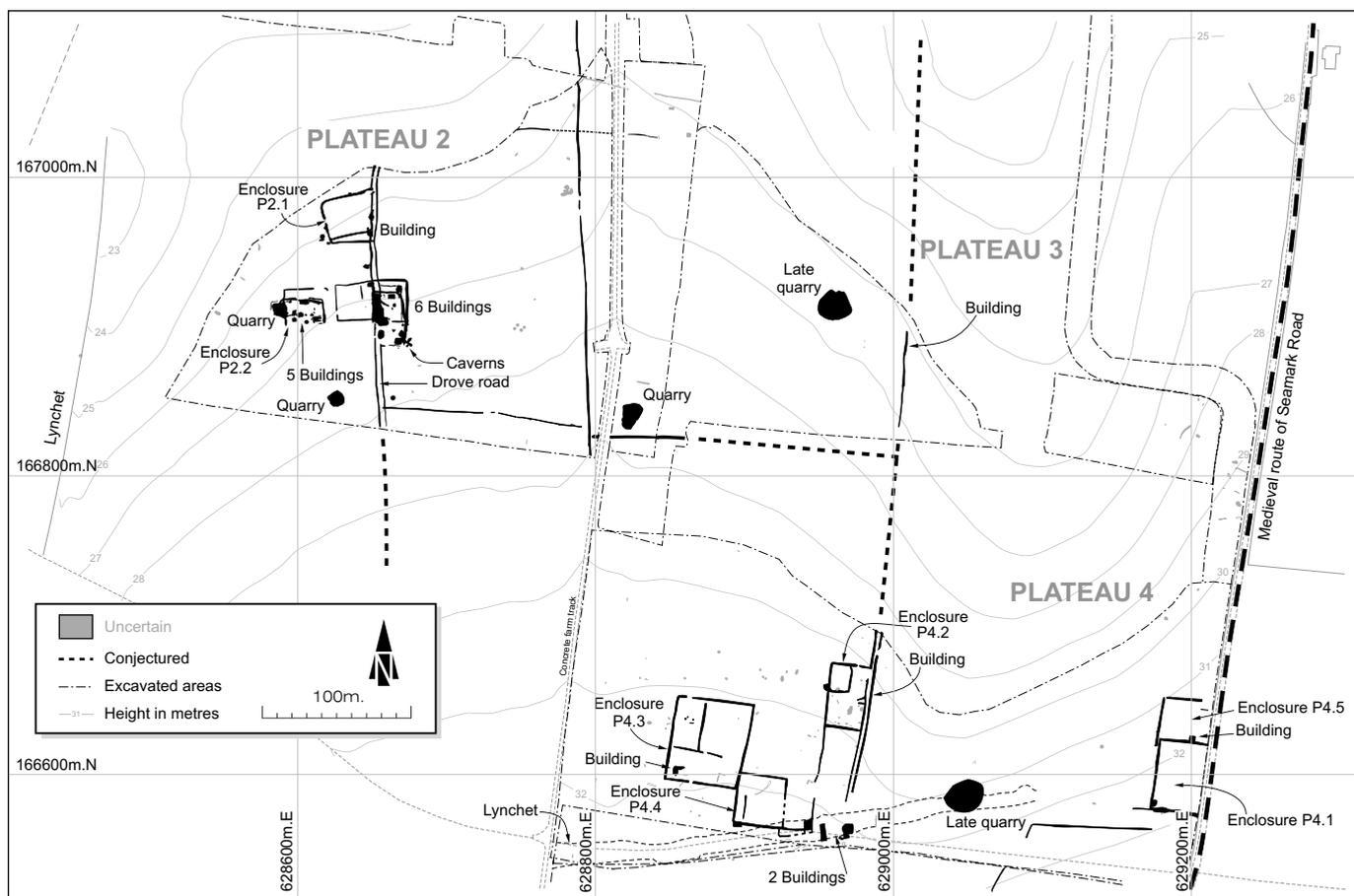
The strip and map of Plateau 4 gradually revealed an extensive spread of features, mainly to the west of the shallow valley that trended north–south through its centre. The subsoil in this area was not clean, solid chalk, but mostly a very variable clayey brickearth, with areas of sandy or gravelly brickearth and occasional chalk outcrops; the rest was degraded or weathered chalk. In the lower part of the valley a spread of colluvium was exposed. This extended from the north to south edges of the stripped area and was about 60m wide at maximum. To its east, the subsoil was a relatively homogeneous chalk, although still disrupted by periglacial features forming wide linear and parallel bands of clay, resembling 'tiger stripes' from the air. These did in fact extend over virtually all of Plateau 4 and elsewhere, but were not so visible in the more variegated areas of subsoil, and often hidden by other large natural features such as solution hollows, some of which were also investigated archaeologically: one on Plateau 2 proved to be particularly interesting (see below). Formal excavation of Plateau 4 commenced on Monday 26 November with a small team, augmented over the following weeks; eventual staff numbers on this and other areas was about 45. Work on the plateau was completed on Monday 17 March 2008.

#### Prehistoric features

Apart from one possible Neolithic pit which yielded five pottery sherds of what has been provisionally identified as Grooved Ware, an isolated Beaker period burial was possibly the earliest feature found in this area, located in the western zone of the site towards its northern edge. The sub-rectangular grave, which was not recognized as such during the strip and

Beaker burial on Plateau 4 with inset detail of beaker. Scale 0.5m.





#### Medieval features.

map phase because of its pit-like shape, contained a single decorated beaker at the foot of the badly preserved skeleton.

Also in the western area of the plateau, traces of shallow meandering and intermittent gullies, at a 45 degree angle to a later, medieval field system in the same area (below), often appeared after weathering of the surface. These occasionally occurred in adjacent pairs, suggesting that they represented drove roads for livestock. These features, which are a northwards extension to a more complex arrangement revealed on Plateau 5, remain to be dated with any degree of confidence but are almost certainly prehistoric.

#### Medieval features

The most obvious features exposed on this plateau were ditches comprising elements of what originally appeared to be a later prehistoric field system and associated enclosures, most of which surprisingly turned out to be medieval in date. West of the valley, and respecting the position of the colluvium, the system was defined by near north-south aligned ditches, with two closely spaced (c 3m) ditches on the eastern side forming a probable drove road. This boundary, also later found as a discrete linear feature to the north on both plateaus 3 and 8 was, or became, the parish boundary between St Nicholas-at-Wade and Monkton. The drove road ditches formed the eastern side of a long but relatively narrow, subdivided rectangular enclosure (Enclosure P4.2) measuring approx. 25 by 40m, with a conjoined enclosure or field to its south. The enclosure contained a concentration of

pits and other features suggesting some occupation or settlement activity within it. To the west were a further two interlinked enclosures (P4.3 and P4.4), the former just over 50m square. Generally, these contained few features but, in the south-western corner of Enclosure P4.3, a large (6 x 3.5m) irregular-shaped feature contained a circular area of burning which appeared to represent an oven. This feature proved, on excavation, to be the first of a large number of medieval sunken-featured buildings of a rare type only previously found

in Kent (described in more detail below). A perhaps more standard post-hole structure about 6m long was also found in the north-west quadrant. Enclosure P4.4 was also later found to have yet another sunken-featured medieval building (of different form to the above) on its south-western corner, but here the building cut through the backfilled enclosure ditch. To the south, the system was bounded by what was originally thought to be either a hollow way or a wide negative lynchet that spanned most of the plateau.

The first medieval sunken-featured building to be found on the site (Plateau 4), with the large oven in the far corner. Looking south.



To the east of the valley, on the chalk, another ditched enclosure (P4.1) and a northward extension of it (Enclosure P4.5) were also of medieval date. The enclosures, about 77m across north to south but extending beyond the excavation area to the east, were aligned with Seamark Road. Topsoil stripping of Plateau 5 and the access road to the south showed that these were the northernmost of at least six often multi-phased medieval enclosures aligned in a ribbon development along Seamark Road. Although the inner area of the Plateau 4 enclosures was almost completely devoid of archaeological features, the northernmost ditch of enclosure P4.1 was cut by a large (5.5 x 4m) rectangular feature found to be yet another medieval sunken-featured structure, though of a different type to those found to the west (see below).

As part of the excavations phase, both the colluvium and the east–west aligned lynchet or hollow way along the parish boundary were investigated. Colluvium, or hillwash deposits, mostly appearing to derive from the later Neolithic to early Bronze Age period in Kent (Green *et al* 2004) can either cover earlier features or encapsulate archaeological sequences within their make-up. The colluvium was therefore tested by the mechanical excavation of two trenches, later augmented by others. No features were found to be sealed by the colluvium, which was of variable thickness (generally less than 0.5m) and although no evidence for significant archaeological horizons within it were discerned, it was clear that its upper portion had been weathered and probably disturbed by other agencies such as bioturbation. This effectively masked any archaeological features that had cut through it. Since very few features were found to be masked by the colluvium in this area, not all of the material was removed, as was the case on plateaus investigated later.

Numerous trenches were also cut by machine across the western end of the lynchet or hollow way that traversed the south side of the plateau. These demonstrated that the wide feature consisted of a negative lynchet, probably formed in the post-Roman period due to the presence of a substantial underlying ditch, about 3m wide and over 2m deep. This ditch, which was sealed beneath the lynchet fills, almost certainly had an associated bank on its south side, now completely eroded, and marked the line of the parish boundary between Monkton to the south and St Nicholas at Wade to the north; this survived as a footpath. In terms of function and date, the ditch remains one of the more enigmatic features on the site, but further investigation suggested that it was almost certainly of prehistoric date, probably Iron Age.

This trenching had demonstrated that the lynchet deposits were masking potentially important features and much of the remainder of its fill in Plateau 4 was therefore removed in a second phase of strip and map. This not only revealed another two sunken-featured medieval buildings, both cutting across the line of the earlier, infilled prehistoric ditch and possibly erected here because of the shelter of its associated bank, but an elaborate arrangement of intercutting ditches forming the southern extent of the medieval fields and enclosures previously exposed

to the north. Both of these new structures were of particularly unusual design and substantially different to any of the other buildings that had already been examined (see Summary below).

#### *The Second World War structure*

On the northern edge of the plateau, just east of the colluvial spread, was a large (about 10m long) irregularly-shaped modern feature aligned approximately east–west, containing brick rubble and other detritus. This would not normally have aroused particular interest, except in this case the feature was served by shallowly-buried cables that extended across the entire plateau from east to west, and that eastwards were aligned on Manston Airport (about 2km distant), an important aerodrome during the Second World War. This suggested that the feature may have been the remnant of a wartime structure.

Careful excavation with a mini-digger right at the start of the excavation showed this to be an underground partially brick-built structure, with two chambers, a corridor and steps leading down to its concrete floor. Most of the upper part of the building had been broken up and pushed into the eastern brick-built room and corridor. A large rectangular unlined chamber cut into the solid chalk to the west, and filled with soil which had been backfilled against planks blocking its door to the corridor, was excavated by machine the next day. Another concrete floor in this chamber had moulded gullies around its perimeter and transverse scars suggesting the presence of five rectangular objects.

Staff at MOD Manston were invited to see the remains and considered them to be a 1940s airfield radio approach beacon to guide aircraft into Manston airfield. Wing Commander David Lainchbury was able to identify the structure via the still extant mains electricity cables, signs of a back-up generator and heavy duty batteries, these having caused the scars on the concrete floor, the gullies around the edge for containing any spilled battery acid. The facility was probably deliberately demolished in the 1960s when better communications equipment became available.

## Plateau 2

At first sight, most of the stripped area of Plateau 2 revealed what was considered to be relatively straightforward spread of features, with (apart from the central area of the plateau) a lower density of remains than Plateau 4. However, the subsoil in this zone, although similar to the western side of Plateau 4, was more heavily fractured by clay-filled periglacial features which in some areas merged to form sheets of intractable flinty clay; this made the identification of man-made intrusions all the more difficult. In the central zone of the site, which eventually turned out to have some of the most complex remains investigated at Thanet Earth, a network of ditches seemingly forming at least two enclosures was revealed. These enclosed a semicircular length of ditch, interpreted as part of a prehistoric ring-ditch about 23m in diameter, and other features.

Following the strip and map, large parts of these enclosed areas were thought to be disturbed or almost completely excised by quarries. This was particularly so with the enclosure to the west, where its ditches appeared to be cut by a large uniformly filled feature, 33m long and nearly 20m wide (Quarry 2), which was very similar in shape to some of the other quarries that had by this time been exposed. To the east however, the ditches, including a north–south aligned pair forming a probable drove road, were interrupted by a near square disturbance 20m across that also respected the ditch alignments. This enigmatic feature was also provisionally interpreted as a quarry (Quarry 3), although it was so regular in shape that this was thought to be unlikely.

Both of these anomalies were tested by machine-cut trenches during the second week of March, after sufficient hand investigation of nearby features had allowed for machine access. Most of Quarry 2 proved to be a shallow hollow, probably formed by intense settlement activity in a restricted area eroding the relatively soft, fractured chalk and clay subsoil. Once the settlement had been abandoned, the resultant hollow had naturally filled with topsoil. Rather than continue the proposed machine trenching, which



Second World War building on Plateau 4. Looking west.

would have proved detrimental to the remains, the entire area was subjected to a careful strip and map, followed by extensive hand cleaning. The old topsoil was found to overlay a complex of medieval sunken-featured buildings and associated features, including a well, various pits and a smaller, subrectangular quarry at the western end of the area. Surprisingly, a small prehistoric ring-ditch (Barrow 8) was also found among and beneath the medieval features.

Quarry 3 also proved to be an erosion hollow, formed in a similar fashion to that to the east, but here its regular shape had occurred due to the restriction of the erosion to within a previously hidden enclosure. The old topsoil within the hollow was also stripped carefully by machine in a number of stages, and subsequent hand excavation revealed fragmentary remains of the eastern half of the prehistoric ring-ditch and a complex sequence of ditches, small quarries and other features, yet further medieval sunken-featured buildings and most surprisingly of all, two small systems of underground passages and chambers. The resultant stratigraphy in this area, most of which proved to be of medieval date, was more similar to what might be expected in an urban situation.



The underground chambers as found on Plateau 2. Looking south-east.

Although there was some earlier investigation of known and potential cremation burials (see below), excavation of Plateau 2 began in earnest on Wednesday 16 January, by which time the overall staffing levels were over 30. It was to continue for five long months, finally being completed on 15 May. Work began in the south-eastern quadrant of the plateau west of the concrete farm track (known as Area 2; the eastern side, contiguous with Plateau 3 was not stripped till some time later), with the aim of clearing a large part of the site so that the contractors could progress the earthworks. A similarly clear area on the western side (Area 1) was tackled somewhat later, with the central complex area left till last. This was dealt with by a large team of excavators from the beginning of March, who in the later stages of the work, when there was considerable urgency to complete the plateau, were contained within a continuously shrinking stump of ground surrounded by site machinery.

#### Prehistoric features

Apart from one crouched inhumation burial of probable early Bronze Age date (found towards the eastern side of the plateau), the main prehistoric remains consisted of two ring-ditches, probably

representing burial mounds of mid Bronze Age date, both located within the central medieval enclosures, and a pond. The larger of the two ring-ditches (Barrow 7, about 23m in diameter) possessed a heavily truncated cremation burial near its centre, but the smaller (Barrow 8 at only 7m diameter) was internally featureless.

At the request of KCC, some of the geological features in the eastern half of Plateau 4 and the adjacent service road were examined towards the end of January by machine-cut trenches. One of these was reminiscent in ground plan of a solution hollow or doline. Although such features, formed over time by acidic groundwater dissolving the underlying chalk subsoil (usually at a point of weakness) can originate in a more recent environment, they have long been known to represent potential capture points for palaeolithic artefacts on the high ground, and can therefore represent an important resource for examining activity of this period in the wider landscape. Dr Beccy Scott, a Palaeolithic specialist from the British Museum, recorded sections here and took a number of geological samples, prior to the area being released to the contractors.

Although the features on Plateau 4 did not yield any significant information of early hominid or later activity, two other potential solution hollows on Plateau 2 were examined two weeks later under the direction of Dr Scott and geologist Dr Peter Allen. The first feature, in Area 2 to the west of the concrete farm road proved to be shallow and of little interest. The second, east of the road, was much deeper and contained a more interesting sequence, in addition to a find of some significance. Over the following weeks, most of the upper, archaeologically significant fills of this feature were excavated in a combination of careful machine-work and hand excavation.

The feature originally consisted of a large depression or solution hollow of probable Holocene origin, over 40m in diameter and of unknown depth. Filled with clays and silts, probably derived from local run-off, in the Bronze Age period (and probably before) it became an intermittently wet pond, due to the impervious nature of its lower infill. Towards the middle of the Bronze Age period, when the depression had contracted to about 18m in diameter and 1.7m deep, attempts were made to consolidate the pond by the deposition of a layer of flints in the base; although this cobble layer was originally thought to be naturally derived, further excavation strongly suggested that it was laid on purpose. A small hearth filled with burnt flint was cut into the metallurgy, indicating one activity within the hollow, perhaps a favourite spot for sheltering from the cold winds coming off the North Sea. The metallurgy and the layers of immediately overlying silty clay were also associated with a moderate quantity of flintworking debitage.

Despite the consolidation phase the pond hollow appears to have continued to hold water intermittently and to silt up. A copper alloy axe head or palstave was recovered within this silt a few centimetres above the metallurgy. The axe is unlikely to have been a casual loss, given the value of bronze, and may well represent a votive deposition, the ritual possibly intended to placate a deity associated with wet places. The practice of depositing middle and late



The Bronze Age palstave from the pond on Plateau 2.

Bronze Age metalwork in rivers, lakes and wetlands is well documented, although finds of metalwork from the Bronze Age in well stratified archaeological contexts are still not common, so this find is of particular value. In an overview of the period for Kent, Champion (2007, 113) noted that at Thurnham a middle Bronze Age rapier was placed in a waterhole, whilst at Shatterling (a few kilometres to the south of Thanet Earth) a sword of c 1000 BC was 'laid on a bed of pebbles through which water was welling up' (Perkins 1995, 472). The earlier sequence in the pond was capped with a deposit of colluvial material which contained further flintwork and not insignificant quantities of prehistoric flint-tempered pottery.

#### Roman features

Plateau 2 would appear to be one of the few areas at Thanet Earth with a concentration of Roman activity, perhaps focussed on the only Roman structure found during the excavations. A partially metallated and heavily rutted trackway extended across the eastern side of the area on an east-north-east/west-south-west alignment. Pottery recovered from this feature and the position of Roman cremation burials along its course indicate that the route was in use during the Roman period, although it may well have originated



Roman cremation burial on Plateau 2 being excavated.

much earlier. The track, traced for over 100m across the plateau and into Plateau 3, was eroded away further to the west, but its line can be discerned in fragments of ditch and by the location of small groups of cremation burials. These were placed fairly close to the route, mostly to its south. The track must have passed just to the north of the two prehistoric barrows at the western side of the plateau, and its position further west still is suggested by a small group of cremation burials near the edge of the area.

Cremation jar from Plateau 2.



Immediately to the north of this route, in the central area of the site, was the only Roman structure found during the excavations. This feature is of a very rare type for the period, being of sunken-featured form. The structure was rectangular in plan, was about 8m long, c 4m wide and cut about 0.4m deep into the chalk. Two linear depressions in opposing corners of the building contained burnt patches suggesting use as corn-driers or ovens, whilst another circular burnt area may have been a domestic hearth. Two closely set post-holes about half-way along its southern

side may indicate the position of the entrance. The building was also associated with several small pits and drainage gullies, and a larger subrectangular pit to its immediate east.

This structure is closely comparable to a group of twenty-three sunken-floored buildings and other features forming a Roman village found about 1.7km to the south-east on the Monkton to Mount Pleasant A253 road (Hicks 2008, 276). Such structures are extremely rare in Roman Britain, although occasional examples have been recorded. They were dated between the first and third century and an early Roman date is also appropriate for the Thanet Earth example. The buildings of this type are thought to have had low walls of turf or a chalk and clay 'cob' mixture, capped by a simple roof. The isolated nature of this building is of particular interest as a contrast to the Monkton Roman 'village' and potentially also with the apparently more complex farmstead type enclosures of possibly similar date just beyond the north-east extent of this project (see Summary).

#### Medieval features

As on Plateau 4, elements of a north-south arrayed medieval field system were revealed, including, a line of two parallel ditches, not quite bisecting the plateau into equal halves, which extended from the southern edge of the stripped area to its northern margin and again almost certainly representing a drove road for livestock.

To the east of the drove road, a pair of east-west aligned ditches appeared to mark the northern and southern limits of a large rectangular field, bounded on the east by a near continuous ditch that traversed the entire width of the plateau just to the west of the concrete farm road. The field so defined was about 130m wide and 180m long and was mostly sparsely occupied by potential archaeological features although a diamond-shaped cluster of four animal burials was found about 70m to the east of the drove road. The features remain undated (they could well be

fairly recent), but one was unusual in that it contained the remains of five animals, probably sheep, carefully laid out within the grave.



Multiple sheep burial on Plateau 2, date unknown. Scale 0.5m.

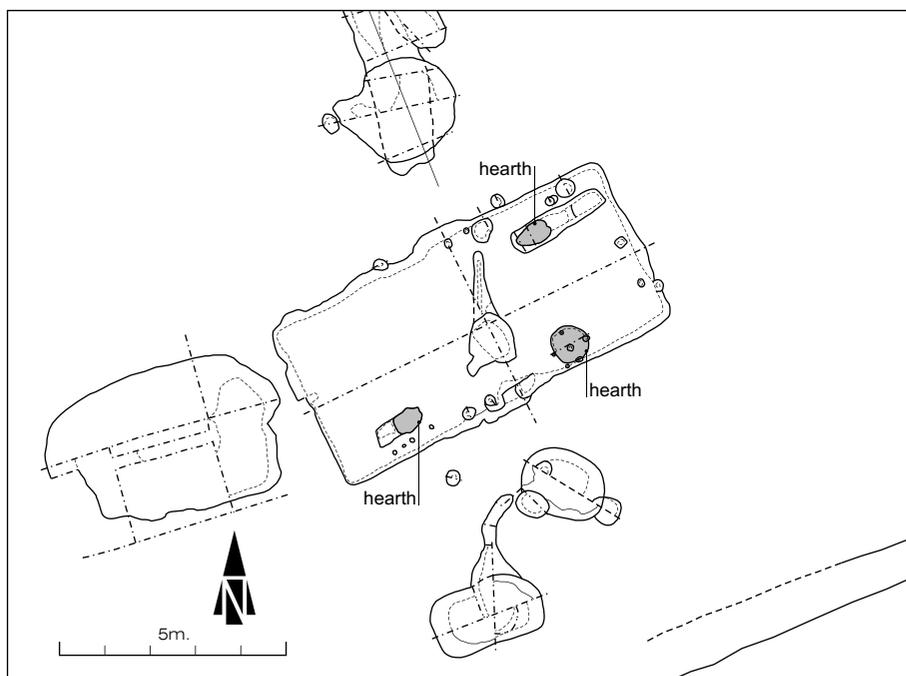
The field system did not appear to extend west of the drove road, a mirror image to the arrangement on Plateau 4, as was the presence of contiguous enclosures, only here extending off to both east and west of the drove road. A near square Enclosure (P2.1), at the northern limit of the strip was about 30m across internally, and was aligned at a slight angle to the field system, although the southern (later) ditch of its double-ditched south side was almost perpendicular. As with some of the other enclosures revealed on Plateau 4, there were virtually no internal features, suggesting perhaps that the enclosure was entirely agricultural in conception, possibly for corralling stock. This is also suggested by the entrance from the drove road into the northern corner of the enclosure, although another gap in the ditch, centrally on the western side may suggest a more complex function.



Plateau 2. Medieval sunken-featured building with a domed oven being recorded.

A subrectangular feature in the south-eastern corner of the enclosure proved to be yet another sunken-featured building, again cutting a ditch, this time the western side-ditch of the drove road. By now it was evident not only that the level of medieval activity across the entire Thanet Earth site was far greater than anticipated, but that a strong pattern to that activity was beginning to emerge.

Further to the south, in the central area of the plateau, were the remains of what appear to be two adjacent enclosed medieval settlements or farmsteads spanning the drove road. Each of the enclosures for these farmsteads neatly enclosed a prehistoric ring-ditch (Barrows 7 and 8), which strongly suggests that these were still visible above ground in some way when the sites were occupied.



Roman structure.



Plateau 2. Medieval sunken-featured building in Enclosure P2.3. An oven in the corner (left) has been cut through by a later enclosure ditch. Looking south-south-east.

The western group comprised a rectangular enclosure (Enclosure P2.2) with ditches probably dating to the eleventh century, which was later reduced in extent to at least two phases of smaller enclosure. There were about six structures within this smaller enclosure plus a well (shown by percussive boring to be c 27m deep). Some of the structures were cut or overlain by one another, indicating that the internal layout of the settlement changed during its occupation, although most of the buildings appeared to be laid out around the edges of the enclosed area, probably facing inward to an open yard. The structures in this area were not all well preserved, but there were obvious varieties of design. Several of the buildings were defined by their slightly recessed rammed chalk floors and two were intercutting. Another chalk floor and most of the western end of the enclosure was almost entirely removed by a quarry, probably one of the latest features in the complex. Buildings of later phases may include a sunken-floored structure in the south-east corner of the enclosure, which had a raised cobble hearth at one end next to a recessed slot containing traces of burning. This was very similar in design to the first structure encountered on Plateau 4 and subsequently elsewhere (see Summary below).

The eastern enclosure (Enclosure P2.3) was on a similar alignment with the early phase of the

enclosure to the west and is likely to have been contemporary as part of a single hamlet or extended farmstead complex. In a similar manner to the western enclosure, subsequent developments in the arrangement of ditches initially contracted the enclosed area, then in a later phase the enclosure was extended to the west to encompass the prehistoric ring-ditch. The reasons behind this later enclosure of a defunct prehistoric monument, if not entirely coincidental, are as yet unclear. Up to six more medieval buildings were found here, an early sunken building (again with a well-preserved oven) in the north-west corner of the original complex being cut through by a later phase of enclosure ditch. Two more sunken-floored structures were located at the north-east angle of the enclosure, whilst a further two possible buildings were located on the southern side. One of these was exceptionally deep at over 2m with undercut sides and a large cobble hearth at the base. Other features in this area included post-pits, large storage pits or quarries and a flint-lined well. As with Enclosure P2.2, the central area of the enclosure was relatively open and its eroded nature may indicate some stock holding within the space.

As excavation progressed in this area, it became apparent that something unusual had occurred in the south-eastern corner of the enclosure. Voids

and collapsing hollows became apparent both at the surface and in the edges of excavated features. Similar voids were noticed during excavation of quarry-like features at the western edge of the area and this led to the extraordinary finding of two separate systems of man-made underground chambers tunnelled into the solid chalk, with their floors at a depth of about 2.5 to 3m or more below the ground surface. The south-eastern complex appears to have been entered via a ramp pit leading to a narrow passage about 5m long into the sides of which three rough subcircular chambers had been cut. These were approximately 2m in diameter and 2m high with domed ceilings. A post-medieval candle was found in one of these rooms but this appeared to be from a later entry: the roofs of the chambers here were very close to the surface and there were indications that a past collapse had opened them up. The set of quarries on the western side of the enclosure appear to have had dual functions, presumably for production of chalk then providing deep pits from which passages and laterally extending cave-like chambers (some of which had also collapsed in antiquity) were then cut into the chalk. At least three chambers were recorded here, some being of such a depth that they have been partially preserved below the greenhouse footings.



Plateau 2. A section through one of the underground chambers being recorded.



Looking out from inside one of the underground chambers.

## Plateau 5

The highest part of the site, comprising Plateau 5 and three large ponds to the north, was topsoil stripped in numerous intermittent stages, with excavation only being completed later in 2008. Much of the plateau for the greenhouse itself, was however cleared by the end of February, excavation having started early during the programme on 2 January. The Upper Chalk over most of the area was covered in thin deposits of clayey flinty silt, possibly weathered remnants of the once overlying Thanet Beds, which made excavation during wet weather difficult. Significant expanses of the site also proved to be covered in a relatively late colluvial aggradation that had accumulated in broad, shallow hollows, and these deposits (which sealed archaeological features) had to be removed by machine.



Plateau 5. The last features on Area 1 being excavated and surveyed.

Most of the features exposed on this plateau were concentrated in its eastern half, with at least two enclosures and other features seemingly aligned along Seamark Road. Further to the west was a complex arrangement of irregular and intermittent ditches, but the regular field systems and enclosures seen to the north on Plateaus 2 and 4 were noticeably absent. Apart from the well defined enclosures along Seamark Road, the majority of the remains on this elevated zone were eventually shown to be prehistoric in origin.

As most of the western part of the plateau was only sparsely scattered with features (Area 1), and with the procedure of clearing as large an area of each plateau as quickly as possible now firmly established, this area was dealt with first, with excavation starting on January 2. By January 9, most of Area 1 had been investigated and the team moved to Area 2, at the eastern side of the plateau; the contractors began reducing Area 1 to formation level.

Area 2 contained the most complex remains on the site of the proposed greenhouse, virtually all prehistoric in date, apart from a very large (42 by 25m) feature at the southern end of Area 2, interpreted as a medieval quarry, which was proved by machine-cut slots (the feature was about 3.5m deep). Most of the features were shallow, suggesting that this part of the site had been more heavily eroded since prehistoric times. Sinuous curving gullies aligned approximately north-south and set in pairs were examined at the north part of the area (and were later found to extend all the way to Plateau 4, continuing the system of ditches found there). These ditches, which can be interpreted as drove roads for livestock were probably associated with an irregular enclosure (Enclosure P5.1).

This enclosure (which was only about 25m across), is the main evidence for prehistoric settlement in this area, with the recovered finds suggesting occupation of mid to later Bronze Age date. Within the focal area on the northern side of the enclosure were a cluster of pits and short ditch sections, the latter presumably associated with close stock handling. No evidence for buildings (such as the usual round-house of this period) was identified, but domestic occupation may be inferred by the density of finds which included Deverel-Rimbury and possibly later

Bronze Age pottery, worked and burnt flint, and the relative density of the pits and other features. The charcoal-rich nature of many of the pit-fills and the presence of pits containing dense concentrations of mussel shell or burnt flints, in addition to burnt cereal grains (recovered from environmental sampling) also suggest settlement. Considering the likely degree of truncation in this area, it seems possible that the open area on the southern side of the enclosure may once have contained structures, all evidence for their post-holes perhaps having been eroded away.

To the south of the quarry and enclosure, where the area was heavily eroded, other alignments of paired gullies appeared to converge, from the north-east, north-west and south-east. The eroded nature of this area and the presence of other features in this location may indicate another area of activity.

### Service road

The service road, which was to become the main means of access to the greenhouse complex, and which extended along the eastern side of the site from near the Monkton roundabout to Monkton Road Farm, was stripped fairly early in the programme. Although the road itself was not destined to be

completed until well into 2008, most of its length had to be cleared fairly urgently, since not only was the easement required for the diversion of important services, but once the plateaux had been prepared for greenhouse construction, this was one of only two routes across the development from north to south. For the development to go ahead on schedule, the release of long sections of the service road, to be used primarily as a haul road for the removal of spoil to plateaus 6 and 7, as well as access to the greenhouses themselves, was crucial.

Unfortunately, the route adjacent to plateaus 5 and 6 in particular, proved to contain quite a high density of archaeological remains, including the medieval enclosures mentioned above. Also, located on the road adjacent to Plateau 6 was yet another complex of overlapping enclosures with potential buildings within or nearby, (previously visible as cropmarks) and further south, the eastern half of a double ring-ditch (exposed at the end of November) representing one of the many barrows known to exist in this area.

Excavation of features on the service road commenced at the beginning of February, when Area 2 on Plateau 5 had been completed, starting with the enclosure revealed just beyond the north-



Medieval enclosures on Plateau 6.



Excavation of Barrow 1, looking south.

eastern corner of the plateau (Enclosure P5.2) and other features immediately to the north.

Later in the month, the western half of the ring ditch was stripped, to reveal the plan of the entire monument (Barrow 1). This was in accordance with the archaeological specification, since although the western half of the barrow was not destined to be disturbed, the specification required that all major archaeological features, if only partly exposed within any area (or within two phases of the development), would be fully excavated in the first phase of works.

The excavation of the ring ditch, and its potential central burial in particular, began immediately after it had been fully exposed. Work concentrated on the eastern half, which would be substantially disturbed by the development, and where any features and ditches were to be fully excavated. This half of the monument was dealt with by the beginning of April. The western segment, which was not under any immediate threat, was subsequently completed by volunteers supervised by professional staff.



Barrow 1 after topsoil strip. North at top.

#### Prehistoric features

Although another Beaker burial was found in the service road easement adjacent to Plateau 3 (with other scattered features along the route) the primary prehistoric discovery was made adjacent to Plateau 6 and comprised the first barrow located during the investigation. Barrow 1 was a relatively unusual double-ditched monument (although others are known from cropmarks to the east and one was partly

excavated just to the south-east in 1994; Clark and Rady 2008) situated on a low ridge between two dry valleys. The monument consisted of two concentric ring-ditches, the inner *c* 20m in diameter, and the outer about 25m in diameter with a consistent berm of *c* 1m between the ditches suggesting that they were intended to accurately respect one another. Both ditches were also of near identical form, approximately 2m wide and about 0.8m deep with carefully cut flat bases. Given their similarity and the consistency of the berm, it is thought that both may have been extant at the same time. Therefore the barrow either had two ditches from the outset or a second ditch was added, while the first was still clearly visible, during a phase of barrow modification. Unfortunately the ditches produced few finds, only a handful of prehistoric pottery sherds and a collection of snail shells, and it will be probably be impossible to establish if one ditch was older. The fill sequences of both ditches were also very similar with lower and middle fills comprising chalk rubble with some silty lenses presumably derived from erosion of the barrow mound and with upper brown soil layers, which may have derived from the surrounding ploughsoil at a much later date. A large Roman quarry pit, which cut through the southern area of the barrow, was filled with identical soil.

An oval pit *c* 2.5 long and 1.3m wide in the centre of the barrow represented by far the most substantial burial pit within any of the Thanet Earth barrows. The grave, 0.8m deep, mostly contained a very dark and recent looking fill which appeared at first to indicate that the burial had been robbed or interfered with, a possibility that appeared more likely when the disturbed bones of a child were found within the upper fill. However, the complete skeleton of an adult was found intact at the base, that of a large male about 5ft 10in tall, laid on his side in a crouched position typical of Beaker period/early Bronze Age burials. A crushed but complete pottery vessel found by the feet was of the distinctive cylindrical and highly decorated beaker type (which lend their name to the 'Beaker period', from *c* 2500 to 1700 BC). Crouched burials of this period are commonly associated with a beaker and sometimes other placed items. In this case the burial contained a stone wrist-guard perhaps used to protect an archer's wrist from the bow string

(under the left arm), and a copper dagger (below the right shoulder). This combination of items is typical of the Beaker period 'burial package' representing an apparent affinity with archery, the first manufacture and use of metal and possibly the first alcoholic drinks (beakers are thought by some to have been containers for honey-based mead).

The deposits within the grave suggested the possibility that this was a secondary burial. At the lower level and around its edges, the grave was filled with horizontal bands of dark soil interleaved with a



The central burial of Barrow 1.



The stone wrist guard, bronze dagger and beaker sherds from the burial.



Barrow 1 fully excavated. Looking south-south-west.

chalky fill. The central part of the grave however was filled with the more uniform, dark deposit visible at the surface, with a crisp vertical relationship between this deposit and the banded fill, where they were physically related in the lower c 0.5m part of the grave cut. Therefore it appears most likely that the burial was within a secondary recut through an earlier grave whose remains had been completely removed. The earlier grave was thus only represented by the surviving banded fill along its edges. That one burial apparently replaced another is of interest for the interpretation of the double ring-ditch since it is now possible that the barrow was re-modelled with a new ditch dug when the second burial was inserted.

#### Medieval

Elements of five medieval enclosure complexes parallel to Seamark Road were completely or partially excavated along the line of the access road fairly early in the programme. The enclosures, all different in detail, seem to be unusual in a number of ways. Their

almost moat-like ditches were often very large and deep (enclosure P5.6 had a ditch 5m wide and 2m deep), but this would not appear to be for defensive purposes as some of the enclosures were either open at one end or L-shaped in plan. This incompleteness does not seem to represent an abandonment of their construction however, since the terminal ends of the ditches were always well-formed, and in some cases, such as Enclosure P5.2, the circuits were 'closed off' in a later phase.

Most of these complexes contained sunken-featured buildings of various types with at least seventeen eventually being recorded. Although finds from the structures were often relatively few, one building in Enclosure P5.3, produced a near complete thirteenth-century jug. Another interesting find from this area was made by metal-detector, to the south in the Enclosure P6.3 complex. This was a very well preserved 'vessica'-shaped seal matrix, possibly made of silver, probably dating to the fourteenth or fifteenth century (Simon Holmes, pers comm).

Its inscription reads S.RICHARD.DEE.CANTA, and probably belonged to a merchant or landowner.

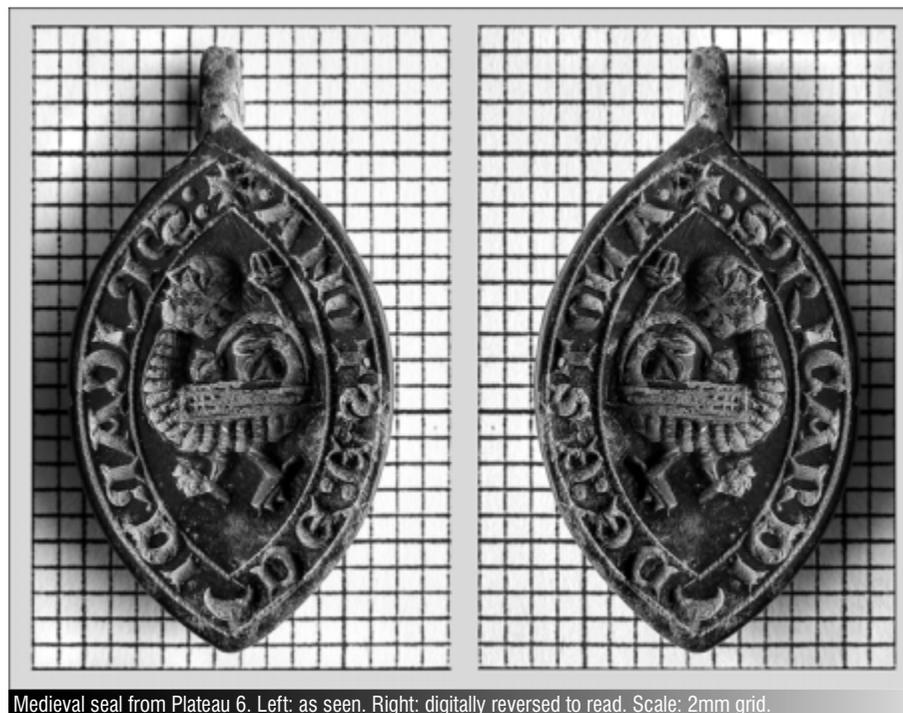
#### Summary

The considerable task of collating, analysing and interpreting all of the information recorded (over 13,000 individual contexts) during a year's fieldwork at Thanet Earth has only just begun, but it is clear that a remarkable sequence of features, spanning over 6,000 years of landscape history, use and development has been revealed. Some details of four areas have been given above, but the rest of the site (plateaus 1, 3, 6, 7 and 8) remains to be described. Only a brief summary can be given here.

Although there is no known evidence for Palaeolithic or Mesolithic activity on the site, some evidence for the latter period in particular may be present in the worked flint assemblages as residual material from later features. The earliest demonstrable remains, of early or mid Neolithic date (fourth millennium BC) consist of at least thirteen pits together with several other potentially related features on plateaus 1, 3, 6 and 8, which suggest that there was at least some small-scale occupation of the landscape in the period.

For the later Neolithic/early Bronze Age period, six barrows and seven typical 'Beaker burials' (burials with intact beakers) in addition to two associated burials without Beakers have been found during the Thanet Earth project; a pit containing a beaker where the skeleton appears to have completely decayed can also be included. Three other crouched burials and two other inhumations in barrows, all without grave goods, may also belong to this phase. Thanet has a particularly large number of prehistoric burial monuments, although the majority of these are only known from air photographic evidence and only around a dozen Thanet Beaker burials have previously been excavated (Moody 2008, 81) so the

A thirteenth-century jug from one of the sunken-featured buildings on the service road.



Medieval seal from Plateau 6. Left: as seen. Right: digitally reversed to read. Scale: 2mm grid.



The hollow way, forerunner of Seamark Road (Plateau 7).

project has the potential to contribute significantly to our knowledge of burials and burial monuments of the period.

Two other barrows probably dating to the middle of the Bronze Age have also been found (Plateau 2), and it is from this period and the later Bronze Age that perhaps the first evidence for large scale land management and agriculture can perhaps be seen, with field systems and drove routes extending across much of the site. Settlement of this period was however still sparse, and it is not until the mid Iron Age that significant occupation emerges. This settlement, on Plateau 8 towards the north of the site, was intensively occupied from c 500 BC to 300 BC but may have originated earlier with some occupation to at least c 100/75 BC. The settlement is represented by a number of structures, including at least one possible round-house, nearly 400 pits of varying sizes and at least 350 other features including twelve inhumation burials; as on many other Iron Age settlement sites, some of these were found in pits or ditches.

For a site the scale of Thanet Earth, the concentration of Roman activity is surprisingly low, with only a single structure found on Plateau 2. Ditches representing possible field systems, particularly on Plateau 8, may however belong to this period, perhaps developing from earlier layouts (in the same way as the hollow ways may have developed from earlier routes). Cremation burials on plateaus 1, 2, 3 and 8 either isolated or in small groups strung along trackways, or on Plateau 8 within a possible mortuary enclosure near Barrow 6, attest to a greater concentration of settlement, perhaps just outside the margins of the examined area. In this regard it is likely that the extensive cropmark complex around Monkton Road Farm dates to this period and may represent a substantial settlement: a topsoil strip for the easternmost area of Plateau 8 exposed linked Roman ditched paddock-like enclosures and another hollow way that appear to represent the western extent of the activity. The site may have its origins in the later Iron Age, as a small cluster of twenty-nine unusual inhumations (and one cremation burial) in the same area may potentially date to this period; such burials are rare in Kent.

The subsequent Anglo-Saxon period is only

marginally represented at Thanet Earth, although at least two, possibly four, sunken-featured buildings of the later fifth or early sixth century AD were found clustering round Barrow 6 on Plateau 8. This monument seems to have been a focus of attention in the Roman and Anglo-Saxon periods. Three inhumation burials, one an unusual double interment within a small (c 5m in diameter) ring-ditch at the eastern end of Plateau 8 may also belong to this phase.

If the Anglo-Saxon period was defined by a relatively low density rural settlement pattern this trend was spectacularly reversed in the medieval period with a proliferation of dispersed hamlets or farmsteads across the Thanet Earth site. Seamark Road appears to have been a track or road from at least the beginning of this period, since a series of medieval enclosures, buildings and flanking ditches have been identified and excavated within the project area along the road's western edge. All appear to date from between the eleventh and early fourteenth century. Evidence for the route itself was found where Seamark Road now bends eastward as it approaches the Monkton roundabout. Here, the original route continued on a south-west line straight towards Monkton church in the form of a hollow way

with flanking ditch, investigated in the south-east area of Plateau 7.

Further enclosure complexes bound the east–west aligned Monkton parish boundary, and on the western side of the site with two north–south alignments probably following drove roads or trackways. Over thirty such enclosures have been identified. Although few of the enclosures are exactly the same, many possess similar characteristics, often a paucity of internal features, an association with structures and the presence of wells and quarrying activity. A complex development is suggested however. Although over sixty potential medieval buildings have been revealed at Thanet Earth it is unlikely that all were in use at the same time, as in some cases the structures pre-date the enclosures, while often the structures themselves cut backfilled enclosure ditches, usually in the corner of the enclosed area. The latter case seems to be a common trait, demonstrated on Plateau 2 in Enclosure P2.1, which intimates that the enclosed areas must still have been defined, probably by hedges or banks, even though the ditches were partly or completely backfilled.

Perhaps one of the most extraordinary aspects of the investigations at Thanet Earth are the structures themselves. Sunken-featured buildings of this type and period seem to be an entirely Kentish phenomenon with only about ten, all confined to the northern Kent area and Thanet in particular having been previously found (Jörn Schuster, pers comm; Oxford Archaeology 2008); one was excavated by the Trust at Ickham in 2002 (Linklater and Sparey-Green 2004).

With a few exceptions, the Thanet Earth buildings were all sunken-floored to varying degrees, and usually subrectangular in plan. One of the main forms, with at least fifteen representatives, is identical to the type located elsewhere in Kent, these containing circular ovens with cobble hot plates and an adjacent smaller hearth at one end of the structure; layers of ashy material from the ovens was sometimes found on the floor of the structures. Some have steps or a ramp down to the lower level, often bordered by two post-holes that must represent a door frame. Otherwise there is very little evidence for the form



The medieval sunken-featured building in Enclosure P4.1, Plateau 4. Note the steps and 'seat' on the right hand side. Looking south.



Oven within a medieval sunken-featured building on Plateau 4 during excavation.

of their superstructure, none for example exhibiting any post settings around the perimeter although occasional internal post-holes suggest the support for a gabled roof. Internal features such as the ovens are mostly constructed of what has been termed 'clunch', a cob-like slurry of chalk and clay subsoil, that has been mixed to a thick consistency, sometimes with the addition of flints or chalk blocks.

Although these particular types of building have previously been interpreted as bakeries (the presence of quernstones in some may be relevant in this respect) or for malting, which seems quite likely, other uses are feasible. The great variety of forms and internal layouts of most of the other buildings suggest a range of uses, some of which are probably domestic whilst others may have been used for agricultural or industrial purposes such as storage, threshing, corn-drying, smoking, or lime production. Some of the structures have no ovens or hearths at all for example, and others exhibit variations in the position and form of ovens, kilns and other internal fittings such as benches or even cupboards constructed out of clunch.

A number of the buildings are more unusual still, with possible interconnected rooms, or of large size. One structure south of the enclosures on Plateau 4 was 10m long with a large and well preserved domed oven in its centre. The structure cutting the Enclosure P4.1 ditches at the eastern end of this area was virtually featureless internally, but possessed steps hewn out of the natural chalk down to the floor area, adjacent to what can only be described as a settee with armrests, carved in a similar manner. Perhaps the largest (found on Plateau 5), which also had few internal features but evidence for opposing doorways on its long sides, was over 13.5m long and 7.6m wide. As with the Roman structures found on Thanet (Hicks 2008) it appears that the sunken form, presumably with low walls and simple roof with its eaves close to ground level, was designed to provide protection from the fierce winds that are common on the higher, exposed ground here.

Quite why there was such an outburst of activity in this rather desolate and exposed area is presently unclear, as is the exact nature of the occupation. Only in a few of the enclosures were there signs of protracted occupation, such as a proliferation of rubbish pits or a high density of finds. Many of the

buildings were isolated, sometimes only one to an enclosure, often with no associated features and little artefactual evidence and it seems possible that they were only used or occupied on a short term, possibly seasonal basis. There may be an ecclesiastical connection to all this activity, since much of Thanet's farmland was held by one or other of the three main ecclesiastical institutions of the region at this time (Moody 2008, 174). Further documentary research may hopefully explain the reasons for the extraordinary and totally unexpected scale of medieval activity on the site.

By the end of the thirteenth or early fourteenth century all of this activity seems to cease; this apparently site-wide cessation of occupation is probably too early to have been caused by the mid century outbreak of the Black Death, and one of the aims of the post-excavation work will be to more accurately define the decline of medieval settlement and its cause. After this period, there is little else to suggest that the site was generally anything other than open farmland until the present development.

### Acknowledgements

A more comprehensive account of the archaeology of Thanet Earth will appear in due course, in which full acknowledgement will be made to the site staff, excavators, machine drivers and many others who have made the project possible.

Particular thanks however, are extended to Adrian Gollop and Phil Mayne for working extremely long hours over the course of the winter months monitoring the topsoil strip, often during severe and sometimes daunting weather conditions. Kirsty Bone, Andy Macintosh and Dale Robertson also assisted in this operation.

Many thanks also to individual site supervisors for all of their excellent hard work over many months, Damian Boden and Andy Macintosh for supervising the excavations on Plateaus 2 and 4 respectively, Ross Lane and Laura O'Shea for Plateaus 5 and 6. James Holman assisted in numerous ways and supervised Plateau 8.

Considerable recognition should be extended to Fresca for funding the excavations and the assistance of the site staff of Fitzpatrick Construction

Ltd, is gratefully acknowledged. The author would particularly like to thank Fitzpatrick's Works Manager, Dick Matthews for his good humour and forbearance over the course of such a long project. Rob Masefield of RPS acted as archaeological consultant for the project from February to October 2008 on behalf of Fresca. Lis Dyson and Adam Single monitored the project on behalf of Kent County Council.

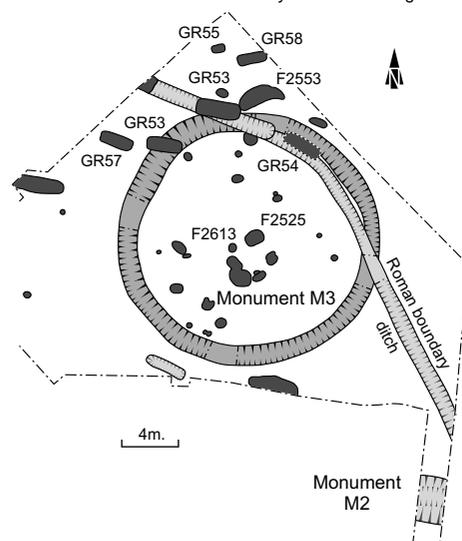
## Ringlemere, Woodnesborough

Keith Parfitt and Barry Corke

### The background

Annual excavations have been undertaken at Ringlemere since 2002. The previous work focussed on the site of a large prehistoric mound, designated Monument 1 (see successive reports since *Canterbury's Archaeology 2001–2002*). Monument 1 was found to be a complex structure of several phases. Originally it seems to have consisted of a ditched 'henge' monument, provided with a single entrance on the north side. Within the enclosed area a significant number of features, in the form of pits, post-holes, stake-holes and hearths, were recorded. These were frequently associated with Late Neolithic Grooved Ware pottery but some other features could be connected with a pre-henge settlement on the same site. Subsequently, during the early Bronze Age, a barrow mound was erected inside the ditched area. The Bronze Age gold cup, whose discovery in 2001 had first led to the identification of the site, seems to have originally been buried within a pit cut into the top of this barrow mound. Many centuries later the ancient mound provided the focus for an Anglo-Saxon cemetery.

The investigations on the site have established that Monument 1 was not an isolated feature but formed part of a group of monuments clustered in this area, close to the source of the Durlock Stream. These other monuments, also assumed to be of prehistoric date, are smaller and take the form of ring-ditches, probably the remains of round barrows. In order to better understand Monument 1, some investigation of these lesser monuments seemed essential. Moreover, continued ploughing of the field containing the complex suggested that these smaller monuments were likely to be suffering from





Clearing Monument 3.



Monument 3 fully excavated.

plough erosion. Having completed the excavation of Monument 1 in 2006, therefore, it was determined to examine some of these other monuments in 2007.

### Excavations in 2007 (Trench 9)

With a generous grant provided by the Kent Archaeological Society, together with a smaller donation from the Battle and District Historical Society, it was possible for members of the Trust to undertake an investigation of three of the lesser ring-ditch sites (Monuments 2, 3 and 4) during the summer of 2007. These were located immediately to the south-west (*ie* uphill) of Monument 1, situated upon an outcrop of natural gravel. Monument 3 was fully excavated, whilst a single trench was cut across the ditch of Monument 2. Monument 4, however, was found not to exist; it can now be seen that a combination of changing geology and a fortuitously positioned straight gully had led to over-interpretation of some fuzzy geophysical survey evidence here.

#### *Monument 2*

This monument, approximately 28 metres in diameter, had been previously located by geophysical survey. It was also known from aerial photographs and was visible on the ground in the growing crop during the spring of 2002. Unfortunately, a gas main had been cut through the central area of the monument sometime during the 1980s. No archaeological work appears to have been undertaken along this pipe-line and consequently the opportunity to locate and examine this unknown site was missed at that time.

From the available information it can be seen that the east-west pipe trench passed just to the north of the centre point of the enclosure. Health and Safety considerations meant that only limited work on the ring-ditch was possible and it may be surmised that most of the central enclosed area of the monument has in any case been severely damaged or destroyed by the insertion of the pipe and the associated working easement.

A single 1.95m wide trench was cut across the ring-ditch on its north side. This showed the ditch to be of substantial proportions, about 3.30m wide across the top and 1.50m deep. Its convexly sloping sides gave way to a flat base between 0.40 and 0.65m wide. The lower and middle filling of the ditch consisted of

a series of gravelly silts containing limited amounts of prehistoric flintwork. The upper filling was a light brown clay loam with rather less gravel and this also produced a small quantity of flintwork.

#### *Monument 3 (NGR TR 2933 5697, centred)*

As with Monument 2, this monument had been identified on aerial photographs and also by geophysical survey, together with ground observation. Its site was fully excavated in 2007 and was found to consist of a continuous ring-ditch enclosing a fairly precise circle between 15.25 and 16.25 metres in diameter. The ring-ditch was 1–1.80m wide across the top. It had convexly sloping sides and a flat-dished base between 0.20 and 0.45m wide. The depth ranged from 0.44 to 0.65m. The filling of the ditch produced a moderate quantity of prehistoric flintwork, together with a cluster of sherds from a single pottery vessel found in the upper filling on the south-west side.

The form of the ditch in profile, with its narrow, fairly flat base is somewhat reminiscent of a 'palisade trench' rather than a true ditch and it seems possible that the feature may have originally held close-spaced timber uprights for an enclosing fence or revetment. If this is correct, no traces of any post-pipes had been preserved in the coarse gravel filling. Nor were there any surviving traces of a central mound within the enclosed area (but see below).

More than twenty shallow hollows, pits and post-holes were located inside the ditched area. These need not all be contemporary with the ring-ditch and several are probably of natural origin. None produced any clear evidence for a burial and none can be closely dated. Nor did they form any convincing alignments or patterns. However, at the very centre of the enclosed area lay a neat, oval pit filled with gravelly soil (F 2525). This measured 1.02 by 1.22m and was aligned east-north-east by west-south-west. It was 0.30m deep, with steep sides and a slightly dished base. In the base at the north-eastern end, a deeper depression appeared to represent a substantial post-hole. This was D-shaped in plan and measured 0.56m (north-north-west to south-south-east) by 0.28m (east-north-east to west-south-west). It was 0.15m deep with steep sides and a flat base.

There can be little doubt that an upright wooden post had originally occupied this north-eastern end of the pit. The D-shaped form of the surviving post-hole

indicates that it was probably a split tree trunk, with the flat (split) surface facing south-west. It remains less certain whether the main pit simply represents the construction pit for the insertion of this post or whether it formed a grave, marked by the post at one end. Certainly, the proportions of the main pit would have allowed the insertion of a crouched inhumation, such as have been found in similar positions within many barrows and ring-ditches. However, no traces of any bone survived and the question remains unresolved. Perhaps significantly, the estimated centre of the ring-ditch falls in the middle of the main pit, rather than on the post-hole. Another substantial post-hole (F 2613), 0.22m deep was located about 0.75m west-south-west of the central pit and continuing its long axis. This must mark the position of another timber upright.

If upright timber posts did stand inside the ditched area, the question is raised as to their relationship with any mound that might have existed (see below for consideration of mound evidence). Did these posts protrude through the top of a barrow that was erected soon after the uprights themselves, or are different phases represented, with a mound being constructed only towards the end of the use of the monument, as with Monument 1? The lack of any obvious entrance causeway across the ditch of Monument 3 may be a significant detail, since this would have limited access into the enclosed area. However, the ditch could easily have been spanned with a small timber bridge - if it ever existed as a permanent open feature and was not merely the temporary construction trench for a ring of timber posts (see above).

#### *Later boundary ditches*

On its north-eastern side Monument 3 was cut by two straight ditches. These were set on different alignments and their continuations beyond the excavated area are visible on air photographs and the geophysics plots. The pottery indicates that these ditches are of early Roman date; they are likely to have been completely infilled by *c* AD 100. There seems little doubt that they served as field boundaries and from their positioning in relation to the prehistoric remains it would seem that these ancient monuments were still continuing to have some influence on activities in the landscape, many centuries after they were first constructed. If this is so, it must imply that the prehistoric monuments survived as upstanding barrow mounds providing clear local boundary markers; certainly the ring-ditch associated

with Monument 3 was infilled and probably invisible when the field boundary ditch was cut through it.

#### *Anglo-Saxon graves*

It was discovered during previous excavations that the south-western side of Monument 1 had been the site of an Anglo-Saxon cemetery, founded during the fifth century AD and containing over fifty burials. The full extent of this cemetery has still to be determined but six more inhumation graves (Graves 53–58), together with part of a probable seventh, discovered in 2007 clearly relate to a continuation of the burial area. The new graves appear to represent a discrete group placed adjacent to the northern side of Monument 3 and must provide further evidence for the former presence of a barrow mound here.

As previously, all the new graves were aligned roughly east–west. Two (Graves 53 and 54) were cut into one of the Roman field boundary ditches, which was filled by this time and played no part in delimiting the burial area. Another burial (Grave 56) cut the ring-ditch of Monument 3 but no burials occurred within the enclosed area.

The acidic gravel subsoil meant that no skeletons survived but the size of one grave (Grave 55) indicated that it belonged to a small child. Grave-goods were recovered from four of the graves. Grave 53 contained five brooches and forty-two beads and must represent the burial of a reasonably well-off woman. Provisional dating of the grave-goods recovered suggests that these burials are again of fifth-century date.

#### *Mesolithic and Palaeolithic finds*

A large irregular pit located immediately to the north of Monument 3 (F 2553) produced a fresh Mesolithic adze, which may be put with several others found in previous seasons, and provides further evidence for activity on the site during that period. Of even greater interest, however, is a small collection of somewhat abraded flakes with a mottled patina (a few similar pieces had also been noted in previous seasons). These stand apart from the bulk of the flint assemblage, which is fresh and unpatinated, and appear to be much older than the majority of the pieces recovered. Included amongst them is one large flake of classic Levallois type. There seems little doubt that this small group of quite distinctive flint material derives from the river gravel deposits exposed in the excavation and collectively these flints must provide evidence for Middle Palaeolithic activity at Ringlemere around 50,000 years ago.

### **Acknowledgements**

Thanks are again due to the landowners, the Smith family at Ringlemere Farm, who readily allowed access to their ground and have taken a keen interest in the progress of the work from the first. The excavations would not have been possible without the aid of the Kent Archaeological Society grant and this is gratefully acknowledged here. Most of the excavation and finds processing work was carried out by volunteers from various local archaeological societies and other Kent Archaeological Society members, together with a number of students from archaeology departments of various universities.

Without their hard work far less would have been achieved and thanks are extended to all concerned.

## **Claxfield Farm, Lynsted**

### **Ross Lane**

During July and August 2007 an archaeological investigation was carried out on land designated for Brickearth extraction at Claxfield Farm, Lynsted (NGR 5947 1622). The work formed part of an ongoing watching brief being maintained during annual quarrying for Brickearth on behalf of Wienerberger Ltd; previous work has been carried out in 2005 and 2006 (Newhook and Shand 2007; Shand 2006). The area under investigation this year was approximately 300m long and 25m wide.

The site lies on gently sloping ground dipping to the north, part of the dip-slope of the North Downs, and is located between two dry valleys to the east and west. Mesolithic and Palaeolithic remains have been located within the Brickearth a short distance to the west of the site, near Bapchild (Dines 1928; 1929).

There were three stages to the excavation; first, a strip and map exercise during the removal of the topsoil, then sample excavation followed by a watching brief during Brickearth extraction.

Five prehistoric features were identified; a substantial linear boundary ditch which produced a large quantity of burnt flint, pottery and a possible loomweight; a number of pits containing large quantities of burnt daub and pottery; and a single isolated post hole. These features may represent the periphery of a small late Bronze Age settlement (900–600 BC) that probably lies to the west of the present area.

Two medieval ditches were found at the southern end of the site, forming a continuation of the boundary ditches identified in 2006 (Shand 2006).



Early medieval short cross hammered penny, King John (1189–1247).

A metal detector survey carried out prior to the topsoil strip unearthed various metal objects concentrated at the south of the site; these included an early medieval silver short cross hammered penny (AD 1189–1247) together with a silver long cross quarter penny (AD 1247–1272).

Twenty modern intrusions were identified; shallow pits and post-holes of various sizes. Three of these modern intrusions were investigated and proved to be sheep burials such as those found in earlier seasons. A large pit and a rectangular feature at the north end of site probably relate to agricultural activity during the twentieth century.

During the subsequent watching brief a further five prehistoric features were identified and quickly investigated along the western boundary of the site. These included two probable ditches containing pottery of Bronze Age date, a shallow pit and post-hole along with a compacted flint trackway or foundation. This 7m wide feature was aligned east–west and extended beyond the western edge of excavation. Pottery dating to the Bronze Age was found in the feature's fill.

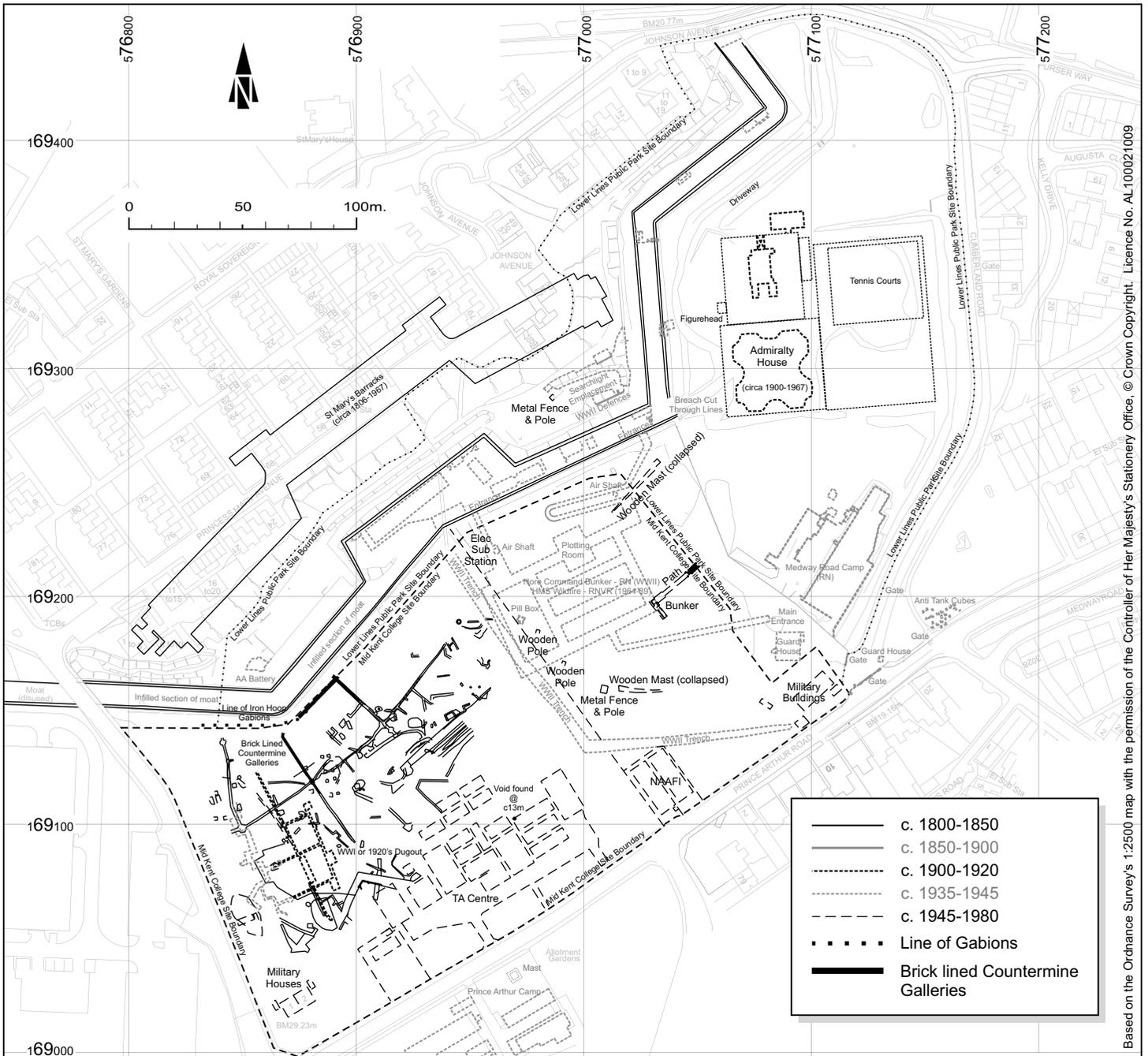
The work was supervised by the author, with the assistance of James Holman, Laura O'Shea, Iain Charles, Ian Anderson and Dale Robertson. Thanks are extended to Wienerberger Ltd for funding this continuing project.

## **Mid Kent College and Lower Lines Brompton**

### **Mick Diack**

The Trust is engaged in an ongoing programme of archaeological works prior to the construction of the new Mid Kent College Campus and the creation of a public park. The site is located off Medway Road, Brompton, near Gillingham, immediately adjacent to a Scheduled Ancient Monument known as the Lower Lines, which is part of the Great Lines or Chatham Lines, an elaborate series of defences built from the eighteenth century onwards to protect Chatham dockyard. The new park will incorporate most of the surviving portion of the Lower Lines and is the first stage of a much larger project to create a Great Lines Heritage Park. Most of the work involved with the campus site is now complete and a programme of archaeological work is underway for the Lower Lines public park. Though some background information below refers to the whole of the defensive works, *ie* the Chatham Lines, the fieldwork considered here is all concentrated on the portion known as the Lower Lines only.

The Chatham Lines have been subject to detailed research by Peter Kendall of English Heritage who has also had a major role in the fieldwork as Inspector of Ancient Monuments. His study *Defending the dockyard, the story of the Chatham Lines* has proved an invaluable resource for most of the project background (Kendall 2005). Wessex Archaeology made a desk-based assessment (WA 2004) and Canterbury Archaeological Trust carried out the initial site surveys (Found 2006; Found 2007).



Based on the Ordnance Survey's 1:2500 map with the permission of Her Majesty's Stationery Office, © Crown Copyright. Licence No. AL100021009

New Mid Kent College Campus and Lower Lines Public Park, Brompton, Gillingham.

### The history of the Lower Lines

The Lower Lines are an extension of the Chatham Lines built to defend Chatham Dockyard from landward attack. The dockyard itself dates from the mid sixteenth century, but in 1667 a fleet of Dutch ships raided Medway, graphically demonstrating its vulnerability. Many ships laid up in the dockyard were destroyed and the flagship the Royal Charles was seized. Whilst there was Upnor Castle and several batteries along the river, they obviously did not provide adequate protection and in the aftermath of the raid these defences were significantly improved. The Dutch had not only attacked from the sea however; they had also landed marines who had attacked by land. Despite this it seems to have only slowly become apparent that there was a need

to fortify the dockyard from landward attack, as no proposal for such defence was made until 1708. Even with support by France for the Jacobite risings of 1715 and 1745, it was not until the Seven Years War (1756–1763) that the threat of invasion finally spurred the construction of landward defences. The Chatham Lines were constructed from 1755 onwards with various improvements and additions added over the years. They ran from south of the dockyard (Gun Wharf) with the initial east–west stretch known as the Cumberland Lines terminating in an acutely pointed fortification called Prince William's Bastion. This part of the line was later massively reinforced with a further line of defences and became Fort Amherst. Fort Amherst was built from about 1780 onwards, though much of the defences seen today are Napoleonic and thus more

or less contemporary with the Lower Lines. The defensive line then turned to run north–south and there four large regular defensive bastions. From south to the north these were called the Prince of Wales', King's, Prince Edward's, Prince Henry's, Prince Frederick's and Duke of Cumberland's bastions. The lines were then linked to the northern end of the dockyard by an east–west section known as the Ligonier Lines. It was this northern portion that was replaced by the Lower Lines from 1803 and extended the defences to the north-east. The new portion ran from Prince Frederick's Bastion to St Mary's Island, leaving Cumberland's Bastion as a redundant line of defence. This extension was largely in response to the renewed threat of invasion during the Napoleonic wars and a perceived weakness of the Chatham Lines.



The site from the air.

The Lines first consisted of an earthen rampart on which to mount artillery with a firestep for musket fire and a ditch running parallel to the rampart on the attacker's side providing a substantial obstacle. The firestep was provided as muzzle-loading muskets could best be loaded standing up; it provided shelter for loading and a step up to a position to fire from. The earthen banks were however subject to erosion by weather and human and animal activity and this substantially weakened the defences (Kendall 2005). During the period 1779–1783 and the American Revolutionary War the lines were therefore revetted with brickwork on the scarp (defender's side) and the counterscarp (attacker's side). Beyond the counterscarp was a carefully landscaped earthwork called a *glacis*. This was created to provide the perfect ground for the defenders fire. Beyond the glacis a large area was kept clear in order that any attackers would

have to cross it whilst under fire; this was unsurprisingly referred to as the Field of Fire. Attackers would either be in file (line ahead) or rank (side by side) or in a column which is a formation that combines the two. The defenders would use *enfilade* fire, ie fire along the long axis of the line of attackers, and would seek to have a good line of fire in all possible directions. To aid this, the defensive line was designed with projections called bastions that enabled cannon and musket fire to provide fire in several directions and to sweep along the flank of the defensive line should the attackers get close. Demi-bastions had only one face and one flank and were used in pairs where the angle of the line was too acute for a regular bastion; this can be seen in the central part of the Lower Lines. A *Redan* is a simpler structure than a bastion, being a plain 'v' shaped projection of the main line, examples of which can be seen on the eastern part of the Lower Lines.

Additional small independent fortifications, inside or outside the main line were also used and these were also present at the Lower Lines, though they do not survive today. A *Ravelin* is such a detached fortification and is placed in front of the main line to provide additional fields of fire, but with an open back and a lower rampart than the main line, so that it could be fired into if an enemy succeeded in capturing it. A Ravelin was placed between Cumberland's Bastion and Prince Frederick's Bastion c 1809 to take a magazine to serve the guns of Lower Lines. A further Ravelin, the 'New Ravelin' was added much later, possibly c 1875, but only as a training exercise (Hamilton-Baillie 1974).

Together with the defensive lines and gun batteries, there was obviously a need for substantial numbers of troops to defend the fortification and immediately behind the Lower Lines were casemated (vaulted



Overgrown Lines at the start of the project.

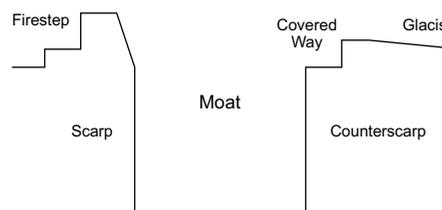
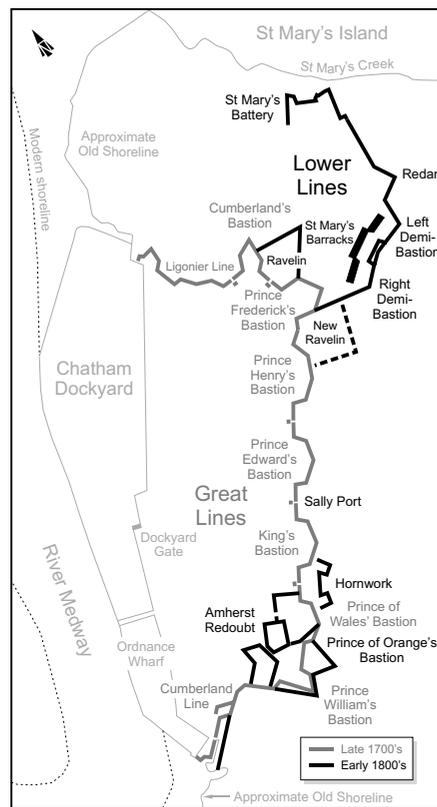
bombproof) barracks called St Mary's Barracks. The casemates were four long parallel rooms and were built to contain more than a thousand troops (Kendall 2005). However the ventilation was poor and the accommodation must have been dark and crowded, so the troops were moved elsewhere and the casemates used for French prisoners of war. Much grander barracks were built nearby and remain as Brompton Barracks. The casemates at St Mary's were later used for powder magazines before being restored to barracks use for invalids. They were demolished in the 1960s.

Significant advances in naval weapon technology in the mid 1800s included the development of iron hulled ships with steam-powered screw propellers. Ships equipped with these advances were more manoeuvrable than timber sailing ships or the very vulnerable paddle-steamers (Coad 1995, 92; Kendall 2005, chapter 8).

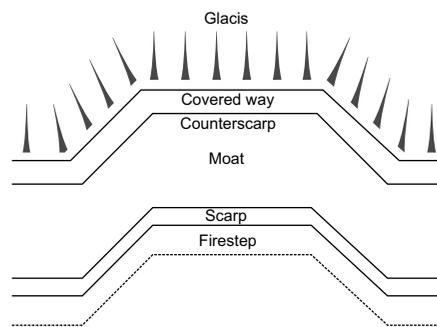
Such ships, when mounted with new breech-loading guns that fired explosive shells, and later had rifled barrels for greater range and accuracy, changed the nature of naval and land warfare. The dockyard could now be bombarded from a considerable distance, and the fast steam powered ships could also transport large quantities of troops for an invasion without being reliant on the wind or tide (Coad 1995, 91). It was now necessary to keep the enemy at least five miles away. Chatham Lines were redundant and a network of detached polygonal forts designed for heavy guns and heavy shell-proof casemates were needed to combat the new threat, sited so as to provide a network of fire to defend each other (Coad 1995, 92).

Terrestrial armies also underwent a transformation during this period; steam power also brought the railway, which reduced the need for long marches for troops. The same sort of breech loading, rifled heavy guns used at sea were available on land, whilst lightweight rifles utilising similar technology allowed troops to carry more ammunition, allowing highly mobile and well equipped armies that could be rapidly re-supplied (Howard 1976, 103). These technologies made the continuous bastioned defences of the Great Lines obsolete, and they ceased to have a primary defensive role (Coad 1995, 92).

The Lines were however still to have an important military role, though not as originally intended. Siege warfare was one of the principal roles of the Royal Engineers, based at Brompton in what is now the Royal School of Military Engineering. The Engineers needed to train in constructing fortifications, besieging them by the cutting of trenches and mines (tunnels), blowing them up and reconstructing them afterwards (Barton *et al* 2007, 43–44). The Lines were perfect for this purpose. By this period the science of siege warfare was well advanced and textbooks on the subject provide a fascinating view of how complex the whole process was (*eg* Lendy 1857; 1861). Various historic military maps show practice siege works of staggering size and complexity. Contemporary photographs also show huge dugouts, gun emplacements and even the detonation of explosive-packed mines (Barton *et al* 2007, 43). The training included what we would now term 'live fire' exercises; realistic practice of breaching and storming a fortification. Mock battles were staged



Sketch profile of firestep, moat and glacis as recorded at Lower Lines



Sketch plan of firestep, moat and glacis as recorded at Lower Lines

and these became major spectator events for the public. Charles Dickens includes a fictional account of such a mock battle in *The Pickwick Papers*. This sort of activity has obviously made a major impact on the Lines as they survive today, but also left fascinating remains.

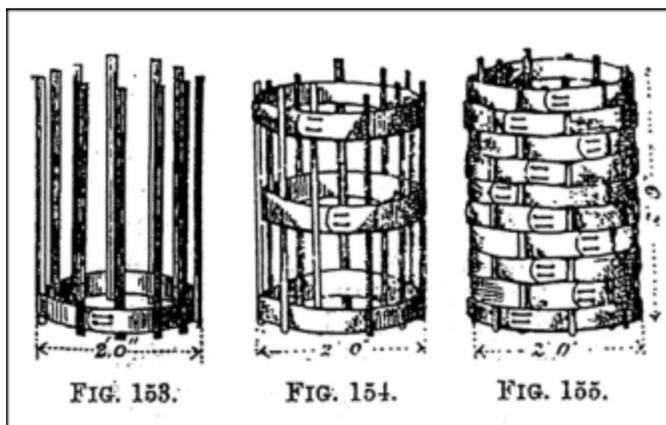
During siege warfare, an attacking force would dig a series of trenches in order to enable them to get close to the defences whilst remaining protected from fire. The first trench would run parallel to the defences and was therefore called the first parallel. Further trenches would be cut at right angles from this towards the defences, these were called approaches.

The attackers would repeat this process cutting a second parallel, more approaches and then (usually) a third and final parallel. These parallels would be protected from fire by reinforced earth banks and the approaches would also have been constructed with traverses or zigzags to prevent the defender's fire from sweeping down the length of the trench. After cutting the third parallel the attackers were close enough to attempt to breach the defences. A mine would be cut under the defences and packed with explosives. When detonated the mine would breach the defences and the attackers could attempt to storm the breach. Since such a technique was well established, fortifications would be equipped with countermeasures to help prevent this. One of the most important was the process of countermining. A fortified position was often built equipped with underground galleries and chambers as an integral part of the structure and the defenders would use these to listen for enemy mining and as a starting point for cutting their own tunnels, or countermines towards the enemy mines. These countermines would be cut under or alongside the mines and explosive charges used to collapse the tunnels and kill the enemy. Such activity was obviously highly dangerous and unpleasant and if the two sides met underground, the fighting would have been of the most savage kind.

The Engineers made extensive use of items called *gabions*. They formed a hollow tube, initially made of wicker and later of iron hoops, that would be filled with soil and provided cover from fire, in a similar way to sandbags, but also used for the revetment of earthworks. They were used extensively during siegeworks, and the military textbooks of the time contained precise details of their use, including how long they took to construct and how many men were needed. A further use was to seal off the end of a mine in order to prevent an explosive blast from travelling back down the tunnel instead of upwards. A further item used by the engineers was the *fascine*, a bundle of brushwood that could act as a revetment or as a screen to hide activity from enemy view.

The same kind of siege warfare techniques continued to be relevant up to and during the Great War. Much of the more basic works like digging trenches was carried out by ordinary soldiers, supervised by engineers, but specialist activities such as constructing trench railways and especially tunnelling were the sole prerogative of the Royal Engineers (Haythornthwaite 1992, 101–4). The tunnelling companies, often recruited from coalminers, sewer men and the workers who constructed the London underground carried out a deadly game of mine and counter mine beneath the fields of France and Belgium the skill and danger of the job being reflected in the additional pay they received (Barton *et al* 2007, 65).

Lower Lines was used throughout the twentieth century for training, but the most significant use of the Lines in this period was not by the Royal Engineers, but by the Royal Navy; sometime around 1900 a large building called Admiralty House was built in the northern part of the former field of fire. This was for the Admiral of the Nore Command and his staff. The Nore was the naval anchorage at Sheerness that provided the defence of the Medway



Left: Iron gabions. Above: Iron gabions illustrated in a nineteenth-century siege manual.

and the Thames, together with the command of the North Sea. This had long been an important Command, and in the Second World War this was no exception. In the late 1930s work commenced on a substantial underground bunker for the Command. This consisted of a series of wide tunnels and a

large room with a plotting table for the tracking of convoys and enemy shipping. The complex was complete with accommodation, communications, offices, etc and was very similar to the tunnels at Dover. Accommodation was also available outside the bunker in what was known as the Medway Road

camp and the Women's Royal Naval Service (WRNS) were housed there. The Lower Lines area formed part of the anti-invasion defences during the Second World War; various modifications were made to the Lines themselves to accommodate anti-aircraft guns and machine gun emplacements.

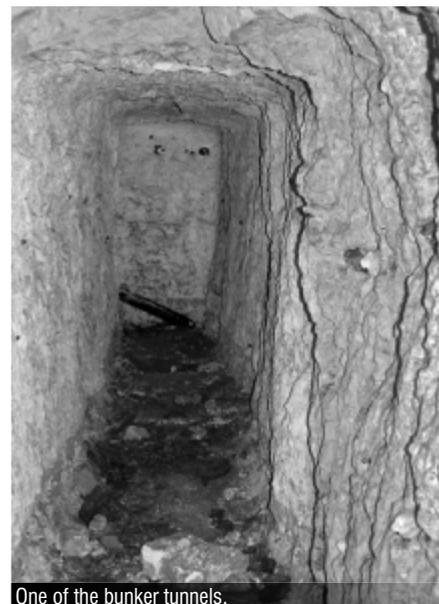


Above: Countermine chamber & gallery. Below: second countermine gallery.





Bunker complex being dug out.



One of the bunker tunnels.

The bunker remained in use after the war as a shelter from potential nuclear attack and it remained operational until the 1980s. During the later period, the complex was used by the Royal Naval Volunteer Reserve (RNVR) and was called HMS Wildfire. Because of this late post-war use, little of the original wartime fixtures survive and the complex has unfortunately been targeted by thieves and vandals and whilst structurally sound is in a poor condition. Various attempts to start fires have been made and on one occasion the Fire Service had to flood the tunnels in order to put out a fire. The complex also attracted attention during the course of the current project when a hole was cut through the blast doors. The forced entrance was then left open, forming an appalling hazard. Because of the constant unwelcome attention, the complex has since been made secure and will not be accessible other than for periodic inspection.

Because the bunker was located in the Field of Fire area, it was outside the still significant obstacle

caused by the Lines and efforts were made to secure it. A V-section trench was cut running south from the Lines, then turning towards Prince Arthur Road and the main gate. Anti-tank obstacles, known as dragon's teeth, completed the far end of the line and can still be seen today.

In the immediate post-war period, various buildings were erected on the site with a Territorial Army (TA) centre and a Navy, Army and Air Force Institute (NAAFI) appearing in the 1950s, though the buildings appear to have been insubstantial structures. The area to the west of the Royal Navy establishments was still used by the Royal Engineers. Whilst military mining and siege warfare were no longer a major part of their training, some element of these activities was probably still practised. The most recent phase of activity, which ended in the 1980s, consisted of construction of various types of buildings, bricklaying, drainage and other sorts of activities familiar to civil engineering. There were a great number of telephone

poles and the Engineers evidently practised setting up telephone circuits.

### The fieldwork

The work carried out by the Trust has taken place over a period of two years thus far, and is by no means finished. Initial work, carried out by Ben Found, was the survey and recording of the new college campus and the new public park site. The present writer then carried out various preparatory watching brief works and some limited evaluation, in order to test the survival of the original ground levels and also to assess the potential for earlier archaeological remains. Though the river gravels were examined for lithic artefacts on several occasions, no deposits or finds earlier than the early nineteenth-century military use of the area were found.

Following on from these preparatory works, the principal phase of archaeological works was a watching brief on the groundworks for the new college campus. Because the college was to be constructed in the area of the former Field of Fire, the ground was obviously sloping. The activities of the Royal Engineers in recent years had also resulted in a considerable build up of reworked ground and rubble from a multitude of building projects, which created a terraced area in the middle of the site. In order to construct the new college buildings a substantial amount of earth movement was required, with a cut of 4 metres in the area adjacent to the Lines. Some of this earth was used to create a metre of fill in the area adjacent to Prince Arthur Road, but much of it was removed from site. This meant that there was substantial disturbance to the area used by the engineers for their siege warfare training. A strategy of archaeologically controlled ground reduction was employed with an archaeologist monitoring each machine as it worked, excavating in half metre spits. With this approach, any trenches or tunnels present could be observed and rapidly recorded. Iron hoop gabions were frequently found, usually in fragmentary form, but there were also *in situ* gabions that had obviously formed revetments for earthworks



Backfilled tunnels.



Second World War trench showing sheet corrugated iron & reused railway line revetment.



Plotting room, HMS Wildfire.

or packing for mines. A line of intact gabions survives on a portion of the Lines where it would have served as a covered way, *ie* a path on the counterscarp side of the moat that provided protection from fire.

There proved to have been an extensive network of tunnels and the sandy soil was evidently ideal for the purpose. The tunnels tended to be quite small, just big enough to crawl through; the sense of claustrophobia must have been immense. They would have been shored with timber, and the military manuals describe how this was done. Essentially a small wooden frame was erected every foot or so and timbers along the roof stopped the space between from collapsing. There were a few instances where the remains of these timbers could be seen in the ground. A few of the tunnels found were not backfilled or collapsed but survived as voids, and these especially brought home the courage of the miners who made them.

A significant discovery was made during this part of the project when a series of brick-lined countermine galleries and a dome-shaped listening post were found. Although such structures are well known from text books, it was not known that there were any on the Lower Lines, and the elaborately constructed brick listening post may well be unique. The galleries consist of a counterscarp gallery (*ie* on the outside or attacker's side of the lines and running parallel to the lines) with at least two countermine galleries running at right angles. There had evidently been some collapse, or perhaps deliberate infilling of the counterscarp gallery, so its full extent remains unknown. These galleries were lined with red stock bricks and were probably contemporary with construction of the Lower Lines (*ie* early 1800s). The listening post, or countermine chamber, was made of yellow stock bricks and was of high quality construction. It was pointed inside and out and thus had evidently been constructed from the surface and must have been a later addition. The chamber had three arched entrances and backfilled, timber-lined tunnels extended from these, and could be seen to align with several other tunnels noted elsewhere. It seems therefore that after the countermine galleries ceased to have their primary defensive role, the chamber was added and used for training. The tunnels had light rail tracks and small passing places; evidently wagons were used to move the tunnelled earth around. There is some further work to be done on the chamber and it has been covered over until this takes place. The chamber and the galleries are to be retained and the historic damage to the brickwork dome repaired.

A particularly deep tunnel complex, depicted on a plan made by the Royal Engineers in the late 1980s, was shown to be about 2 metres high, with the upper part being 8 metres below ground. As the tunnels would have been hazardous to the operation of site machinery, and for the new building itself, the Trust was instructed to cut a trench to try and find the entrance to the complex. As the sides of the trench had to be stepped for safety, this meant that for roughly every 1.5 metre depth, the trench had to be expanded by a 1 metre width. The resultant trench was therefore approximately 12 metres square. The tunnels were indeed found to be there and the whole

complex was dug out by machine and the ground painstakingly made up and compacted in layers. The 1980s plan created by the Royal Engineers was found to be faultless, a testament to their skill in underground survey. The tunnels are thought to date to First World War training or perhaps shortly afterwards and formed a dug-out as used on the Western Front.

Two trenches dating from the Second World War were found. One was located parallel to Khyber Road, and it appeared that the earlier tunnel complex had been accessible from this trench; presumably the complex was incorporated into the later defences. The other trench ran from the Lines to encircle the Nore Command Bunker. This was V-shaped in section and revetted with corrugated iron sheets and lengths of railway line driven into the ground. It formed an anti-tank ditch. The railway line was of several different gauges and whilst this may have been imported from elsewhere, it may be the remains of the various railway lines that the Engineers built for training and transport around the site a century before. A small railway chassis found in the area of the new car park probably dates to the First World War.

The main focus of the Trust's work has now moved to the new public park area and thus far has mostly involved watching brief work during the clearance of vegetation. The area had not been used by the MOD for some time and the Lines, the area of Admiralty House (demolished in the 1960s) and the remains of the Medway Road Camp were very overgrown. Trees had self-seeded over the years and these together with lighter undergrowth and ivy covered the Lines. The monument had suffered much damage as a result and it was imperative that the growth was removed with some care. The gradual clearance of the Lines is allowing a proper archaeological survey to be undertaken and whilst much of this work has yet to be carried out, some areas of interest have already been noted. Perhaps the most important of these is a late nineteenth-century seesaw searchlight emplacement identified by Peter Kendall from a photograph. This searchlight was part of a submarine mining establishment operated by the Royal Engineers and was used to locate and pinpoint attacking ships which would be destroyed by remotely detonating underwater mines (hence 'submarine'). The example here was probably only used for training purposes, but such emplacements are extremely rare.

The author also took advantage of an opportunity to investigate briefly HMS Wildfire, an amazing structure some 30 metres below ground. It is structurally sound, but tragically has been somewhat vandalised. Though simple enough in outline, it feels like a labyrinth to explore; the plotting room is particularly impressive in size.

So many professionals involved in this project have been extremely helpful and supportive, and it is not possible to mention them all by name. Many thanks go to Mid Kent College for funding the archaeological programme. They and the principal contractor Kier Build have been extremely sympathetic to the project, as have the project management team at Arcadis-AYH plc who have been closely (and most helpfully) involved. Thanks are also due to the following

organisations, all of whom provided considerable assistance; Avondale Environmental Services Ltd (Tree/Vegetation Clearance), Bactec International Ltd (Ordnance), Entec UK Ltd (Ecology), O'Keefe Construction (Greenwich) Ltd (Groundwork), the Pryor Group (Earthmoving), the Royal Engineers Museum Brompton, RPS Group plc (Project Management/Design – Public Park). Many thanks go to the Kent Underground Research Group for kindly providing access to HMS Wildfire. From the archaeological side, particular thanks to Peter Kendall (English Heritage), Ben Found (Kent County Council) and Dr Martin Bates (University of Lampeter). James Holman assisted with the direction of the site work and took charge of the site on several occasions when necessary; the plan of the site and the plot of the various tunnels is principally his work. Other Trust staff included Ross Lane, Adrian Murphy and Jess Twyman. Thanks to Andrew Savage for his photography and his company when exploring HMS Wildfire.

## Sally Port, Royal School of Military Engineering, Brompton

James Holman

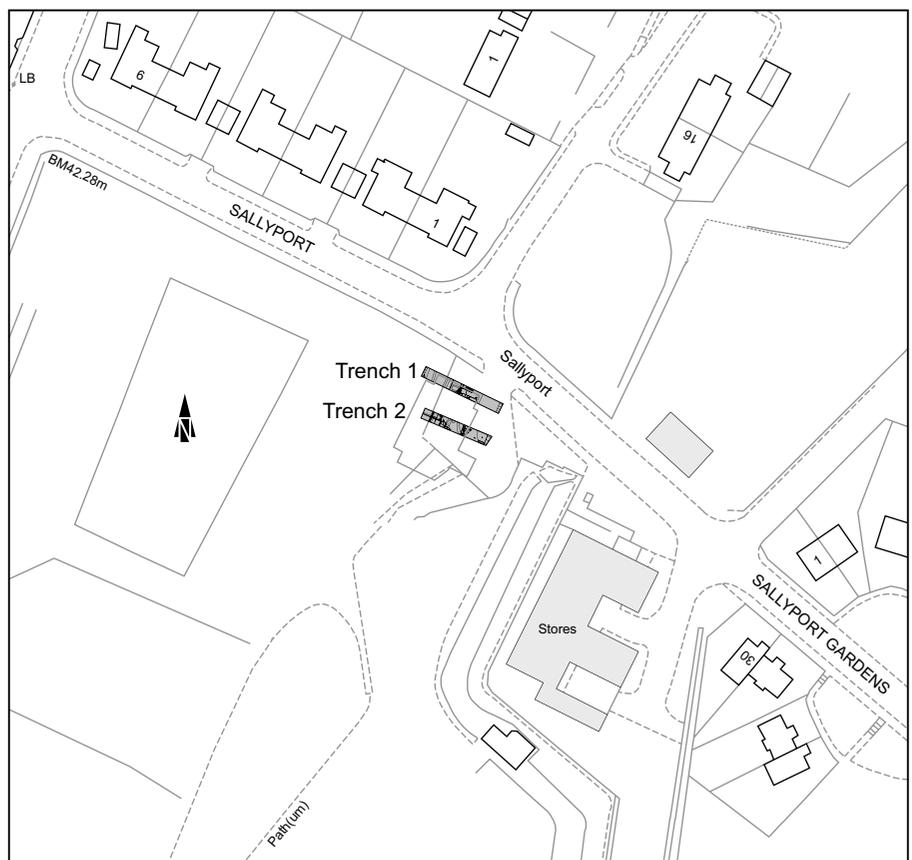
A small evaluation was undertaken opposite the junction of Sally Port and the Inner Lines, Brompton (NGR 576347 168704) in advance of the construction of a new community centre. Due to its location, just 12m north-west of the eighteenth-century Lines, it was proposed that the new building respect the historic layout of the Scheduled Ancient Monument and be located on the site of an earlier

building. Defence Estates therefore commissioned an archaeological investigation to pinpoint the exact location of the former structure. The work was undertaken at the end of October 2007.

As described above (p 28–9), the defences survive for much of their length as a brick revetted ditch and rampart, with areas of sloping ground (the *glacis*) to the west and south. The Sally Port area of the Lines contains the remains of a series of three bastions (from south to north, King's, Prince Edward's and Prince Henry's) between which the defences were linear and had gateways. The street name 'Sally Port' indicates the purpose of the gateway immediately adjacent to the site, located between the King's Bastion and Prince Edward's Bastion. The ditch was originally narrow in front of the bastions but widened in front of the recessed gateways to allow for enfiling fire in front of the gates from the bastions on either side.

Historic map evidence suggests that the earliest structure on this site consisted of a 'traverse', essentially a blocking lying directly behind the entrance through the lines to prevent an enemy from simply charging through with no obstruction. It is possible that in its earliest form this may have been simply an earth bank, later replaced by a more substantially built wall.

A rectangular building appears to have been constructed on the site some time prior to 1839. The 1879 War Department OS map shows that the moat was crossed by means of a fixed bridge in line with the centre of a guardhouse. An arch, probably with gates, appears to have formed the entrance through the rampart which formed a continuous earthwork over the top. Fire steps existed either side of this to provide cover for the entrance. A curved section of



brickwork visible in the present lines represents the narrowing of the rampart on its internal side to allow for the entrance through. As the guardhouse squarely occupied the gap in the rampart it also assumed the functions of the earlier traverse. An annexe to the main rampart projected towards the archway and formed part of the guardhouse. There was no way to avoid the structure and it would have to be passed through in order to use the Sally Port gateway.

The Royal Engineers undertook demolition work in the area of the Sally Port in 1906 (*Journal of the Royal Engineers* 1906). It is probable that the arch through the rampart was removed at this point. At some time after 1960 further demolition took place during which the guardhouse was removed and the gap in the rampart widened to its present extent (Peter Kendall, pers comm).

The evaluation was undertaken in two trenches located in positions gauged from the historic maps to best locate the structure. Prehistoric features were located in both, consisting of two relatively substantial ditches, a small gully and a post-hole. The pottery recovered from these features suggests that they dated to the late Bronze Age or early Iron Age. As comparatively little of the underlying natural geology was exposed due to later remains, interpretation of these features is difficult. It is likely that more features of this nature exist within the area. A layer of ancient ploughsoil sealed the features and probably represents a buried ground surface.

The major result of the evaluation was the identification of a small brick structure, probably the guardhouse described above and shown on historic maps first as a small rectangular structure on the map of 1839. Despite several modifications it seems that the original walls formed an integral part of the building until its demolition. The earliest phase of wall was constructed in soft red bricks bonded with a sandy mortar and was located in Trench 1. This was orientated on an approximate north-west to south-east alignment with a 90° return located at the north-west end. Five further walls were bonded to this and although not fully exposed were roughly phased based on the brick and mortar types used in their construction. The latest of these consisted of a rectangular platform constructed from purple-red bricks possibly forming the foundations of a chimney.

The eastern wall of the structure was located in Trench 2. This was abutted by a flagged stone surface, the majority of which had been robbed out. This was sealed by a layer of yellow clay and brick rubble probably representing levelling for a later floor: a layer of concrete located at the north-west end of the trench probably represented a repair within the floor sequence. Both trenches were sealed by a heavily compacted layer of brick rubble, probably from the demolition of the structure in the 1970s.

Thanks are extended to Atkins Heritage for commissioning the work on behalf of their client Defence Estates, to Peter Kendall (English Heritage) and Simon Mason (Kent County Council). The fieldwork was supervised by the writer with the assistance of Simon Holmes, Adrian Murphy and Ross Lane.

## Lullingstone Roman villa, Eynsford

Richard Hoskins

A watching brief was maintained during improvements to visitor facilities and the cover building at Lullingstone Roman Villa (NGR 55301 16506) between December 2007 and July 2008, commissioned by English Heritage.

Though the strategy behind the development project was to avoid any known archaeology and, where possible, to utilise areas of previous modern disturbance, the potential of the site to reveal archaeological remains remained significant and if any such remains were discovered to be present, they were to be recorded by limited hand excavation.

Within English Heritage's cover building, the steps leading to the raised viewing area were removed and replaced by a new staircase and elevator. This required some hand excavation into the slope behind the existing steps, revealing layers of silty gravel, the uppermost of which contained a quantity of crushed mortar relating to the original excavation of the villa in the 1950s. The lower layers consisted of undisturbed river gravels. No archaeological remains were encountered.

New WC facilities were constructed within the cover building, requiring the construction of a pumping chamber immediately east of Lullingstone Lane and the excavation of a narrow 0.70m deep pipe trench approximately 30m in length. This trench ran eastwards from the cover building across Lullingstone Lane, to the east of which a 2.20m deep pumping chamber was constructed. The pipe trench then continued southwards across the area of lawn between the lane and the visitor's car park, joining the modern sewer near the south end of the car park. Close to the eastern edge of Lullingstone Lane is a defunct sewer which at one time served properties along the valley of the River Darent. The new pipe trench was excavated for much of its length as close as possible to the line of the 1m thick concrete in which the old sewer was set. The ground in this area was much disturbed due to the presence of this old sewer and as a result of landscaping connected with the re-routing of Lullingstone Lane from its old course through the villa site during the 1950s. Beneath the modern topsoil was a layer of crushed chalk which in turn sealed a layer containing a small number of sherds of late nineteenth- or early twentieth-century pottery together with several lengths of modern iron, almost certainly

the remains of the iron fence referred to by Colonel Meates in the opening chapter of his history of the villa (Meates 1955, 5; 8, Fig 1). In the area of the new pump chamber this layer extended to an average depth of 1.15m below the present ground surface. Below this were layers of undisturbed river gravels.

New electric cables were needed to supply the new barrier and lighting to the car park and to the public toilets, requiring the excavation of shallow cable trenches at various points on the site: across the grassy area to the east of Lullingstone Lane, south and north of the toilets and through the length of the car park from the toilets to the north gate, a total of around 115m of trench. The relative shallowness of the cable trenches minimised any risk to *in situ* archaeological remains and none were encountered. A considerable quantity of large Roman tile fragments, occasional box flue fragments and large brick *tesserae* was discovered in the area surrounding the toilets. These were found in dark, loamy soils, rich in humus and it was concluded that they had been dumped there during the 1950s excavation.

It was noted that the ground level in the area around and west of the toilet block is up to 0.90m higher than elsewhere on the site and although this may represent the dumping of spoil from the earlier excavations the possibility that further Roman structures may exist in this area should not be overlooked.

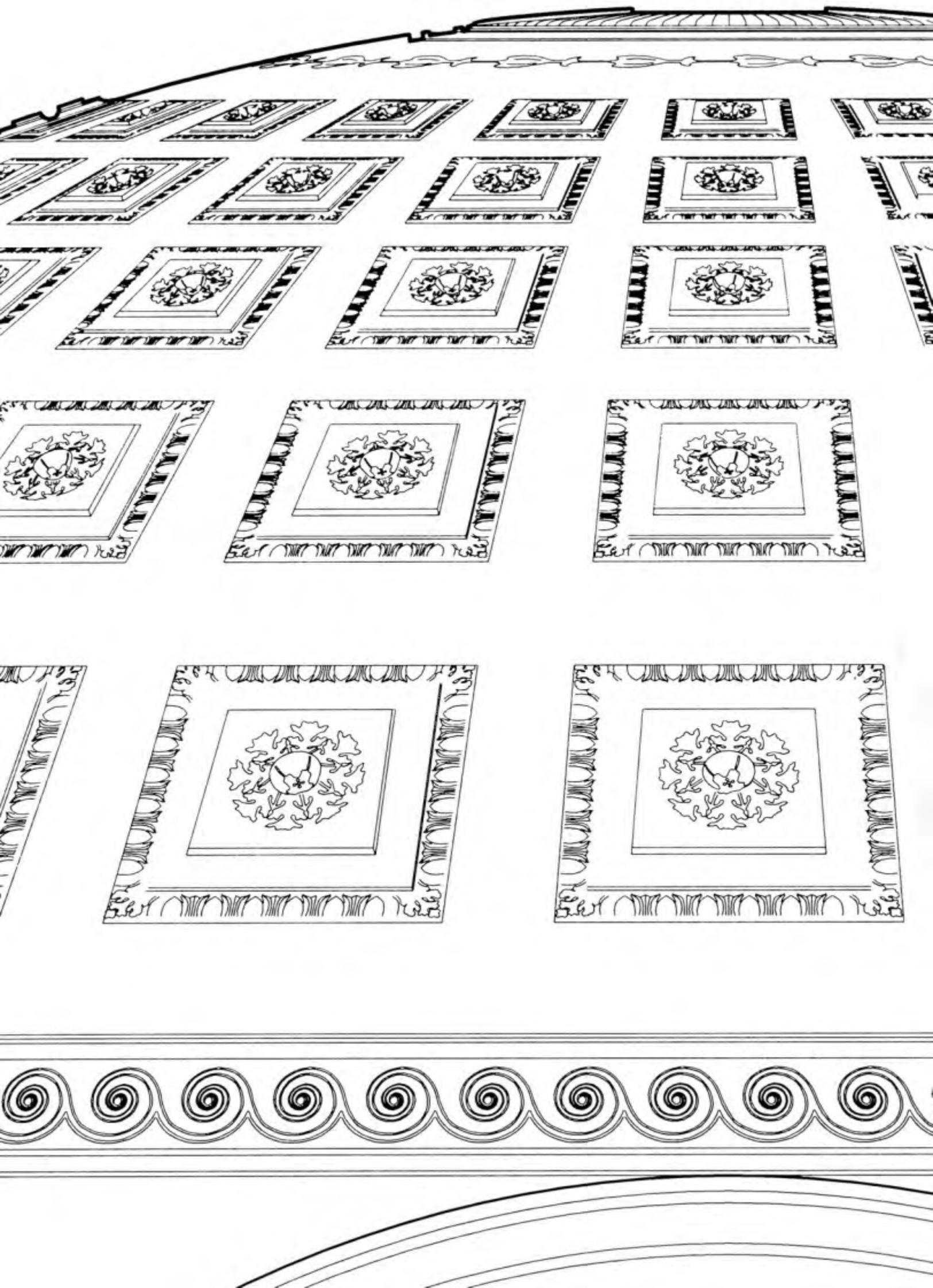
The strategy of endeavouring to avoid *in situ* archaeology during the refurbishment work was completely successful. The only significant archaeological finds encountered were the Roman building materials from the area next to the toilet block. This was retained and will be used by English Heritage as part of the handling collections used by curators for school visits.

During the period of the watching brief the Trust was also commissioned to remove existing coloured gravels from a number of rooms within the villa. The gravels were originally laid for display purposes but in some rooms had become silted and overgrown with vegetation. This work also included the removal of silts, consisting mainly of weathered soil that had been washed into the site from the southern and western sides of the villa complex.

With the completion of the work English Heritage reopened the villa to the public on 23 July 2008. As well as the villa building the renewed cover building now houses an exhibition of artefacts, many of which are on display for the first time since the excavation in the 1950s.



View south of new frontage with work in progress, July 2008.



# BUILDING RECORDING

## No 1 Pound Lane (Canterbury City Gaol, later Canterbury Police Station)

Peter Seary

In late 2007 and early 2008, a historic building survey and photographic record was undertaken at 1 Pound Lane, Canterbury, ahead of repairs. This is a building of several phases, the earliest of which was built in the early nineteenth century as an extension to the City Gaol in the adjacent Westgate.

The rooms over the medieval gate had for centuries served as Canterbury's City Gaol. It had long escaped reform, but by the 1820s its unhealthy and degrading conditions and lack of security could no longer be tolerated. Imprisonment was, by this time, regarded as a tool to reform morals and the design of prison buildings was central to this project; the Westgate could not be adapted to the new theories without a considerable extension. A central component of the new penology was the need to segregate prisoners of different types – at the very least felons from debtors and men from women – to prevent their moral contamination. This was not possible in the cramped gateway, nor could any provision be made for the prisoners' employment – another supposed means of reform.

A committee was established in 1823, and soon advanced a proposal to extend the gaol northwards

along Pound Lane. It was initially proposed to include a new City Bridewell or House of Correction (replacing that at the Poor Priests' Hospital on Stour Street) on the same site. The task of designing the extension fell to the City Surveyor, John Cooper. His designs (parts of which survive in the Canterbury Cathedral Archive) would emerge, through several successive versions, between 1823 and 1828, with minor amendments up to the completion of the Gaol in 1830.

Cooper initially devised a simple, classical scheme in red and yellow brick, comprising a new block of prison cells and dayrooms for felons; a large gaoler's house adjoining with rooms for debtors in the attic storey; and a new House of Correction in a detached block across the prison yard. The yard was to be subdivided radially, between different classes of prisoner, around a bay-windowed projection on the back of the gaoler's house. The debtors were to have their own yards atop the wings of the house. Around the end of 1827 the proposed new workhouse appears to have been dropped from the scheme, and the footprint of the extension reduced, with consequent minor alterations to the other ranges; the bay window and the radial subdivision of the yard would no longer be necessary. The existing buildings on the site were dismantled and work began on the drains and foundations in the second half of 1828.

The specification was finalised later that year, when the original classical design was replaced by

a castellated gothic scheme, clearly intended to complement the medieval Westgate. Cooper now sought, as closely as was practical, to imitate the medieval gate using expensive grey Ipswich bricks in all parts visible from the surrounding streets, and supplying matching architectural features, such as plinth and stringcourse mouldings, battlements, and gun-loops (serving as air-vents). The west end of the felon's wing would be made to resemble a square bastion, whilst the gaoler's house fronting Pound Lane was provided with an impressive castellated frontage, with inscriptions, civic heraldry and (in George Dance's, Newgate manner) gruesome fetters hanging over the doorways (one real, one blind) in the north and south wings.

The work was put out to tender, and was won by two prominent Canterbury figures: Russell Whitbread Lavender, a bricklayer, and John Lancefield, a carpenter. Construction resumed in March 1829 and was completed, with a few modifications, early the following year. Comparing the extant fabric with the various surviving drawings and specifications it has been possible to reconstruct the original building, and its internal arrangements, fixtures and fittings, in considerable detail. The felons' cells and numerous features elsewhere survive remarkably little altered.

The City Gaol, thus enlarged, continued in use for less than forty years. Having been completed very late in the first wave of prison reform, it was soon, if not immediately out-of-date, and it could



East elevation, today.



N Whillock's chromolithograph c 1830.



A cell in the felon's wing.



not easily be adapted in line with the second (mid nineteenth-century) wave, on the Pentonville model. The Prison Act of 1865 made strenuous demands, and it was ultimately forced to close, city prisoners thereafter being incarcerated, under contract, at the county's prisons. In the meantime, the City's small police force had come under similar pressure with regard to their own cells, in their station at the Poor Priests' Hospital. Under the terms of the said Prison Act, the Corporation were allowed, in 1869–70, to convert the former gaol to provide a new police station. The first-floor cells were provided with plumbing and water closets; offices and duty rooms were established elsewhere in the felons' wing; the Chief Constable took over the gaoler's house; and new uses were found for the outbuildings maintaining police equipment.

Various improvements and extensions were made over the following decades, but by the early twentieth century the old gaol buildings were again found inadequate. The site was further extended, northwards, c 1907, by the then City Surveyor, Arthur C Furlley. New ranges of yellow brick, with gothic details imitating the original extension, housed additional offices, modern cells, and rooms for police training. These arrangements, in their turn, were rapidly outstripped, and after the First World

War plans were drawn up to relocate the City Police to a proposed new 'Civic Centre', based around the existing Municipal Buildings overlooking the Dane John Gardens (this scheme fell foul of the Second World War). As an interim measure, the Chief Constable built himself a new house on the New Dover Road, and in 1938, H M Enderby, the City Surveyor, converted much of the old gaoler's house to offices. With the approach of the Second World War the police extended their facilities into the Westgate, providing an emergency control room, whilst part of the ground floor of the station was given over to decontamination facilities. Other parts of the station were subsequently commandeered by military units, and the station became part of the 'Canterbury-Fortress' defences along the riverside.

The Canterbury Police Force was amalgamated with the local division of the Kent Police Force in 1943, and the station seems to have been divided-up between the 'East Kent Divisional Police Office' and the 'Sub divisional Police Station' of the Kent County Constabulary. In 1965, the Constabulary moved to their long awaited new Station by the Riding Gate Roundabout, and the East Kent Rural Music School, moved in the following year.

We are grateful to Charles Lambie for the opportunity to study this fascinating building.

## Cliftonville Lido, Margate

Peter Seary

An assessment of the historic buildings and subterranean chambers at Cliftonville Lido was made in 2007 in order to inform the planning process. This extensive mid-1920s seaside complex proved to have replaced a remarkable early nineteenth-century sea-bathing establishment, called the Clifton Baths, a substantial portion of which survives underground.

The Clifton Baths were designed and built between about 1824 and 1828 by John Boys (1782 to 1849?), a prominent local solicitor who played a significant part in several early nineteenth-century improvements to Margate, but whose role in the suppression of smuggling and his generally contrary and choleric temperament earned him widespread distrust. Boys, by all accounts, designed the Baths himself, even their vital sea-defences, without the advice of experts; they reflect extraordinary imagination and ambition.

His name was, however, conspicuously absent from the completed bathing complex; perhaps he wished to avoid setting-up too obvious a target for vengeful townsfolk. Instead, he seems to have coined the place-name 'Clifton' to distinguish the baths.

The Clifton Baths were essentially a larger and more spectacular version of the earlier bathing houses which stood on the sea-side of Margate High Street. They would offer a similar range of facilities to such institutions; horse-drawn bathing machines, indoor baths, well-appointed waiting rooms and so on, but on a grander scale, and in a striking castellated-gothick setting. The old bathing houses were, by this time, often overcrowded, whilst the heavy horse-traffic was thought to impair the quality of the bathing; the prospects for exclusive new Baths, in a relatively isolated location at the eastern edge of town, were, therefore, good. There was precedent for bathing rooms of similar scale and magnificence, and with similar technology, in the Isabella Baths at Ramsgate, of 1816. The architectural style of the Clifton Baths buildings owed a lot to Lord Holland's extraordinary follies at Kingsgate.

The Clifton Baths would be built upon, and within, the chalk cliffs overlooking the Fulsam Rock and the supervening sandy beach on a vacant site just outside the town boundary. They were designed as 'objects to excite curiosity' (*The Times* 14 October 1827), presenting the appearance of an ancient flint-walled castle, built into the rugged chalk cliffs on a series of terraces overlooking an artificial bay. The battlemented bathing rooms, high-up on the north-west projection of the site, confronted the sea directly – a carved inscription petitioning God for protection from the waves: 'DOMINE QUI AEQUORA PLACAS HOC OPUS TUERE.' The main sea-defences far below had the appearance of bastions, whilst the gaping mouth of an underground reservoir resembled a fortified gateway and the sinuous, battlemented wall behind the upper terrace near the top of the cliff the curtain of an *enceinte*. A tall flagstaff and a chimney shaped like an Egyptian obelisk completed the picture. Within the cliff, extensive subterranean tunnels serving a variety of functions were designed to be similarly evocative of an equally ancient, if more mysterious, past. Their centrepiece, a huge domed chamber cut deep into the cliff, was clearly calculated to excite wonder.

The main public entrance to the Clifton Baths, both for pedestrians and those arriving by sedan or pony chaise were through a gate at the southern angle of the site. This led down via a steep, recurved, passage and a small, semi-octagonal sunken courtyard (adjoining what may have been a kiosk for payment), into a series of subterranean tunnels, leading to the terraces and beach. Another doorway, in the south-west wall of the courtyard, led down a curving flight of steps to the underground 'dome' which served as a store for bathing machines. This was a cylindrical chamber, cased with brickwork, 42 feet wide and between 33 and 36 feet high under a brick dome. Eight large, round-headed arches opened off the drum, equally spaced around its circumference, leading to a variety of tunnels and chambers. The eastern archway led to a long, broad, high tunnel curving down toward the artificial bay where the bathing machines operated.



Stone stairs in the felon's wing.



Four views of the underground reservoir.

Another tunnel led down to a vast subterranean sea-water reservoir, also serving as a plunge-bath. This was open to the air at the cliff-face, and was refilled, or perhaps topped-up, at each high tide. From here, salt water was forced by a horse-pump into a second reservoir further up the cliff, whence it could supply the boiler serving the hot baths. Incongruous but striking, the chimney serving the boiler at the Clifton Baths was raised in the form of an obelisk resting on a tall classical plinth. The Bathing Rooms, straddling the mouth of the underground reservoir, had one wing for gentlemen and one for ladies, equipped with hot baths, shower baths and hip baths. They adjoined the large waiting room, supplied with books and newspapers and furnished 'with ten benches, two dozen chairs, and a good organ' (*Kentish Gazette* 29 May 1827). A door from the waiting room led onto the uppermost terrace, where patrons could take the air and the view.

The Clifton Baths found their first tenant in time for the 1827 season, and later, in September of that year, hosted a grand musical entertainment, displaying 'excavations of many hundred feet, forming beautiful Gothic arches, brilliantly illuminated with variegated lamps, forming a Vauxhall under ground'. They seem to have made a favourable impression on the press and the writers of guide books. Besides their extraordinary scale, their novel and picturesque appearance, and strange subterranea were frequently noted. John Boys occasionally added new buildings to the Clifton Baths down to the mid 1840s. Among the first of these was the bathers' terrace, adjoining the bathing room, half-way up the cliff overlooking

the artificial bay. This was followed a second tall chimney, again in the form of an obelisk; and two masonry breakwaters added to the existing sea-defences. Around the middle of the century a new range was built along the south side of the site, terraced into the cliff-top to protect the sea views of burgeoning Cliftonville.

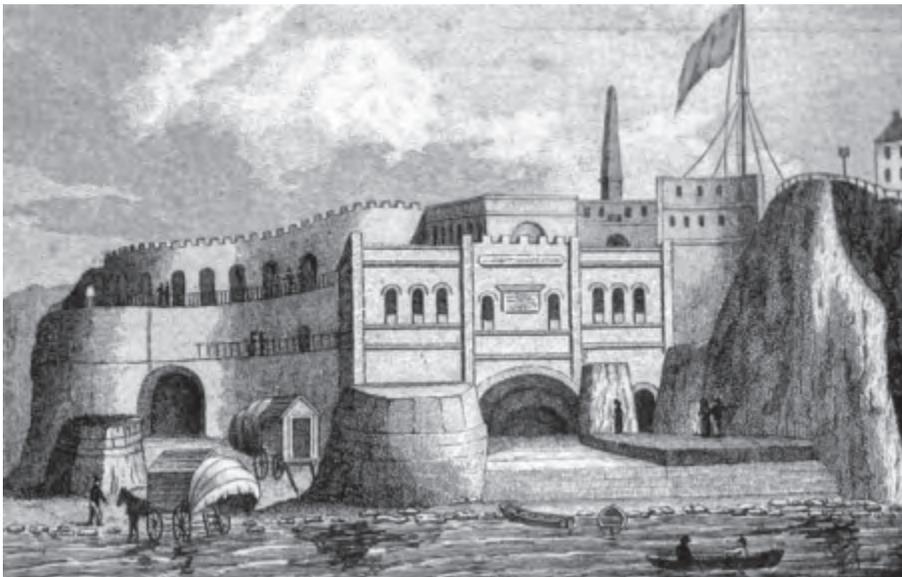
As the nineteenth century progressed, Margate seems to have declined as a seaside resort, and one gets the impression that the Clifton Baths were struggling to retain some of their wealthier customers. In 1867 John's son, John Harvey Boys, put the Clifton Baths up for sale and they were taken, two years later, by Thomas Dalby Reeve (another important Margate figure) who added a Drill Hall (1872, later the Lido Cinema) for the local Artillery Volunteers and a new boiler house with an exuberant industrial chimney (c 1870, now the Lido Obelisk). The Reeves owned a mineral water factory in Margate, and, struggling to promote the establishment, seem to have made innovative improvements in water purification and laundry at the Clifton Baths. Ozone Baths – doubtless, from the outset, the subject of extravagant medical claims – had been provided by 1876, along with some additional bathrooms. Following Thomas's death in 1875, the Baths went through a difficult period, with internecine litigation as to who should pay to repair storm damage, and the threat of a massive housing development on the foreshore (c 1876), which would have cut them off from the sea.

Around the 1880s, the late nineteenth-century proprietor, James Briggs, added an indoor swimming

bath, '60 ft x 22 ft, and from 3 ft to 6 ft in depth', in a large, rectangular, brick building at the north-east corner of the site. The tepid salt water was emptied and refilled by steam pumps at every tide. By 1895, James Briggs had left and members of the Reeve family and their relations by marriage, the Parkers, were running the Clifton Baths directly. Parker and Reeve seem, almost immediately, to have begun very extensive alterations, replacing much of the machinery and opening-up the site. The Clifton Baths were no longer an attraction where one paid for admission, but one where one wandered freely and paid for particular services such as bathing machines, the swimming pool, hairdressing, and medical baths. The Clifton Bath Saloon was established as a small public house in the former Waiting Room, and the upper terrace was extended onto the roof of the former bathing rooms.

By 1903 (Kelly's Directory), the Clifton Baths were again operated by a tenant, Edward Howard. His tenancy saw the beginnings of a technological and recreational reinvention of the complex, which, for a short time, took on some of the characteristics of a seaside funfair; he also introduced a cinema into the old Drill Hall, and a cliff-lift down to the sands (both 1910). One of the rides was a 'scenic railway,' pulled by a green dragon, with talons raised and bared, through a kind of subterranean, Gothic fairyland (the tunnels?); another was a 'joy-wheel,' resembling the turntable of a gigantic phonograph – the aim was to stay on the ride as it accelerated.

In 1919, the Reeve family sold the Clifton Baths and the 'Hall by the Sea' on the other side of town to John



J Shury's engraving, 1832.

Henry Iles. In what would prove an inspired move, Iles took the various fairground rides from the Clifton Baths, and planted them in a new amusement park adjoining the Hall by the Sea, which would reopen the following year as Dreamland. He had other plans for the Baths, ultimately giving rise to the Cliftonville Lido of the 1920s. About 1924, a large new theatre or concert hall was built at the Clifton Baths, for the use of Leslie Fuller and his 'Ped'lars Concert Party.' The Baths were thereafter remodelled as a large modern seaside entertainment complex, in vaguely Mediterranean guise, with bars, cafes, and restaurants on several stories and a large open-air swimming pool projecting out into the sea.

Since the completion of our assessment, the surviving subterranea of John Boys' Clifton Baths have been Listed Grade II.

## Darnley Mausoleum, Cobham

Peter Seary

The Darnley Mausoleum in Cobham Park was extensively renovated during 2006 and 2007. A detailed historic building survey was made ahead of the works, and a watching brief, and some additional evaluation trenching, was undertaken thereafter. Together this work produced a great deal of information concerning the design and construction of the mausoleum, and assisted in the design of the restoration: we were able to show, for instance, that there had indeed been a coat of arms on the attic storey of the building, which had previously been in doubt.

The Mausoleum was begun in 1783 but was never consecrated or used. It stood, surrounded by a square grassy moat and railings, in a large clearing near the crest of William's Hill, deep within what is now 'Cobham Wood' in Cobham Park. A tall, four-fronted neoclassical building of several diminishing stages under a pyramidal roof, it comprised a basement crypt for burials, and a domed chapel on the *piano nobile*.

By the mid eighteenth century, the Bligh family, who owned Cobham Park, was awash with revenue as the absentee landlord of vast estates in Ireland. In his will of August 1767, the third Earl of Darnley, John Bligh, left £5,000 (or £10,000, should the lesser sum be insufficient) for:

'A Chapel or Mausoleum as a Family Burying Place to be built ... on the top of a hill in my Park at Cobham called Williams Hill ... large enough that more of my family may be there deposited if they shall desire it ... such Building should be built of Stone and the best materials with Marble Ornaments in the inside and that the outward form of such Building might be with a kind of four fronts supporting a Pyramid in the middle high enough to be conspicuous and that there should be a Fosse [sic] or Ditch and a wall around it with only one entrance by a Bridge with an outward Iron Gate on the Bridge and that it should be vaulted with Stone with niches or [?] Sarcophaguses [sic] for the Bodies to be therein deposited below the

level of the Ground and over that in the manner of a Chapel with a dome into the pyramid.'

This specification dictated the overall form of the Mausoleum, and was followed closely in most respects. The desire for a pyramid, fosse, and sarcophagi reflect the Third Earl's 'keen interest in the Roman manner of sepulture' (Bowdler 2002, 7), and we suggest that the term 'a kind of four fronts' recalls the classical *quadrifrons* (a four-way triumphal arch), which often featured as an element in classical tower-tombs, sometimes surmounted by a pyramid. The design of the Darnley Mausoleum ultimately derived from such structures, possibly via a painting by Poussin (his second *Ordination*, at the National Gallery of Scotland), albeit incorporating a wide variety of other classical and neoclassical influences.

Following the Earl's death, in 1781, his son commissioned James Wyatt (1746–1813) to design the Mausoleum, and that fêted architect prepared a pair of large watercolour designs (now in Sir John Soane's Museum). His mausoleum was to be square in plan but with canted corner projections, rising from a richly rusticated basement containing the crypt or burial vault. The principal storey, containing the Mausoleum chapel, was to be decorated in a suitably sober version of Roman Doric, its main faces adorned with oval medallions, depicting pairs of inverted flambeaux guttering-out on a projecting ledge, and provided with carved tablets for inscriptions. Atop each canted corner of the hefty entablature, was to be fixed an elaborate stone ornament, resembling a strigillated sarcophagus, and the chapel was to be lit, at this level, by large lunette windows, filled with stained glass. Above this attic, would rest a massive pyramid – steep sided like that of Cestius at Rome. The chapel, with Composite columns clad in Brocatello and Carrara and an ornate coffered dome, was to be entered by a flying stair over the moat. The Darnley arms were to be fixed over the entrance.

Wyatt's watercolours account for most of the present building's features, but parts of the basement exterior are not depicted (because hidden from



South-east wall and the dome of the chapel.



View from crypt level looking south-east.



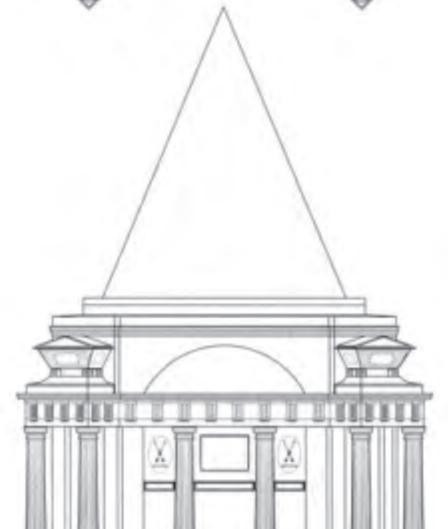
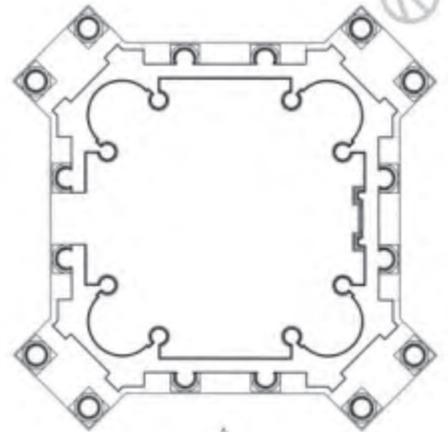
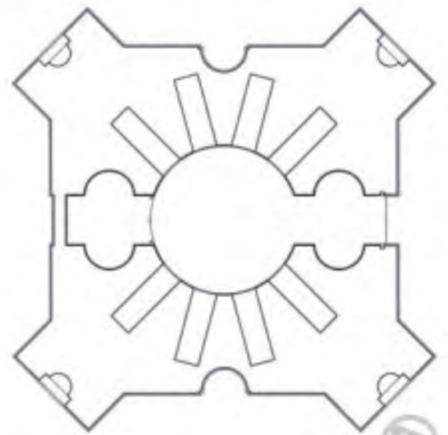
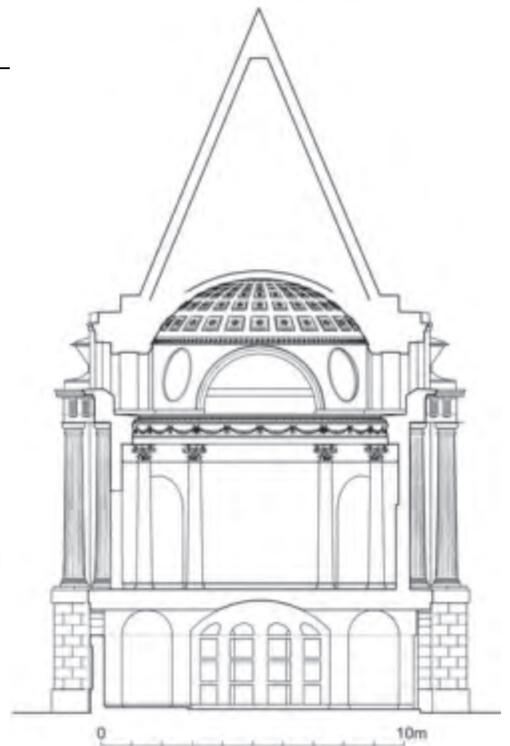
View from the south.

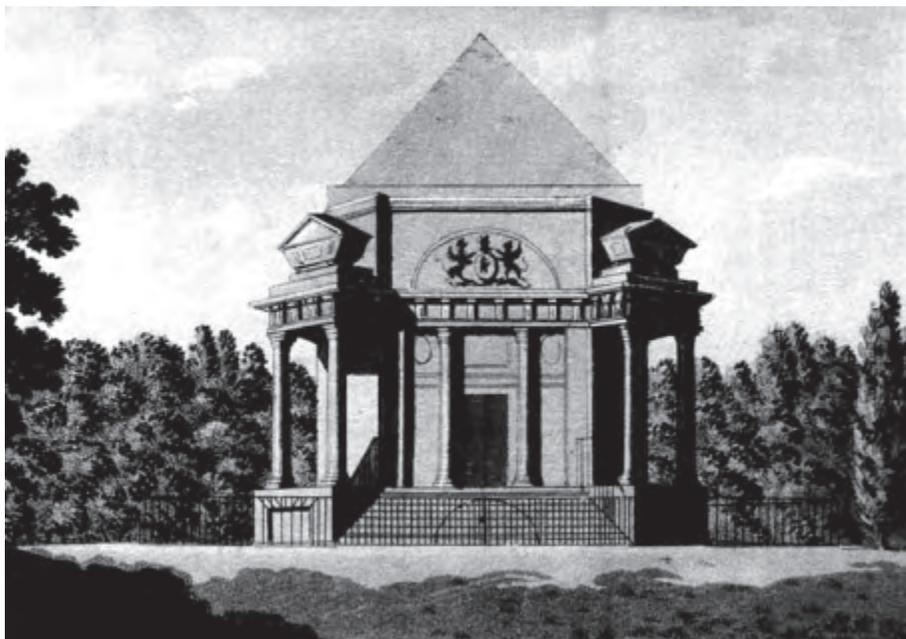


Southern corner.



Above: Medallion on north-west face.  
 Right, from the top: South-west facing section;  
 Plan at crypt level; Plan at chapel level;  
 South-west facing elevation.





Samuel Ireland, 1791.

view); some of the detail is impressionistic; and a few important modifications from this design are evident in the Mausoleum as it was ultimately built. Dr Bowdler has made a compelling case (2002, 17–18) based on documentary evidence and historical circumstances for the involvement in the execution of the mausoleum of a second architect, George Dance the Younger (1741–1825). It seems likely that Dance supplied some of the missing detail, and amended the design in a number of subtle, but highly effective respects.

Jill Lever's recent (2003) catalogue of Dance's architectural drawings illustrates a number of distinctive motifs and tendencies which, we consider are also represented in the Darnley Mausoleum. Significantly, these are most evident exactly where the executed detail differs from, or is depicted only sketchily in, the Wyatt watercolours. For example the four rusticated arches in the main faces of the basement (hidden, in the watercolours, by the flying stair) are of an odd and unruly pattern, for which we can find no precedent except in the works of Dance (especially his famous Newgate Gaol), and of his former assistant John Soane. We suggest these arches may have been of Dance's own invention.

The Corinthian/Composite order in the chapel of the Mausoleum was merely sketched in Wyatt's watercolour. The order ultimately executed, with its singularly luxurious capitals, was based closely on the so-called 'Temple of Vesta' or of the 'Sibyl' at Tivoli. The latter was a building of great importance to Dance, whose drawn survey, made during his training in Italy, long remained the principal authority on the subject. It seems likely Dance selected this version of the order himself, to supply detail missing from the watercolour.

More tentatively, Dance's influence can be detected in clever simplifications of the design of Wyatt's chapel ceiling and, especially, of the crypt. Wyatt's proposed drum of the chapel ceiling was elided so that the attic lunettes open directly through the base of the chapel dome. This, as Bowdler suggests,

provided a more substantial base to the supervening pyramid (2002, 20). It resembles the ceiling of Dance's Council Chamber, at the Guildhall in London of 1777, which both Lever (2003) and Stroud (1971) single out for comment.

Lever detects '[in] a number of Dance's works, geometric simplicity, austere articulation and subtracted ornament [which] place him with the pioneers of his time' (2003, 391). Such extreme simplicity is especially evident in the Darnley Mausoleum crypt, which differs greatly from the overcomplicated and inconvenient space proposed in Wyatt's watercolour. The completed crypt was almost purely geometrical, 'stripped' of classical detail, creating a unique and powerfully expressive neoclassical space, and one exceptionally convenient to the practicalities of entombment. It took the form of a small, circular central chamber under a shallow segmental dome, surrounded by radiating *loculi* or burial compartments and a pair of apsidal-ended

antechambers, one of which was to hold the Third Earl's own coffin on a black Belgian-marble table.

The construction of the Darnley Mausoleum, around a core of red brick and rubble, was, for its time, highly sophisticated, making use of iron plates and cramps and several different kinds of lead joggles. The construction of the pyramid proves to have been rather inventive, based around a tall, hollow, brick cone. At each corner, a skewed, brick half-cone was laid up the side of this core, almost to the apex, and the whole was clad with rhomboidal slabs and blocks, shaped to resemble solid ashlar. A trial trench through the moat or 'fosse' showed that, rather than sacrifice the natural elevation, this had been formed by piling up a substantial bank of earth all around the building, across the arched foundation of the perimeter wall, with a shallow outer slope resembling a graceful hillock.

The Mausoleum was never consecrated, and never used for burials, but was curated for many years as a landscape feature. During the second half of the twentieth century, however, it was sadly neglected, becoming the haunt of vandals and occultists, and spiralling into decay. It has now been restored; we are grateful to the Cobham-Ashenbank Management Scheme, and several other interested bodies, for the chance to study this remarkable building.

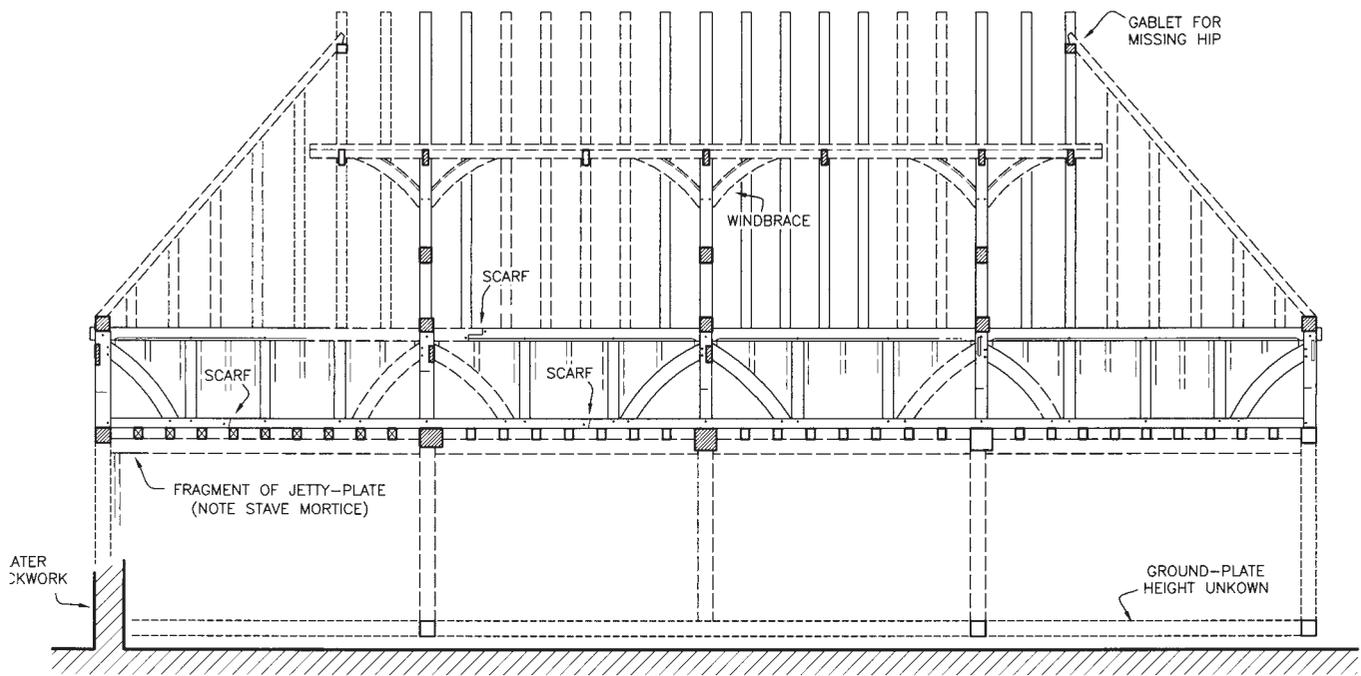
## Grove End Farm, Tunstall

Rupert Austin and Peter Seary

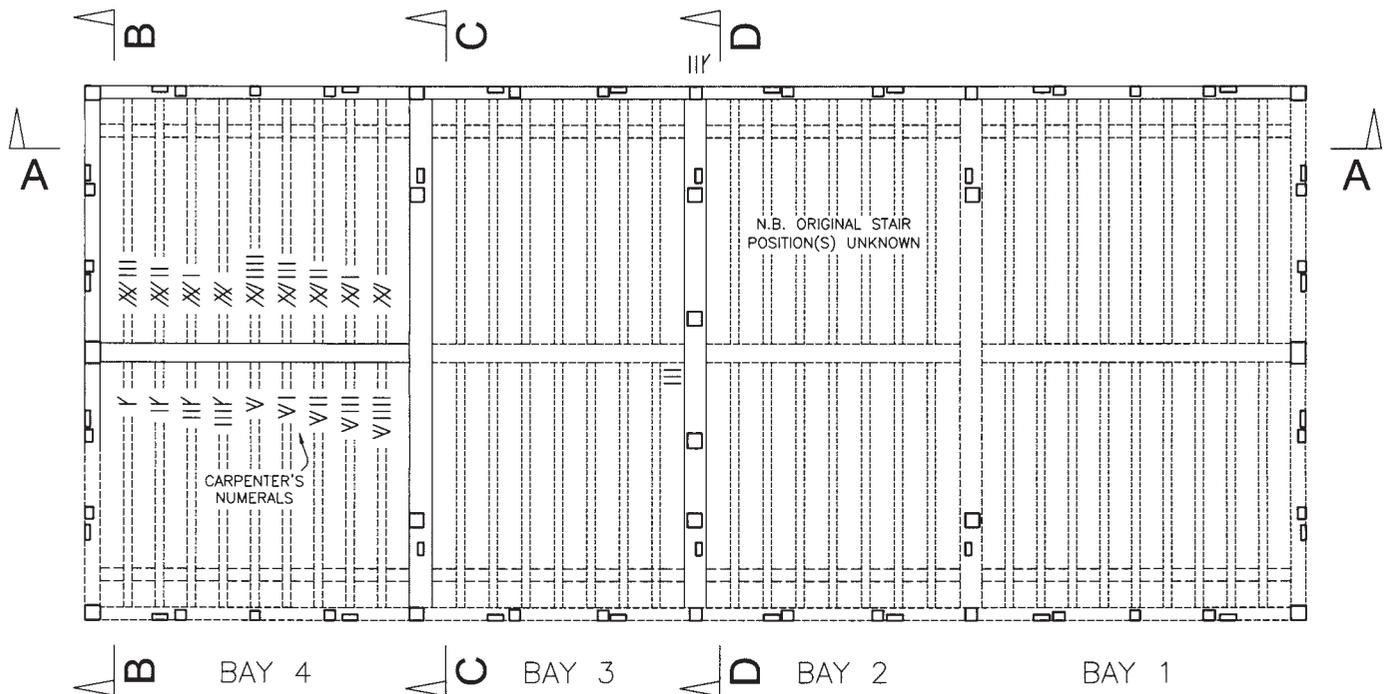
A survey was made of the 'South Barn' at Grove End Farm, south-west of the village of Tunstall, near Sittingbourne, in April 2008 prior to its conversion to provide office accommodation. Behind an untidy and unpromising brick exterior was discovered the remains of an unusual, timber-framed agricultural building of probable sixteenth-century date. As to its original function or functions, we can, as yet, only speculate, and only in the most general of terms. It perhaps intimates something of the former diversity of farmyard structures, from which only the more readily adaptable types usually survive.



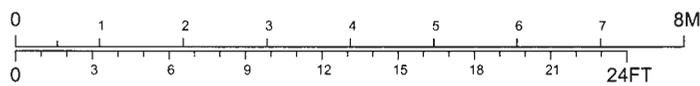
South elevation today showing later brick rebuilding of a once timber-framed elevation.



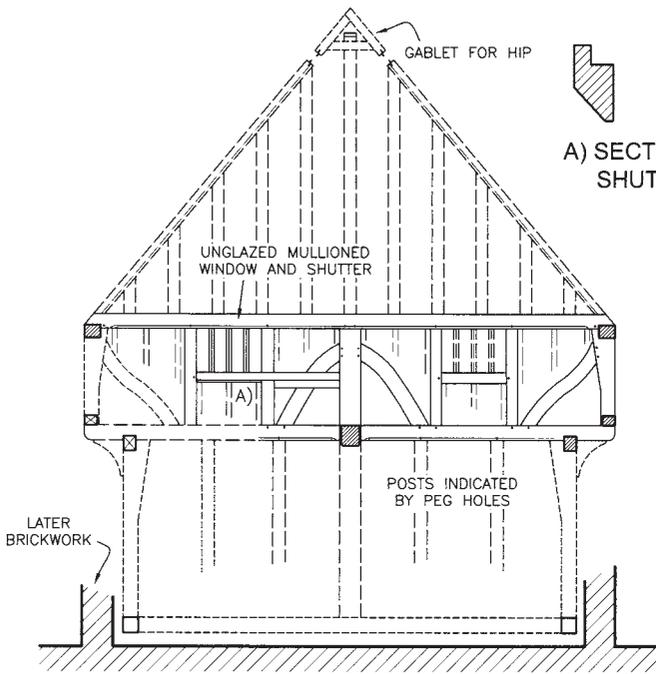
SECTION A - A, TO WEST (PARTIALLY RESTORED)



PLAN OF FIRST FLOOR JOISTS (PARTIALLY RESTORED)

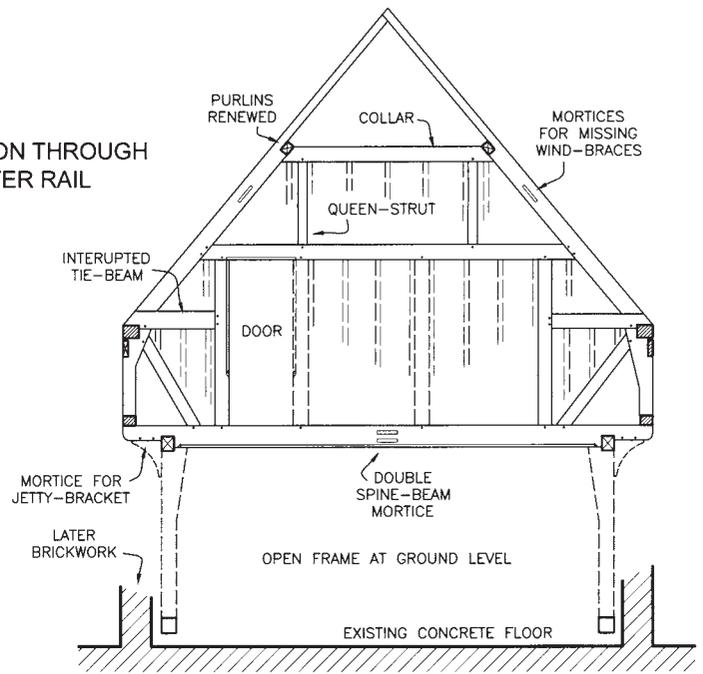


Grove End Farm.

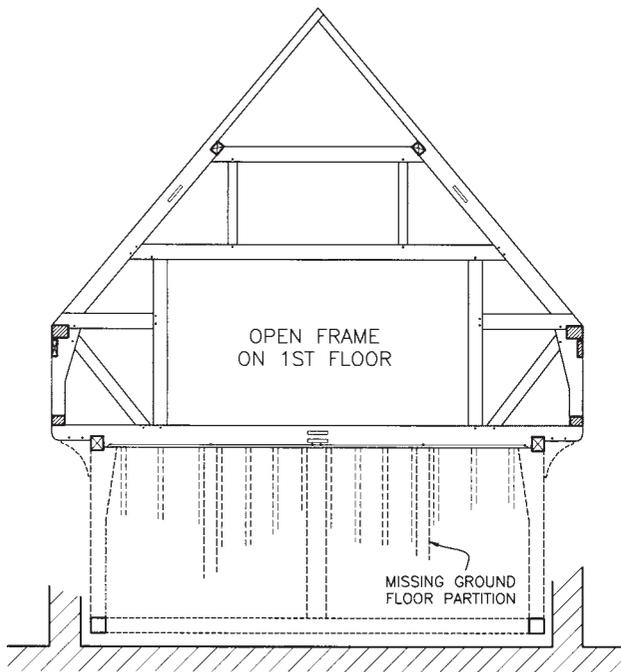
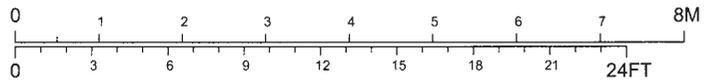


SECTION B - B, TO WEST  
(PARTIALLY RESTORED)

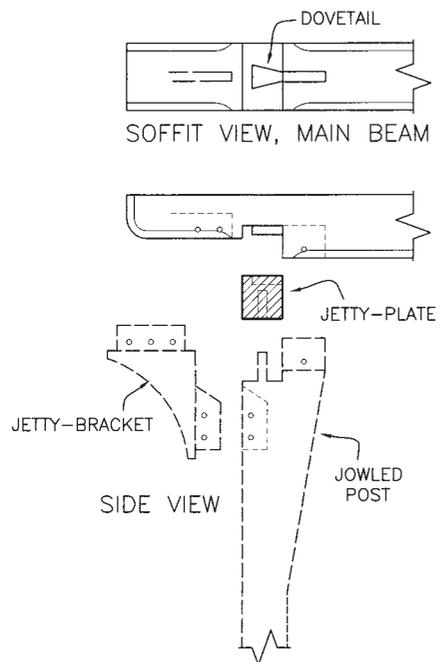
A) SECTION THROUGH SHUTTER RAIL



SECTION D - D, TO WEST  
(PARTIALLY RESTORED)



SECTION C - C, TO WEST  
(PARTIALLY RESTORED)



JETTY DETAILS

RA

Grove End Farm.

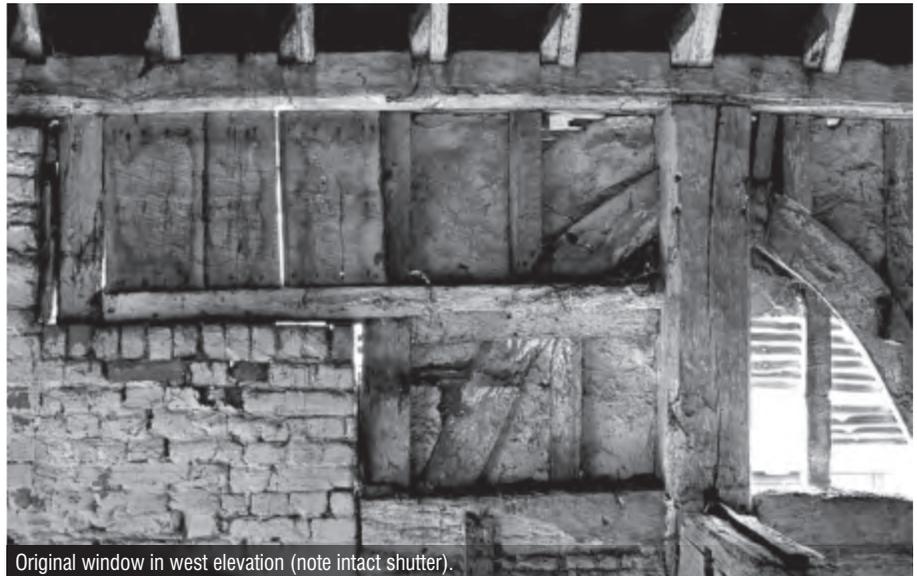
Grove End Farm was the seat, from medieval times until the early seventeenth century, of the Crowmer (or Cromer) family, and housed the village's Manor Court. Mixed farming was probably always practised here; in recent centuries hops clearly formed an important part of the business. It was run as a training farm, under the Kent Education Committee, for a period after 1919. Today, the farm comprises a substantial timber-framed farmhouse, perhaps of the sixteenth century; a number of early modern farm buildings, ranged around a small yard to the north of the house; and a suite of later farm buildings beyond these.

The building now known as the 'South Barn' was the smallest of the farmyard's surviving historic buildings, forming part of its southern boundary. It had been extended twice, encompassing an L-plan of nearly twice the original footprint. Much of the timber-framing of the elevations had been replaced with brickwork and almost all of the original flooring had been removed. The building had most recently been used as a stable, but now stood empty. Sufficient of the original fabric survived internally, however, to allow a partial reconstruction.

This enigmatic building was originally four bays long, with the end bays fractionally longer than the middle ones. It was jettied continuously to both front and rear, carrying a half-storey upper floor which extended into the roof. The framing of the elevations was down-braced, and seems to have been filled with wattle-and-daub rather than weatherboarded.

The ground floor was divided into three rooms – one at each end, and the third occupying the middle two bays. These rooms do not seem to have communicated directly, raising the possibility that the building was once open-fronted, onto the farmyard. Sadly, however, little or no evidence survived for the original ground-floor elevation on this side. The ground-floor ceiling joists were plain-chamfered, with simple step stops.

The upper floor was reached by an internal staircase, or staircases, in one or both of the middle bays. It was originally divided into two rooms, which communicated



Original window in west elevation (note intact shutter).

by a doorway, with plain-chamfered jambs and bar stops in the central partition. Each room was lit by two small, unglazed, windows, with diamond mullions, in its respective end elevation. Remarkably one of these survived, unaltered, and indeed unblocked, at the west end of the building, with an intact shutter still resting in its grooves. These were probably the only windows at this level – there were none in the north elevation, and probably none in the south – so the rooms would have been quite dark. The first-floor wall-plates were, nevertheless, chamfered, with neat lamb's-tongue stops at each truss.

The tie-beams of the roof, which would otherwise extend from eave to eave, were here stopped by posts so as not to interrupt the first-floor arrangements; these posts carried collar beams, tenoned into the principal rafters above head height. Above this, the roof conformed to a conventional wind-braced, clasped-side-purlin arrangement, hipped at each end.

We can only speculate as to the original uses of this building. If the structure was, indeed, once open-fronted then the three ground-floor rooms may

have been used to shelter carts or wagons, or to store implements. It seems unlikely it would have housed animals but this cannot be ruled out. The dinginess of the two supervening rooms precludes activities requiring good light. Some form of stowage is suggested, although anything stored here would have to have been manhandled up a flight of stairs.

Perhaps during the eighteenth century, the building was enlarged eastwards in brickwork, under a slightly shallower roof. From this point, the timber-framed ground-floor elevation of the original building was rebuilt piecemeal in brick, and at some point the timber floor was removed. Probably during the nineteenth century the ground floor was adapted as a stable, and a second brick extension was built on the north side of the building, meeting the first at a slightly obtuse angle.

All in all, examination of the building perhaps raised as many questions as it answered, reminding us that there is still much for us to learn about the early-modern Kentish farmyard.



General view of interior, looking west.



Evidence on soffit of bridging beam for former north jetty.



# PALAEOENVIRONMENTAL WORK

Enid Allison

## Introduction

The year proved very busy for the Environmental Department with several large excavations each producing numerous soil samples. The enthusiastic environmental team processed literally tonnes of sediment to recover animal and plant remains with the aim of providing environmental, economic and dietary information.

Other palaeoenvironmental work has included the continuing sampling of deposits from cores taken prior to the development of new areas at the site of the former St Mildred's Tannery in Canterbury, assessment of biological remains recovered from sites excavated in previous years, and analysis of insect assemblages from archaeological sites in Kent, Yorkshire and Lincolnshire.

Details of work carried out on the larger sites are given below. Specialist analysis of animal and plant remains recovered from Whitefriars is ongoing at time of writing and an extract from some of the work on bird remains appears below (pp 53–6).

The scientific names of any plants or animals with common English names are given only on the first mention in the text.

## Updown Farm, Northbourne

The soils at Updown Farm were relatively dry and charred plant remains and terrestrial snails were the main categories of biological material recovered from Neolithic and Bronze Age features revealed during excavations in 2007 (Allison 2007a). The plant remains have been assessed (Pelling 2007) and details from that report are included below. A detailed botanical analysis and an assessment of the snails are currently under way (Pelling in prep; Carrott in prep).

## Neolithic features

The soils in the area where pits had been cut in Neolithic period were very calcareous. Terrestrial snails were common or abundant in fills of the pits and taxa noted included *Pomatias elegans*,



Lauren Cadwallader wet sieving.

*Carychium* sp., *Pupilla muscorum*, *Discus rotundatus*, Clausiliidae spp, and *Cepaea* sp. The snails may be indicative of a range of local habitats, and several taxa suggest shady conditions possibly including woodland. As the deposits were not naturally accumulated, the potential of the assemblages for analysis may be limited – some taxa could have been introduced with backfill. There were also signs in at least one sample that some snails were relatively recent.

Other animal and plant remains were generally uncommon and, if present, poorly preserved. A few unidentifiable scraps of large mammal bone were present in some of the fills. Bones of small mammals and amphibians were common in two samples from one of the pits suggesting that the pit was open for some time and acted as an accidental pitfall trap. There was a trace of mussel (*Mytilus edulis*) shell in a single sample.

Charred plant remains were rare in the Neolithic features and were rather poorly preserved. The assemblages were small, and it is possible that some material may be intrusive from later deposits. However, the features from which the samples were taken were spatially separated from later features which may reduce the likelihood of charred plants having been introduced from later deposits.

Cereal grains included short grained, possible free-threshing bread-type wheat (*Triticum* sp), and hulled barley (*Hordeum vulgare*). The grain was highly clinkered and pitted and generally poorly preserved. Occasional masses of clinkered material may be the remains of very poorly preserved grain. Single pulses were present in two samples. Both were quite large (4mm) and spherical, suggesting either cultivated vetch (*Vicia sativa*) or pea (*Pisum sativum*) rather than field or Celtic bean (*Vicia faba* var *minor*).

Although plant remains were sparse in the pits the general scarcity of material of Neolithic date, both locally and nationally, means that the remains recovered here are of interest, particularly with regard to cultivation of crops. Closer examination of the pulses is necessary to try to determine whether pea or cultivated vetch is represented. The latter is a medieval introduction into the British Isles and would therefore be intrusive. If pea is present it would be a very early record. Pulses generally are extremely rare in the Neolithic period, but they appear relatively early in the archaeological record in Kent compared to other areas (Ruth Pelling, pers comm).

## Bronze Age features

The soils in the area relating to Bronze Age occupation were also dry but had a much higher clay content than those in the area of Neolithic activity. Biological material other than charred plant remains was scarce in sampled features – there were traces of large mammal bone in two samples and traces of mussel shell in one. Charred cereal remains and seeds were common in seven samples and present in small amounts in many of the rest.

The assemblages were dominated by cereal chaff and seeds of crop weed suggesting that much of the material was waste from crop processing. Cereals noted included both emmer (*Triticum dicoccum*) and spelt wheat (*Triticum spelta*) as well as barley. The occurrence of the two wheat species in Middle Bronze Age contexts is of great interest on both a local and national basis. Pulses, including field or Celtic bean, were present in four samples.

The Middle Bronze Age was a period when the scale of arable production in some parts of the country increased dramatically. The timing of the introduction of spelt into Kent and the significance of emmer wheat thereafter is not fully understood and appears to show strong regional variation. Further work on the charred plant remains from Updown Farm has the potential to add to an increasing amount of data that has been collected from Kent sites in recent years, much of which is not yet published, as well as shedding light on local agriculture and crop processing.

## Henwood, The Bayle, Folkestone

Bulk samples were taken mainly from pits associated with Anglo-Saxon and medieval activity on The Bayle. The soils were sandy and dry which restricted the range of biological material likely to be preserved. Despite this, animal and plant remains of various types were well represented in many deposits.

Plant remains were mainly preserved by charring although small amounts of mineralised material were present in deposits that had contained cess. Charred cereals and other seeds were often common or abundant in many of the samples but usually only moderately well preserved.

Fish bones were common. Their analysis will be of particular interest for comparison with the much larger assemblages from early medieval tenements excavated in Townwall Street, Dover (Nicholson 2006) and also with medieval material from recent excavations in New Romney (Locker, in prep). Shellfish were common in some samples: limpet (*Patella vulgata*) and edible winkle (*Littorina littorea*) were particularly well represented and oyster (*Ostrea edulis*) and mussel (*Mytilus edulis*) were common. There were also occasional finds of dog whelk (*Nucella lapillus*) and variegated scallop (*Chlamys varia*). Cockle (*Cerastoderma edule*) was barely represented. This is very much in contrast to New Romney where cockle was by far the most abundant species of shellfish (Allison 2008a).

At time of writing, the biological remains recovered from The Bayle are awaiting assessment.

## Augustine House, Rhodaus Town, Canterbury

At Augustine House, samples were predominantly taken from Roman features. Given the large amount of soil processed the recovery of biological material was disappointing, particularly since most of the wet-sieving was carried out in very cold conditions over the winter! Charred plant remains were present in limited amounts in many deposits (usually <10 items), being only occasionally better represented but never common. This may be a reflection of a low level of domestic activity on the site as charred plant remains usually preserve well in many different types of soil. Bone and shell were recovered in small amounts and were poorly preserved. In contrast, coins were relatively common in soil samples from an area associated with a possible shrine. Other artefacts recovered from samples included a large metal stud with a criss-cross design that appeared to have originally been enamelled.

The material recovered is currently awaiting assessment.

## Thanet Earth, Monkton

A comprehensive sampling programme was carried out on all eight plateaus at the Thanet Earth site. Remains recovered from the bulk samples varied from plateau to plateau, depending both on the types of features excavated and on the soil conditions in different areas.

### Charred plant remains

The soils at the Thanet Earth site are dry and not generally favourable for the preservation of organic material, but plant remains that have become carbonized survive well. Carbonization occurs when grain, seeds or other plant material is burnt in an atmosphere containing too little oxygen and becomes converted to elemental carbon, sometimes

resulting in an almost perfect charred version of the original.

Carbonized material is found where fire or heat has been involved in the processing or use of plants which means that remains recovered from archaeological contexts are usually crop or food related. Carbonization would have occurred for a variety of reasons. Drying of grain and possibly other crops for storage was often necessary, and ancient varieties of cereals were often hulled, requiring drying to enable threshing to be carried out effectively. Ancient corn driers would have been difficult to control accurately and much grain and chaff would have been carbonized accidentally. Similar accidents occurred during the malting process when grain was heated to kill the developing sprouts, and also during food preparation. Spoiled crops and waste from cereal processing was often deliberately burnt but not always effectively.

The fills of many large pits on Plateau 8 produced significant quantities of charred plant remains. Until recently, very little was known of the crops cultivated by the prehistoric inhabitants of Kent in comparison to other parts of England. The recovery of increasing quantities of charred plant remains from Bronze Age and to a lesser extent from Iron Age sites in Kent is now producing data on the production, processing and storage of crops, on local land use and agricultural history. Any animal and plant remains recovered both by hand-collection and from bulk samples from Plateau 8 will therefore provide dietary and economic data for the less well known Iron Age period.

On Plateau 8 cereals were abundant and barley and wheat were both common. Chaff and weeds from arable crops are common in samples that appear to be waste from crop processing. The quantities and types of remains recovered suggest that cereal processing was being carried out in a piecemeal fashion.

Emmer wheat appears to have been the most ancient variety of wheat cultivated in Britain. Spelt begins to be recorded in the Middle Bronze Age in parts of the Thames Valley and at Dartford (Pelling 2003), and both emmer and spelt were grown in Kent during the Iron Age. A current area of research is on the relative importance of the two crops – there are indications



Alex Vokes processing a sample from Thanet Earth.



Alex Rogers doing final washing of a sample from Thanet Earth.



Ann Chadwick sorting through dried residues.



Bob Robson.

from other Iron Age assemblages in Kent (eg from Church Whitfield, near Dover (Campbell forthcoming) and Wilmington (Hillman 1982)) that emmer continued to be an important crop in Kent throughout the Iron Age and into the Roman period when its cultivation had declined in favour of spelt elsewhere.

The protein content of emmer and spelt is about twice that of most modern wheats. Emmer is very low in gluten and may have usually been made into a type of porridge. Spelt is not so good for porridge, but has excellent baking and milling properties. It can be made into bread although the gluten content is lower than bread wheat and bread produced from spelt has a rather cake-like texture. Another line of enquiry will be to determine whether oats and rye are present - both appear to be relatively late introductions into Britain.

Pea-sized pulses were common. Recent work carried out on prehistoric charred plant assemblages from Kent sites suggests a distinctive cultivation regime with crop rotation of cereals and pulses. The pulses fix nitrogen in the soil which is therefore available for subsequent crops.

Examination of the weeds represented in the assemblages can provide information on areas that were used for crop cultivation. Weeds that grow on particular types of soils often form distinctive ecological groups depending on the soils on which they are growing. With knowledge of the local geology and the ecology of plant communities, examination of the weed seeds in crop residues can often indicate where a crop may have been grown.

Other plant remains recovered from the Iron Age area include stones of sloes (the fruit of blackthorn (*Prunus spinosa*)) and hazelnut (*Corylus*) shell.

Carbonized plant remains were recovered in greatest quantity from Iron Age features on Plateau 8, but also from medieval buildings and features on Plateaus 1, 2 and 4.

### Vertebrate remains from Iron Age features

Bone is very poorly preserved on many parts of the Thanet Earth site, but animal bones representing both butchery waste and domestic consumption were quite

common and relatively well preserved in some of the Iron Age pits used for refuse disposal on Plateau 8. The assemblage will enable the relative importance of the main domestic animals in the local economy to be examined, and indicate to what extent hunting and wildfowling contributed to the diet. Early signs are that the inhabitants of the area were carrying out mixed arable and pastoral farming.

Other potential areas of interest include checking for the presence of fish and domestic fowl bone, both of which are rare in Iron Age deposits generally. From the poor representation of fish bones during the period, some researchers have suggested a general Iron Age aversion to fish (Dobney and Ervynck 2006), although there may have been regional variations. A few small fish bones have been recovered from soil samples from one of the pits so far. Unfortunately the generally poor preservation of bone will be a major factor in the recovery of fish remains in particular as they are much less robust than those of other vertebrates.

Domestic fowl bones have only occasionally been found in Iron Age contexts: small numbers have been recorded mainly from sites in southern England and dating from c 250 BC onwards. Julius Caesar wrote that the ancient Britons did not eat domestic fowl (or geese or hares) but kept them for diversion and pleasure (*Bello Gallico* V: 12). In Britain, the widespread keeping of chickens, and their consumption, appears to have begun with the Roman occupation in Britain.

### Invertebrates

On Plateau 6 samples were taken from sequences of deposits in the fill of the primary grave of the Beaker burial, and from the barrow ditches for the recovery of terrestrial snails. Many snails have particular habitat requirements and assemblages have the potential to provide data on the local environment and ecology around the barrow during the time that the deposits formed.

Several species of snail that live in estuaries, mud flats and salt marshes were consistently recovered from within the fills of some of the large Iron Age pits on Plateau 8. They are unlikely to have been found

there naturally. One explanation for their presence might be that they were harvested accidentally with estuarine shellfish such as cockles. However, only small traces of shellfish of any kind have been recovered from the pits. Another possibility is that coastal mud was being collected. Small dried lumps of grey clay with shellfish fragments were found in some samples suggesting that mud may be the source of both snails and the traces of shell. There was little evidence for general consumption of shellfish at the site during the Iron Age.

In contrast, the fills of some medieval features, particularly ditches, on various plateaus produced large assemblages of shellfish. Species exploited were mussel, oyster, winkle, cockle, whelk (*Buccinum undatum*), and peppery furrow shell (*Scrobicularia plana*, a clam-type bivalve). Fragments of cuttlebone (the internal shell of the cuttlefish *Sepia cf officinalis*) were recovered from a few samples. Mussel was usually the most abundant species.

### Cremations and inhumations

Sieving of Roman cremation deposits chiefly from Plateau 2 improved the recovery of human remains, hobnails from footwear, nails (probably from decayed wooden caskets), and pottery.

On Plateau 6 samples were taken from the fills of the Beaker period grave within a double ring-ditch to enhance the recovery of small bones, and small artefacts if present, although none of the latter and few bone fragments were recovered. Samples were also taken from features associated with a ring-ditch with a double central burial on Plateau 3.

### Northfleet wastewater treatment works

A large number of samples were taken during the excavation at the wastewater treatment works at Northfleet during early 2007. Approximately 10 per cent of these, from the fills of pits, post holes and ditches, colluvial and alluvial deposits, and the peat fill of a large feature, were processed for recovery of

biological remains and artefacts, and to provide an assessment of the potential of biological remains to produce environmental and economic data (Allison 2008b).

Despite evidence for prehistoric human activity on the site in the form of pits, ditches and post-holes, few traces of domestic, industrial or agricultural waste were recovered from samples from those features.

Charred plant remains other than charcoal (which was recovered in trace amounts from all of the samples studied) were limited to very small quantities of generally poorly preserved cereal grains and chaff, a few weed seeds and fragments of hazelnut shell. The remains are too few to warrant further investigation and there is a strong likelihood, particularly for the colluvial and alluvial deposits, that some of the material may be residual.

It is clear from types of the biological material recovered from the samples that many of the deposits on the site had been waterlogged, and that organic material including plant macrofossils and insect remains had been preserved by anoxic conditions. The quantity of organic material surviving varied greatly between deposits, with large amounts of well preserved organic material present in the peat filling the large feature, and scant remains preserved in most

samples from other features and from colluvial and alluvial sediments.

For deposits where small amounts or traces of waterlogged organic material were present, the remains that had survived were often poorly preserved. This suggested that, although the amounts of organic material originally present would have been less than in the peat, hydrological changes that had taken place since deposition may have resulted in the loss of some organic material from these deposits.

The peat was rich in plant and invertebrate remains and reeds (*Phragmites*) accounted for the bulk of the organic material. Although the range of plant macrofossils was restricted, other categories of biological material were much more diverse. In particular, substantial assemblages of insect remains were recovered from the lower, middle and upper peat deposits. Analysis of these will provide an ecological reconstruction of water conditions within the feature (including salinity) and on land nearby during the period over which the deposits accumulated. Snails were fairly common in the lower parts of the peat sequence and further work will augment information on local conditions obtained from plant and insect remains. It is very likely

that pollen is preserved within the same deposits: palynological analysis may provide data on both local and regional scales.

Radiocarbon dating of the peat deposits is necessary before any further work can be carried out. The find of a medieval shoe within the peat suggests that at least the upper part of the sequence is of relatively late date. A full biological analysis is desirable because of the relative scarcity of such waterlogged peat deposits in Kent.

Snails were common and well preserved in some samples from the colluvium. The majority of taxa were from terrestrial habitats and snails typical of both relatively dry calcareous ground and moister habitats including very wet permanently marshy grassland were present. The implication is that the deposits had accumulated material from a variety of local habitats. The consistent presence of small numbers of water snails suggests that some of the material may have come from flood deposits. Further analysis of material from a fluvial/colluvial sequence may provide data on the accumulation of these deposits and land use, particularly if significantly sized snail assemblages are recovered, provided the sequence can be tied in the chronology of the site.



## Other CAT sites

Smaller numbers of samples were processed and remains recovered reported upon from evaluations on gravels in Hawley Road, Wilmington (Allison 2007b), Iron Age features in St Richard's Road in Deal (Allison 2008c), a Roman cremation at St Lawrence's Cricket Ground (Allison 2008d), and an Anglo-Saxon pit at Barton Court School (Allison 2008e).



- 1 Wygate Park, Spalding, Lincolnshire
- 2 Horton Kirby, South Darenth, Kent
- 3 Balby Carr, nr Doncaster
- 4 Aldbrough, East Riding of Yorkshire

## Insect work

### Wygate Park, Spalding

Insect remains were recovered from waterlogged deposits excavated on a late Iron Age to Late Roman settlement at Wygate Park, Spalding, Lincolnshire. The site lies in an area which has been subject to changes in salinity and wetness throughout much of its history. Insect analysis was carried out in conjunction with botanical work to examine changes in the local environment, particularly with regard to water salinity, local vegetation and anthropogenic influences, that might have taken place during the lifetime of the settlement (Allison 2007c).

Insect remains were present in a number of ditches, a creek and other features but were most abundant in the fills of an early to mid third-century waterhole. Aquatic insects were less abundant in its lower fill than in later deposits but indicated stagnant, muddy water with hints of brackish conditions. A large decomposer component in the assemblage, including various synanthropic species, suggested that litter from within buildings had been dumped into the feature, possibly when it was relatively empty of water. Dumping of litter into the waterhole may have taken place as the water became less suitable for drinking.

The later deposits indicate a period when conditions in the waterhole were decidedly aquatic. Water

beetles and bugs accounted for over half of the assemblages, and there were clear indications of stagnant, muddy brackish water with aquatic vegetation. Indications of the dumping of material from buildings were also seen in these deposits, although the proportion represented by this fauna was smaller than in the lower fill. A possible alternative to dumping of material directly into the feature may be that mouldering organic material, probably derived from a building, was placed close to the feature and beetles living in it formed part of the background fauna in the immediate vicinity of the waterhole. Beetles exploiting foul matter were common in the assemblages, some distinctly associated with herbivore dung.

Plant-associated insects derived from local vegetation supplemented the botanical evidence from the waterhole; duckweed (*Lemna*) grew on the water surface, and plants growing on land around the waterhole included nettles (*Urtica*), *Polygonum*, crucifers, *Plantago*, grasses and sedges, and rushes (*Juncus*). Areas close to the water margins are likely to have been moist and muddy, although drier areas probably existed close by, and the landscape itself was rather open.

### Horton Kirby paper mill

Archaeological work was undertaken by PreConstruct Archaeology during 2006 at the former Horton Kirby Paper Mill, South Darenth, Kent in connection with the proposed development of the site. The site is on the floodplain of the River Darent and straddles the natural course of the river. The river was diverted into two culverts from at least as early as the second quarter of the nineteenth century. There may have been earlier diversions of the channel as a mill is shown near the site on Hasted's map of 1787 (Hawkins 2005).

A sequence of samples was taken from deposits exposed in a trench to investigate the environmental history of the site and its environs, and to determine the impact of human activities on the landscape. Radiocarbon dating of the sequence indicated that sedimentation had commenced by the Late Mesolithic period (7600–7430 cal BP) and continued at least up to the Anglo-Saxon period.

Samples from the earlier part of the sequence contained substantial numbers of insect remains and the assemblages recorded from individual samples were closely similar in implication (Allison 2007d). Aquatic taxa accounted for between a quarter and a third of the assemblages, with an overwhelming majority of the beetles being from running water. No water beetles confined to stagnant water were identified.

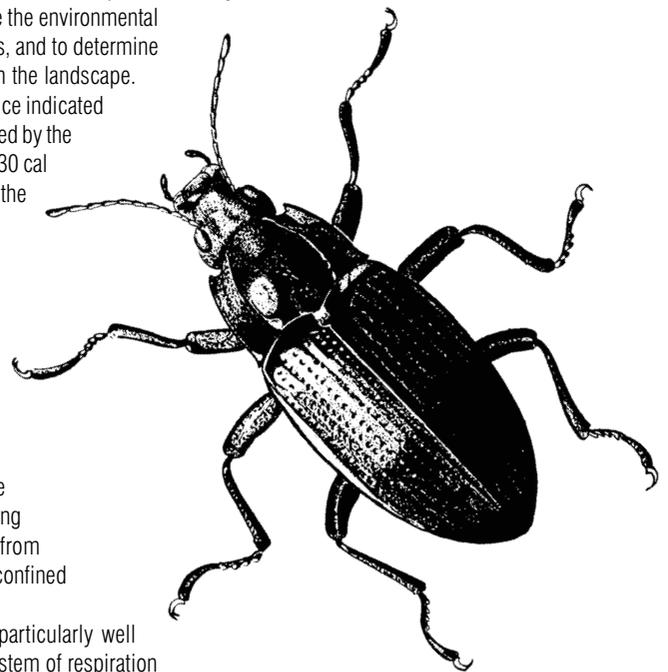
Riffle beetles (Elmidae) were particularly well represented. This group has a system of respiration that requires a continuous supply of clean, clear, well-oxygenated water. They are consequently found in flowing water, especially in shallow riffles or

rapids. They do not swim but cling tenaciously to the substrate to avoid being swept away (Brown 1987).

The evidence from the insect remains indicates that the earlier part of the sequence represents the deposition of material from a high-energy water channel, perhaps laid down in more slowly-flowing areas or in a backwater. An alternative would be that the sediment was deposited during episodes of flooding. It is probably unlikely that the observed insect assemblages would have simply been the result of occasional floods, however, since elmids cling very tightly to the substrate and do not appear to be easily dislodged by flooding. A modern study of flood refuse at the Cuttle Brook Nature Reserve showed that elmids were absent in flood refuse despite their presence upstream (Shotton and Osbourne 1986).

The main water channel must have had a stony bottom, at least in parts, and the water would have been clear and clean - elmids cannot live either in silty water or where silt is present on the channel bed. A recent study in the catchment of the River Rede in northern England has found the presence or absence of silt to be the most important single variable in the distribution of riffle beetles (Eyre *et al* 1993).

Deciduous woodland with dead, dying or fallen trees and branches was present close to the water channel. The elm bark beetles *Scolytus scolytus* and *S. multistriatus*, recorded from two samples, breed in dying or fallen elm trees (*Ulmus*) and both species can act as vectors for Dutch elm disease. Insects feeding on oak (*Quercus*) and hazel (*Corylus*) were present and ivy (*Hedera*) was indicated by several species. Beetles from dead and rotten wood habitats were well represented, including several taxa found on tree fungi suggesting ancient trees. Woody debris may have been present in the water - several of the water beetles represented are often found on submerged wood. Unsurprisingly for a wooded area, the ground was moist and shaded, with litter. There



*Limnius volckmari*, a riffle beetle common in waterlain deposits at Horton Kirby. From Holland (1972).

were no suggestions in the insect fauna of human occupation close to the point of deposition.

Beyond a certain point in the sequence, preservation of insect remains falls off dramatically. The difference between preservation in the upper and lower parts of the sequence could relate to shifts in the position of the channel, or to other changes in environment or local land use. Further more precise dating for the part of the sequence where insect preservation was good is needed to relate the indicated environmental conditions of shady ancient woodland with a channel of clear running water running through it to a particular time period.

### Balby Carr, South Yorkshire

An archaeological excavation was carried out by Archaeological Services WYAS at Catesby Business Park, Balby Carr, near Doncaster, during 2004. Ring ditch and trackway features with associated ditches of probable Iron Age date were revealed. It is possible that these represent a settlement enclosure but the location of the site in a low-lying damp area would not be ideal for habitation.

Insects from the fills of a trackway ditch were analysed to provide information on local ecology and land use over the time that the deposits formed (Allison 2008f). Aquatics and waterside taxa were dominant in all the deposits, many of which were typical fen species. The aquatic group indicated that the ditch had contained still to slowly flowing water, with rich aquatic and emergent vegetation and mud in shallow water and at the water margins. There appears to have been an input of faster flowing clear running water, perhaps occasionally. The ditch was

probably permanently water-filled at least in the earlier deposits – there is a suggestion from the general condition of some of the insect remains that a certain amount of drying may have occurred in the uppermost fill. Duckweed (*Lemna*) and waterside umbellifers were present throughout the sequence of fills. Other aquatic plants suggested by the insect assemblage include yellow flag (*Iris pseudacorus*), reeds (*Phragmites*), and bur-reeds (*Sparganium*) and/or bulrushes (*Typha*).

There were indications of slightly less open water conditions in the upper parts of the sequence and an increase in swamp-living taxa. The evidence for reeds is particularly strong in the uppermost fill.

Herbaceous vegetation in areas of damp ground would have included Ranunculaceae, rushes (*Juncus*) and sedges (*Carex*). There were also areas with stands of nettles (*Urtica*) and other weedy vegetation such as docks (*Rumex*), knotgrass (*Polygonum*) and Cruciferae. Thistles (*Cirsium* and *Carduum*), *Plantago*, and vetches (*Vicia* and *Lathyrus*) grew in places. Beetles found on the last of these were notably common in several samples.

Trees appear to have been present when the lowest fills accumulated, and the evidence for deciduous woodland becomes stronger throughout the sequence. This may simply have been the result of the area becoming somewhat overgrown, with trees growing closer to the ditch than they had done previously. The number of beetle taxa associated with rotten wood, or dead twigs and branches also increased in the upper parts of the sequence, perhaps an indication of the general ageing of the vegetation that grew up around the ditch and trackway.

A variety of local trees was indicated by the insect fauna. The alder leaf beetle *Agelastica alni* appears to require extensive stands of alder (*Alnus*) for its survival and its presence at Balby Carr suggests that a significant tract of alder woodland existed there during the late Iron Age. The alder leaf beetle is thought to be extinct in Britain at the present day. Other deciduous trees present would have been willow (*Salix*), poplar (*Populus*), ash (*Fraxinus*), oak (*Quercus*) and hawthorn (*Crataegus*), suggesting that parts of the local area varied in wetness, and there may also have been pine (*Pinus*).

The evidence from the insect remains in general suggests that a variety of habitat types including heathland existed away from the ditch itself. Areas of drier open ground supporting grassland were indicated by several species of chafer. All have larvae that feed in grassland at the roots of turf which would require drier ground than the immediate surroundings of the water-filled ditch appear to have been. The most numerous of these was *Phyllopertha horticola* usually found in poor quality pasture land on light soils (Jessop 1986,

29). Beetles associated with herbivore dung were relatively well represented among terrestrial forms and imply grazing in the vicinity.

There was no evidence for a suite of synanthropic beetles typically found in man-made accumulations of organic refuse that would have suggested human habitation close to the point of deposition.

### Aldbrough, East Yorkshire

Ditches and other cut features of mainly Iron Age /Romano-British date were revealed during an excavation by Humber Field Archaeology at the Aldbrough Gas Storage works, close to the coast of the East Riding of Yorkshire. Samples from the fills of two ditches dated to between 60 BC and AD 240 contained significant assemblages of ancient insect remains (Allison 2008g).

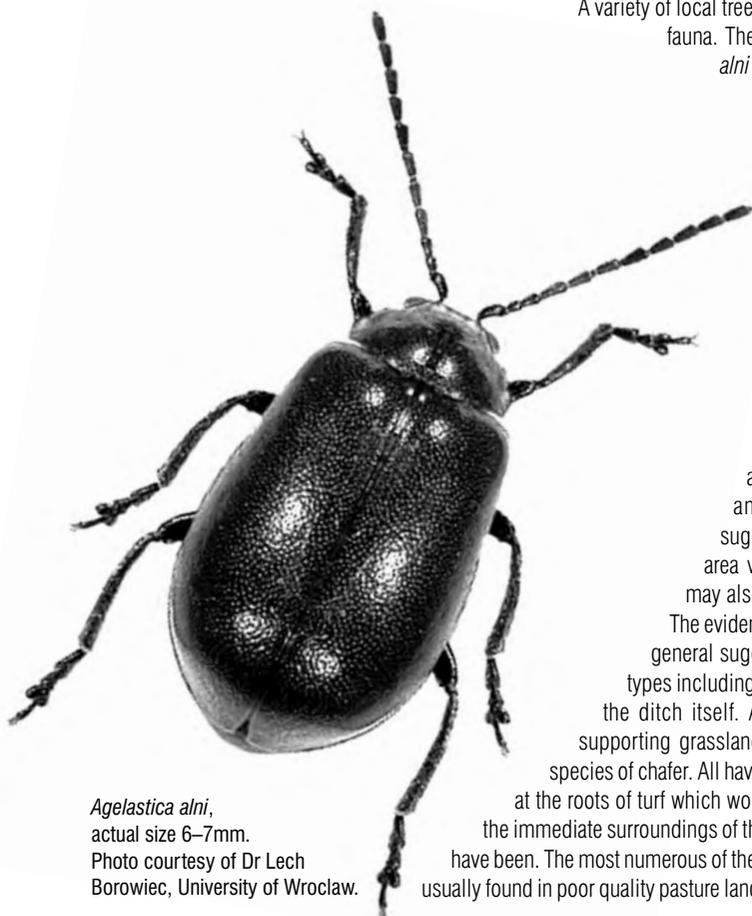
Analysis of beetles recovered from the samples indicated that both ditches contained shallow, still water with duckweed. The presence of the water beetle *Ochthebius marinus* in the earlier of the two ditches suggested that the water may have been brackish. The later ditch appeared to have been well-vegetated, and may have contained water more or less permanently during the period over which the deposits formed. Waterside vegetation included umbellifers and sedges (*Carex*).

Terrestrial insects provided some details of ecology and habitats outside the ditches and implied that the local environment remained broadly very similar over the time period represented. Both ditches had stands of nettles growing close by, and there was evidence for other weedy vegetation, including Polygonaceae, Cruciferae, and docks (*Rumex*). Local trees were suggested by records of a leaf beetle found on willows (*Salix*), poplars and aspen (*Populus*). A large proportion of each sample was made up of remains of the chafer *Phyllopertha horticola* and various dung beetles indicating poor quality grassland grazed by herbivores.

Little evidence for human activity was obtained from the insect assemblages but a small quantity of charred cereal remains was recovered from the fills of one ditch, indicating that a limited amount of waste from domestic or agricultural activities found its way into the accumulating fill (Carrott *et al* 2004).

### Acknowledgements

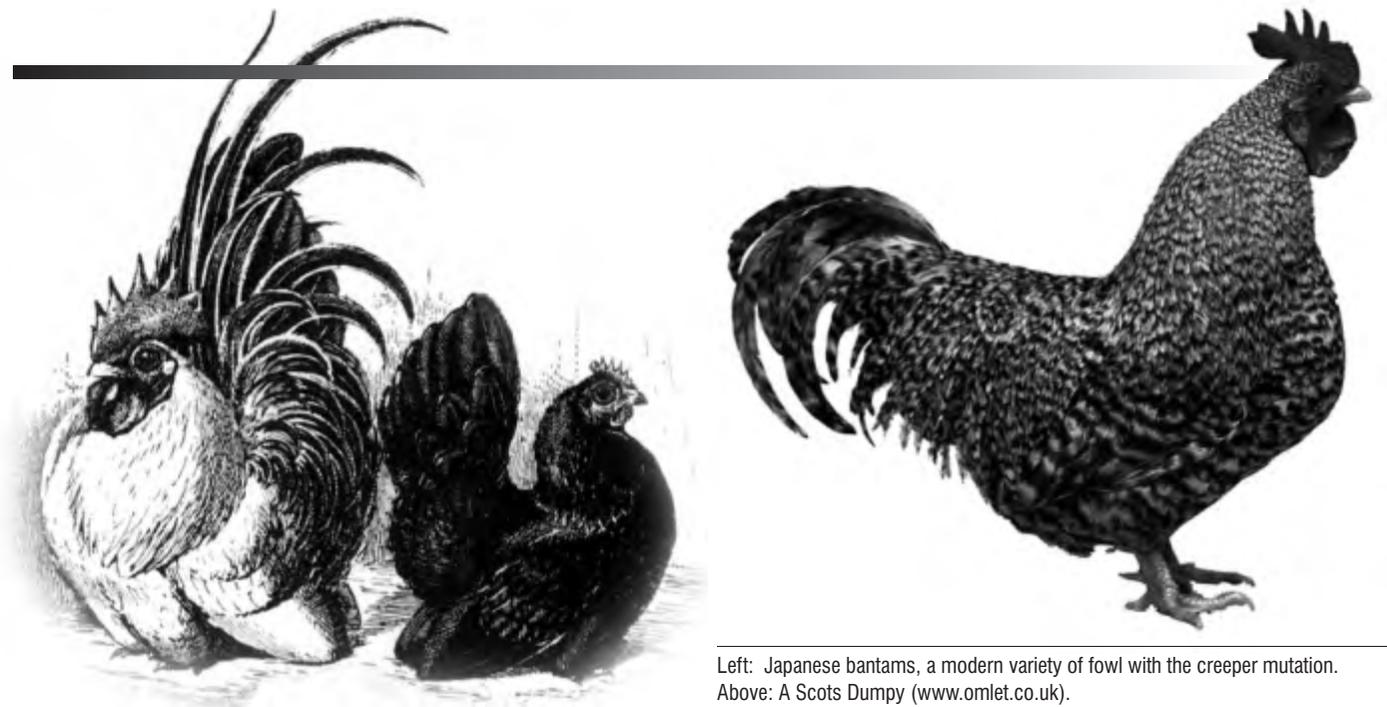
Processing of bulk soil samples from CAT sites over the year was carried out by Lauren Cadwallader, Mat Ginever, Alex Vokes and Alex Rogers. Thanks are also due to John Adams whose technical help has been invaluable to the smooth running of the wet sieving operations. Mat Ginever carried out the sorting of charred plant remains for final analysis from the Whitefriars site. Lauren Cadwallader with volunteers Elaine Brazier, Ann Chadwick, Marie Goodwin, Oliver Goodwin, Bob Robson, Alan Thistleton and Diane Tye have between them sorted through a huge amount of dried sample residues to recover artefacts and biological remains. Their cheerfulness and enthusiasm in the face of encountering yet another bag of burnt flint and/or chalk is greatly appreciated.



*Agelastica alni*, actual size 6–7mm. Photo courtesy of Dr Lech Borowiec, University of Wrocław.

# RESEARCH AND PUBLICATION

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Left: Japanese bantams, a modern variety of fowl with the creeper mutation.  
Above: A Scots Dumpy ([www.omlet.co.uk](http://www.omlet.co.uk)).

## Dwarf hens and a lame tame crane: strange fowl from Whitefriars

Enid Allison

Among the more unusual bird remains recovered from the Whitefriars excavation were bones of several dwarf domestic fowl. Dwarf fowl are quite different from bantams; the shortening of the limb bones is caused by a genetic condition – the creeper mutation – that affects all the limbs, with a greater shortening occurring in the legs than the wings, whereas bantams are simply a small version of a normal breed with normally proportioned long bones. The creeper allele is semi-dominant and is lethal to homozygotes (having a creeper allele on both chromosomes), which die within the egg (Landauer and Dunn 1930). All adult creepers are therefore heterozygotes (with a creeper allele on one chromosome and a normal allele on the other).

Apart from being unusually short, most bones in the skeleton of a creeper fowl are morphologically normal in other regards, but two bones in the leg immediately below the knee are exceptions. The shaft of the tibiotarsus is usually bent in the distal half and thickened, and the fibula is much more robust than in normal fowls and extends to the distal end of the tibiotarsus to which it is fused. In a normal fowl the lower end of the fibula does not extend the full length of the tibiotarsus and is not fused with its distal end (see diagram for the positions of these bones). Badly affected creeper fowl are unable to stand because of twisting of the shaft of the tibiotarsus and some have permanently curled toes.

As with a number of other serious mutations in domestic animals, the creeper condition has been considered desirable by poultry fanciers and has become the distinguishing character of various breeds developed in different parts of the world including Scots Dumpies in Britain, Courtes Pattes in France, Luttehøns in Denmark, Krüpers in Germany and Japanese bantams. Some types of creeper fowl are known to have been in existence for centuries and were said to be superior to other breeds for brooding chickens because the fluff feathers were so close to the ground (Hutt 1949, 58). The bodies of adult Scots Dumpies, for example, are less than five centimetres from the ground. The more limited movement of the

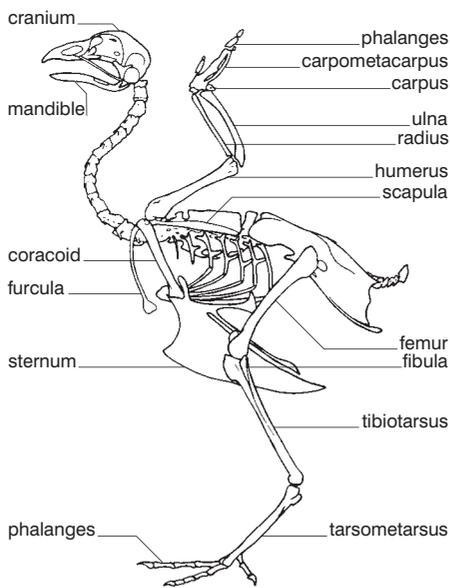
birds compared to normally sized fowls would also prevent them straying too far.

Fowl with creeper characteristics appear to be of some antiquity. Columella writing in the first century AD noted "...I do not too much approve of dwarf fowls, neither on account of their fruitfulness, nor for any other advantage they may bring, unless their very low stature is pleasing to anyone" (De Re Rustica, Book VIII). Not everyone was so dismissive of their qualities however. They seem to have had a long history in Scotland and, according to legend, were used by the Celts and Picts to provide warning of danger. One legend relates how vigilant dumplings on hearing noises made by would-be attackers as they trod on thistles, alerted their owners to their peril, and thereby saved the day. This led, so the story goes, to the adoption of the thistle as the emblem of Scotland. (A stunted hen presumably doesn't provide the right sort of image for a national symbol!)

At Whitefriars, the earliest bone identified as belonging to a creeper fowl was a femur from a Roman deposit dating to AD 200–230. A tarsometarsus (the lowest part of the leg that forms the articulation with the foot) of an immature fowl from late fourth- to early fifth-century deposits that had built up inside the shell of a demolished Roman building, may also have had the same condition. The distal end of the latter bone was deformed in a way that would have resulted in some of the toes being curled backwards, a disability seen in some creepers. Since the bone was immature it was difficult to gauge how short the bone would have been in an adult.

Unequivocal evidence for the presence of very small creeper fowl was obtained in the form of tibiotarsi from two individuals from medieval deposits. Both bones were very small and were severely bent in their lower halves. The fibulae were thick and fused to the distal ends of the tibiotarsi.

Archaeological finds of bones from dwarf fowls are very rare. Occasional bones showing dwarfing were present among large bird bone assemblages from Anglo-Scandinavian, medieval and post-medieval



Bird skeleton showing the principal bones (following Bradley).

deposits in York (Allison 1985). The presence of fowls with the creeper condition as far back as the early third century in Canterbury is therefore of great interest.

Evidence of another serious mutation in a Roman fowl has previously been noted among bones from an excavation at Canterbury Police Station in 1997 (Allison 2005). A fowl cranium with a large, almost globular tuberosity that would have surrounded a cerebral hernia was recovered from a pit fill dated to AD 150–250. A cerebral hernia is associated with the development of a crest of feathers on the head. The latter trait was considered to be a desirable feature that was incorporated into a number of modern breeds such as the Silkie.

Cranes (*Grus grus*) formerly had a widespread distribution in Britain and bred in some places up to the beginning of the post-medieval period (Boisseau and Yalden 1999). They continued as visitors to this country for some time after they ceased to breed, but by the mid eighteenth century had become much scarcer. Their widespread occurrence in the past is reflected in the recovery of bones from numerous archaeological sites in the British Isles.

Occasional bones of cranes were recovered from Roman and medieval deposits at Whitefriars, all singly with other domestic refuse, and some with knife marks showing where meat or tendons had been cut from the bones. More unusual was the find of an almost complete crane skeleton in a medieval refuse pit probably associated with properties along Rose Lane, none of which were excavated as they did not fall within the Whitefriars development area (Alison Hicks, pers comm). Pot sherds from the fills of the pit were dated to between AD 1175 and 1250.

The crane skeleton is of particular interest because three separate areas show pathological features indicating both traumatic injuries and disease. The oldest injuries appear to be to the shoulder girdle and the ribs. The right side of the furcula (wishbone) had been broken in two places. The lower of the two breaks had healed completely and united slightly out of alignment with the rest of the bone. The upper break had also healed but had not become united with the bone anterior to it. Therefore the furcula would not have been connected to the rest of the shoulder joint and the crane would have been unable to fly. Another bone in the shoulder girdle (the right coracoid) also showed evidence of trauma and the formation of new bone, and the crane's ribcage had been damaged - several ribs showed evidence of healed breakages close to their attachment to the vertebral column. The close proximity of these injuries suggests that they occurred in a single event, and the fact that healing and smooth new bone formation had occurred indicates that the bird had survived for some considerable time after the injuries were inflicted.

Subsequently, a severe pathological condition appears to have developed in the crane's right leg. The effects are worst in the lower parts of the limb, especially in the lower half of the tarso-metatarsus. Seen in isolation, the distal end of the bone is virtually unrecognisable. By comparison with the unaffected left tarsometarsus, it is clear that almost a centimetre of the lowermost part of the bone is missing and that the crane may have completely



The crane's tarso-metatarsi showing the pathology on the lower part of the right leg (approximately life size).

Common crane (*Grus grus*).

Feeding a tethered hen. Illustration from the Luttrell psalter.

lost its right foot. Rather annoyingly, toe phalanges of neither foot were recovered, despite retrieval of most other parts of the skeleton, but even if the foot was still present, it would have been effectively detached from the rest of the leg and of little use. The lowermost surviving part of the bone is rather splayed in appearance possibly suggesting that the bird was walking on a stump. However if this was the case the situation is unlikely to have continued for long since there are no compensatory alterations to the bones of the left leg.

Changes in the surface texture of the shaft of the same bone and also the lower part of the right tibiotarsus (which articulates with the upper end of the tarsometatarsus) appear to be the result of a periosteal infection, probably a consequence of the condition in the lower part of the limb. The irregular lumpy texture of the bone surface of the tarsometatarsus indicates that substantial amounts of pus were present, particularly at the lower end. The joint between the tibiotarsus and the tarso-metatarsus was unaffected.

In archaeological material pathological features are only rarely observed on the bones of wild birds - death presumably intervening before any effects of injury or disease become apparent on the skeleton - and generally bird skeletal pathology is poorly understood. The fact that healing and new bone formation had occurred in the areas of trauma around the shoulder and ribs indicates that the crane had survived for some considerable time after those injuries were inflicted, despite being unable to fly. The survival of a severely disabled bird for a substantial period of time strongly suggests that following the injury the crane was captured, brought to Canterbury and kept in captivity as a household or backyard pet. The bird may even have had a useful function - there are ethnographic parallels of tame birds including cranes being used as 'stalking horses' by wildfowlers.

Whether the crane lost or damaged its foot in an accident with the wound becoming infected, or whether the observed pathology was the result of disease in the foot and lower leg is uncertain, although investigations are continuing at time of writing. The appearance of the lower leg bones does however indicate that the purulent infection was ongoing at time of death.

Domestic mammals were often hobbled to prevent them straying which can cause injury to the lower limb bones. Domestic birds may also have been restrained in this way - a domestic hen tethered by one leg is illustrated in the Luttrell Psalter for example. However, the pathology seen in the crane tarsometatarsus is not comparable with typical injuries caused by hobbling that are sometimes observed on the lower legs of domestic mammals.

Other crane bones recovered from Whitefriars were found singly and often had knife marks which would have been caused by removing sections of the body or in cutting meat from the bone. The presence of such a large part of one skeleton in a single deposit, including fragments of cranium and the lower non-meat bearing parts of the legs, is suggestive that this particular crane was not eaten, but was dumped into the pit in a virtually complete condition with other

refuse after death. Somewhat at odds with this are the presence of fine knife marks on the distal end of the shaft of the left humerus and on the outer aspect of the proximal end of the shaft of the left tarso-metatarsus. A possible explanation could be that an attempt at carcass preparation began but was abandoned due to the septic condition in the right leg which would have affected the eating qualities of the leg meat at the very least. Also, if the crane had been kept in captivity for some time, as seems likely to have been the

case, it would have been rather older than desirable and consequently tough and sinewy. There is the possibility that the knife marks represent the removal of certain body parts either for use of the flight feathers (in the case of the distal parts of the wing) or the long bones (particularly the ulna and tibiotarsus) for the manufacture of hollow artefacts such as pipes, whistles and small bone containers. The knife marks are in a position consistent with removal of the left ulna and radius, and the left tibiotarsus. The left ulna

and radius were not recovered, nor was the lower half of the left tibiotarsus. The broken end of the upper part of the left tibiotarsus has a recent (post-excavation) break, so it cannot be determined whether the lower part of the tibiotarsus had been removed before the carcass was deposited in the pit. The radius and ulna are particularly thin walled and delicate in large birds and are easily broken so their absence may simply be due to incomplete recovery.



## The future of Canterbury's Roman cemeteries

Jake Weekes

### Introduction

How much do we actually know about Canterbury's Romano-British cemeteries? In order to begin answering this question I am currently working on a desk-based research assessment in association with Canterbury City Council and funded by the Roman Research Trust. This survey draws on the work of the Trust over the past thirty years or so as well as other records, many of which are held on the City Council's Urban Archaeological Database (UAD). The Victoria County History (VCH 3 1932) and Gillian Andrews' (1985) assessment respectively brought together disparate source material from nineteenth- and early twentieth-century observations, and Mick Diack of the Trust is in the process of compiling the most up to date gazetteer of Roman period burial sites in Canterbury as part of his work on the important discoveries from the St Dunstan's Terrace excavations (Diack 2003a; forthcoming).

The Canterbury's Roman Cemeteries project aims to begin the process of fine-tuning our understanding of such evidence in two main ways: by reassessing the likely extent and morphology of particular burial areas in more detail, and by evaluating the quality of the data currently available in terms of reconstructing Roman period *funerals*, which, after all, led to each burial. This report does not present a detailed gazetteer, then, but rather the results of preliminary analyses assessing the quantity and quality of the Roman period funerary evidence for Canterbury. More detailed discussion of each cemetery area arising from the project will be published in due course (Weekes forthcoming a).

Even from an initial assessment, it is clear that there is still much we do not know about this aspect of the city's archaeology. At the same time, the fragile cemetery evidence is increasingly under threat with every new development project that is carried out around the city's ancient perimeter. Of course, it is actually largely thanks to the pressures of modern housing and other developments that the body of evidence for Romano-British burials builds daily, with new discoveries more often than not resulting

from developer-funded discovery and excavation. PPG 16 is adding both to the quality and quantity of data available: but what do these burials tell us about Romano-British funerals?

### What more is there to know?

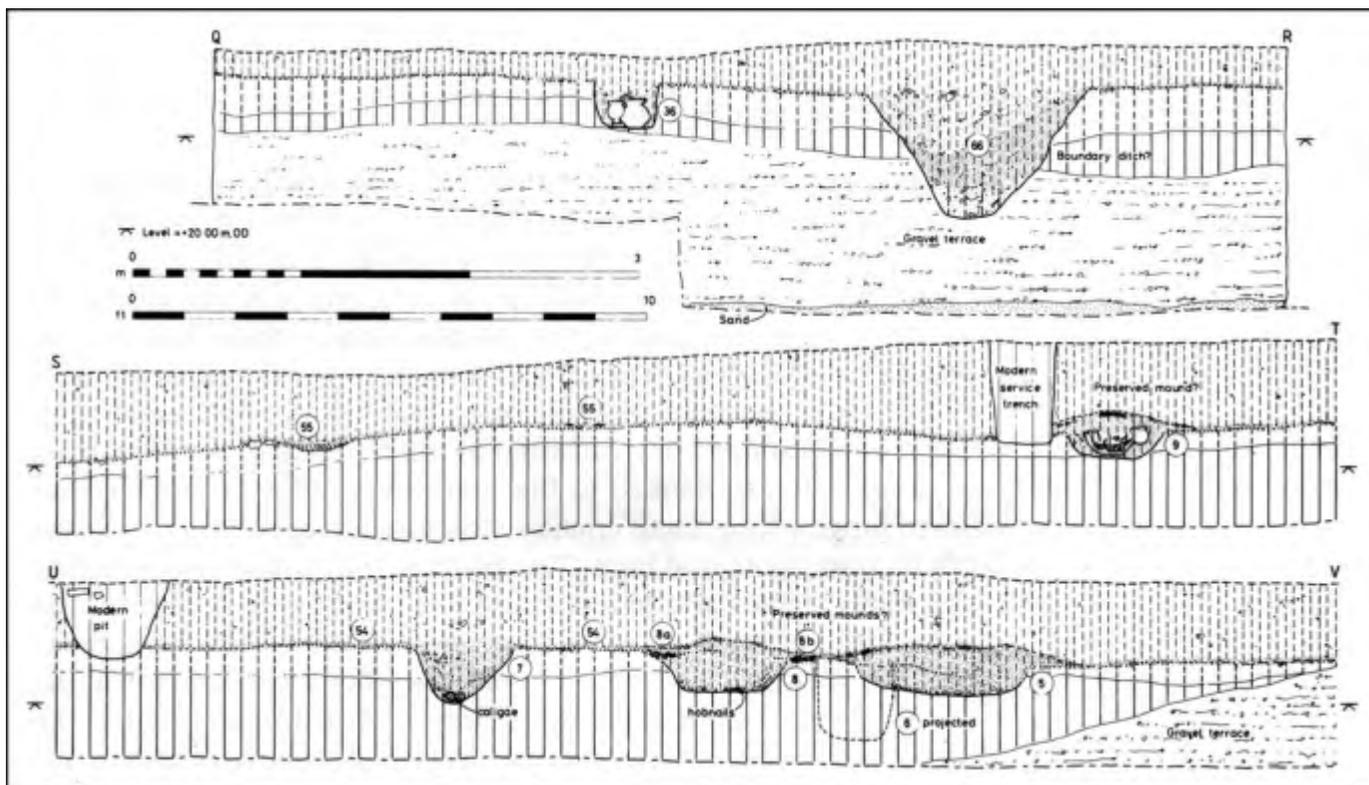
A primary reason for excavating and analysing the remains of ancient Romano-Britons is so we can develop our understanding of their society and way of life from the osteoarchaeological study of bones. Intact inhumation burials are particularly important for this, and, where preservation and funerary tradition allow, we can hope to learn much about the demographic make up of a past society, and other aspects such as diet, and even working conditions (see Mays 2000). Cremation burials tend to be much less useful in this regard, the body (and therefore diagnostic aspects of the skeleton) having been subjected to destructive treatment via the act of pyre cremation itself. Nonetheless, cremated bone, through being mineralised by the intense heat of cremation, survives better in Canterbury's often acidic soils, and these deposits potentially contain much more information about Romano-British funerals.

A surprising number of interesting aspects of Romano-British funerary practice can be reconstructed from the surviving evidence of inhumation, and especially cremation burials. For example, it has been traditional to compare the numbers and types of objects from different burials and cemeteries, and to note any special treatment and placement of these objects as part of the original funerary rites. Robert Philpott's wide-ranging study of 'grave furnishing' in Roman Britain, conducted in the 1980s, has been very influential in shaping expectations of the types of object we might expect to find in a burial from the Roman period. In terms of cremation burials, Philpott stated that '(A)t least by the second century, there is a distinct preference in the south east of England for grave groups consisting of three or four vessels of different forms, a jar to act as a cinerary urn, a flagon, a beaker or cup, and platter or bowl...' (1991, 35).

However, this (often cited) model can now be seen as very generalised, reflecting a general tradition of the 'sorts of vessel one might put in a cremation burial' rather than actual practice for each burial. It would seem that choice of particular combinations of accessory vessels for each burial was far from conventional (Weekes 2005a; 2008). In fact, numbers and types of accessory vessels vary so much from burial to burial that overall patterns are shown merely to reflect a wide ranging traditional 'list' to select from, rather than being prescriptive for each funeral. If those objects other than accessory vessels, which were also often included in the burials (such as lamps, coins, figurines, mirrors and so on), are included in our comparison, an even larger number of diverse combinations of objects in burials is revealed (Weekes 2005a, vol 2, 134–5).

We might indeed ask why? It is sometimes tempting to think that certain objects had some sort of a personal resonance in terms of the deceased: the amphora burial at Cranmer House, St Dunstan's, which contained (among other things) a miniature sword in a wooden scabbard is surely a case in point (Burial 46; Bennett 1987, 66). Some objects seem to speak more of specialist and localised traditions relating perhaps to certain families, burial societies or even occupations. An interesting tradition of placing hobnailed footwear either side of the container of the cremated bone has been noted at the adjacent Cranmer House and St Dunstan's Terrace sites, for example (see Bennett 1987; Diack 2003a), and in both cases this apparently select group appears to remain a consistent proportion of overall burial numbers over time (Weekes 2005a), suggesting a particular and restricted tradition of some duration.

As well as revisiting long held assumptions about burial contents, it should also be emphasised that archaeologists would now wish to analyse many aspects of Romano-British funerals other than burials (see especially the work of Jacqueline McKinley [eg 1989; 1994a; 1994b; 2000] and John Pearce [1997; 1998; 1999; 2002]; also Weekes 2005b). More specifically, we have become increasingly interested



Long sections from the Cranmer House excavation (after Bennett 1987) showing the cemetery surface from which burials were cut, preserved mounds, etc.

in cremation rites that preceded the burial stage of the funeral, and also of the so-called 'secondary rites' that might have followed on from the burial, such as leaving offerings to the dead. Clearly these ritual actions were potentially just as important for those who carried out Romano-British funerals. We are really only just beginning to understand just how complicated the overall 'funerary sequence' may have been, and how much of it might be reconstructed from the archaeological evidence (see also Cool 2004; Weekes 2008; Pearce and Weekes forthcoming).

Cremated bone deposits often provide evidence of objects associated with the corpse prior to cremation, and which accompanied the body on the pyre, such as animal and plant offerings and other special objects associated with what we might call pyre-side rituals. A number of Romano-British pyres (usually under-pyre ventilation or debris pits) and pyre related features have recently been subjected to modern standards of excavation and analysis in the south-east. Such contexts, as well as the deposits of cremated bone from burials themselves, give clues as to the sorts of funerary activities we still have much to learn about in the Canterbury context. Pyre features and pyre material deposits from East London, Southwark, and Springhead, for example, point to the scattering of food into the pyre during cremation. In the Roman cemetery of east London there seems to have been a tendency to scatter pulses and beans into the flames (Barber and Bowsher 2000, 69–71), while the Southwark pyre recently examined contained many burnt pine nut shells (Mackinder 2000, 33–7), and the Springhead pyres were remarkable for containing large numbers of grape seeds (Angela Boyle, pers comm). A large variety of

other items, such as melted metals, scorched pots and wooden boxes and so on, recovered from such contexts testify to a diverse pyre side practice. What characterised the Canterbury pyres? Areas of burning and possible under-pyre pits have been suspected in the past, but no convincing sites are known. We plainly have still to locate the vast majority of these features in Canterbury, and then to subject them to the correct environmental analyses.

In terms of so-called 'secondary rites', such as returning to leave offerings to the dead at the graveside, concerted study is largely in its infancy, despite various intuitions in the past. Jacopo Ortalli, of the University of Ferrara, can be considered a pioneer in this field of research. At the Roman Archaeology Conference in March 2007, Professor Ortalli demonstrated some stunning results of his highly sensitive excavation methods for Roman cemetery surfaces in Italy. This inspiring paper clearly showed that, as long as the fragile archaeological horizon representing an ancient ground surface is intact and can be identified, a relatively microscopic stratigraphic sequence, complete with remnants of food, drink and other offerings, can be plotted and recorded in intricate detail. To the best of my knowledge, such work has not been carried out in Britain, where the assumption still seems to be that such surfaces will all have been lost through disturbance since the Roman period.

In 1982, however, during rescue excavations at Cranmer House, Trust archaeologists observed an ephemeral but potentially highly significant horizon in the foundation trench sections. This apparent turf line, complete with broken pot, burnt material and cremated human bone deposits, was probably the Roman period cemetery surface into which the burials had been cut. A number of low mounds covering burials were also

recorded (see figure above). A recent small-scale research excavation (2008), carried out by the author and his father with tools lent by the Trust, and funded by the Canterbury Archaeological Society, found only a remnant of this surface. At least within the courtyard garden of Cranmer House, the horizon seems to have been further truncated by the 1980s construction work, but it might well survive in better condition elsewhere in the immediate vicinity.

Rather than merely delineating cemeteries and burials and analysing burial contents, then, the more general aim of current research is to begin to reconstruct (as far as possible) the *funerals* and other funerary rituals of Roman Britain, and also to begin to understand what these special acts may have meant to those who carried them out. The latter problem is not nearly as simple as we might think (Weekes forthcoming b). But our initial problem with realising such aspirations is that the available evidence is still extremely limited and for two main reasons. First, archaeological evidence resulting from rites other than burial has not traditionally been acknowledged and collected by archaeologists until relatively recently. Secondly, and perhaps more worryingly, such evidence is usually extremely fragile and difficult to excavate intact (especially with modern machine excavation methods), even when we *do* know what we are looking for (Weekes 2007a).

### Canterbury's Roman cemeteries so far

As the Victoria County History (1932, 75) put it: 'We turn now to the *cemeteries* of Roman Canterbury'.

Yet, arguably, this is an emphasis still largely lacking in our investigation of the Roman town. Thirty

years of what we might call 'keyhole surgery' in what is still the urban centre of the city, coupled with large scale excavations at Whitefriars and the Tannery, has added enormously to our understanding of the layout and development of intra-mural Roman Canterbury. However, even without the addition of these most recent findings, comparison of maps published in Blagg 1982 and Pratt 2004 illustrates how knowledge of the town's cemetery areas has not kept pace with findings within town walls, with only minor changes being made to include inferences derived from more recent evidence.

Excavations such as those at Cranmer House and adjacent St Dunstan's Terrace in the large St Dunstan's cemetery area (discussed in more detail below) have added to our understanding of Romano-British funerary rites associated with the town, but the general map of the cemetery areas actually remains just as vague as it was in 1982. We are still unaware of the full extent and design of the various cemetery areas and their internal layouts. The 'blobs' on these maps largely represent informed guesses built on a patchwork of chance finds and excavations from over 200 years of antiquarian and archaeological interest. This diverse and sporadic pattern of past exploration ranges from the various records kept by Hasted in the eighteenth century and John Brent and James Pilbrow in the nineteenth century (all summarised in VCH 3 Kent 1932, 75–80) through to more recent (and generally unpublished) observations by Dr Frank

Jenkins in the 1950s and 60s, as well as work by the Trust, of course.

Using only published gazetteers and maps (including the UAD), my current survey has analysed a total of 95 such 'sites' around Canterbury that can reasonably confidently be associated with Roman period funerary practice. This total excludes a number of sites within the area of the Roman town that probably date to either before or after the Roman period. The 'sites' considered here include definite and accurate burial sites recorded in controlled excavations as well as brief observations or even vague reports that evidence of Roman period burials has been found in a general area. A minimum of around 400 burials is represented, the actual number of Roman period burials encountered so far in Canterbury probably totalling many more. Over half of the sites (53 per cent) in this survey represented only cremation burials, with the others being mainly inhumation sites (33 per cent) or representing mixed rites with both inhumation and cremation burials (9 per cent; 5 per cent of the sites contained burials of unknown type). Table 1 demonstrates the frequency of discovery of these sites, and shows that a large majority were investigated before modern standards of excavation and recording were introduced. In fact, 82 per cent of these records were produced before the introduction of PPG16 in 1990.

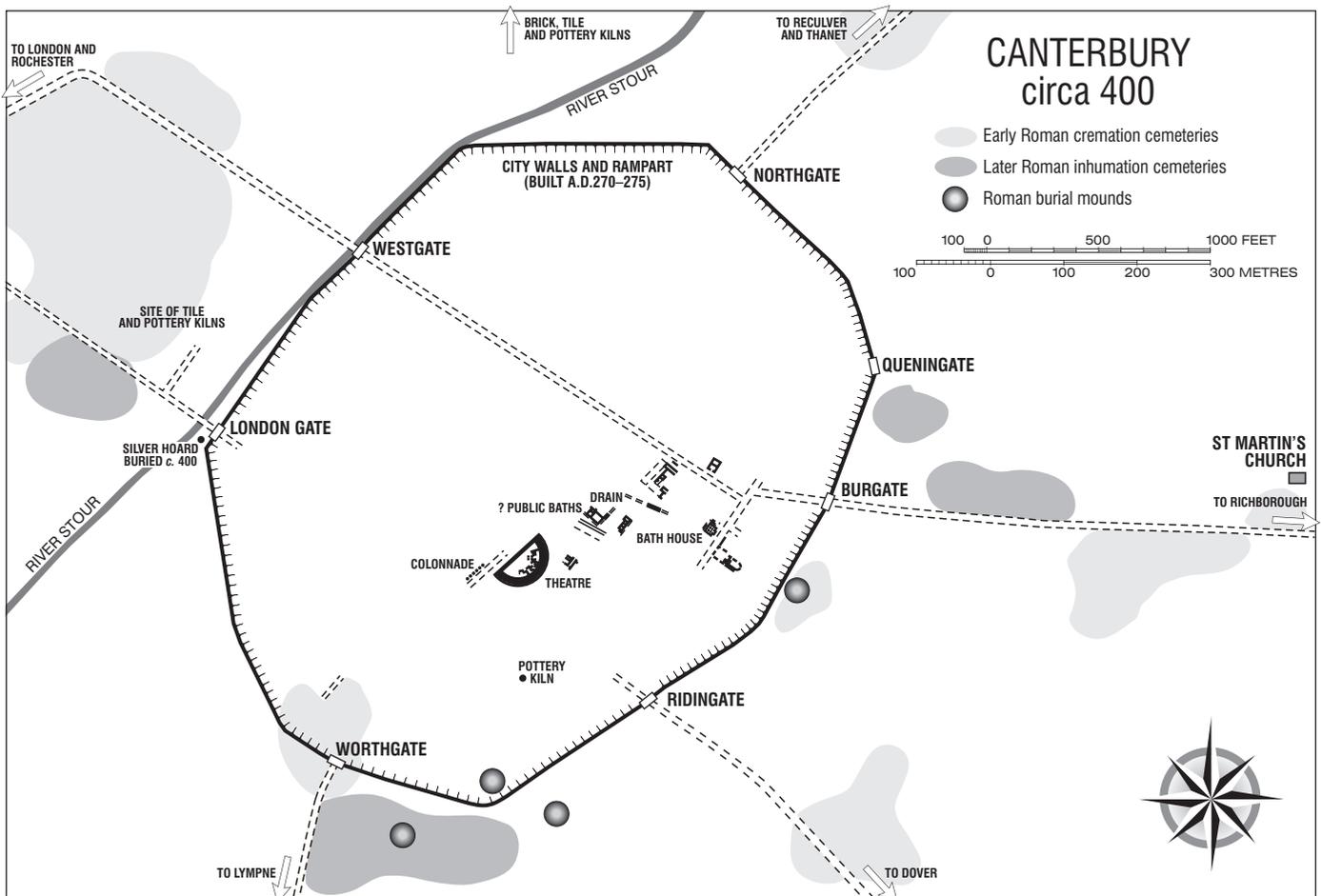
Perhaps not surprisingly, this has implications for the quality of the evidence available, which must be measured in terms of the degree to which the data

can be used to reconstruct details of each burial (or other types of funerary deposition). Table 2 indicates that more work must be done to modern standards if we are to understand more about Roman Canterbury's funerary traditions (the majority of sites investigated in recent years are of course 'A' graded, but not all: see below).

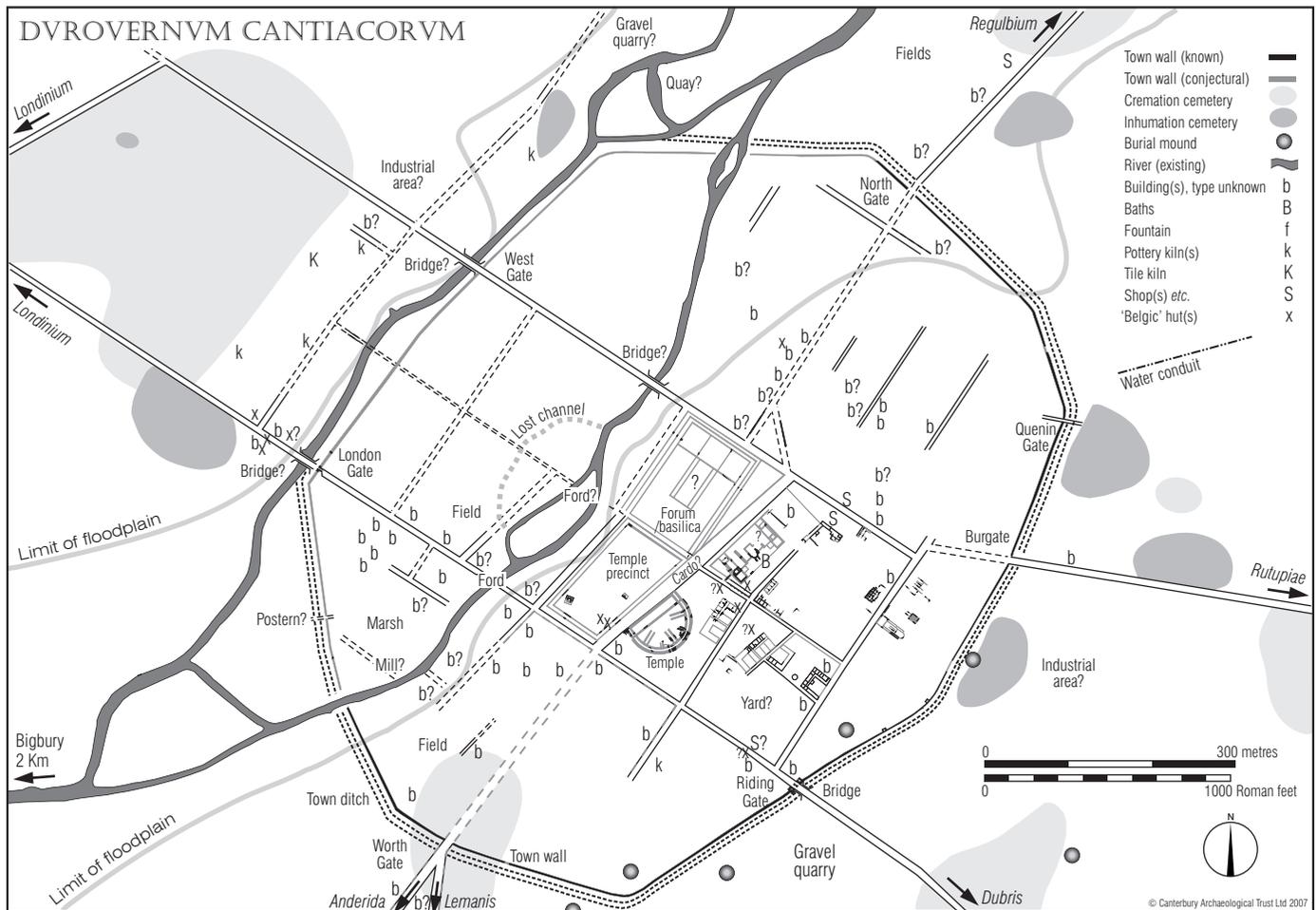
First, it is worth mentioning that this is not a problem for Canterbury alone; the figures for date of site discovery and data quality cited here accord with those seen elsewhere (eg Roman period burials in Surrey; see Weekes 2007b). Secondly, it should be noted that at it might well be possible to 'resurrect' at least some of the apparently 'D' graded sites via a detailed search of primary archives (eg the Jenkins archive). Nonetheless, it is clear that we need more and better data for future research.

### Cemetery plots

Another aspect of the cemeteries for which we lack considerable detail is in terms of their actual shape, size, internal layout and general morphology. The proximity of eighteenth- and nineteenth-century finds to more recent discoveries offer possible clues as to particular focuses for burials and even the possibility of separate burial plots including predominantly cremation, inhumation or mixed traditions. The level of our understanding is, however, highly variable from area to area.



Roman Canterbury as reconstructed in the early 1980s (after Blagg 1982).



A more recent reconstruction of Roman Canterbury (after Pratt 2004); much more is known of the town, but the cemetery areas remain relatively vague.

Discovery dates	Percentage of survey 'sites'
Before 1801	2
1802–1901	28
1902–1921	5
1922–1941	3
1942–1961	19
1962–1981	8
1982–2001	22
since 2001	8

Table 1: approximate discovery date ranges of Canterbury's Roman cemetery 'sites'.

What the Victoria County History (VCH) entry refers to as the 'North-eastern quarter, Ramsgate Road', for example, is still only an area known to have produced evidence of cremation burials either side of the Roman road to Reculver, from approximately the location of the Artillery Barracks as far as and including the Vauxhall brickfields (VCH 3 Kent 1932: 76–7). On the other hand, while VCH does not describe an 'eastern quarter', twentieth-century discoveries indicate both inhumations and cremation burials in the area of Lady Wootton's Green (Frere *et al* 1987, 33–4), Diocesan House (Hutcheson 1993) and St Augustine's (Pollard 1982; Sherlock and Woods 1988). Other perceived general cemetery areas recorded in VCH as the 'South-eastern quarter, St Sepulchre's on the Old Dover Road' (VCH 3 Kent 1932: 77), the 'Southern

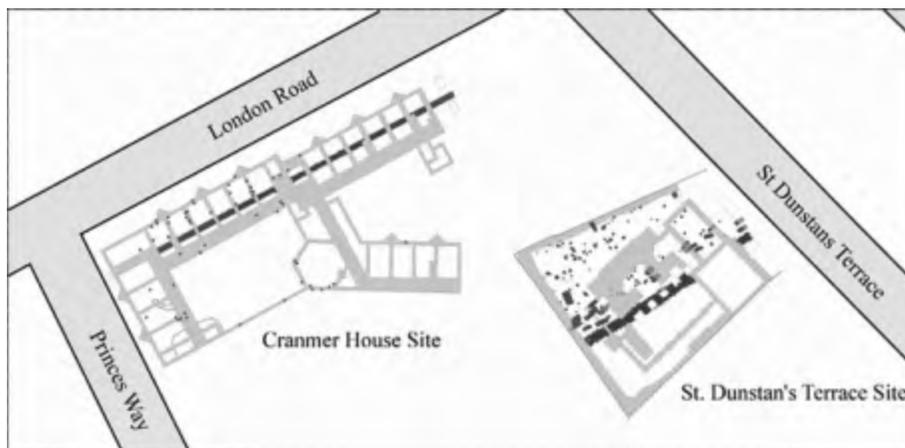
quarter, the Castle, Wincheap and Martyr's Field' (*ibid*, 77–9), and the 'North-western quarter: St Dunstan's' (*ibid*, 75–6), have all been re-enforced as entities by more recent excavations and finds. In some cases (with considerable reservation) we may even begin to suspect the presence of individual cemetery plots within these general areas (Weekes forthcoming a).

The north-western St Dunstan's cemetery area is the one which has been the most extensively explored in the past (34 per cent of this survey) and some of the work in recent years provides a glimpse of what might be possible if equally detailed investigations could

be applied to the other cemetery areas. Romano-British funerary activity is known over a large but still poorly defined area immediately to the south of London Road and to the south-west of St Dunstan's Church, approximately 0.5km to the north-west of the medieval walled city. This generalised area is again chiefly defined by earlier finds which often lack exact spatial references let alone details of burial contents (eg finds along the route of the Southern Railway, Church Street, and Orchard Street: VCH 3 Kent 1932, 76). Unfortunately, more recent finds in St Dunstan's have also been benighted by unfortunate circumstances of discovery, such as the remains of

Grade	Record quality	Percentage of survey 'sites'
A	Detailed recording of entire burials of known extent, including bone analysis, object typology, dating and condition, spatial arrangement of objects in burial, environmental analyses	19
B	As above, but lacking bone and environmental analyses	9
C	Secure analysis of entire object assemblage, but little or no detail of spatial arrangement in original context and no bone and environmental analyses	15
D	Apparently little or no chance of reconstructing entire burial groups, and sometimes whether burials were cremation burials or inhumations, or indeed whether they were burials at all ...	57

Table 2: the apparent quality of the Canterbury data for reconstruction of funerary ritual.



Plans of the Cranmer House and St Dunstan's Terrace excavations, showing roughly aligned ditches separating cemetery plots.

four burials 'truncated' by a trench opposite numbers 5–7 New Street (Bennett 1986), of which no further details are available, and '(A)t least seven vessels', apparently representing three burials associated with a glass phial and two glass gaming counters, recovered from a builder's skip at 5 New Street (Taylor 1985; see also Bennett *et al* 1980).

Further west, and perhaps representing a different focus for burial, approximately nine burials reported were from excavation associated with the building of the Telephone Repeater Station on the St Dunstan's Terrace site (Whiting 1927), and Jenkins also noted a number of cremation burials in the vicinity of Westgate Court Farm in the early 1950s. These provide comparative material for the two main excavations that have taken place in the St Dunstan's cemetery area at Cranmer House in 1982 and St Dunstan's Terrace in 2000–2001.

The Cranmer House site was also a rescue operation rather than a measured excavation, somewhat heroically conducted as mechanical diggers cut foundation trenches for a new block of housing for the elderly. Approximately fifty-three cremation burials and two inhumations were counted within the footprint of the building. Most burials were however severely damaged, and finds mainly consisted of groups of pots rescued from the spoil heap or machine's ditching bucket; only seven were in fact recorded *in situ* (Bennett 1987). Evaluation prior to the construction of new housing at the old Telephone Repeater site in 2000 uncovered further cremation burials (Rady 2000), and open area excavation followed. Mick Diack recorded an official tally of ninety-seven cremation burials to the north of an obvious boundary ditch to the cemetery (Diack 2003a; 2003b; forthcoming). There were also twenty-three inhumations (some being the earliest burials on the site and dating to the late Iron Age) mainly arranged along the boundary ditch of the plot. The area appears to have developed first as a small inhumation cemetery along the boundary ditch, then as a cremation cemetery, and finally as an inhumation cemetery, again aligned on the boundary ditch.

The above figure highlights one of the most important findings of the adjacent St Dunstan's Terrace and Cranmer House excavations. There is clearly a considerably more detailed internal

layout to the St Dunstan's cemetery than has been represented by earlier maps of the area. Two aligned boundary ditches at Cranmer House and St Dunstan's Terrace delineate three separate burial plots at least, and burials are notably absent immediately to the south-east of the St Dunstan's Terrace ditch. Rather than the large, sprawling cemetery area as previously envisaged, there is probably in reality a far more complex series of smaller cemetery plots here. How far this system extends to the north-west (and

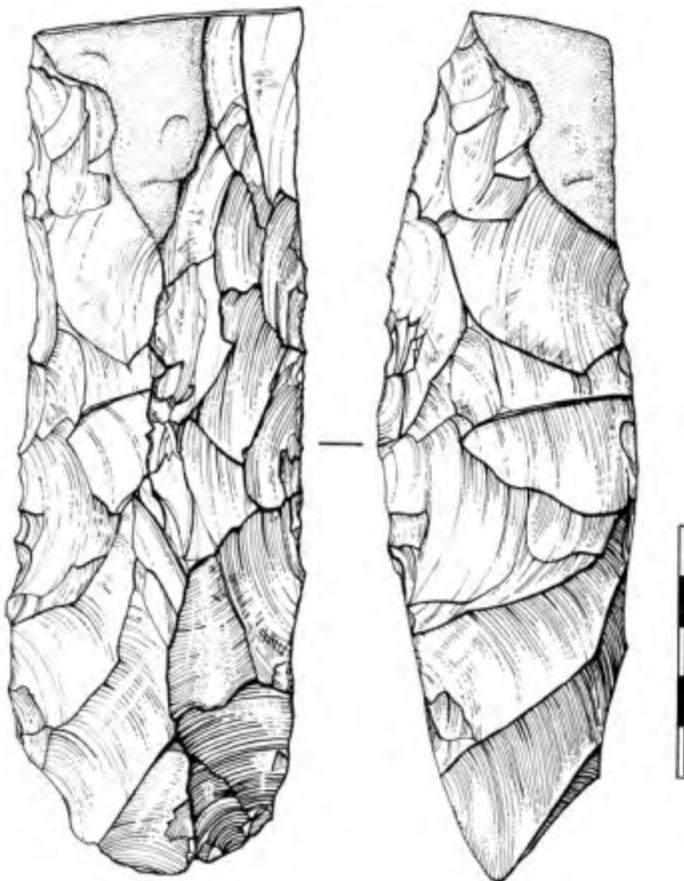
therefore beyond the limit of the currently designated Area of Archaeological Importance) is still unknown. Moreover, is this apparent system of discrete burial plots reflected in the other cemetery areas of Roman Canterbury? We need further and more targeted desk-based research and excavation to begin to answer such questions.

### Suggestions for future research

A detailed search of primary archives might well yield more of the information that has so far been collected concerning Canterbury's Roman cemeteries; this research might even throw up better evidence of aspects of funerary activity other than burial, such as cremation practice or continued ceremonial behaviour focussed on cemeteries and graves. All this information needs also to be placed in spatial context, however, and an attempt to reconsider burials and other funerary features in relation to contemporary ditches and roads could well begin to suggest a much more detailed picture of particular cemetery areas and even of individual burial plots within them, improving on still current generalisations. It is also vital that adequate funding and expertise is brought to bear on any new finds; there is a great deal of potential still for understanding this vital aspect of Roman society in Canterbury and beyond.

## A Mesolithic pick from Whitefriars

Chris Butler



Drawn by Barbara McNee. Scale in centimetres.

Amongst the prehistoric flintwork recovered during the Whitefriars excavations in Canterbury was a Mesolithic pick. It was recovered as a residual find within flint cobbling forming the surface of a late Roman road. The pick was 173mm long, 54mm wide and 47mm thick, and weighed 512g. It was made from a mottled light-grey flint raw material with some of its original creamy-white patinated surface remaining on one face and at the butt end, in addition to a small patch of light buff cortex on another face.

The pick has a triangular section, with one flat surface (which retains the original patinated

surface); the remaining two surfaces have been flaked, removing most of the cortex. The cutting edge has been formed by the removal of a number of flakes struck from the end of the tool on one side, whilst on the other (flat) side there are a number of small tranchet-like removals from both lateral edges.

It is possible that this is a preform for a tranchet-adze, although it appears to have been utilised, so it is likely that it is a finished tool. Around the medial part of the pick, the lateral edges have evidence of abrasion, some of which may be from the preparation of the edges for use as platforms during manufacture,

but some may also be the result of abrasion from the hafting of the pick into a wooden handle. The cutting edge also has some damage, which is probably as the result of its use, although this does not seem to be very extensive.

This pick is typical of those found in the Mesolithic period, and has some of the attributes of a Hassocks Adze (Butler 2005). Picks are reasonably common core tools that occur throughout the Mesolithic period, and are normally found at 'base camp' sites. The Hassocks Adze is an unusual form of adze-pick, only found south of the River Thames.

## Publications

Jane Elder

On 1 April 1976 the Canterbury Archaeological Trust came formally into being and the next month published its first annual report with the excavations at Highstead, begun the preceding September by the Canterbury Archaeological Society, forming the opening two-page spread. The excavators left site in March 1977 and the story of what happened next is told in the preface to *Highstead, near Chislet. Excavations 1975–1977*, the fourth monograph in the Archaeology of Canterbury (New Series), published in July 2008.

The stop-start progress of the report might be seen to reflect the fortunes and progress of the Trust over the next thirty years, but throughout there was a dogged determination to see the project through. Nigel Macpherson-Grant, Peter Couldrey and Paul Bennett were all there at the beginning and I know

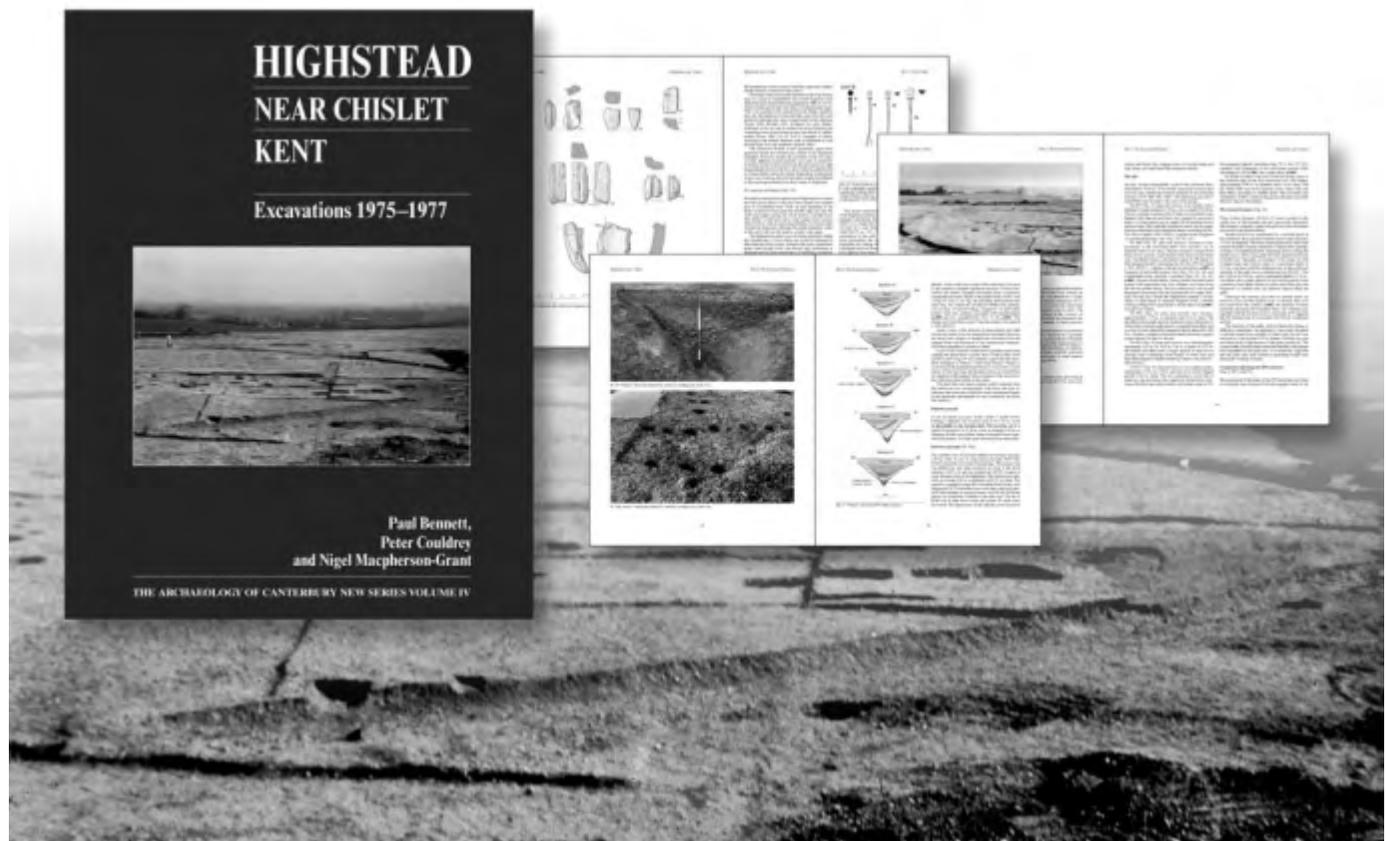
would join with me in thanking all those members of staff, specialists and friends who, over the years, contributed to the final product.

The features uncovered by the hardy excavators during the winter of 1975, the long hot summer of 1976 and then winter 1977 were initially thought to represent the 'first large area of early Iron Age sites to be excavated in Kent'. It later became apparent that traces of earlier settlement survived (c 900–600 BC) with evidence for metalworking coming from the earliest features. The large amounts of pottery recovered from the excavation, dated occupation on the site to the Late Bronze Age and earliest Iron Age and then the Late Iron Age and Roman periods. One of the aims of the report was to highlight the pottery sequence and as a consequence the pottery reports comprise the majority of the volume. Amongst other

finds, the evidence for early metalworking is reported in detail and the publication concludes with an essay by Professor Tim Champion on the wider significance of the excavations at Highstead.

Priced at £25.00 (FCAT £20.00), the book is available via our website: [www.canterburytrust.co.uk](http://www.canterburytrust.co.uk) or to personal callers at 92A Broad Street, Canterbury.

Two other publications during the year were both by Keith Parfitt. An account of the excavations at Ringlemere Farm, Woodnesborough between 2002–2006 was published in *Archaeologia Cantiana* cxxvii. The same volume contained Keith's report on the Kent Archaeological Society training excavation on the Roman villa at Minster-in-Thanel.



# EDUCATION

Marion Green

Perhaps the most unusual educational partnership event of the year was with Kent County Council at the Smithsonian Institution's Folklife Festival on the Washington Mall.

## Canterbury Archaeological Trust in Washington DC

In the summer of 2007, the Trust spent two weeks participating in America's largest cultural event, the annual Smithsonian Folklife Festival, held on the National Mall in Washington DC. Forty local people illustrated Kent's rich cultural heritage alongside 80 Virginians at the festival's 'Roots of Virginia Culture' programme to commemorate the 400th anniversary of the establishment of Jamestown, Virginia, widely regarded as the first permanent English settlement of what would become the United States of America.

The Festival has been an annual production of the Smithsonian Institution's Center for Folklife and Cultural Heritage since 1967 with each year celebrating cultural traditions of communities across the United States and around the world. This was the first time that England has been represented and 2007 saw 'Mekong River: Connecting Cultures' and 'Northern Ireland at the Smithsonian' programmes alongside the 'Roots of Virginia Culture'. The Festival is a free event over ten days and commonly attracts over a million visitors. 2007 saw 1.6 million – the second largest visitor number in its history.

The Kent party of the 'Roots of Virginia Culture' programme was managed and supported by Kent County Council. During the previous three years,

researchers from the Smithsonian Institution worked with KCC to identify cooks, musicians, fishermen, story tellers, craftspeople and others to illustrate aspects of our culture and inform festival visitors about attractions they can expect from a trip to Kent. Canterbury Archaeological Trust was invited to contribute to the theme of 'Recreating the Past'. Myself and Enid Allison, (Environmental Archaeologist and Education Service support) delivered a package designed to attract both adults and young people and over nine hundred children and thousands of adults took part in the activity over the ten days. The Festival attracts considerable media coverage and we were filmed and interviewed by local FOX News and by KCC and BBC Radio Kent.

For children, our Little Dig involved excavating and identifying parts of reconstructed buildings and real archaeological finds in two 'trenches' built by the Smithsonian's Tech Crew to CAT's specification. The idea was originally brought to Canterbury by the Museum of London Archaeological Service during the Whitefriars excavations and our own Little Digs are still used at public events.

The 'digs' were further adapted for the 'Roots of Virginia' theme of the Festival. American children learn about the English settlement of Jamestown in school and many of the young visitors had been on trips to the archaeological site of Historic Jamestowne. So the top 'layer' had seventeenth-century pottery fragments found on Kent excavations – pieces of the same kind of domestic jugs and jars the English settlers took with them when they sailed across the Atlantic in 1607, eventually to become

lost in the Virginian soils and discovered by American archaeologists some 400 years later.

Kent's archaeology goes a lot deeper of course and the Little Dig had a medieval and a Roman layer as well – more than enough for little diggers to take in!

The unearthed fragments were then taken to reference tables of complete objects (again all from Kent excavations) to identify them. Many of the children came expecting to find dinosaurs but gained some experience of Archaeology – and a great certificate.

The reference collection plus photographs, reconstruction images and a running powerpoint presentation of '30 Years of Canterbury Archaeological Trust' also served as a stand alone display for adult visitors. There were conversations with people who had been to Britain as tourists or had relations here. Some people had been on training digs and others wanted to know about places they could visit in Canterbury and Kent. We weren't allowed to give out flyers on the mall but displayed posters about Canterbury, Dover and Maidstone museums

Several people with education, archaeology and anthropology interests made themselves known to us and the Little Dig trenches have now gone to the Smithsonian's National Museum of Natural History where they will be used for public education programmes in the Discovery Room, following the CAT example.

Sharing the 'Historic Archaeology' marquee with us was Amanda Danning, a facial reconstruction artist from Texas working on the skull of a 15 year old boy





believed to be one of the first English settlers of Jamestown. Day by day we saw the features take shape. Alongside Amanda were people from Historic Jamestowne, the educational visitor centre at the original site of the James Fort, featured on a Time Team special in the UK earlier in 2007.

We had some great volunteers to help with re-instating the 'digs' throughout the day, chatting to the visitors and making lemonade runs. The weather was hot and steamy when we arrived and the day we left the temperature hit 100F, but in between was mostly in the low 80s and the locals said it was like April weather. Enid and I were kept very busy on site. Working daily with a constantly changing audience (and episodes of song, dance and story telling on a nearby stage!) was demanding stuff, but we definitely rose to the challenge and the American visitors really appreciated our contribution and that we had brought original things of such antiquity for them to see and handle.

We found occasions to see what other participants in the Festival were doing. There was some great music from the Virginians and I could have spent a long time watching the Mekong River potters! We also had two days break when we took in Washington's key sites and the free Smithsonian museums lining the mall – with air con.

This was a successful and enjoyable venture and I would like to thank both the Smithsonian Institution and KCC's Smithsonian Project team for this opportunity to share knowledge and experience with so many people and promote in particular, the work of the Canterbury Archaeological Trust.

### Thanet Earth

You can read how this major fieldwork project began in the autumn of 2007 on pp 11–25. 'Outreach' was a significant part of the programme and a plan was formulated to provide media coverage, a dedicated website diary, school visits, public open days and volunteer opportunities.

Members of the Canterbury Young Archaeologist Club were some of the first to set foot on the enormous open site on a damp September Saturday when they did some sterling field walking and tried their hands at metal detecting with the Kent Archaeological Metal detector Support Group (KAMSU).

Visits were made to Monkton CE Primary and Minster CE Primary Schools (both local) where children saw earlier discoveries made in the area by CAT (at Monkton Mount Pleasant 1994 and Tothill Street Minster 2005) and heard about the discoveries the team were anticipating at Thanet Earth. Both schools were also loaned CAT KITS of local finds to work with for the duration of the project and plans were begun for them to make site visits later on.

The press had a field day in March 2008 when the field team found an impressive Bronze Age 'beaker' burial of an adult male with dagger, wrist guard (as worn by an archer) and ceramic 'beaker' as grave goods. The press release described how the vessel may have contained a type of beer. I wasn't surprised when 'At Least He Died Happy' and '4000 Year Old Hangover' headlines appeared. The story certainly caught the imagination of local and national papers. They say there's no such thing as bad publicity.

### Visiting schools and schools visiting us

School visits with hands on sessions were also made during the year to Littlebourne CE Primary, Sutton Valence Primary (where CAT was surveying a World War II shelter in the playground before its conversion into an out of school club), Deal Parochial CE Primary, Diocesan & Payne Smith Primary Canterbury, Kings Farm Primary School Gravesend and East Court School Ramsgate.

Secondary School students came to us from Ursuline College, Westgate; Dover Grammar School for Boys; Harvey Grammar School, Folkestone; Chaucer Technology School, Canterbury; Sir Roger Manwood School, Sandwich; Highworth Grammar School for Girls, Ashford; Montgomery School, Sturry; Great Oak School, Ebbsfleet; Simon Langton Boys School, Canterbury; Barton Court Grammar School, Canterbury; Archbishop's School, Canterbury. Students have an insight into how Archaeology works in a redevelopment programme and a taste of the range of activities archaeologists are engaged in.

### Local Partnerships

The Education Service continues to work with University of Kent, Canterbury Christ Church University, University of Creative Arts Canterbury, Folkestone People's History Centre and Canterbury Museums providing workshops, project data, local Archaeology stalls and both formal and public lectures.



# THE FRIENDS David Shaw

The Committee of the Friends continues to work hard (and I hope effectively) to provide support for a wide range of the activities of the Trust. Some further changes have taken place in the membership of the Committee. Gillian Knight has decided to step down as our Publicity Officer; I am pleased to say that Mary Berg offered to add this to her role of liaison between the Friends and the two archaeological societies. Pip Chapelard has found it necessary to resign as editor of the Friends' Newsletter, which she had taken forward with a new design with a colour cover. So far, we have not found a replacement; the Chairman has taken the Newsletter back under his wing (he hopes that this will be a temporary measure) and Diane Billam has offered to help with the preparation of copy.

The Friends continue to organise a series of visits, both local and further afield. In the year 2007–2008, we have had a visit to Maidstone Museum with a tour led by Chris Pout to see the exhibition celebrating the 150th anniversary of the Kent Archaeological Society; a guided tour of Wye, led by Meriel Connor and Ian Cooling, which took in the church the town and the college; and a coach trip to London to see the exhibition at the British Museum on the First Emperor of China. We plan to organise further group visits to major London exhibitions as well as archaeological site visits.

Our lecture programme included another in our series of Whitefriars Lectures, given by Alison Hicks on 'Current thinking on Anglo-Saxon and Medieval Canterbury'; a lecture by Paul Oldham to mark the 150th anniversary of the foundation of the Kent Archaeological Society; the ever-popular Frank Jenkins Memorial Lecture given by the Trust's Director Dr Paul Bennett which takes place each January in conjunction with the Canterbury Archaeological Society; a talk by

David Carver about historic buildings of Kent and the work of the KAS Historic Buildings Committee; and finally a talk by Andrew Richardson about his work as Finds Liaison Officer for Kent County Council. Shortly after this talk Andrew joined the staff of the Trust as Finds Manager.

Once again, we were able to offer a full programme of walks for the Canterbury Festival. The revenue from ticket sales for these walks is one of the Friends' major sources of income in addition to its subscriptions. The donations which we ask for at our talks also provide a steady, if smaller, revenue, which

justifies the work which we put in to organise them.

The membership of the Friends remains fairly steady at just under 400. We are most grateful to all these people who contribute a subscription each year to help support the work of the Trust. It would be good to be able to report in a coming year that we had recruited more members than we had lost and had been able to break through the barrier of 400 members.

Over the previous two years, the Friends' accounts had developed a large surplus and the Committee has consequently been able to give several large grants to the Trust for equipment and building work. These include £2,600 for a new roof for one of the buildings in Broad Street, £15,000 for new GPS surveying equipment (see photo), and £1,000 towards a new A3 flat-bed plotter. Other smaller grants have been made for library books, a plaque for the Lanfranc building to commemorate Martin Hicks and the excavation of the St Gregory's Priory site, and a new display board for the Roman Tower exhibition at the bus station. Individual members of the Trust staff have been helped with grants for conferences and other activities, which are mostly awarded from the Donald Baron Fund.

An earlier Annual Report highlighted the work done to clear and redesign the garden in front of the Trust's premises in Broad Street. We were sorry to hear during the year of the death of Margaret Cowles who undertook much of this work and continued to attend to the needs of the garden. In recognition of her work, the Friends have commissioned a small stone inscription for the garden which will read:

MARGARET COWLES  
1921 – 2007

A dedicated Friend of the Trust  
helped to create this garden.



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The work of the Canterbury Archaeological Trust is mostly sustained by the commissioning and funding of fieldwork and research projects by clients and other bodies. We would like to acknowledge the support of the following, together with those mentioned in the preceding reports.

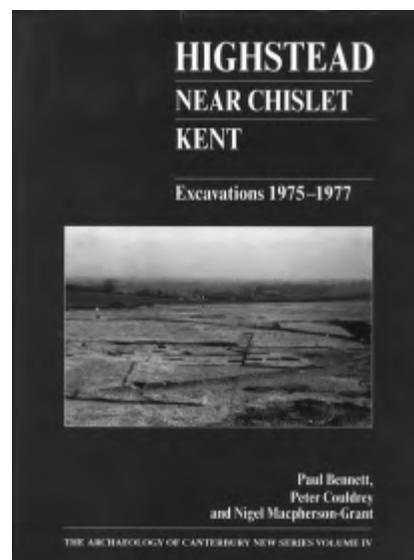
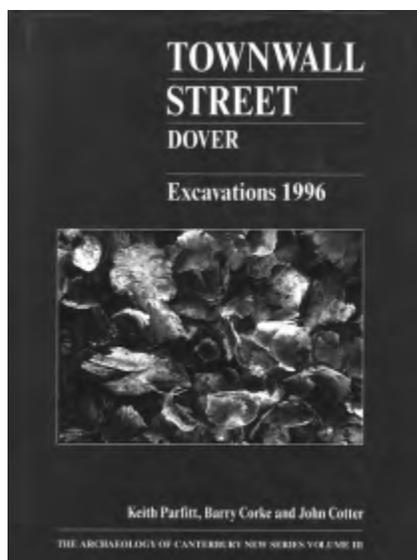
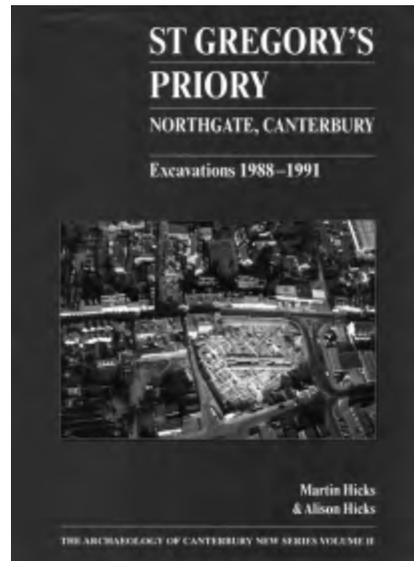
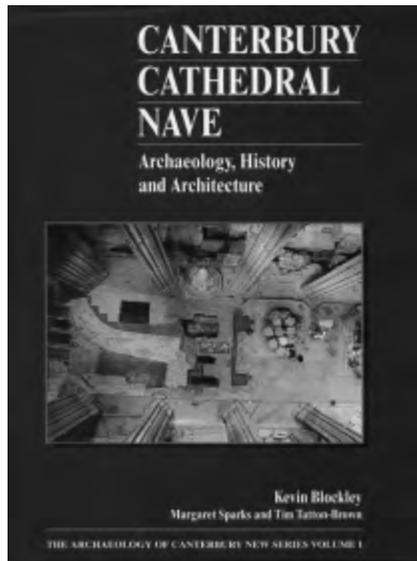
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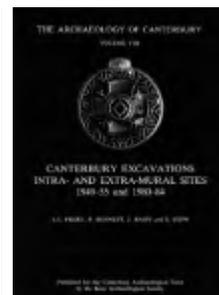
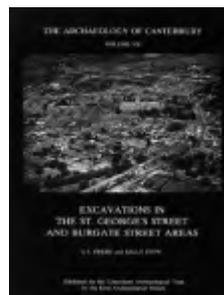
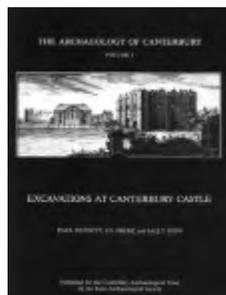
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