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CANTERBURY'S ARCHAEOLOGY 2011 – 2012

36th annual report of the Canterbury Archaeological Trust

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Front cover: medieval masons' marks recorded in the corona stair chamber, Canterbury Cathedral, December 2011. canterburytrust.co.uk/news/projectdiary/corona_chambers/

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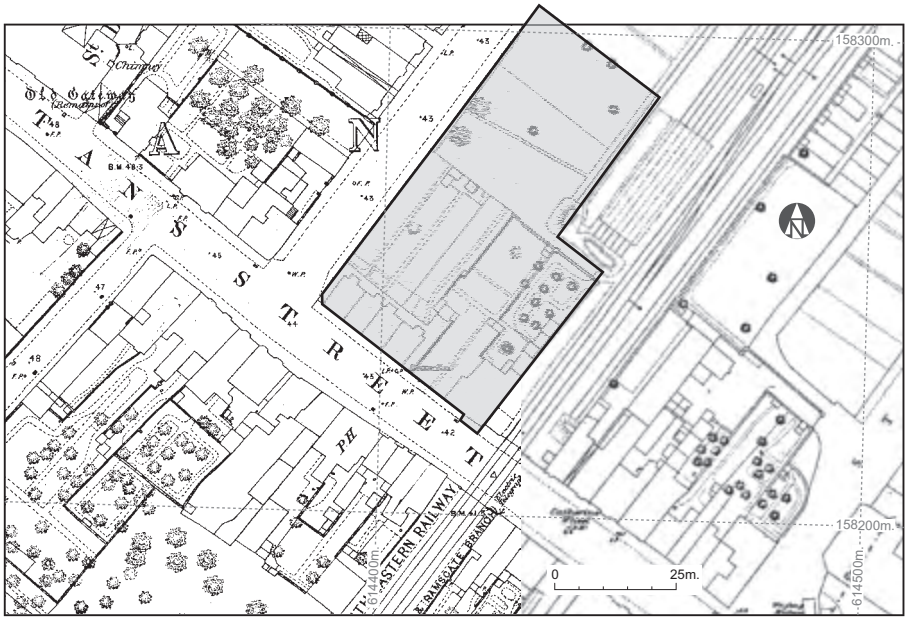
36th ANNUAL REPORT

CANTERBURY'S

2011 2012

EXCAVATION



St Dunstan's Street site location on the Ordnance Survey plan of 1873.

No 28 St Dunstan's Street, Canterbury

Jon Rady and Damien Boden

Open area excavation at 28 St Dunstan's Street, Canterbury was undertaken between February and July 2011 prior to redevelopment by Churchill Retirement Group. The site, situated at the junction of Roper Road and St Dunstan's Street (NGR 614408 158255, centred), had been vacant land since the demolition of the National Tyre Depot in 2008.

Evaluation of the site a year earlier, in July 2010, had indicated considerable potential for surviving archaeology on the St Dunstan's frontage and had shown that levels dropped away to the rear of the site into what appeared to be a relict valley mostly filled with colluvial material (Gollop 2010). Before excavation commenced in 2011, a number of watching briefs were carried out during geotechnical boreholes and service diversions (Pratt and Holman 2010) and a transect of windowless boreholes was cut across the site. As a consequence, the excavation concentrated on the St Dunstan's frontage in the area of the new build footprint and along the Roper Road frontage to a point where indications were that significant levels would be below disturbance from any footings.

Few large scale excavations have taken place in the St Dunstan's area. There have been many small interventions, but the topographical and historical development of this extra-mural area since the Roman period remains tantalisingly unclear (see Rady 2009, 43–46).

For the pre-Roman period, the evidence tends to suggest that the area was predominantly agrarian in nature (Rady 2009, 43), although there are some indications of settlement particularly to the south towards the Rheims Way. The site is on the margins of the Roman town, outside the walls and just to the north of the alluvial flood plain of the River Stour. Roman land use in the area is likely to have commenced in the mid to late first century AD. The site lies immediately adjacent to the Roman road from Richborough (*Rutupiae*) to London (following the course of St Dunstan's Street). Watling Street was the important route from the port of Dover (*Dubris*) to London and the St Dunstan's route (possibly here a local way to the Whitstable area originally) branched, or was diverted, to connect with Watling Street, after

Site location and the excavated areas.

if left the Roman town, just before it skirted the high ground above Harbledown. The present day London Road, follows this line and has been observed west of St Dunstan's Church (Andrews 1985, site 61). The St Dunstan's Roman road was probably the busier of the two routes towards London out of the town, and perhaps the more important (ITER II in the Antonine Itinerary; Rivet and Smith 1979, 157–160). These two parallel roads and traces of others set at right angles suggest the initial urban road grid, laid out in the late first/early second century AD, extended into this area on the west side of the town, beyond the Stour and the line of the later, Roman wall circuit. Whether extensive early settlement existed in this area is uncertain, but quarrying of brickearth and gravel to serve construction in the urban centre of Canterbury has been identified on several sites, (Rady 2009, 44; Helm and Rady 2010, 19–21). In the wider area, pottery and tile kilns have been identified at Market Way and the Whitehall Gardens area (Rady 2009, 4; Jenkins 1956). A pottery kiln was also excavated not far to the south-east of the present site at North Lane (Bennett 1978). All of these observations have suggested that an industrial extra-mural suburb developed here (Bennett 1991).

Parts of the area began to be used as cemeteries in the first/second century, before the establishment of the town walls, and continued until at least the early fourth century. Substantial numbers of cremation burials occurred to the west on the site of Cranmer House (Bennett 1987a), cremations and inhumations have been observed in New Street, while similar interments adjoining a contemporary boundary ditch have been excavated at St Dunstan's Terrace (Diack 2003). Numerous other casual finds from the area indicate this was the site of an extensive burial ground or complex of burial grounds but the exact disposition, extent, organisation and internal development of them remains unclear (Weekes 2011).

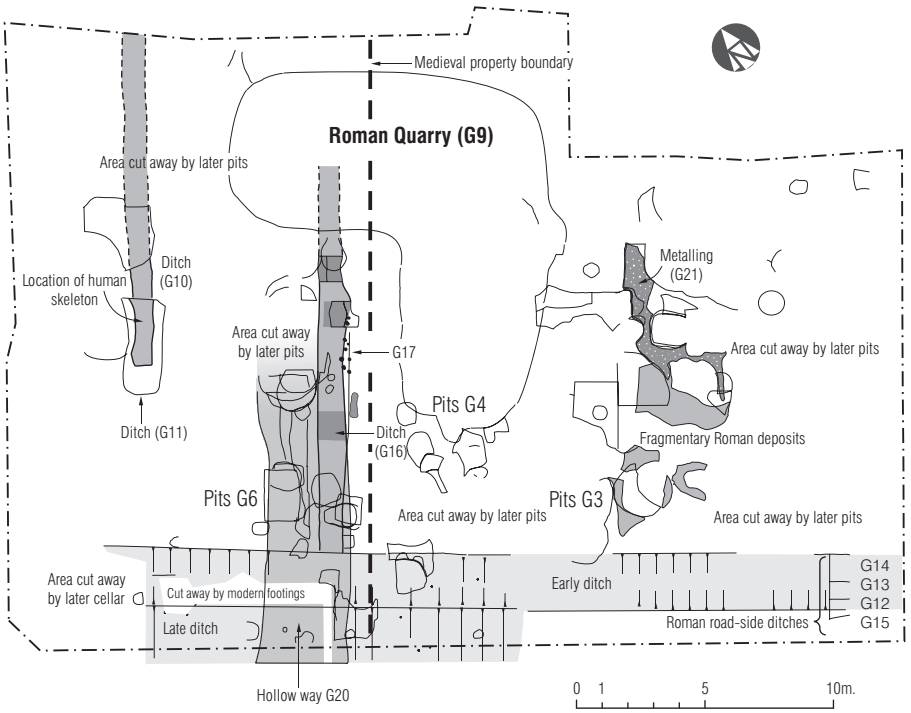
Recently, considerably more evidence for the character of Roman burial in this area has been revealed at the Hallet's Garage site, where a sequence of earlier Roman features and deposits, including ditches, pits and evidence for possible nearby structures, was superseded by a late Roman inhumation cemetery (Gollop 2012a, 13). At least three features have also been provisionally interpreted as sunken-featured structures suggesting early occupation on the margin of the urbanised area. One hundred and thirty-seven graves of the inhumation cemetery were excavated, extending across the entire limits of the site (Gollop 2012a, 14). None of the burials were associated with grave goods, suggesting a probable later Roman date (late third to late fourth century AD), which would correspond with much of the dating evidence from other inhumation burials in the vicinity (see Rady 2009, 20 for example).

Evidence of Anglo-Saxon activity at St Dunstan's has remained tantalising slight, although three important inhumation burials of the sixth/seventh century were excavated at Cranmer House (350m to the west), the grave goods including glass cups and an elaborate gold pendant (Bennett 1987a, 68–70). A few Anglo-Saxon potsherds in the uppermost fill of a Roman hollow way at North Lane also suggest Anglo-Saxon activity in the area (Rady 2009, 46), and similar material was found at 71 St Dunstan's Street (House of Agnes) just to the south (Linklater and Dekker 2010, 69). At the Hallet's Garage site however, pits along the street frontage have been dated to the eighth or ninth century and contained loomweights along with large quantities of burnt daub, slag and Roman tile (Gollop 2012a, 15). These are the first real indications of post-Roman settlement and industrial activity in the area.

Although there was certainly an extra-mural suburb outside the Westgate by the early medieval period, little is known about its nature or extent (Urry 1967, 188). It seems likely that this suburb originated in the mid to late twelfth century, when there is some evidence for houses along the North Lane frontage, in what was to become the tanners' quarter in the later Middle Ages (*ibid*). The Hallet's Garage site has again provided some evidence for activity of the twelfth and thirteenth century further from the urban core. A complex of pits, mostly cut to the rear and south of the site contained both domestic and industrial waste. The first 'coherent attempt' to build on the site dated to the thirteenth or fourteenth century, however (Gollop 2012a, 15). Associated pit digging indicates occupation to at least the sixteenth century, as might be expected. The present dating evidence for the onset of this more tangible domestic settlement, with most of the street frontages probably now occupied by timber structures, tallies closely with evidence from other sites in the area (Rady 2009 46–47). Historic mapping of the later seventeenth and early eighteenth century shows most of St Dunstan's Street flanked by properties, with gardens to the rear and orchards or hop fields beyond.

Roman period

The Roman levels were the most difficult to excavate on site, partly due to the similarity of their fills, but more importantly because the Roman horizon was considerably truncated by later activity. There were virtually no horizontal Roman deposits as these had been removed by extensive later terracing of the site. Only a few fragmented layers of this period survived at the far south-east end, but the quantity of residual Roman material on the site is indicative of a considerably greater intensity of activity than



Roman phase.

is represented by the few discrete deposits that survived. Although there was relatively little very early Roman pottery, some features would appear to date from the mid first century, if not from the first decades of Roman occupation. Late first- to second-century pottery predominated in the assemblage. There would also seem to be a low quantity of late Roman pottery (and coins) from the site.

An interesting, and unusual find was that of several sherds of south-east English lead-glazed ware, sometimes known as Staines Ware after its postulated production site in Middlesex. The pattern of under-glaze 'ring-and-dot' white paint decoration on the sherds suggests that they may be from a small flask. Until now only a handful of sherds of this late first- to early second-century ware have been found in Canterbury.

Much of the Roman activity consisted of pit digging, about sixty of various sizes (including pit groups G3, G4 and G6) being excavated across the site. The largest Roman feature investigated (G9) took up a considerable proportion of the north-east quadrant of the excavated area. This was a large inverted L-shaped feature, aligned perpendicular to the Roman street. The feature was cut away on all sides by later pit digging but its central area was relatively intact apart from more recent disturbances (including a modern bomb crater). The disturbances on the margins of this feature were clearly due to medieval clay quarrying, which had avoided the unusable fill. About 14m wide east–west, and of about the same length at its maximum, the dimensions of the feature indicate that it was a quarry, undoubtedly for the extraction of brickearth with its shallower west end (the entrance), closest to the Roman road. Such quarries have been found elsewhere in the area (Rady 2009, 8–10). Even though minimally sampled, the feature provided a large corpus of Roman ceramics and other material.

Some of the earliest features comprised a succession of four intercutting V-shaped ditches (G12 to G15) aligned with and adjacent to the modern street frontage. The ditches were considerably truncated by later disturbances and in places were only seen in section; the full profile of most was not possible to record, but they clearly represent the side ditches of the Roman street. The earliest ditch was almost completely truncated by the later ditches, but had, at its base a discrete layer of gravel, possibly washed off the metalled Roman street before it had time to consolidate. Another two ditch lines about 6m apart were set perpendicular to the street frontage in the north-western half of the site. The most north-westerly consisted of two ditches (G10) and a recut on the same line (G11). The latter terminated about 11m from the street frontage. An articulated but incomplete, fairly well-preserved human skeleton appeared to be buried in the ditch fill not far from the terminus of the later cut. It was of a woman about 30–35 years old. It is conceivable that this burial is of late Iron Age date, but it is more likely to be of Roman. A few fragments of disarticulated human bone were recovered from the same area.

South-east of these ditches was a parallel ditch (G16), which extended up to the roadside ditches, although its relationship with them was unclear. This ran across most of the site but to the north-east its course had been cut away by later features. A group of post- and stake-holes (G17) on its eastern side appeared to be related, possibly representing a fragment of fence-line down its course. Both ditch alignments probably represent Roman field or property boundaries, and quite likely enclosed a trackway extending north-east from the main road, as a hollow way later formed between them.

Most of the other features of this phase were dispersed and isolated post-holes, very fragmentary cuts and fills and other probable Roman features and layers at the south-eastern end of the site which included a significant spread of gravel metalling (G21), perhaps representing a working area. The latest Roman feature identified was a wide U-shaped cut (G20) that extended perpendicular to the street frontage, between the two ditched boundaries. The width and form of this is highly suggestive of a hollow way, perhaps created by the constant use of a trackway between the two boundary ditches. It appears to have been a long lasting feature, since potentially post-Roman material was recovered from its upper fill. The relation of the hollow way to the main roadside ditches was particularly difficult to determine but it appeared to supersede them. This type of feature is again known elsewhere in St Dunstan's; a Roman hollow way, used into the Anglo-Saxon period (and probably beyond) was recorded on the 1996 North Lane excavations (Rady 2009, 10–22). Such a situation could be postulated here as medieval terracing and later property boundaries respected this line, suggesting an extremely long-lived boundary that lasted well into the post-medieval period (see also Rady 1999, 47–9).

The location of these boundary ditches and the hollow way is an important addition to the

The hollow way. Scale 0.5m.

known Roman topography, and the fact that such boundaries survived into the early post-medieval period (until now only suggested in earlier work), has implications for future research of this suburb. It is even possible that the Roman quarry and hollow way survived as depressions into the early medieval period, as suggested by the patterning of pitting and clay extraction later on. This could be suggestive, for example, of relatively little activity on the site in the late and immediate post-Roman period and is again potentially important in our understanding of the overall sepulchral use of St Dunstan's during the period. Of similar importance is the complete absence of a formal Roman inhumation cemetery which shows that the cemetery found at Hallet's Garage did not extend this far away from the town, and was probably limited by a boundary, similar to those found on the present excavations. This is further evidence that cemetery plots, probably throughout the period, were particularly discrete entities and purposefully set aside for such use, although *ad hoc* burials do seem to have occurred, particularly in the later part of the period.

Medieval phase.

Anglo-Saxon period

Just as the lack of area excavation in this part of the city has led to a piecemeal interpretation of the Roman topography, the same applies for the area in Anglo-Saxon and medieval times. Anglo-Saxon deposits, once virtually unknown from the immediate suburb, have now been found on three other sites in the vicinity and strongly suggest that a mid to late Anglo-Saxon extra-mural settlement was present. About ten Anglo-Saxon features have been isolated so far on the site, and further study of the pottery may indicate others. The features were all pits and most yielded only a few sherds of Anglo-Saxon pottery amongst a large residual Roman ceramic assemblage. A fired clay loomweight was also recovered from a pit. Very similar Anglo-Saxon pits were found near the road frontage at the Hallet's Garage site, and a full characterisation of their nature and associated assemblages will throw light onto the extra-mural Anglo-Saxon settlement that is growing increasingly evident in this part of Canterbury.

Medieval

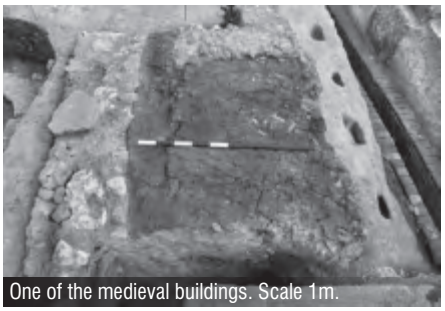
The development of this, perhaps 'principal extra-mural suburb of the city' (Urry 1967, 188) is imperfectly understood, the lack or imprecision of documentary material meaning that the even the date of the development of the street frontages is generally not known. The small excavations and other interventions in the area have suggested that the suburb was not particularly developed structurally until the fourteenth century although the evidence has often been equivocal, and the North Lane excavation (Rady 2009), suggested that at least some of the street frontages must have been developed before this time.

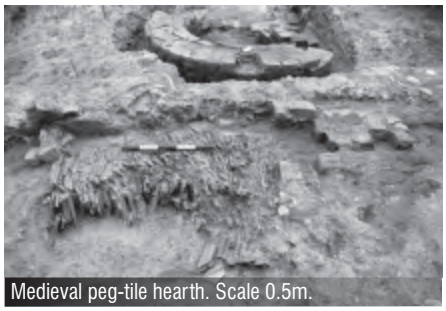
The medieval layers and deposits presented the most complex stratigraphy on the site. An understanding of the site development during this period is reliant on an attempted reconstruction of the structural layout, related to the stratigraphic sequence and dating. Unfortunately, post-medieval truncation has obliterated much of the structural evidence, particularly in the north-western half of the site and in addition many of the later medieval deposits had become physically detached from the overall sequence, some preserved from later removal by slumping into earlier pits. Even so, the medieval activity can be divided into two broad phases, a pre-developmental phase and then a developed phase with the street frontage fully occupied by buildings.

The earlier phase consisted almost entirely of extensive pit digging. Although the medieval ceramics have not yet been thoroughly dated, from evidence elsewhere this activity is likely to have commenced in the twelfth century, or slightly before. Some of these pits almost certainly had a dual function, primarily clay extraction, then use for rubbish disposal, a very similar situation to the Hallet's Garage site just to the south-east. This dual function is clearly demonstrated by the pits to the rear of the site, which studiously avoid the area of the much earlier Roman quarry, being cut in a wide arc around and just clipping its margins. Pit digging on the site continued until the late medieval period, most of these later features being situated to the rear of the site away from the more developed frontage. A significant corpus of material was recovered from these pits as might be expected, including pottery, animal bone and a large assemblage of residual Roman material. A number of extensive pit complexes near the street frontage also contained considerable quantities of slag and other metalworking waste indicating wholesale industrial activity in the area in the earlier medieval period. No obvious features relating to this activity were found on site however.

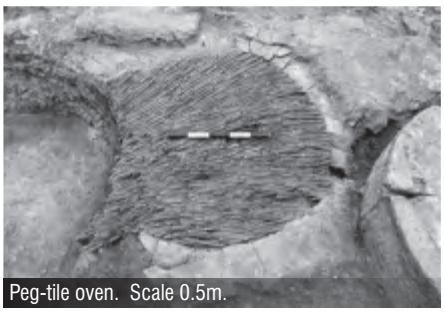
As with the adjacent Hallet's Garage site, the onset of development was preceded by the formation of building terraces to counteract the natural slope of


Intercutting medieval pits. Scale 0.5m


One of the medieval buildings. Scale 1m.


Medieval peg-tile hearth. Scale 0.5m.


Medieval lane and ditch. Scale 0.5m.


Peg-tile oven. Scale 0.5m.


Well. Scale 1m.


Well. Scale 0.5m.


Well. Scale 1m.

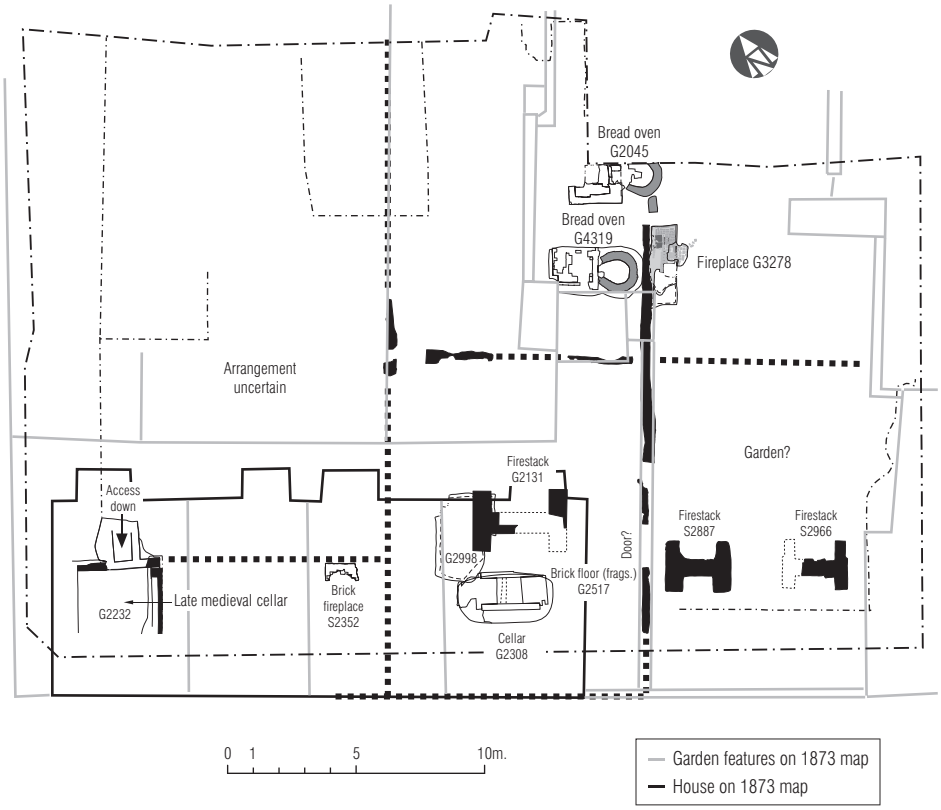
the hillside, and the compaction of soft spots left by the earlier pits with spreads of gravel. This terracing considerably truncated earlier deposits. The terrace cuts themselves survived in at least two places, and tallied with the property boundaries. One of these boundaries almost certainly followed the earlier boundary that had originated in the Roman period. Unfortunately, the building sequence on the site was fragmentary and may prove impossible to reconstruct coherently, particularly towards the north-west. No attempt will be made here to describe the structures, most of which were based on dwarf walls, but they were probably not much different to many other buildings of this period, being timber framed with clay floors and peg-tile hearths. However, there are indications that at some point the buildings along the frontage were separated from structures to the rear by a graveled lane or courtyards. Another graveled lane and boundary ditch extended to the rear of the site along the line of the earlier Roman hollow way. This particular set of features may be early in the medieval sequence and show an extremely long continuity of use of this particular boundary and trackway. Some more specific features are of particular interest, such as a peg-tile oven (G3067) towards the rear of the properties which hints at more commercial processes such as baking.

Late medieval/early post-medieval

It is clear that the range of medieval timber-framed buildings along the St Dunstan's street frontage survived into the early post-medieval period, but this late medieval to early post-medieval transitional period is rather tenuous on the site and mostly represented by brick-built fireplaces and presumably two brick-built bread ovens to the rear, both of which also demonstrate some continuity with the medieval period as they were in the same area as the earlier peg-tile oven (G3067) and at least one (G4319) respected the line of the earlier dwarf walls. In Canterbury as elsewhere, timber-framed buildings tend to be adapted during this period with the introduction of brick-built frontages replacing the jetties and the insertion of brick-built firestacks and other alterations. Reconstruction of the arrangement during this period is very difficult however, as the medieval structures were themselves too fragmentary for a full assessment of their ground plan, which has implications for the understanding of their latest manifestation.

At least some of the medieval buildings across at least part of the site may have been demolished, but the extent, date or reason for this removal is unclear. There are positive indications that some elements of the structures survived into the earlier post-medieval period since many of the medieval dwarf walls were used as footings in later structures and at least some of the earlier property boundaries stayed in place.

One range of buildings that almost certainly survived until the redevelopment of the site in the late seventeenth century can be partly reconstructed whilst others can be postulated by the position of brick fireplaces (rather than the earlier peg-tile hearths). The best preserved range, *c* 10m wide, extended back from the frontage between two of the earlier medieval property boundaries, and consisted of at least three rooms. The rear end of the building cannot be precisely gauged and may have been beyond the



Late medieval phase.


'Cellar' (*micveh*). Scales 0.5m and 1m.


Excavating the bread oven.


Bread oven. Scale 1m.


Medieval or late medieval cellar in north-west corner of site. Scale 1m.

excavated area. The walls of the range consisted of already extant dwarf walls and presumably above ground timber frame, and represent the survival of part of the earlier medieval structures. Rooms to front and rear were divided by similarly surviving fragments of dwarf wall. An interruption in the sequence of walling on the south-east side may have represented a doorway into the frontage room.

An unusual feature, set within the building, appears to belong to this phase. This was a subrectangular structure (G2998), 3m long, 2m wide and about 0.3m deep at maximum, aligned perpendicular to the street frontage. It was filled with a complex sequence of trodden deposits or floors. The function of this feature is uncertain, but it was similar enough to a sunken-featured structure to be interpreted as such during excavation. The feature, which contained clay pipes in its upper fill, probably dates to the sixteenth century.

The exact early internal arrangements of the structure have not yet been clarified, but the front room (or rooms) was eventually provided with a brick floor (G2517). The floor was cut by an unusual 'cellar' (G2308). This was roughly oval at the top, about 3.7m long and 2m wide, becoming more subrectangular towards the base. About 2m deep, it was undercut on the sides, but each end sloped inward. Brick-built steps descended from both ends. Two brick walls about 1m apart had been constructed against the long sides, after the steps had been constructed. There was no obvious floor at the base although at least one beam slot was evident and there was no sign that it had ever been roofed.

The function of this unusual feature has yet to be determined, although it has been suggested that it was a *micveh*, a cistern used in Jewish ritual. This suggestion was made because of the steps at either end of the structure and the proximity of a post-medieval synagogue (Gollop 2012a, 16). This interpretation, however, seems highly unlikely, as a *micveh* is filled from a source of running (preferably spring) water or with pure rainwater. There was also no indication that 'cellar' G2308 was ever watertight or could have contained water for any length of time.

Late sixteenth- or early seventeenth-century alterations included the insertion of a massive H-shaped firestack (G2131) across the front bay, dividing the area into two separate rooms and cutting through the brick floor. To the rear, where there may have been more than one room, the area was taken up with two adjacent, but not contemporary brick-built bread ovens (G2045, G4319), set against the south-eastern wall. The superstructures of these did not survive, although the basal working areas of both, each set to the north-west were relatively intact. This room was extant in the medieval period, and also contained a bread oven, constructed from peg-tile which was cut by oven G4319. The front part of the building may therefore represent a domestic area, with the rear used as a commercial bakery, a potentially long-lived use of this part of the site (fragments of medieval ovens were also found elsewhere on the site).

The extent of other structures on the site at this time is very difficult to discern. A brick-built fireplace (G3278) to the south-east of the range is undoubtedly a relic of one and the stone foundations of two adjacent firestacks (S2887 and S2966) suggest the presence of others, although the street frontage in the

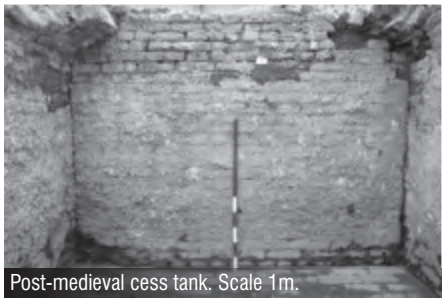
south-east part of the site may have become open ground at this time, as it was during the later post-medieval period. A brick fireplace just to the north-west near the frontage (S2352) indicates a possible room during this period but there were no associated walls. Similarly in the extreme north-western corner of the site, a probably medieval or late medieval cellar (G2232) was excavated.

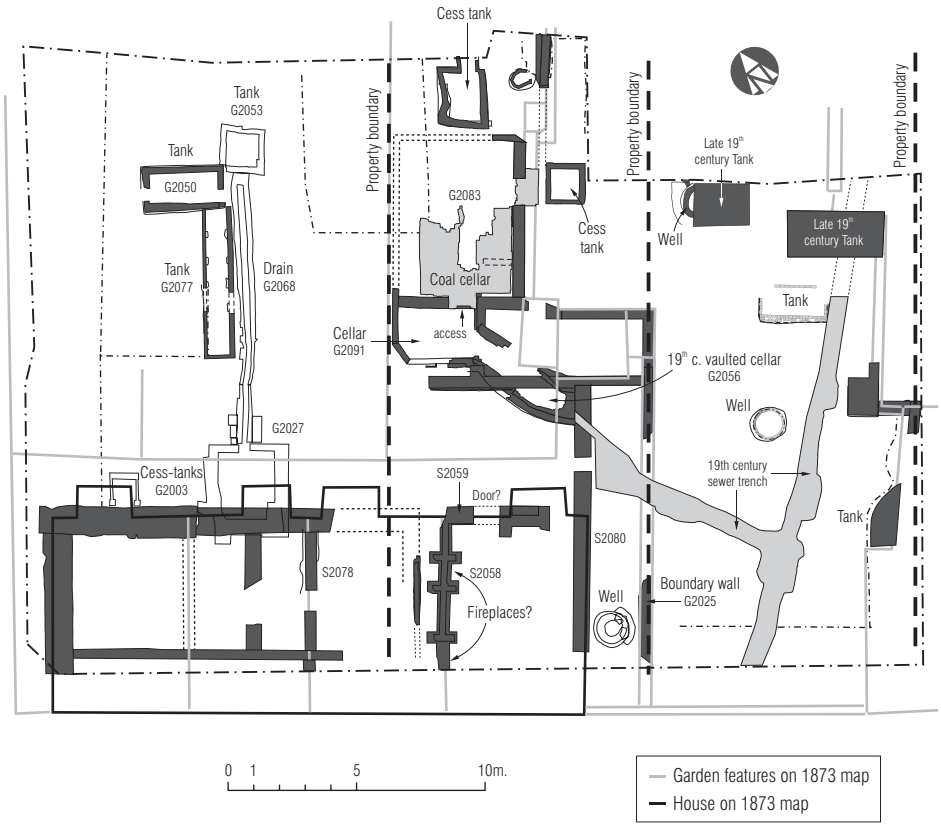
Post-medieval

At some point in the early post-medieval period, all of the remnant medieval structures and their descendants had been removed, although the position of some later (brick) walls, erected directly on the old dwarf walls (used as footings), indicates that the position of these was still known or visible. This suggests that the clearance of the site and its subsequent redevelopment took place as one operation, or at least within a relatively short time. It is possible that most of the plot was acquired by one owner, as a large house was erected at the junction of St Dunstan's Street and a lane or track which much later became Roper Road. This structure survived into the twentieth century, and photographs give some idea of its later character.

Coin and token evidence indicates that at least some of the previous properties in the area were commercial. The earliest issues from the site that can be positively identified are three royal farthing tokens dated 1625–31, and there is an even sequence of these up to *c* 1643, shortly before royal farthings ceased to be minted. The earliest pieces suggest that retail activity began in the late 1620s or early 1630s. The remaining low denomination currency consists of trade tokens, and farthings, that first appeared immediately after the execution of Charles I in 1649, to provide small change when royal farthing tokens were no longer being produced; the latest dated piece is 1655. Later, from 1661, halfpenny tokens were also produced, but as this denomination is not represented, it is likely that retail activities ceased between 1655 and 1661. Pieces from Deal, Rochester, and Sandwich demonstrate how far they circulated from their places of origin. That this type of activity seems to suddenly disappear during the second half of the seventeenth century would correspond with the suspected wholesale purchase of the plot and erection of a large domestic property.

The nature of the structural remains suggests that the house was built around 1680 or slightly earlier. Modern intrusions obscured or destroyed the precise layout at the south-west end of the building and some parts of its later development. The building was about 14–14.5m (46ft) long, and comparison with the first


Post-medieval cess tank. Scale 1m.



Post-medieval phase.

edition Ordnance Survey (1873) indicates that the frontage was considerably further forward than the edge of the site, and that the building must have been about 7.6m (25ft) wide.

The south-eastern limit of the building's plot was bounded by a fragmentary brick garden wall (G2025) perpendicular to the road frontage; this was built over an earlier dwarf wall, that itself appears to have delineated a long-lived property boundary. Considering the tenacity of property boundaries, this suggests that this garden wall therefore delimited the property on this side. To the north-west the wall turned north-east towards Roper Road, although it had been rebuilt on this corner and could conceivably have originally extended further back along the medieval property boundary line. Alternatively, the original rear boundary of the property may have dog-legged, and turned away from the frontage again, as indicated by the position of related cess tanks and other features. This is the situation shown on the 1873 map.

Two cess-tanks were situated immediately to the rear of the building, the smaller (G 2003) adjacent to the most north-westerly room. A few metres to the south-east, straddling the two north-westerly rooms, a larger cess-tank (G2027) measured over 3m wide. Both tanks were brick-built with barrel vaulted roofs though only traces of these survived. The latter also possessed a brick floor. Both these features were filled with rubble probably derived from the demolition of the properties just after the Second World War. A gap in the rear wall, to the full depth of the larger tank, led directly to a smaller tank, built in a number of separate segments. This was probably a soakaway for the liquid waste as it had no brick floor (all of these structures were covered with thick concretions, almost completely obscuring the brickwork). This soakaway appears to have been inadequate to requirements (suggesting a sizeable household), as it was subsequently converted to become part of a drain extending out into the rear gardens by a further 9.5m. The drain (G2068) was brick-lined and constructed within a substantial trench cut into the natural subsoil. Originally it may have been just capped with wood as there was no evidence for there ever having been a capping brick arch. This drain in turn discharged into a large and deep tank or soakaway (G2053) at the rear of the site. The size, structure and complexity of the sewerage arrangements to the rear of the building perhaps suggest that the property belonged to somebody of considerable financial means.

Also to the rear of the house was a complex sequence of outbuildings and other structures. The earliest appears to have been a small, but deep, cellar (G2091) located about 5.5m to the rear of the south-east end of the house. The cellar was brick-built, 3m long internally and just under 2m wide, and about 1.64m deep as surviving. The area to the south-east of the garden wall was not developed from this period. Thick layers of soil directly sealed the truncated remnants of the medieval properties indicating that the area became a garden.

Later adaptations to the house were quite extensive and included a considerable extension to the south-east of a construction typical of the late eighteenth/early nineteenth century in Canterbury. The constructed dimensions of the building afford clues as to its arrangement and with other internal features, primarily a new brick firestack, indicate that


Brick-lined drain.


Brick-lined drain. Scales 1m and 0.5m.


Brick-lined soakaway. Scales 0.5m and 1m.

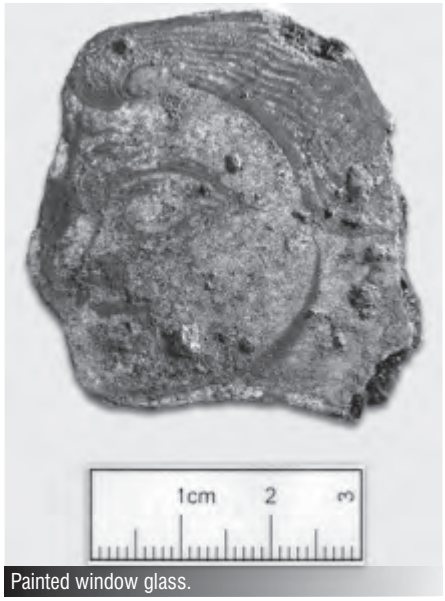

Barrel-vaulted cellar. Scale 1m.


Coal cellar. Scale 1m.

a cross-wing containing two rooms was formed at the extended end of the building. The garden wall then formed a passageway with the south-eastern end of the house (represented by a new wall S2080), probably opening to the street. To the north it may have led to a doorway or doorways in this end of the building and possibly also an adjoining out-house. A number of other features to the rear of the house are also possibly related to this phase. These include a large and deep barrel-vaulted cellar (G2056) of uncertain function.

A later structural phase represents, with some variations, the structures shown on the 1873 Ordnance Survey. A further major reconstruction of the south-east end of the house took place, primarily the demolition of the northern part of the Phase 2 wing, the construction of a new dividing wall (S2058) and a contiguous return at the new rear (S2059), which extended up towards the H-shaped firestack previously dividing the front and rear rooms (there was still probably a doorway in this position). Wall S2058 appeared to include small back to back fireplaces on each side. Other alterations included a new internal partition wall (S2078), presumably


Left: Architectural fragment partly converted for use as a stone mortar and (right) a stone mortar that was re-used as a building stone.



Painted window glass.

with another that did not survive, which divided the property up into the four, now slightly unequal bays or rooms shown on the 1873 map, which perhaps by now, were separate properties; the houses were known as 1–4 Railway Cottages in the later nineteenth century. Census returns indicate that a building south of these was the station master's house from the late nineteenth to early twentieth century.

A large number of garden features, tanks, wells and other structures to the rear and south-east of the property/s described above undoubtedly relate to the post-medieval period but at present cannot be accurately ascribed to any particular one of the outlined structural phases. The largest of these was an extensive coal cellar (G2083). Other than three brick-lined wells, which probably belong fairly late in the sequence, the other main features of note were two intercutting, brick-lined tanks (G2050 and G2077) in the north-eastern corner of the site. Both features, which may have been in use simultaneously, do not appear to have been cess-tanks, which are normally closer to square in plan than this. Also there were none of the residues that are normally present on the inside surfaces. There was nothing in the fill to suggest their function and it seems likely that these features were industrial in nature. Two sewer trenches, one presumably connecting with lavatories installed in the outshot/outhouse, probably date to soon after the installation of mains sewers in Canterbury between 1868 and 1870.

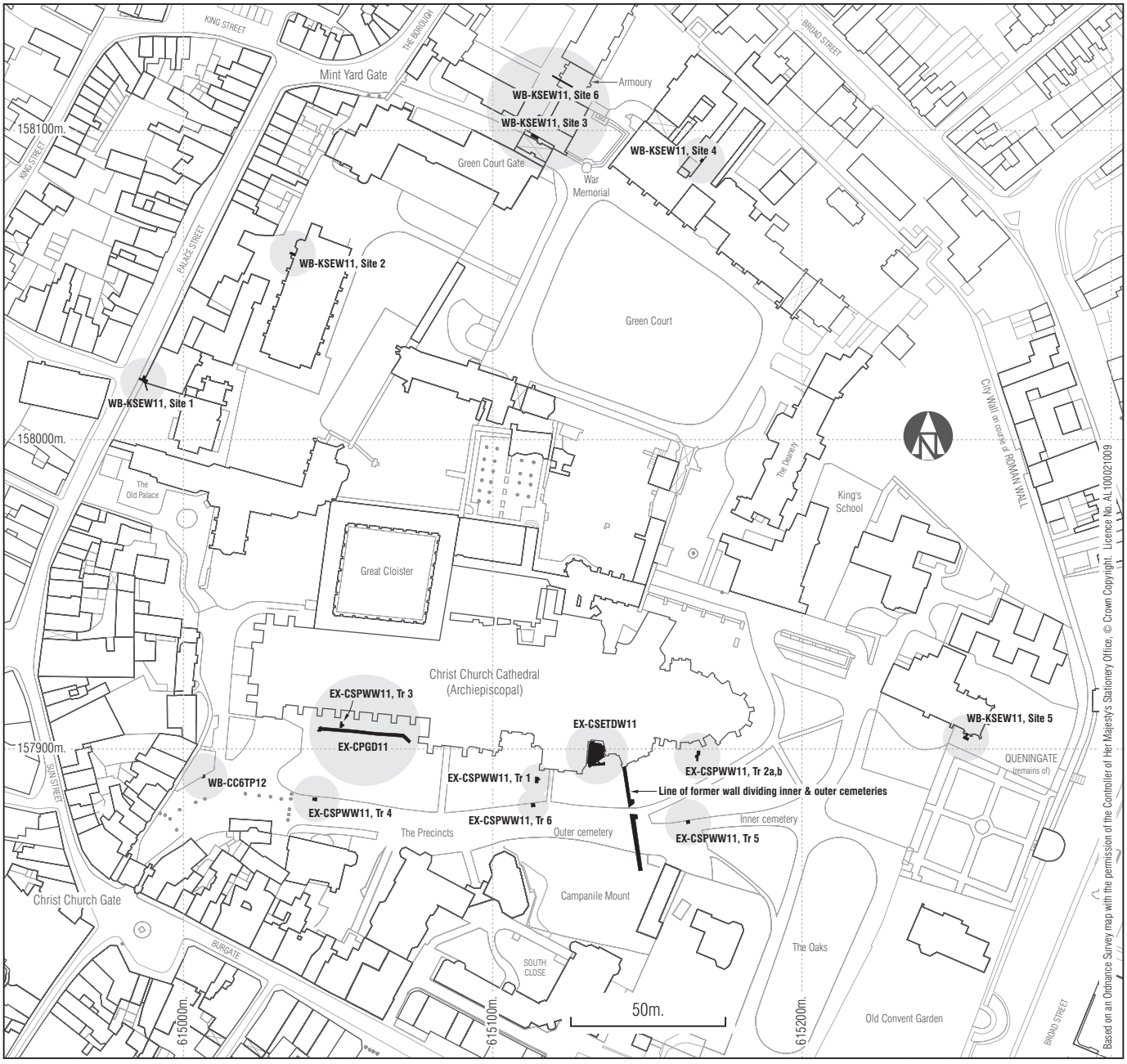
A number of modern pits and an extensive network of concrete foundations, pile caps, drains and sewers relating to the post-war development of the site, pierced the earlier archaeological levels. In addition, a large feature to the rear of the site filled with modern detritus was almost certainly a bomb crater. This represents one impact of sticks of bombs that fell in the vicinity of the railway station and level crossing in 1942 and which undoubtedly led to the demolition of Railway Cottages just after the war.

Canterbury Cathedral Precincts

Alison Hicks

In the past year the Trust has been engaged in a number of fieldwork projects within the precincts of Canterbury Cathedral in ground lying both north and south of the cathedral church. Whilst each site was, in itself, relatively small, the remains uncovered have added to our understanding of occupation within the area.

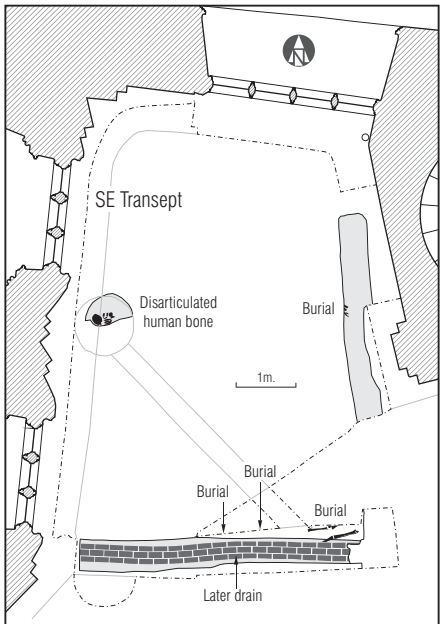
Three projects were undertaken for the Dean and Chapter. Between April and May 2011 an archaeological excavation was carried out adjacent to the south-east transept of the cathedral as part of a scheme to improve drainage (EX CSETDW11). The work involved the cutting of trenches for the installation of catch-pits and new drain runs, together with ground landscaping. Between May and July 2011, seven small trenches were excavated within the



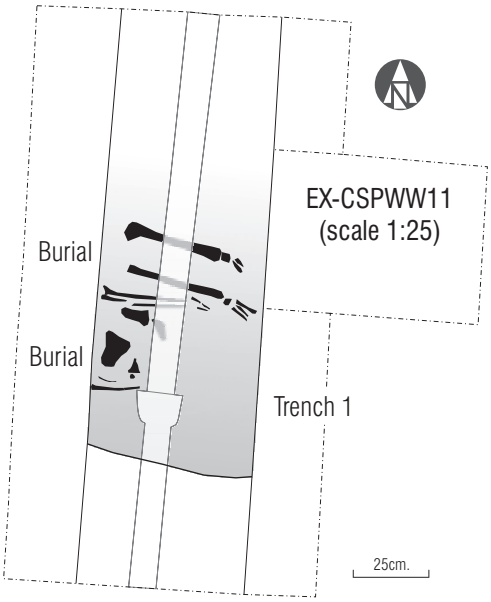
Canterbury Cathedral Precincts (scale 1:2000).

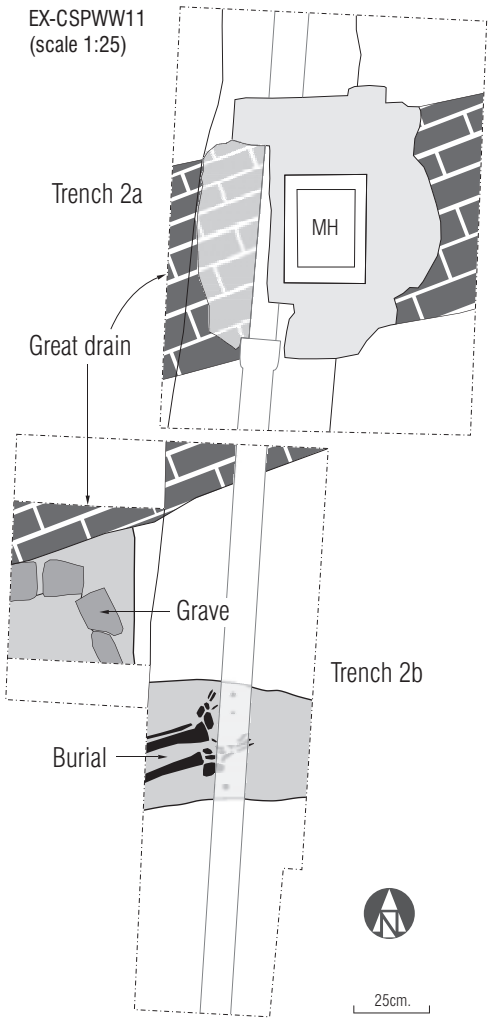
south precincts as part of a scheme to install meters on rising water mains (EX CSPWW11). The third project, undertaken between July and August 2011, was designed to assess the condition of the Great Drain and involved the excavation of a long trench exposing the structure as it ran through ground lying south of the cathedral nave ((EX CPGD11).

An archaeological watching brief was maintained for the King's School between April and July 2011, when six trenches were cut during work to provide an upgraded electricity supply to properties occupied by the school (WB KSEW11). A further archaeological watching brief was undertaken in February 2012 on behalf of BT Openreach during work to install a new cable (WB CC6TP12).



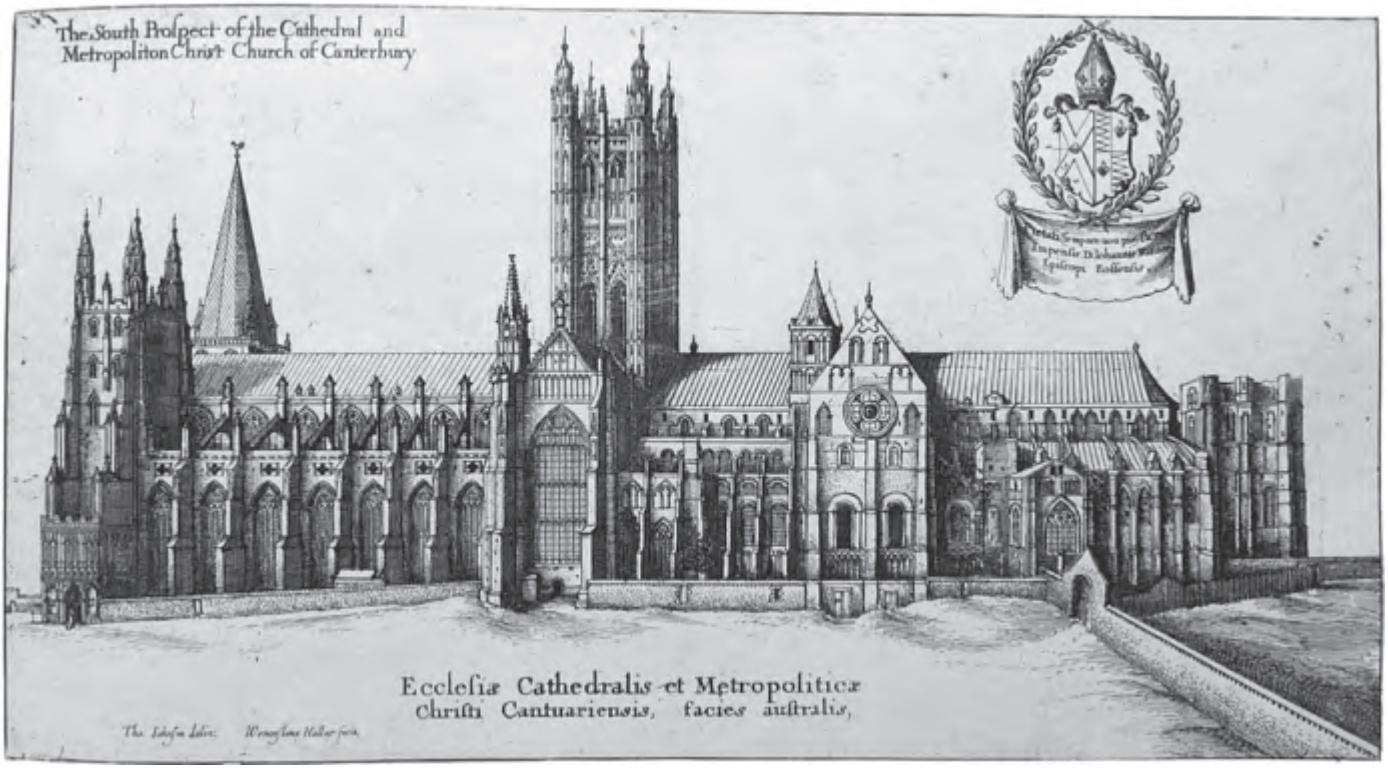
EX-CSETDW11 (scale 1:125)





Burials were exposed at two of the sites investigated (EX-CSETDW11; EX-CSPWW11). From both documentary sources and previous investigations the priory burial ground is known to lie south of the cathedral church. It was probably established as early as the mid eighth century and remained in use for over a millennium, continuing well beyond the time of the Dissolution, with some interments being recorded as late as 1806 (Hicks 2009, 56). A boundary wall once extended southwards from the south-west buttress of St Anselm's Chapel, dividing the outer western cemetery area, used for the burial of lay persons, from the inner eastern area, thought to have been primarily intended for monastic use.

Six graves were revealed in the area of the lay cemetery (EX-CSETDW11; EX-CSPWW11, Tr 1) together with a small collection of disarticulated human bone, lying within an early modern (probably nineteenth-century) pit located adjacent to the south-east transept, which probably represented



South view by Thomas Johnson, engraved by Wenceslaus Hollar.

the disturbed remnants of an underlying burial. Two graves were exposed in the monastic cemetery (EX CSPWW11, Tr 2b), one containing articulated human bone lying within the remains of a degraded wooden coffin and the other represented by a Caen stone lining probably originally surrounding the foot end of the grave.

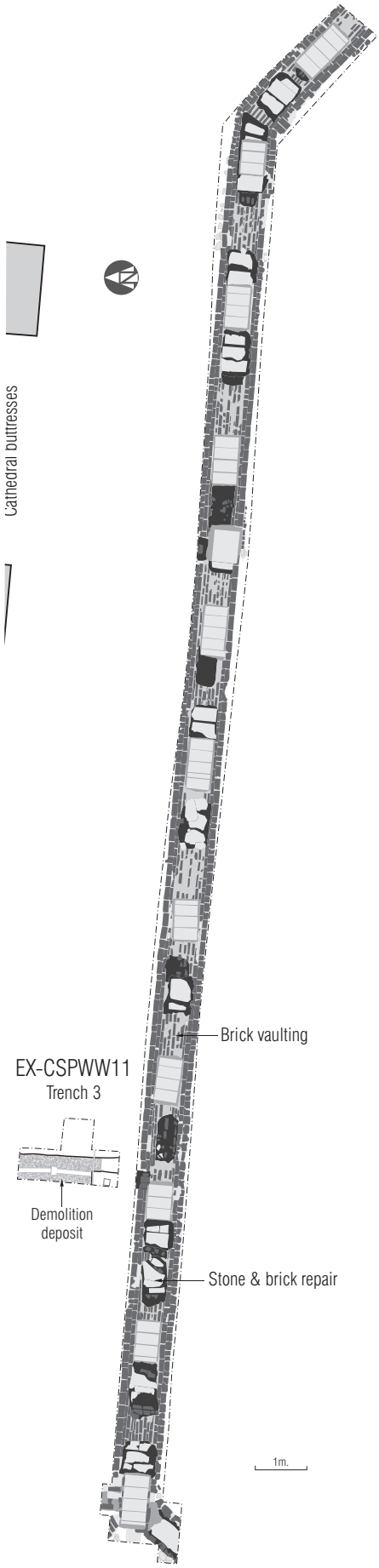
Use of the south precincts for burial over the centuries seems to have caused the ground level to rise. Gostling, writing in 1774, notes that six steps down were required to enter the south door (49), whilst a number of engravings of the time, such as that by Thomas Johnson of 1655, depict an elevated, undulating landscape. Yet during excavation work it was noticeable how shallow some of the burials are, in places lying only 0.32m below the current ground surface. The evidence suggests that significant landscaping has occurred. Late eighteenth- and nineteenth-century prints and paintings show a truncated landscape with large areas covered by gravel, perhaps in part laid to improve the ground for the yearly round of fairs, including the Michaelmas Fair, which were held in the precincts.

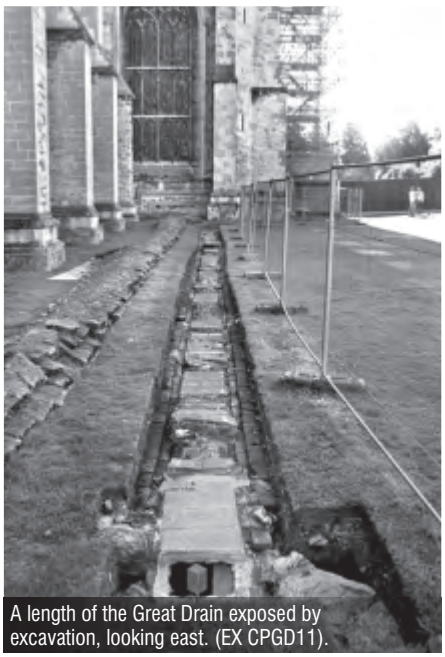
The most prominent archaeological feature revealed during the works was the drain of Prior Goldstone II (1495–1517), known as the Great Drain. A 31m length of the feature was exposed running east–west along the south side of the nave (EX CPGD11), together with a *c* 2m length lying south of the east end (EX CSPWW Tr 2a, Tr 2b). The Great Drain was built as an extension to the twelfth-century water system constructed by Prior Wibert (1153–67) and was designed to 'carry off the inundations of rain-water which, for want of proper channels, were wont to inundate the whole crypt of the Virgin and the adjacent chapels, and greatly hinder access of the pilgrims to the glorious Virgin' (Willis 1868, 170).

Along much of the length uncovered, significant portions of the original medieval structure survive, including the side walls, the base and a small part of the vaulted capping. The side walls are formed of soft red bricks standing to a height of six courses (0.41m) and the base almost entirely of a single depth of bricks, together with one block of chalk, creating a surface which slopes gently down from west to east. Covering the base is a depth of mid grey-brown gritty sandy silt which would have formed during use of the drain and probably continues to form today. The original vaulting of mortared brick, supported upon the drain sides walls, only survives within a small area, and even here has been severely truncated to leave just a small portion of the lowest section intact. The rest was removed when the vault was lowered, probably during the post-medieval/early modern period when, as noted above, the south precincts underwent extensive landscaping. Along much of its length, the new vault is of mortared brick construction, seven bricks in total, laid on their sides, forming the span of the arch. Towards the west, however, where the drain angles in a south-westerly direction, the capping is formed of horizontally-laid Caen stone and ragstone blocks.

The later vault had been broken into on a number of occasions during the early modern period, when repairs were required, new drain runs installed and also perhaps to examine the condition of the fabric.

EX-CPGD11 Great drain (scale 1:125)

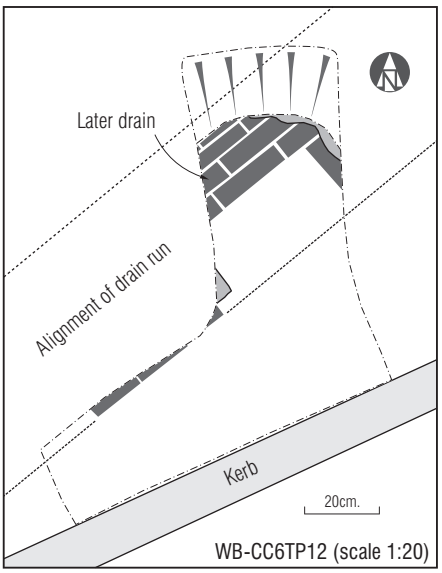




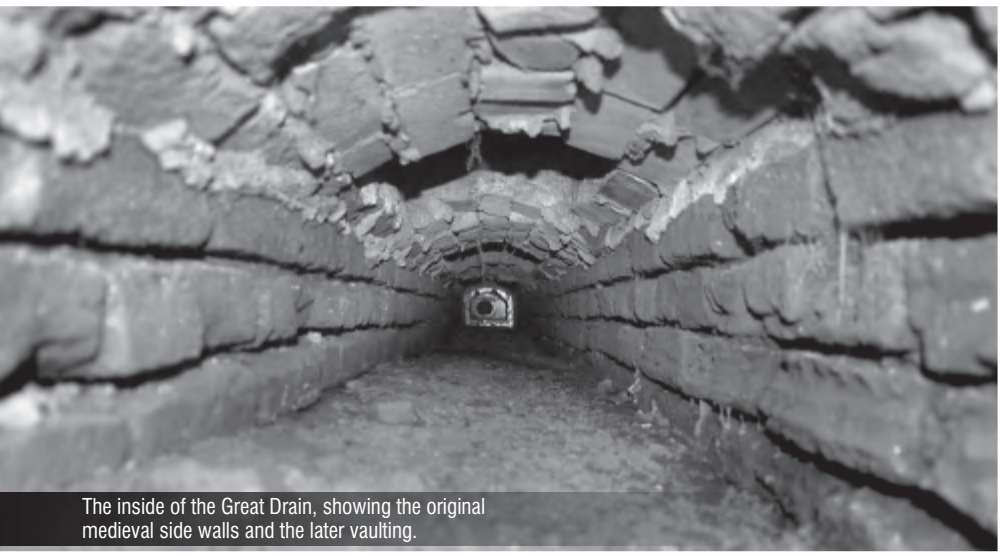
A length of the Great Drain exposed by excavation, looking east. (EX CPGD11).

Three major programmes of work were identified, the succession of openings being capped first by mortared brick, then by Yorkstone slabs and finally, in the twentieth century, by concrete slabs. Additional drain runs have been fed into the structure through the northern side walls, taking water from down-pipes on the south side of the nave, and also at the western end of the drain where it angles towards the south-west. Although clearly suffering in parts from the volume of water it now has to channel, the Great Drain continues to function remarkably well for a structure that is 500 years old.

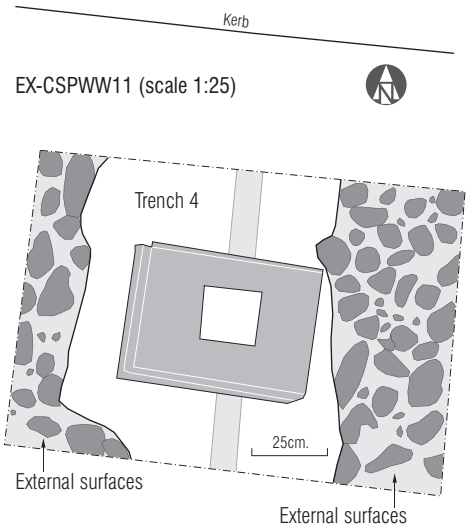
Other, later, drains were also revealed during the archaeological works. Towards the west (WB-CC6TP12), a south-west to north-east aligned drain was revealed, dished in profile and constructed of hard-fired red bricks capped by horizontally laid, neatly cut limestone slabs. The channel was entirely infilled with a loose deposit of mid brown silty clay which indicated that the feature was no longer in use. The date of the drain is uncertain although it seems unlikely to have formed part of the monastic Great Drain since it differed so widely in construction. It was



WB-CC6TP12 (scale 1:20)



The inside of the Great Drain, showing the original medieval side walls and the later vaulting.



probably laid in the eighteenth or nineteenth century, in association with the modification of properties lying to the west. A further drain, aligned east–west, was uncovered adjacent to the south-east transept (EX-CSETDW11). It was formed with side walls and a capping of unfrogged red bricks bonded with cream-coloured mortar, the nature of which suggests that the structure was of nineteenth-century origin.

Where no features were observed, horizontal deposits of material sometimes hinted at earlier occupation within the south precincts. Within a small trench south of the nave (EX-CSPWW11, Tr 3), a demolition deposit up to 0.40m thick, containing quantities of flint and mortar rubble, could perhaps have derived from the dismantling of the Brenchley Chapel in *c* 1787. The chantry chapel was constructed in 1447, positioned along the south side of the cathedral nave between the third and fourth buttresses (from the east), and so only *c* 6m from the excavated trench. It was described as 'A beautiful little chapel which stood between two buttresses, immediately under the fifth window of the south aisle, into which it opened ... it was built ... by the Lady Joan Brenchley, widow of Sir William Brenchley, Chief Justice of the King's Bench, in memory of her husband, who died in the preceding year, and had been buried near this spot' (Britton and Brayley 1807, 855). It was demolished because it was said to have become 'unsightly' (*ibid* 855), although the wall foundations may survive below ground; it was noted in the nineteenth century that 'some indications of foundation walls [were] at times noticeable on the turf' (Field and Routledge *sd*, 56).

Further south, within three small trenches (EX-CSPWW11, Tr 4, Tr 5, Tr 6), sequences of external surfaces and overlying occupation material, revealed largely in section, were probably associated with tracks, paths and roadways providing access around the precincts. Late/post-medieval pottery recovered from some of the lower deposits, if not residual, suggests that these may have been established whilst the precincts were still being used for burial. Overlying deposits were of nineteenth- and twentieth-century date. Some of the surfaces were relatively substantial and comprised closely-packed flint cobbles as well as depths of flint nodules and gravel, although the lack of any consistent materials spanning the trenches suggests that the preparation and repair of paths and roadways may have been somewhat piecemeal and sporadic in nature.

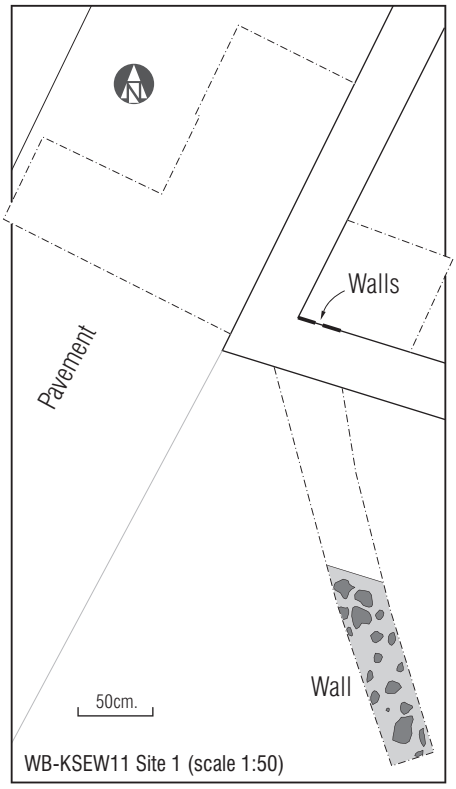
In the grounds north and east of the cathedral church, three trenches cut during electrical upgrade works revealed archaeological remains of note. The earliest (at WB-KSEW11, Site 3) comprised a sequence of occupation deposits seen to pre-date the foundations of Green Court Gate, erected in *c* 1155. Unfortunately, the deposits were only revealed in the side of the trench, and so it is uncertain to what they related. Levelling, construction and occupation deposits associated with the building and subsequent use of the gateway were revealed lying above.

Approximately 10m to the north, part of the western wall of the twelfth-century Aula Nova undercroft was observed during work within the King's School armoury (WB-KSEW11, Site 6). The wall was constructed of flint, Caen stone and chalk bonded with pale brown sandy mortar. The armoury building forms the last standing section of the Aula Nova (the cellarer's great hall) and, within it, arches for the original vaulting remain. The standing west wall has been interpreted as forming part of the original structure, with the two buttresses being added in 1572 (Sparks 2007, 179). However, the wall observed during excavation was slightly offset, to the east, from the standing wall, suggesting that the latter is not original to the Aula Nova but represents part of a later rebuild.

Remains of another monastic property were revealed some distance to the south-west. Here, part of the western wall of the Great Hall of the Archbishop's Palace was uncovered adjacent to No 47 Palace Street (WB-KSEW11, Site 1). The palace was built by Archbishop Lanfranc in the later years of the eleventh century, with lodgings on the south side and service buildings further north bounding an outer court. The Great Hall was built in the early years of the thirteenth century and modified throughout the late and post-medieval periods, before being largely demolished in the middle of the seventeenth century. The wall revealed during excavation was constructed of large chalk pieces and occasional flint and ragstone, bonded with orange-brown sandy mortar. Two further stubs of masonry were seen in

Trench cut below the arches of Green Court Gate (WB-KSEW11, Site 3), looking east.

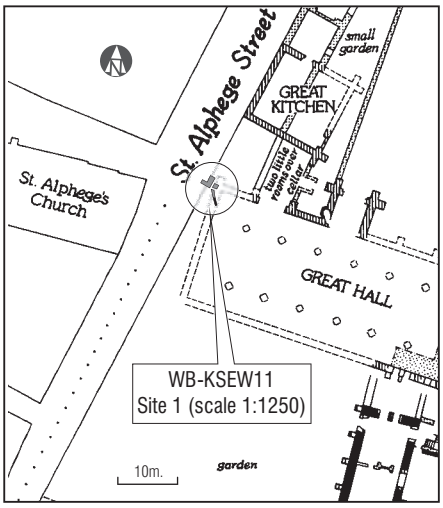
Trench revealing a wall of the Aula Nova undercroft (WB-KSEW11, Site 6), just visible within the doorway lying below the 0.5m scale, looking south-east.



WB-KSEW11 Site 1 (scale 1:50)

profile underlying the south-west corner of No 47 Palace Street, one formed of mortar-bonded flint, the other of mortar-bonded chalk rubble. Both were used as foundations for the standing building but indicate either earlier phases of the current property or the presence of earlier buildings. Like the length of wall to the south, these stubs of masonry could, also, have been associated with the Great Hall of the Archbishop's Palace.

The archaeological fieldwork within the cathedral precincts was undertaken by Phil Mayne, to whom I extend my grateful thanks. Thanks are also extended to the Dean and Chapter of Canterbury Cathedral, the King's School and BT Openreach for funding the work, and to the Cathedral Works Department for their assistance during the projects.




Part of the western wall of the Great Hall of the Archbishop's Palace (WB-KSEW11, Site 1), looking north. Scale 0.2m.

No 41 St George's Place, Canterbury

Crispin Jarman

Introduction

After many years of speculation over the future of the former Martin Walter's Garage site on St George's Place, latterly occupied by a supermarket and furniture store, planning approval for demolition of the existing buildings and redevelopment of the site was granted in December 2010. The site, acquired by Abtec Investments Ltd, was to be developed for student accommodation and the new buildings were delivered to Canterbury Christ Church University at the end of August 2012.

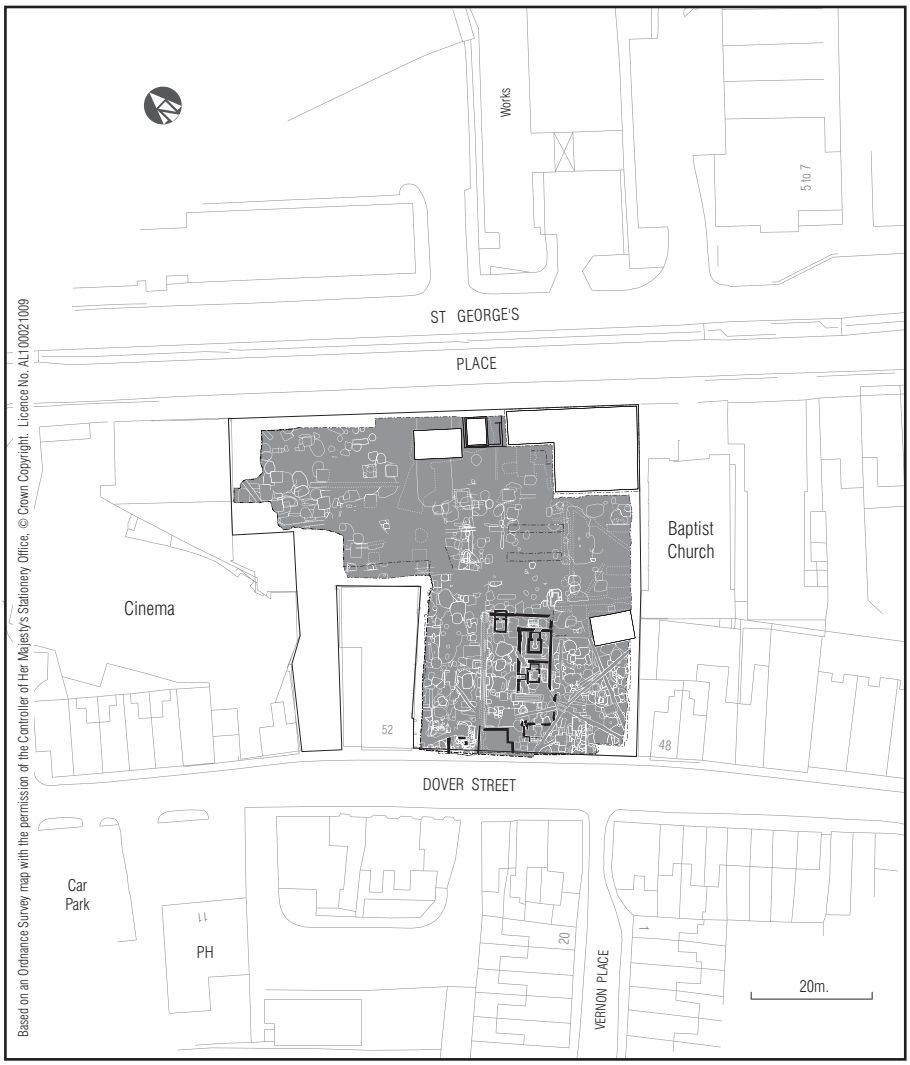
The development lies within the Area of Archaeological Importance with Dover Street to its rear. Archaeological evaluation, conducted in 1989 indicated the survival of Roman, medieval and post-medieval deposits (Houliston 1990a). Given the archaeological potential a condition was attached to approval requiring preservation *in situ* or, where not possible, preservation by record. The Trust was contracted, by Decimus Ltd, development consultants, to undertake the necessary archaeological works.

The site occupies a large area, *c* 3000m^2, within the south-eastern suburb of Canterbury (NGR 61525 15750), of which *c* 2700m^2 was available for archaeological examination. The development comprised almost all the former garage plot, with only that part occupied by Chill Nightclub, adjacent to the Odeon Cinema, omitted. The site occupies *c* 70m of the St George's Place street frontage, between the nightclub and Canterbury Baptist Church, and extends back to Dover Street, occupying a *c* 36m length of street frontage between Nos 48 and 52.

Prior to the Second World War, a row of Georgian properties, similar to those still present beyond the Baptist Church, stood along the south-eastern part of the frontage on St George's Place. To the north-west of these a walled garden extended as far as the nightclub, then occupied by another Georgian property (No 41). These buildings and Georgian properties on the north-east side of St George's Place were destroyed during the Luftwaffe's bombing campaign of 1942. On Dover Street a late medieval or early post-medieval building abutted No 52. Next door to this was a large oast-house and, between this and No 48, a dairy, both occupying nineteenth-century buildings. Although these were not significantly damaged during the war the buildings were demolished in the post-war period, the oast-house going in 1959.

The site lies a short distance (*c* 150m) from the city wall, in a suburb formed along the principal medieval route to Dover. With no major excavations and few smaller investigations having taken place in the


Looking south-east towards the Baptist church.



St George's Place site location plan (scale 1:1250).

locality, our understanding of the early development of this part of the city is sketchy. Dover Street is believed to have its origins in the Anglo-Saxon period and remained an important route throughout the medieval period, before being superseded by New Dover Road and St George's Place, the latter constructed around 1790.

No significant prehistoric activity is known in the vicinity and there is little evidence from the Roman period. Roman burials are reported beneath a burial mound at Salt Hill (Pilbrow 1871) close to the present day St George's roundabout; at Vernon Place (Houliston *et al* 1995); and around Oaten Hill (Willson 2005, 7). Evaluation trenches excavated to the north-west of the site, at the nightclub and at Nos 4–5 Upper Bridge Street (Houliston 1990a; 1990b), identified Roman soils and, at the former, a gravel path or trackway. No evidence of the quarrying seen around the Old Dover Road and Rhodaus Town area has been observed and it is assumed that the area was agricultural land.

Anglo-Saxon occupation is attested by documentary evidence, Dover Street being formerly known as '*Ritherchepe'*. The name or its variants appear in several charters and in two, dated to 923 and 1002/3, the presence of a cattle market is noted (Brooks 1984, 24). The 1989 evaluation of the site yielded some evidence for late Anglo-Saxon occupation in the form of residual sherds of tenth- to eleventh-century pottery, but no structures, deposits or cut features (Houliston 1990a).

The cattle market continued to occupy the area at the north-west end of Dover Street throughout the medieval and post-medieval period and remained there until 1955. The north-east side of Dover Street, and its hinterland, formed part of the holdings of Christ Church Priory in this period and surviving twelfth-century rentals list the land tenancy along Dover Street, including the development site (Urry 1967, 51, 131). These give plot dimensions, tenant name and sometimes occupation and indicate that Dover Street was occupied at this time with buildings on both sides. Several pits sampled during the 1989 evaluation indicated occupation from the early medieval period onwards. Clay floors and a partition wall of a late medieval or early post-medieval building were recorded close to Dover Street, but no earlier structures were observed.

Sixteenth- and seventeenth-century maps show the area to be well developed in the post-medieval period and a number of buildings of this date, many listed, remain along Dover Street. The area remained commercially significant into the twentieth century, with a number of businesses occupying premises along its length.

The excavation

Archaeological work began in November 2010, with the monitoring of geotechnical boreholes, followed by a watching brief on test pits in January 2011. The main programme of work began in March 2011 and continued until August of that year. This comprised two elements; evaluation and assessment, and excavation, undertaken in a phased approach in response to the building programme.

Although one evaluation trench was excavated to the rear of No 52 Dover Street, evaluation and assessment was primarily conducted by means of machine reduction to the construction formation horizon or to the top of archaeology, whichever was the higher. At the south-east end of the site brickearth (Head clay and silt) lay immediately below the floor slab of the former garage at 16.6m AOD, falling to 15.5m AOD to the north-west. Cutting the brickearth was a number of pits (indicated by surface retrieval of finds to be of probable medieval date) cut by post-medieval pits and early modern and modern development. Across

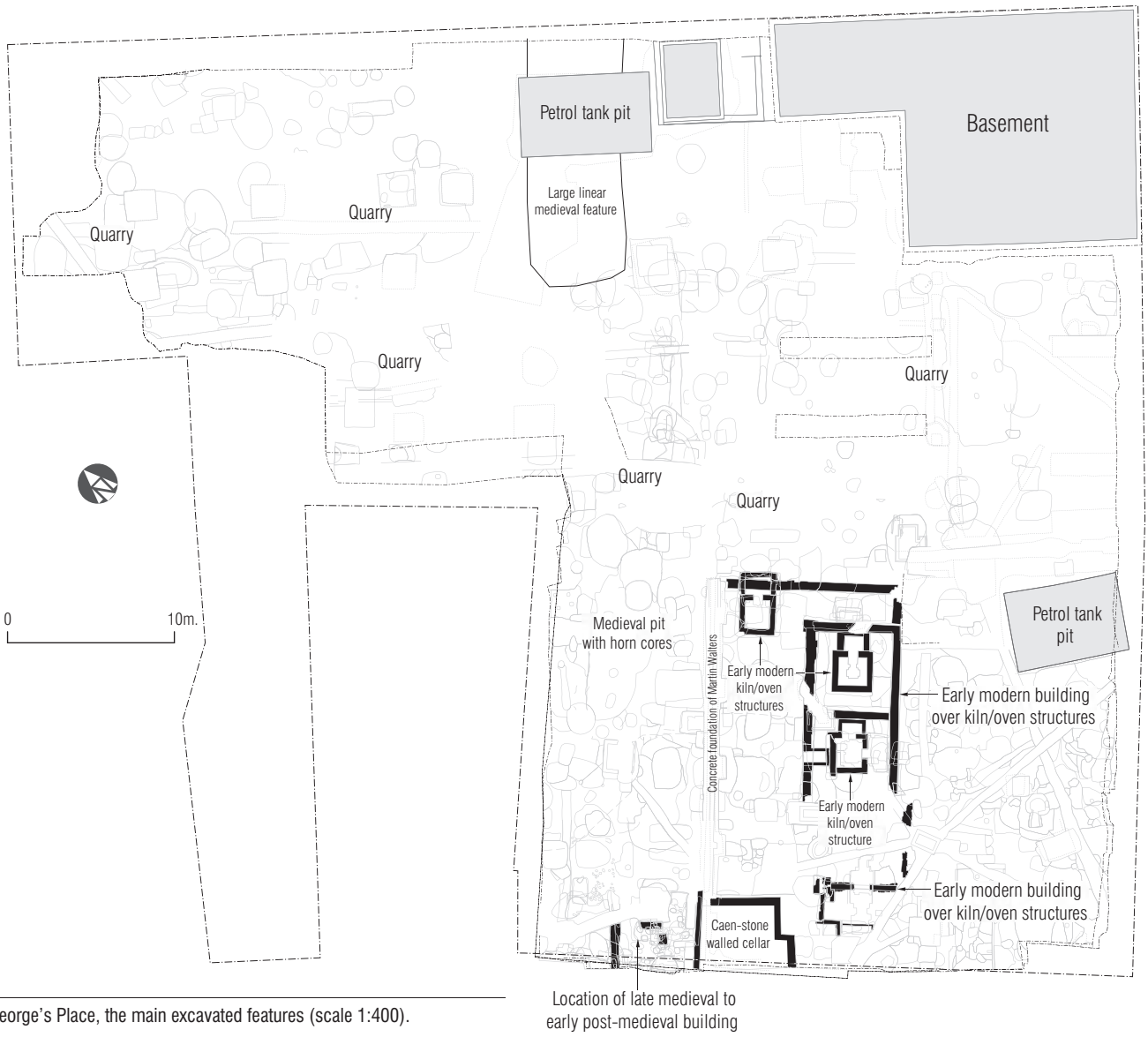
General view, looking south-west towards the Dover Street frontage.

the central and north-western area a soil horizon, up to 0.3m thick, overlay the brickearth masking pits and features. This was sealed to the north-west by up to 0.5m of nineteenth- and twentieth-century overburden. The soil horizon was considered likely to represent a cultivated soil pre-dating later medieval occupation of the site and after assessment it was agreed that the soil would be machine reduced to expose the features below.

Contrary to expectations, damage from the construction of the garage, and subsequent redevelopment of the buildings in the 1990s, had relatively limited impact on the archaeology. At the south-east end of the St George's Street frontage a large basement had removed the remains of Georgian buildings and other archaeological features, while in the centre of the frontage a petrol tank pit had been cut, with its attendant interceptor pits. Between the basement and the petrol tank lay a Georgian cellar re-used to house further tanks. Besides these the main intrusions were from a small cellar (at the south-east boundary of the site), widely spaced concrete pads, two concrete beam foundations and a few, mostly shallow, services. The overall loss from twentieth-century intrusions is estimated to be around 25 per cent of the area, with very little Georgian or Victorian impact evident. At the south-east end of the site it is probable that there has been some truncation of the deposits, given the depth of brickearth. Assessment of the surrounding topography indicates this may in part predate the garage construction.

Very little horizontal stratigraphy was observed, even on the Dover Street frontage of the site, where brickearth was encountered not far (*c* 0.5m) below the present street level. Across the bulk of the site feature density was low with scattered pits and pit complexes cutting the brickearth. Towards Dover Street this density became significantly greater and in the south corner of the site was such that very little *in situ* brickearth could be identified with confidence. Overlying the pits against Dover Street were the remains of a late medieval or early post-medieval building and those of a nineteenth-century building thought to be the oast-house.

Assessment of the threat from development led to a varied excavation strategy. The foundation design for the main building on St George's Place specified clusters of four or five piles, spaced 5–6m apart, and re-used the existing basement. At the south-east end of the building the construction horizon was below the level of brickearth and would therefore truncate the archaeological features; here all features were sample excavated to a safe depth (1.2m) below construction. In the centre and north-west of the building the construction horizon was above the archaeological features and here archaeological features were excavated at the pile locations only, again to safe depth. Building on the Dover Street side of the site was to be less substantial with the construction of two storey family houses and a low block of flats behind. Foundation construction was by individual, widely spaced piles. Against No 52 deposits associated with the late medieval or early post-medieval building were excavated to below the formation level. Pits impacted by pile positions were excavated to safe depth. To the south of this the oast-house and three kiln structures were also excavated to below formation. Pile locations in the centre and south-east of the Dover Street frontage were not excavated. In this area the developer was able to redesign the foundations to relocate and reduce density of piles to minimise the impact. This approach was chosen because of the complexity of the intercutting pits, which would have necessitated a prohibitively extensive and expensive excavation strategy not justified by the extent of loss to the archaeological record.



St George's Place, the main excavated features (scale 1:400).

Post-excavation analysis is still at an early stage and so the following summary of the archaeological sequence is limited to broad preliminary dating.

Phase 1: Prehistoric and Romano-British periods (pre-AD 400)

The excavation produced a few struck flints, but no significant evidence of occupation during the prehistoric period, and only limited evidence of Romano-British activity. The latter was confined to a few sherds of pottery, probably residual in origin. A small number of pits may date to the Roman period, but the evidence is inconclusive given the minimal assemblage recovered. There was no evidence for quarrying or human burial prevalent in other Roman suburbs of the town and no soil horizons to compare with those identified on the nearby evaluations.

Phase 2: Anglo-Saxon period (*c* AD 400–1050)

As with the Roman period, the evidence for Anglo-Saxon activity was limited to pottery probably residual within later features. The earliest pottery identified in the field, excluding the Roman material, is probably of tenth- or eleventh-century date, but once analysis of the pottery has been undertaken earlier material may emerge. With so little evidence of Anglo-Saxon activity the site has surprisingly little to add to the documentary evidence. The presence of pottery implies occupation, but its nature, density and focus cannot be surmised.

Phase 3: Early medieval period (*c* AD 1050–1250)

Occupation of the site clearly became more intense in the early medieval period, but still no evidence for buildings or other structures was identified and no boundary ditches or potential fence lines were observed to indicate tenement plots. The principal evidence was derived from pits cut across the area, their contents indicating domestic activity. There was also some evidence for the processing of horn-cores, and possibly other animal by-products, and also for metalworking, though neither on a large scale.

The majority of the excavated pits appear to have been rubbish or cess-pits, generally square in plan with sides of 1–1.5m and depths of 1–4m (where observed). The infilling deposits yielded pottery, mainly from cooking vessels, marine shell and animal bone. Preliminary processing of environmental samples (pp 81–2) indicates them to be rich in smaller fauna and plant macro-fossils. A number of the pits contained deposits characterised as 'organic' or 'cessy', resulting from the decay of organic material, either faunal or floral, or derived from faeces and urine. Of note are two fish skulls; one of a porpoise and the other gilt head bream, both typically associated with ecclesiastic sites of higher status. Iron slag and other metalworking residues have been recovered from a significant number of processed samples taken from these features.

The distribution of pits appears to be random and the density variable, some pits being isolated while others were cut in small, often intercutting, clusters. Neither the later medieval and post-medieval property boundaries evident on historic maps nor the alignment of Dover Street seem to correlate with or influence pit distribution.

Two features are of particular note. The first, located *c* 15m from Dover Street, close to No 52, was a large irregular pit; the infill of which produced a significant number of horn cores and included layers of brown, friable material of an 'organic' nature. The material from the pit indicates the processing of parts of animal carcasses, but the relative absence of animal bone, butchered or otherwise, suggests that full processing did not take place here. The second was a linear trench with a subrectangular profile, *c* 2m deep by 6m wide, extending *c* 15m from the centre of the north edge of site. The function of this feature is unknown, but it represents a significant human effort. Although quarrying for brickearth may explain its presence, the morphology was not typical of this activity and it was cut into the underlying gravels.

Phase 4/5: Late medieval and early post-medieval period (*c* AD 1450–1750)

After an apparent hiatus in activity in the second half of the thirteenth century and the fourteenth century, occupation intensified again in the fifteenth century. Again occupation was characterised by the cutting of rubbish or cess-pits and evidence for plot boundaries was absent. Processing of samples from several of these pits indicates that they too are rich in organic deposits and metalworking residues continue to be present.

By the early sixteenth century, at least one building was present on Dover Street, probably the same building that survived until after the Second World War (No 51 Dover Street). The scar of its walls and gable are still visible on the south-east elevation of No 52, and were visible on the side elevation of a garage building facing Dover Street. The fragmentary remains of its walls, floors and a series of two or three peg tile hearths were excavated. The simple building measured 10.6 long by 4.6m wide and appeared to be divided into two equally sized bays. These bays may have formed separate tenements. Re-used ashlar blocks and moulded architectural fragments were utilised in its walls, mostly Caen stone, probably sourced from St Augustine's Abbey. Adjacent to this building, to the south-east, was a cellar, also constructed from re-used Caen stone, including mouldings for doors or windows and other architectural details. The cellar measured 4.6m square, with a 2.8m by 0.8m alcove on its south-east side, and survived to a depth of 1.4m. The cellar appears to have shared a party wall with the neighbouring building, indicating that it belonged to a contemporary structure, or a single long building, later divided and replaced to the south-east by the nineteenth-century oast-house.

Occupation continued through from the sixteenth to eighteenth century. A number of large square rubbish pits, measuring up to 2m in plan, were provisionally dated to this period. These were mainly located *c* 15–30m from Dover Street, towards the presumed rear of the properties.

A number of irregular pits and pit complexes of this date are thought likely to be the result of brickearth quarrying. This appears to have been *ad hoc* in nature. The pits were concentrated to the immediate rear of the properties on Dover Street and did not extend as far as St George's Place. Given the absence of evidence for contemporary brick or pottery kilns it seems likely that extraction was for daub or clay floors.

Phase 5: Early modern period (*c* AD 1750–1850)

Pitting continued throughout the early modern period, but the number of pits was low and confined mainly towards the backs of the Dover Street properties. A

Re-used Caen stone cellar. Scale 1m.

One of the three kilns located on the site. Scale 1m.


Big broken cooking pot. Scale 0.5m.


Dog skeleton in a deep medieval rubbish pit. Scale 0.5m.

small number of quarry pits to the rear of the site may also be of this date.

The remnants of rear property boundaries to a row of late eighteenth- or early nineteenth-century houses facing St George's Place, were recorded to the south of the basement in the east corner of the site. Here coal bunkers and/or possible cess tanks were noted against the boundary walls. A basement, re-used for fuel tanks, and footings of a Georgian property were recorded to the north-west of the basement, though contamination meant its recording was cursory.

The bases of three presumed kilns or ovens were located 15–25m from Dover Street, two lying in line beneath a concrete sub-floor of the oast-house and one, to the north, extending under one of its walls. The kilns were constructed from unfrogged bricks, using mortar of late eighteenth- or early nineteenth-century type. The kilns were of similar construction, with only minor variation mostly resulting from later alterations. Each comprised a square chamber with walls 2.4m long and 0.35m thick. To the north-west 0.5–0.6m wide openings led to *c* 1.6m by 0.8m stoke-hole chambers, with 0.22m thick walls. Both the kiln chambers and stoke-hole chambers were sunk 0.3–0.5m into the brickearth and all had brick floors. Within the kiln chamber of the best preserved of these, brick blockwork restricted the presumed flue to between 0.38–0.78m; traces of similar brickwork were present in the other two kilns. No trace of the superstructure survived and without further research it is not possible to determine the exact form or function of these features. It is thought probable that they were associated with hop processing, predating the oast-house. Research into the early hop industry might illuminate their function.

Lying over the truncated remnant of the kilns were the foundations of the building believed to be the oast-house. The building was 12.6m wide at the street front and extended back 24m; its width reducing to 11.6m around 12m from the street. The walls were of brick, 0.6m wide, set on a foundation of between one and three courses of re-used masonry, mainly Caen stone, with numerous moulded architectural fragments. The earlier stone cellar lay under the north-west part of the building's street frontage and was probably incorporated into the building. A photograph of the oast-house shows re-used worked stone in its south-east elevation.

The precise internal arrangement of the building is unclear, but reference to an unpublished aerial photograph of 1946, and the image referred to above, has helped to interpret the remains. The images indicate that the oast-house comprised two structures facing the street, though the observed foundations do not entirely support this. Internally the front of the building was divided into several small rooms, presumably offices or store rooms; to the rear it was split down the middle longitudinally. Behind the rooms at the front of the building a single long space occupied its north-west side, extending the full distance from the earlier cellar to the rear wall of the building, while to the south-east it was divided into two, or more probably three, chambers. The best preserved of these was square, measuring 4.5m internally. The chamber at the rear of the building was accessed by steps rising from the long chamber to its north-west. It had a concrete floor situated below the top step, indicating it to be a sub-floor. Two brick stacks rising through the concrete, presumably supported the floor above. To its south-west a similar chamber, again accessed by a set of steps, was missing its south-west wall. Between this and the front of the building the arrangement was less clear, as the remains were more fragmentary. Studying the photographic evidence it appears that these two chambers were hop-drying kilns and that two larger kilns were present between these and Dover Street. The excavated remains are at present difficult to correlate with this, as the front kiln is divided into smaller rooms and the kiln behind cannot be discerned.

Acknowledgements

We would like to thank the developer, Abtec Investments Ltd, Richard Williams and Gary Gatt of Decimus Ltd, Ben Richardson of APM-Services, and Lee Johnson and Lawrence Kirk of Cardy's Construction, for their cooperation, forbearance and assistance throughout this challenging project. Professor Martin Biddle, archaeological consultant to the project, and Richard Cross, Canterbury City Council Archaeological Advisor, are thanked for their comments and advice. Thanks are also due to our dedicated field team for their hard work under the pressure of successive deadlines.

British Red Cross Centre, Lower Chantry Lane, Canterbury

Adrian Gollop

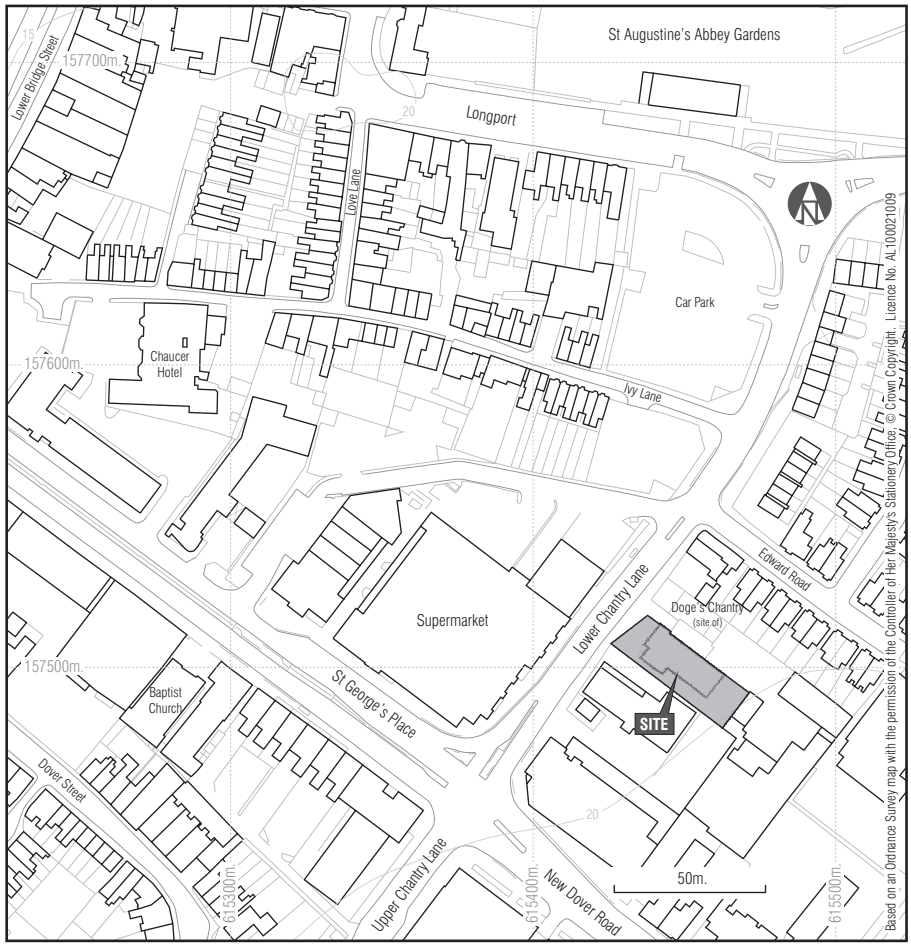
Introduction

Excavation took place at the British Red Cross Centre in Lower Chantry Lane (NGR 61545 15740) between June and August 2011. The work, commissioned by Northamptonshire Archaeology, formed part of preparations for a new centre on the site of the demolished old facility.

The site lies in the eastern suburbs of medieval Canterbury on the boundary of the Borough of Longport, and is adjacent to the site of Hamo Doge's chantry, established in 1264 (Urry 1980). An earlier archaeological evaluation (Gollop 2011) had identified the presence of medieval features, dated provisionally to the thirteenth, fourteenth and fifteenth centuries. These were thought to be associated with potential dwellings established along the street frontage of what is now Lower Chantry Lane and perhaps with the Chantry itself.

Although the size of the excavation area was relatively small, almost 200 archaeological features were identified, dominated by a sequence of large pits. Many smaller pits, short linear ditches/gullies, post-holes and stake-holes were present cutting through the upper surface of the brickearth natural subsoil, as well as a potential field oven, a tile-lined drain, modern brick walls and soil horizons.


The site during excavation, looking south-east.



British Red Cross Centre site location plan (scale 1:2500).

Half-section through part of an Anglo-Saxon refuse pit complex, looking east. Scale 1m.

A provisional site chronology indicates four phases or periods of activity. The earliest dates to the mid or late Anglo-Saxon period, principally to the tenth or eleventh century, but may be as early as the mid eighth century. This activity intensifies from the mid eleventh to mid thirteenth century, before seemingly declining in the mid to late thirteenth century. By the fourteenth century the site had reverted to agricultural or horticultural land.

Anglo-Saxon

Evidence for domestic activity on the site first appears during the later part of this period. The bulk of the pottery suggests a tenth- or eleventh-century date, but a strap-end of mid eighth- to early tenth-century date was present in a large pit complex and a mid to late Anglo-Saxon loomweight was present in a later eleventh- or twelfth-century medieval pit.

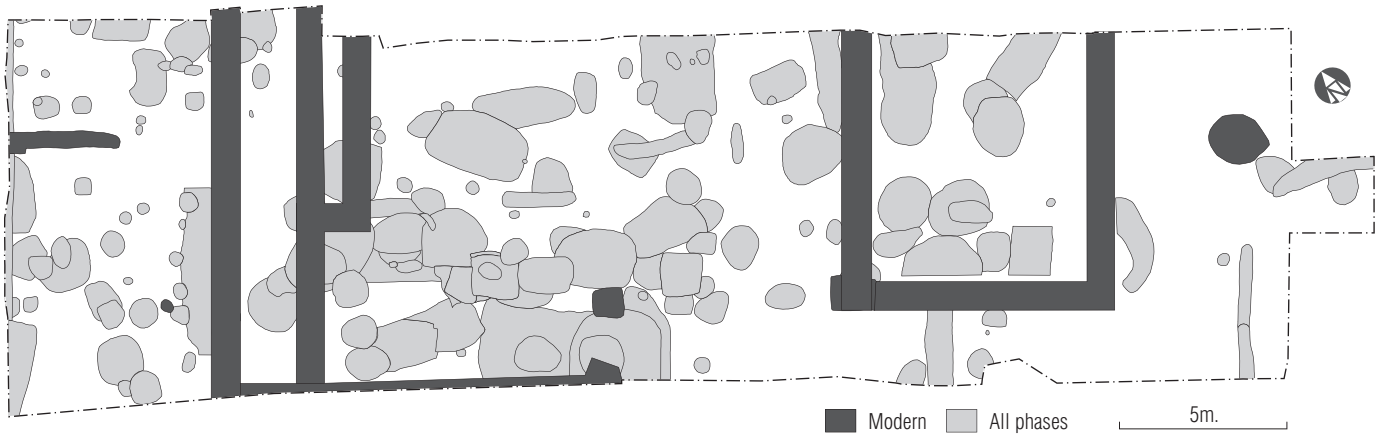
Activity in this period was mainly represented by pit digging. Although the distribution of these pits appeared random, there were two extensive intercutting pit complexes along the south-western side of the excavated area. The largest of these pit complexes appeared to have been utilized for the disposal of both domestic and industrial refuse, with pottery, animal bone and metalworking residues recovered from them. The second pit complex, comprising six intercutting phases, seems to have been used for the disposal of cess. Square or rectangular in plan, with sides of between 1 and 1.5m and depths of 1 to 2.5m, the pits were filled with deposits characterised as 'organic' or 'cessy'. Environmental examination (p 82) identified the presence of mineralized plant remains seemingly from human faeces. The sides of the pits were lined to stop them collapsing, as evident from thin layers of what appeared to be degraded wood against the pit edges and within their bases. Three further isolated cess-pits, along with four pits thought to be refuse pits, were also dated to this period. The remnants of an early field system were also identified.

Early medieval

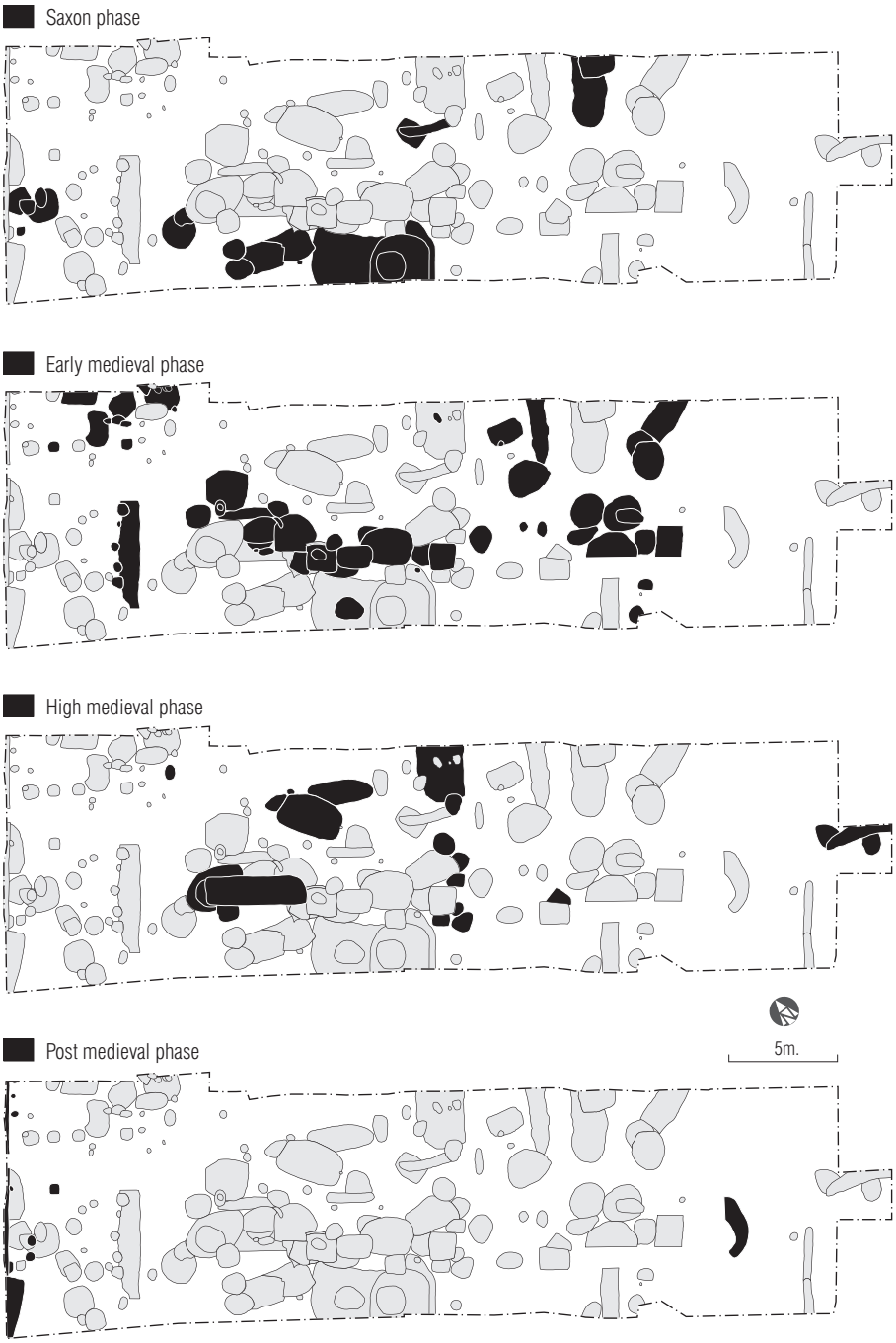
Activity on the site appears to have intensified in the mid eleventh to mid thirteenth century suggesting that there was an expansion of the suburb at this time, but it is not clear whether or not the activity on site was related directly to the establishment of dwellings on the line of what is now Lower Chantry Lane.

There appeared to be little change in the site's apparent primary function with an increase in the number and distribution of refuse and/or cess-pits. Again, the cess-pits were generally sub-square or rectangular in plan, but were generally larger with sides between 1 and 2.5m long and depths between 1 and 4m. Several of the cess-pits were again seemingly lined with timber and appeared to have functioned for refuse disposal only towards the end of their use. Those pits that appeared to have been used solely for refuse disposal tended to be more shallow and circular in shape.

There was, however, some limited evidence for buildings or structures at this time, in the form of post-holes, stake-holes and a potential beam-slot. There was no direct correlation between many of these features and certainly no structural patterns were evident. Further linear features, ditches or



British Red Cross Centre, all phases.



gullies, suggested land divisions possibly associated with buildings or structures. A small oven was identified within the base of a pit that had later been used for rubbish disposal. Possibly an external bread oven, part of its burnt clay superstructure was partly exposed against the edge of excavation, where its base and flue survived.

There was an increase in artefactual evidence for domestic activity in the form of pottery, tile and animal bone and a similar increase in metalworking debris in the form of residues and by-products including vitrified ceramics, slag, hammerscale and furnace or hearth linings.

Medieval

Activity on the site continued, though seemingly at a diminished pace, through the mid to late thirteenth century and into the fourteenth century. Dating evidence available at the time of writing suggests that activity ceased at some point during the fourteenth century and that after that the site was perhaps only used for horticulture until the eighteenth century. This is in contrast to recent findings at St George's Place, *c* 180m to the south, where following an apparent hiatus in occupation after the mid to late thirteenth century, occupation intensified from the late fifteenth century onwards (see p 16). However, this apparent cessation of activity on the site may be illusory, being based solely on provisional analysis of the pottery. Assessment of the complete finds assemblage may alter this picture and may possibly extend medieval activity into the later fifteenth and sixteenth centuries.

A cessation in activity here in the fourteenth century might suggest that the postulated expansion of the suburb was short lived, and that it contracted closer to the city (towards the St George's area). Alternatively it may be that the foundation of Hamo's chantry in 1262 was directly related to the change seen in the archaeological record. Hamo Doge founded his chantry in what, according to Urry (1980, 36) had been known for years as 'New Street'. William Thorne, writing in the fourteenth century, records that the chapel was in Hamo's own house. Perhaps this evidence for this change of use could be seen on the adjacent plot. The archaeological features indicated that although the site was still used for the disposal of refuse, there was an apparent decline in the density and size of pits and the disposal of cess was no longer occurring in deep, wood-lined pits. A cultivated soil horizon, identified over the entire area of the site, probably started to form through activities such as ploughing or tilling towards the end of this period; suggesting the site was then given over to horticulture.

Later post-medieval

Activity on the site did not resume until the eighteenth or nineteenth century and is mostly restricted to the north-western end immediately adjacent the Lower Chantry Lane frontage. Here a tile-lined drain was partially exposed parallel with the road, seemingly draining to the north-west.

The rest of the site appears to have remained primarily under a horticultural regime until the latter half of the twentieth century. The substantial build up of topsoil that formed across the site would correspond with use as an orchard, as depicted on successive Ordnance Survey maps from the early nineteenth century until the construction of the British Red Cross Centre in the early 1950s.

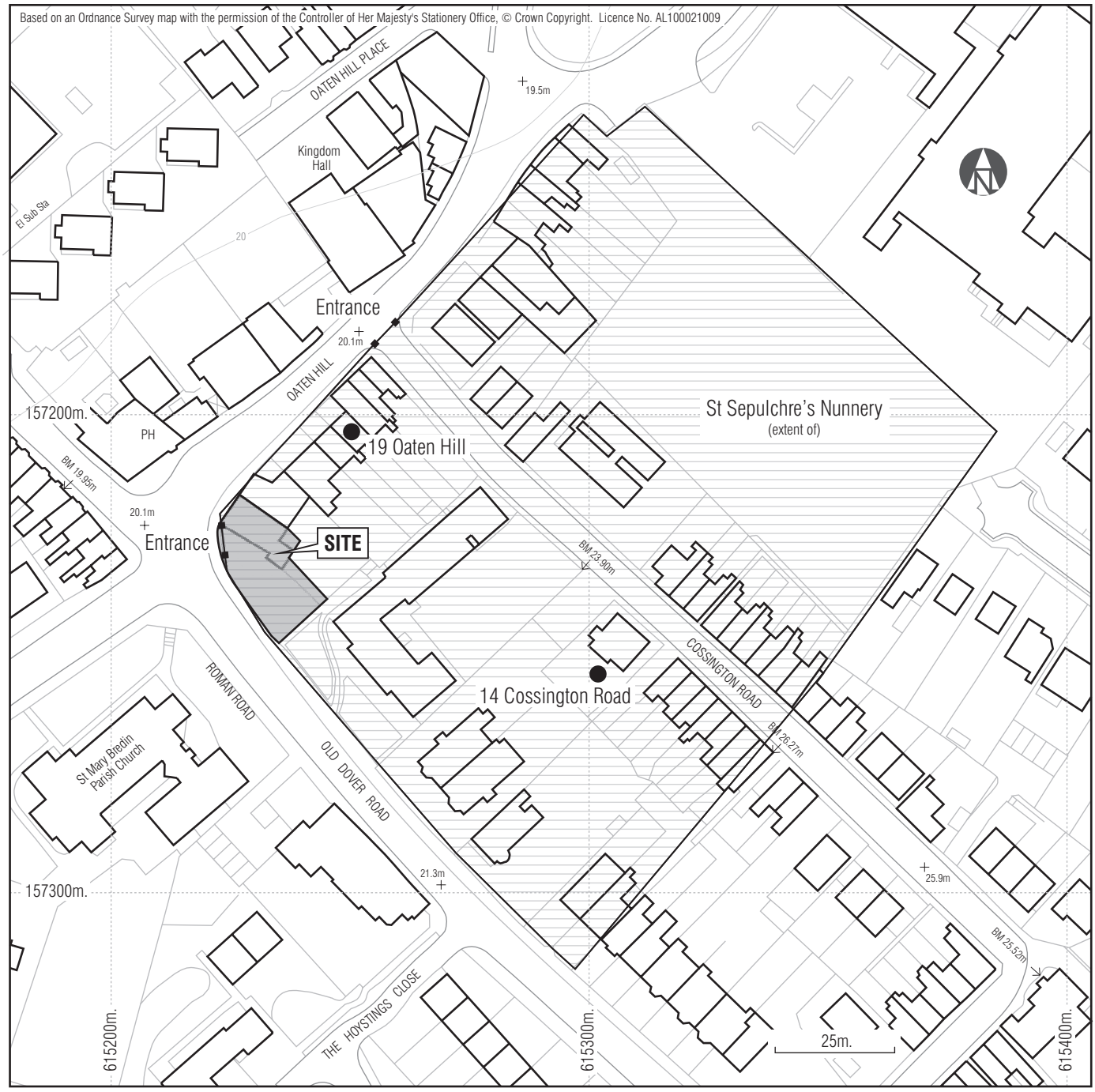
Acknowledgements

The work was directed by the writer who wishes to thank the excavation team of Paul-Samuel Armour, Kirsty Bone, George Carstairs, Adrian Murphy and Paul Tasker. Thanks are extended to all at Northamptonshire Archaeology especially Mark Holmes and also to Richard Cross at Canterbury City Council.

No 23 Oaten Hill, Canterbury

Richard Helm and Hayley Jedrzejewksi

In June 2011 the Trust received an urgent message from Cardy Construction Ltd that a human skull had been unexpectedly exposed during work at No 23 Oaten Hill, Canterbury (NGR 61523 15726). Immediately visiting the site, it became clear that the exposed human remains comprised more than one individual, and following discussion with the Canterbury City Archaeological Advisor, a licence to remove the human remains was quickly secured from the Ministry of Justice and a programme of excavation initiated. The site, which is located at the junction of Oaten Hill and Old Dover Road, would originally have formed the south-western corner of the medieval nunnery of St Sepulchre's, established *c* AD 1100. The nunnery, made infamous in the sixteenth century by Elizabeth Barton, the Holy Maid of Kent, who was



Oaten Hill site location plan (scale 1:1250).

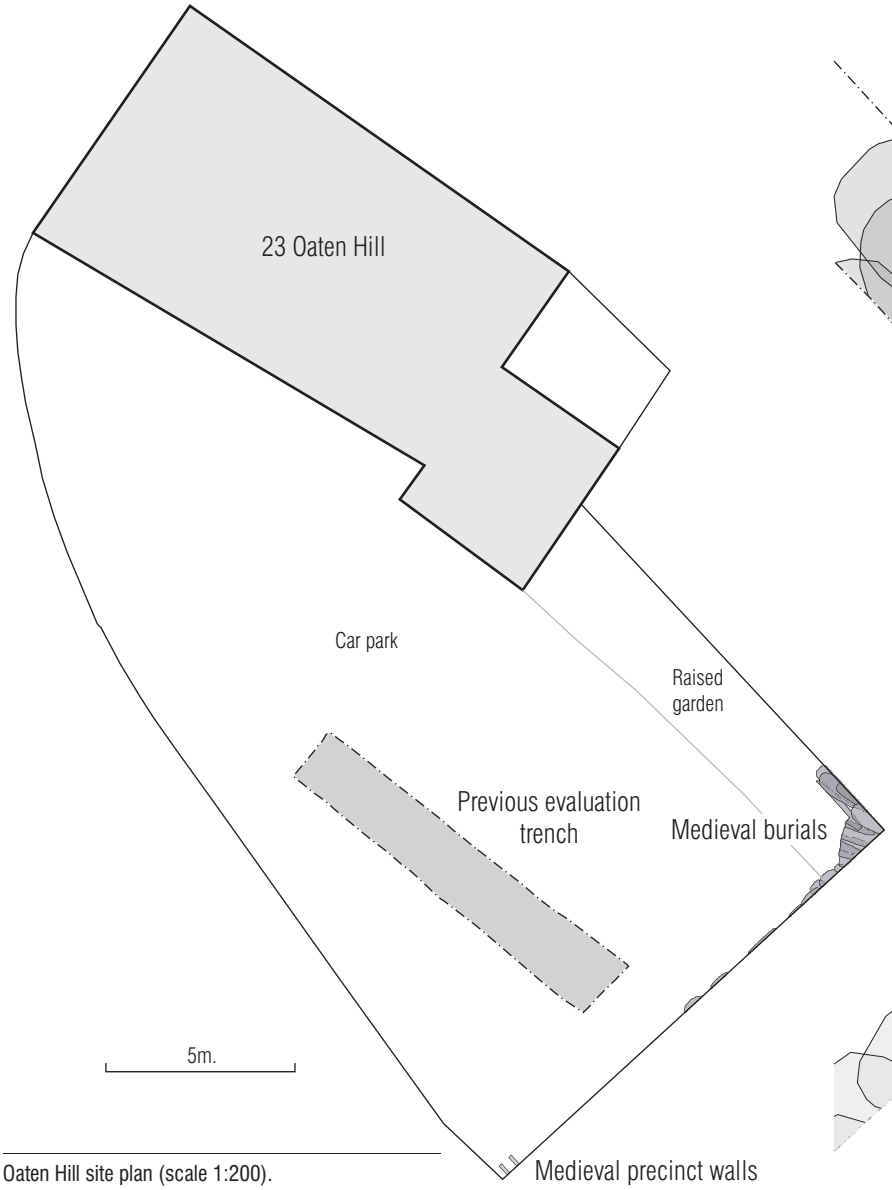
executed in 1534 for treason after prophesying the death of Henry VIII if he married Ann Boleyn, was dissolved in 1536.

The site had been evaluated under an earlier planning application proposal (Helm 2010). This had demonstrated that the former car park within the property, fronting Old Dover Road to the south, had been truncated in the past to the depth of the underlying natural chalk, and in consequence no further archaeological works had been recommended. However, the revised scheme also included the removal of an existing retaining wall situated between the former car park and an adjacent raised garden to the north, with reduction of part of the raised garden area extending to the property boundary of No 22 Oaten Hill to the same level as the car park. It was in this previously undisturbed area that the human remains were exposed.

In addition, part of the existing boundary wall fronting Old Dover Road had been breached during the construction works. Traditionally this wall had been associated with St Sepulchre's Bar, first mentioned in AD 1149 and one of four recorded medieval toll bars or outer defences (the others at Wincheap, Sturry Road and Longport) located on the main roads approaching Canterbury (Urry 1967, 196–7).

The construction works had already removed a large proportion of the undisturbed ground before the presence of human remains was recognised. As such the archaeological investigation was limited to the recording of the machine cut sections against the property boundaries with No 22 Oaten Hill and No 41 Old Dover Road, and hand excavation of a small 2.8m^2 area surviving in the north-east corner. Despite this, human remains from fifteen separate inhumation burials were recovered, with a further nine inhumation


The construction site and machine cut sections.



Oaten Hill site plan (scale 1:200).

Grave plan (scale 1:25).

burials from which the surviving human remains were left *in situ* visible in the machine cut sections. Thus a minimum of twenty-four inhumation burials was present. In addition a quantity of disarticulated human remains was recovered from the exposed deposits representing a further nine adults and eleven children. This did not include human remains visible in a 'charnel' pit which had been partially disturbed by the present construction works in the north-west corner of the site. This had been cut during the later nineteenth century presumably to rebury human bone unearthed during garden landscaping.

All of the burials were laid in an extended supine position, aligned approximately east-north-east to west-south-west. None of the excavated skeletons were complete. Of the fifteen articulated skeletons recovered, four were too fragmentary to determine either age or gender. Of the remaining eleven, five non-adults (less than 18 years of age) of indeterminate gender, two adult males and three adult females (between the ages of 24 and 50 years), and one elderly female (over the age of 60 years), were identified. The sample population therefore demonstrated a mixed demographic. Most of the observed pathology was generally age related. The single elderly female had evidence of an unhealed fracture in her left forearm, perhaps as a result of a fall shortly before her death. Where present, teeth provided some interesting dental pathology, including one individual with a deformed mandible with ante-mortem tooth loss, and heavy attrition and calculus or tartar formation commonly present.

Seven of the graves contained a small number of iron nails within their backfills, indicating the potential former presence of timber coffins. The remainder had no surviving grave furniture. Dating of the burials was problematic. The intensity of the burials had resulted in considerable intercutting of the graves with no clear differentiation possible between burial groups or phases. This intercutting had also resulted in a high level of residual finds being recovered from the grave backfills, with pottery including both Roman material dating between the late first to fourth century AD, and medieval sherds with a broad date of *c* AD 1350–1550.

Where the southern boundary wall had been breached, two earlier wall segments were exposed, both continuing to the north-east into the grounds of 41 Old Dover Road. The earliest wall segment was set back from the existing road frontage by 0.85m and measured at least 0.25m wide, and comprised roughly coursed chalk with undressed sub-angular flint in a light yellow sandy mortar with common chalk inclusions. The wall had a surviving standing height of 0.54m, and its southern face was abutted by the later wall segment. The later wall segment measured 0.30m wide with a surviving standing height of 0.70m, and was composed of roughly coursed sub-rounded flints dressed on their southern face, bonded with a light yellow sandy mortar. The date of these wall segments is as uncertain as that for the burials. However, it is probable that the earliest wall was medieval (*c* AD 1050–1400), and conceivably might represent the original precinct boundary wall for St Sepulchre's nunnery, while the later wall might form part of a later medieval (*c* AD 1400–1550) rebuild.

The probable extents of St Sepulchre's nunnery are shown on an early map of Canterbury dated to *c* 1640, its western and southern limits contained by Oaten Hill and Old Dover Road. The map indicates that at least some of the nunnery buildings along

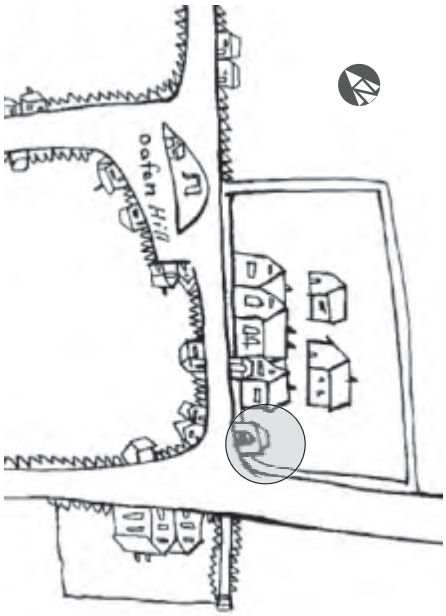
Excavation of partially exposed human skeleton in progress and, below, detail of infant skeleton. Scale 10cm.

the Oaten Hill frontage survived the dissolution, and depicts two entrance gates through the precinct wall. One is located at the present intersection of Oaten Hill and Cossington Road, and probably formed the main entrance into the nunnery. The other is located on the south-east corner of the precinct, at the intersection of Oaten Hill and Old Dover Road. This entrance appears to have occupied the same position as the present entrance into No 23 Oaten Hill, and is likely to have provided access to a parochial church and cemetery located within the nunnery grounds, under the patronage of Christ Church Priory (Bennett 1983; 1987b; Urry 1967, 211).

While the location of the parochial church remains buried, it is probable that the cemetery was quite extensive. The twenty-four burials now recorded at 23 Oaten Hill almost certainly form part of this cemetery, which appears to have extended northwards at least to No 19 Oaten Hill, where four medieval burials had previously been excavated (Bennett 1983), and to the north-east at least as far as No 14 Cossington Road, where a further twelve medieval burials (Linklater 2007) have been located, suggesting that the cemetery occupied much of the precinct's south-western corner.

The work reported here was conducted by Richard Helm, Hayley Jedrzejewski and Christopher Sparey-Green. Thanks are extended to Cardy Construction Ltd, Paul Ansell of the Ministry of Justice and Richard Cross, Archaeological Advisor at Canterbury City Council for all of their help during the project.

The exposed earlier walls probably forming part of the original medieval precinct boundary of St Sepulchre's nunnery.



St Sepulchre's nunnery as depicted on a *c* 1640 map of Canterbury.

St Lawrence Cricket Ground, Old Dover Road, Canterbury

James Holman

Further work was undertaken at the St Lawrence Cricket Ground (NGR 615727 156595) through 2011 and in the early part of 2012 following the completion of earlier phases of work in April 2011 (Holman 2012). Mostly these investigations formed part of watching brief work during general groundworks, but in two areas more substantive excavation was required. All work was carried out on the 'Bat and Ball' site which once formed part of the medieval hospital of St Lawrence, parts of which were recorded during the earlier work.

The earliest remains observed during the watching brief were in a manhole excavated in the Old Dover Road outside the cricket ground where the remnants of an early metalled surface were identified. The depth of the metallings (at least 2m below the modern ground surface) suggests that they probably formed part of the Roman road between Canterbury and Dover.

Relatively late in the construction process a modification to the drainage design resulted in a requirement for a new soakaway. Site restraints meant that this could only be positioned in a location north-west of the hospital cemetery where both evaluation (Newhook and Holman 2008, 8–9) and observations during topsoil stripping in 2011 (Holman 2012, 18) had identified a medieval building (Building 2). Whilst the original scheme was altered in an attempt to reduce impact on the underlying archaeology, discussion between the engineers and Canterbury City Council resulted in agreement that an area of some 11m by 3m should be recorded through excavation.

Building 2 was thought to measure some 7m by 16m with its long axis aligned north-west to south-east. The new excavation revealed a buttress at the north-east corner of this building and whereas elsewhere on the site it had been found that medieval walls were largely robbed out with only remnant footings surviving, at this location the walls survived to a depth of some 1m. Wall width, at around 0.8m, was similar to elsewhere. The original building was built of flint, chalk and ragstone with both interior and exterior surfaces neatly faced with flint; the buttress formed a later addition, constructed from re-used blocks of worked chalk. Some of these architectural fragments had been painted.

Within the building two phases of crushed chalk floors were identified, separated by a thick deposit of mixed clay. This suggested that the floor inside the building, originally lower than the exterior ground surface, was raised later in the medieval period. The floors had been cut by a subrectangular feature, the majority of which lay beyond the area of the trench. While difficult to interpret fully, its position and comparison with similar features identified during the Whitefriars excavations suggest that it may have formed the remains of a robbed out tomb (Alison Hicks, pers comm). The exterior ground surface was sealed by several phases of metalling forming courtyard surfaces that lay against the building. Following demolition at some time after 1575 the area was covered by rubble and then layers of garden soil relating to the nearby St Lawrence House.

Another phase of excavation was undertaken at the southern end of the site during March. This was focussed around a standing wall that was to be demolished due to structural concerns and rebuilt. A substantial baulk had been left alongside the wall during the previous excavation due to fear of collapse. Following shoring this was removed in sections with surviving features, rare in this area, being excavated. Only a cat burial and a previously identified hollow way were recorded. The wall was also recorded in detail before it was demolished. Study of early maps had shown that the wall originally surrounded the garden of St Lawrence House. It was likely to have been of early eighteenth-century date and contained a blocked doorway. Its loss was unfortunate as it had been

Recording the wall and buttress of Building 2, looking north-west.

the only remaining visible evidence of the many centuries of occupation on the site.

The archaeological works were carried out by Ian Anderson, George Carstairs, Jonathon Dodd, Simon Holmes, Hazel Mosley, Dale Robertson and Paul Tasker under the direction of the writer. Thanks are extended to all.

The Trust is grateful to Bellway Homes South-east and Kent County Cricket Club for funding the works and also to Richard Cross of Canterbury City Council for his advice and assistance. Special thanks should go to Steve Mount and O'Halloran O'Brien, the on-site contractors, without whom the project would not have proceeded as smoothly as proved to be the case.

Franklyn House, Sturry

Ross Lane

Three phases of archaeological investigation took place at Franklyn House on the west side of Sturry High Street (NGR 61772 16019) between 25 August 2011 and 6 January 2012. The works were commissioned by Canterbury City Council as a mitigation measure to preserve by record any archaeological remains likely to be impacted upon by redevelopment of the site for retirement accommodation.

The importance of Sturry as a settlement originates in the seventh century when it was almost certainly a *villa regalis*, or royal estate, perhaps dating back to the reign of Aethelberht, King of Kent (*c* AD 560–616) (Cross 1996). By the time of the Domesday survey (1086) much of Sturry had been granted to St Augustine's Abbey, with a grange located on the site of present day Milner Court. Domesday also mentions ten mills and seven fisheries on the river. Excavations in 2010 at the junction of Fordwich Road and Water Lane, about 110m to the south of the present site, uncovered more of the medieval settlement including the remains of a possible medieval tavern (Lane 2012b).

The 1841 Tithe map of Sturry shows many post-medieval buildings lining the High Street, including the Red Lion public house. The majority of these buildings in the near vicinity of the site were destroyed during the Second World War.

The excavation took place in three areas, A, B and C, (area C being an extension of area B to the north-west), located close to the road frontage where archaeological deposits would be removed by the proposed development. These were supplemented by the excavation of two trenches (trenches 1 and 2) set further back from the frontage in the position of proposed lift shafts.

The earliest features were encountered at a depth of 1.4m below the present ground level. They consisted of stake-holes and post-holes that may have formed simple timber structures. Also at this level was a large cess-pit (not illustrated) containing refuse material as well as an intact dog skull. Preliminary spot dating of the pottery suggests that this early settlement activity dated from the late twelfth to early thirteenth century AD. It is likely that this occupation

Franklyn House: trench location plan (1:1000).

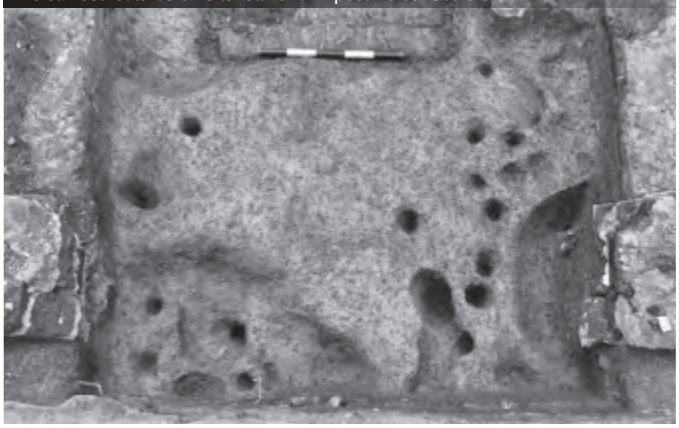
was close to the water table and might have been temporary in nature.

The early occupation features were sealed in areas A and B by an extensive surface of compacted flint that probably formed a back yard area to buildings that fronted onto what is now Sturry High Street. In Area A was a flint and chalk walled building (Building 1) with a sequence of worn clay floors and a central hearth; spot dating of pottery recovered from these features suggests a thirteenth- to fourteenth-century date for the structure. The building underwent several phases of occupation and development (not illustrated), but by the end of the fifteenth century it had no internal features suggesting that it might have functioned as a store house by that time.

The majority of medieval structural remains in Area B had been removed by the construction of later buildings. What remained consisted of a heavily truncated clay floor that probably represents the presence of a medieval building (Building 2) similar to that discovered in Area A. The limited excavation in Area C also revealed tentative evidence for a building (Building 3) that consisted of a short length of chalk and flint wall along with an associated clay floor and a peg-tile hearth.

The medieval buildings identified on site formed part of a ribbon development along the main route linking the trading ports of Fordwich and Sandwich to the medieval cultural and economic hub of Canterbury.

The earliest features on site: stake- and post-holes. Scale 0.50m.

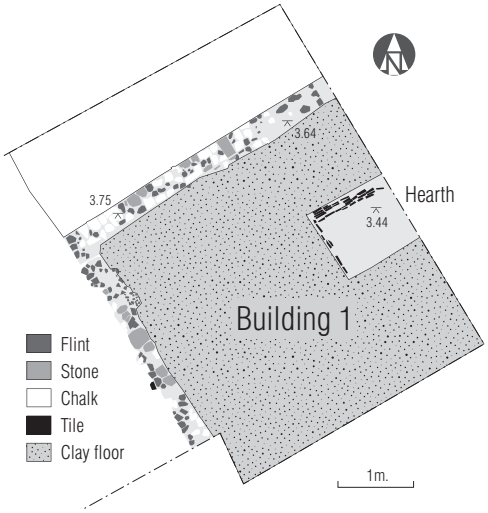


An early cess-pit. Scale 1m.

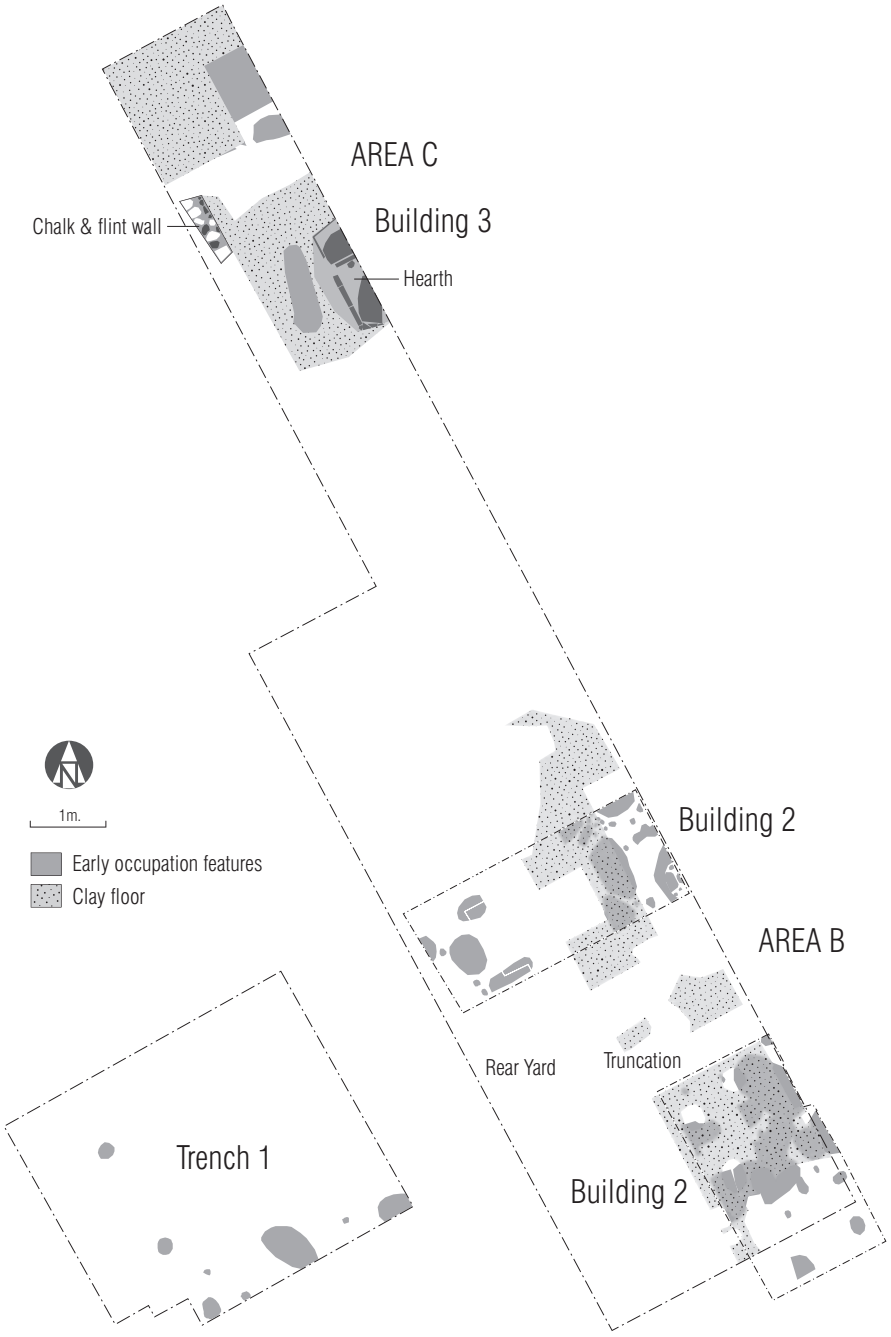

The flint surface. Scale 1m.


Building 1. Scale 1m.


Building 1: thirteenth- to fourteenth-century occupation and central hearth. Scale 1m.



Franklyn House: Area A (1:100).



Franklyn House: Areas B & C (1:100).


Building 1: late fifteenth-century ?storage use. Scale 1m.

The main structure in Area A survived into the seventeenth century with the addition of a brick partition wall and likely repairs to the outside walls. To the rear of the building a substantial horizon of garden soil had accumulated with associated refuse pits. Found in the occupation tread on an internal floor was a Jetton or counting token minted by Hans Krauwinckle in Nuremburg, Germany between 1586 and 1635. The coin and the unexpected discovery of an imported intact costrel vessel buried within a floor horizon suggest that the inhabitants of Sturry had contact with traders in Europe in the sixteenth and seventeenth century.


Building 3: clay floor, hearth and wall. Scale 1m.


Discovery of the costrel.

By the late eighteenth century the medieval buildings had been demolished to allow for the construction of more substantial brick buildings that would have formed houses and shops fronting onto Sturry High Street. The foundations of the former Red Lion pub were identified within Area B and included the possible concrete post-setting for the pub sign. The pub walls had been demolished and sealed by a brick surface laid down when improvements were made to the pub in the 1930s to allow for a small car park to serve the new trend of motorised day trippers.

A single shard of shrapnel was discovered in the upper deposits of the excavation in Area C, the only tangible evidence recovered of the impact of the Second World War on the village of Sturry. The area was devastated with significant loss of life by a parachute mine dropped by the German Luftwaffe on the night of 18 November 1941.

The results from this excavation and from the investigation of the former Fordwich Garage site to the south have given us a glimpse into the earliest medieval occupation of Sturry and its development into a thriving village serving the passing trade to and from Canterbury.


Late post-medieval brick buildings on the High Street. Scale 1m.


Remains of the Red Lion pub.

Thanks are extended to Canterbury City Council for commissioning the works; Gary McCaskill of ISG Jackson; Goody Demolition Ltd; Angela Pullen, Sturry Community Warden and Richard Cross of Canterbury City Council. The field team included Ian Anderson, Paul-Samuel Armour, George Carstairs, Jonathan Dodd, Simon Holmes, Alexis Mosley, Dale Robertson, and Paul Tasker.


Cutting evaluation trenches at Sittingbourne Paper Mill.

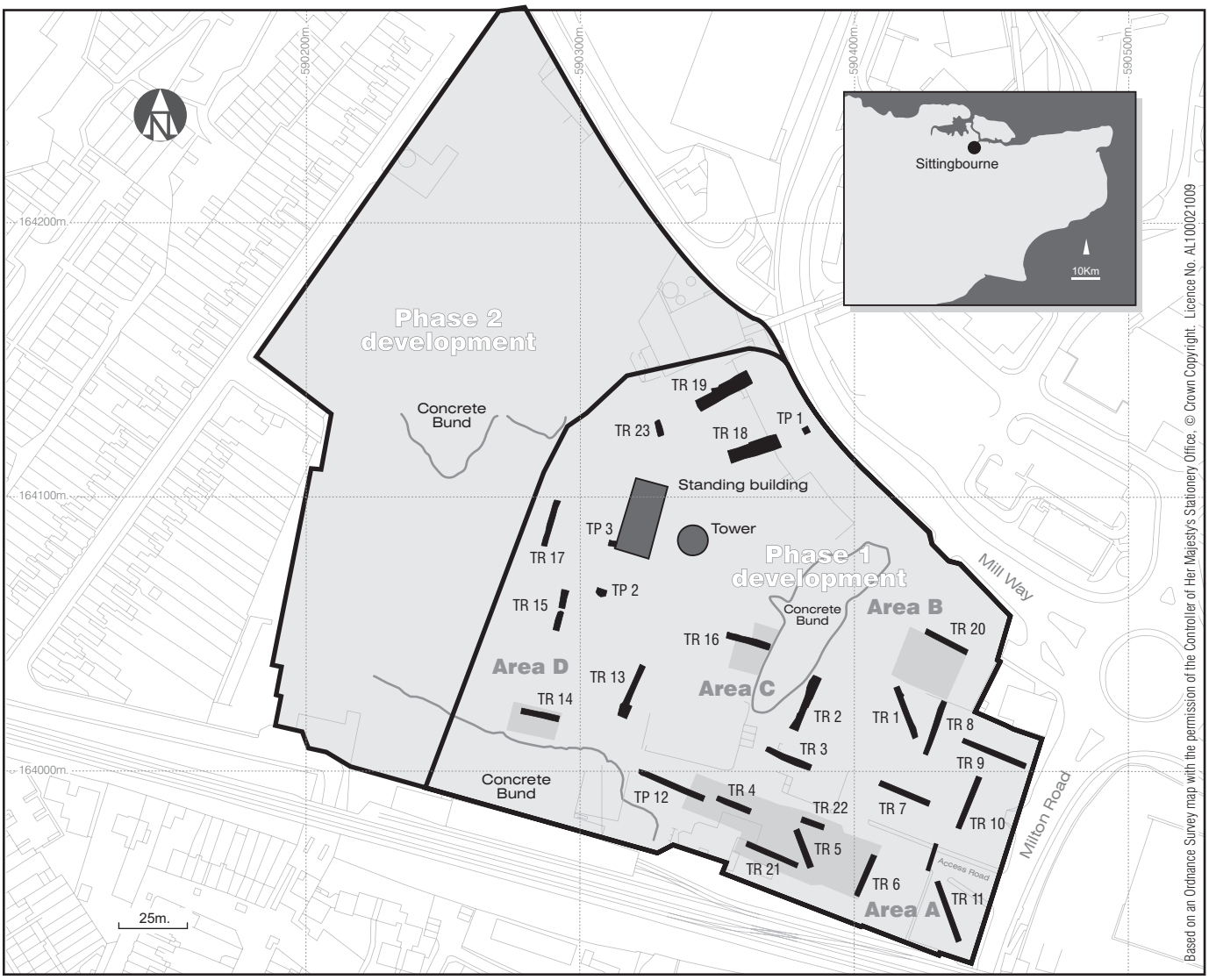
Sittingbourne Paper Mill

Jon Rady and Damien Boden

A series of investigations was undertaken at the former Sittingbourne Paper Mill site just north-west of the town centre (NGR 590306 164085 centred). The work was commissioned by Essential Land LLP as part of preparations for redevelopment. The first stage of works (Phase 1) took place in December 2011 on part of the site destined for a supermarket and petrol station and was to concentrate on the footprint of the new building, but the scope was soon widened to encompass the entire supermarket site. Evaluation took place between 15 December 2011 and 24 January 2012 followed by more widespread excavation which was completed at the end of March 2012.

The geology and local topography are discussed in detail below (pp 34–6) and archaeological finds in the area attest that this creekside locality has been one favoured for occupation since prehistoric times. A considerable number of Palaeolithic and later prehistoric flint tools have been found in the area and Mesolithic struck flints were recovered just 90m west of the site during an excavation which also identified a Bronze Age ditch (Potter 2004). Roman finds are known close to Sittingbourne on the major route of Watling Street (Detsicas1983, 81) and a cemetery is located close to the site, just north of Milton Creek (Payne 1878).

Milton Regis may have originated as an Anglo-Saxon *villa regalis* with its potential importance indicated by the large numbers of Anglo-Saxon cemeteries in the vicinity, some richly furnished. At least three Anglo-Saxon cemeteries are located close to the eastern and western peripheries of the site. In 1824 and 1826 a cemetery was excavated in the brickfields *c*120m to the east (Meaney 1964, 128–129). Grave goods indicate that the cemetery



was in use in the seventh century AD. Around 180m to the south-south-west another cemetery was excavated through 1869–71 and 1879–80, again with finds dated to the seventh century (*ibid*, 129). In 1905, *c* 180m west of the site, an Anglo-Saxon grave was excavated containing a fourth-century AD glass bowl (HER TQ 96 SW 60). In closer proximity to the course of the creek, a sixth-century glass claw beaker was recovered from a burial in 1905, *c* 660m north-east-east of the site (HER TQ 96 SW 59; Evison 1982, 64). An Anglo-Saxon knife was found when house foundations were dug on the current site *c* 1872 (HER TQ 96 SW 12).

The Domesday survey attests a medieval manor at Milton Regis, seemingly one of the wealthiest in Kent, while Sittingbourne is mentioned in the twelfth century in connection with the pilgrimage route to the shrine of St Thomas at Canterbury. There is little evidence that there was a town at Sittingbourne at this time, and in many aspects it appears to have been subservient to Milton Regis, by whose manor it was controlled.

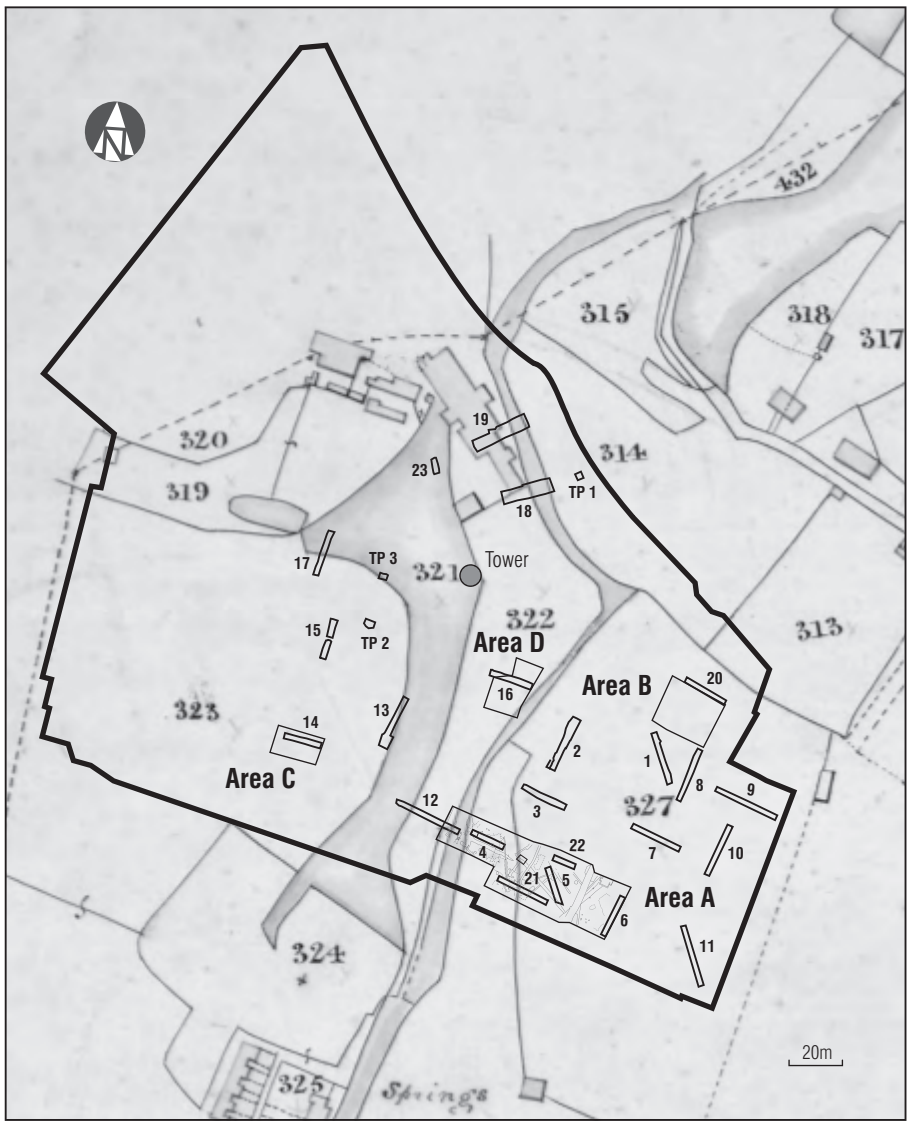
Medieval industries in the area included cloth manufacture, with various other trades supported by Milton Quays. The creek also allowed for inshore fishing (English Heritage and Kent County Council 2004). Sittingbourne High Street retains some traces of its medieval past. There is also the eleventh-century Church of St Michael, the timber-framed Red Lion inn and the rebuilt fifteenth-century Wealden House.

The power balance between Sittingbourne and Milton Regis began to shift towards Sittingbourne in the post-medieval period, first with the arrival of the stagecoach service on Watling Street and later with the advent of the railway. During the earlier period, Milton maintained its dominance as a trading port, with shipments of fruit, timber, and bricks from the newly established brickfields around Milton Creek. At the end of the eighteenth century Sittingbourne was described as '*a wide long street, unpaved, the houses of which are mostly modern, being well built of brick and sashed, the whole having a cheerful aspect*'. So it remained until the coming of the railway from Chatham to Faversham which reached Sittingbourne in 1857. The branch line to Sheerness opened in 1860. Both enabled new industrial expansion, particularly in the paper and brickmaking industries on the banks of Milton Creek (English Heritage and Kent County Council 2004).

Paper production on Milton Creek dates back to at least the eighteenth century and the development of Sittingbourne Paper Mill is a long and complex story. Two assessments of the site and its buildings were undertaken prior to demolition and the most recent owners, *m-Real*, published a short history to mark the mill's closure (Marsh 2007). An earlier history had been compiled for previous owners Bowater Lloyd Ltd (Roach undated). These and the outline below, help illustrate the archaeological discoveries.

The earliest mill buildings on the site are probably depicted on a surveyor's field drawing for the first edition Ordnance Survey. Dating to around 1800, the plan shows at least one large building, just south-west of the present main road (Mill Way) at the northern end of an extensive mill pond. The tithe map of 1841 shows a similar building in this position with at least four ancillary buildings (although the mill was still only a fraction of its later nineteenth-century extent). Most of the rest of the site is shown as open fields or orchards at this time, with the town of Sittingbourne as little more than ribbon development along the main road.

'Papermen' or paper-makers are recorded in parish records from the early 1700s and on a map of Kent dated 1769 the site appears as 'Papper Mill' (Andrews *et al* 1769). Various paper-making families are documented as owners of the mill during the eighteenth century and in the early nineteenth century new paper-making technology was probably introduced by Edward Smith. This was the system



Sittingbourne Paper Mill: Tithe map (1841) detail, showing the early mill and millpond. Approximate location of site trenches superimposed.

invented by Frenchman, Louis-Nicholas Robert, who had taken out a patent for a continuous paper-making machine in 1799 (previously paper had been manufactured in single sheets). An improved version of this machine was eventually devised in England under the auspices of the stationer Henry Fourdrinier (the machinery was henceforth known as the Fourdrinier Machine) and it is likely that Smith was using such machines in the 1830s. By the late 1850s however, the mill had been closed for some years and fallen into disrepair. The reasons for this decline are unclear. Fire or problems with new paper-making technology (it was notoriously difficult to get trained operators; Roach undated, 6) may have played some part.

The founder of the modern mill was Edward Lloyd, a nineteenth-century newspaper magnate who (just after another fire in 1863) acquired the Sittingbourne mill to satisfy his business's increasing demand for paper. He expanded the mill to the south. In addition, plans of the mill (Compass Archaeology 2007) suggest that during the 1870s terraced housing was being developed on streets laid out immediately to the east of the works. Probably built by Lloyd for his millworkers, the streets were named Lloyd Street, Westbourne Street and Mill Street. Virtually all of these terraces were demolished in the mid 1960s and the roads concreted over during the final decades of the mill's operation. By 1887, the mill was operating with the latest technology of the time, with four paper-making machines in the No 4 mill (on the site of the 'Old Mill'). Further extensions to the mill occurred during the last decade of the century, including a new boiler house with eight boilers and a 110ft high chimney.

When Edward died in 1890 his son Frank took over the business. Further mill buildings were constructed (No 2 Mill, a power house and the main offices, Carpenters and Mechanical Workshops to the south-west and south of No 4 Mill respectively). Devastating fires occurred in 1900 and 1905, but although the damage was great, the mill was speedily repaired and brought back into operation, and further expansion took place between 1906 and 1911 when No 3 mill was built in the north-west corner of the site. Sittingbourne Mill was now one of the largest paper mills in the world, with seventeen paper machines and 1200 employees.

Evaluation

Twenty-three evaluation trenches (Tr 1–23, nominally 20m long and 2m wide) and three test-pits (TP 1–3) were excavated across the development area. Apart from other constraints in some areas, particularly the north-western extent of the development area within the footprint of the former mill buildings, the cutting of the trenches was hampered by the sheer thickness and volume of the concrete encountered and two trenches Tr 18 and Tr 19, both located in the far north-western corner of the Phase 1 site were abandoned.

All the trenches and test-pits excavated contained buried archaeological features and/or deposits but the vast majority of these broadly dated to the later nineteenth and twentieth century. Possible prehistoric, medieval and post-medieval deposits and features were identified in a number of trenches; the majority of these were located on the more elevated, eastern side of the development area, away from the main footprint of the former mill buildings. However, the evaluation located four areas (A to D) where what was considered significant archaeology had survived later disturbance. These underwent area excavation which took into account not only the surviving extent of the deposits, features and structures, but also formation levels. Areas B to D were considered to be samples to record very specific structural evidence.

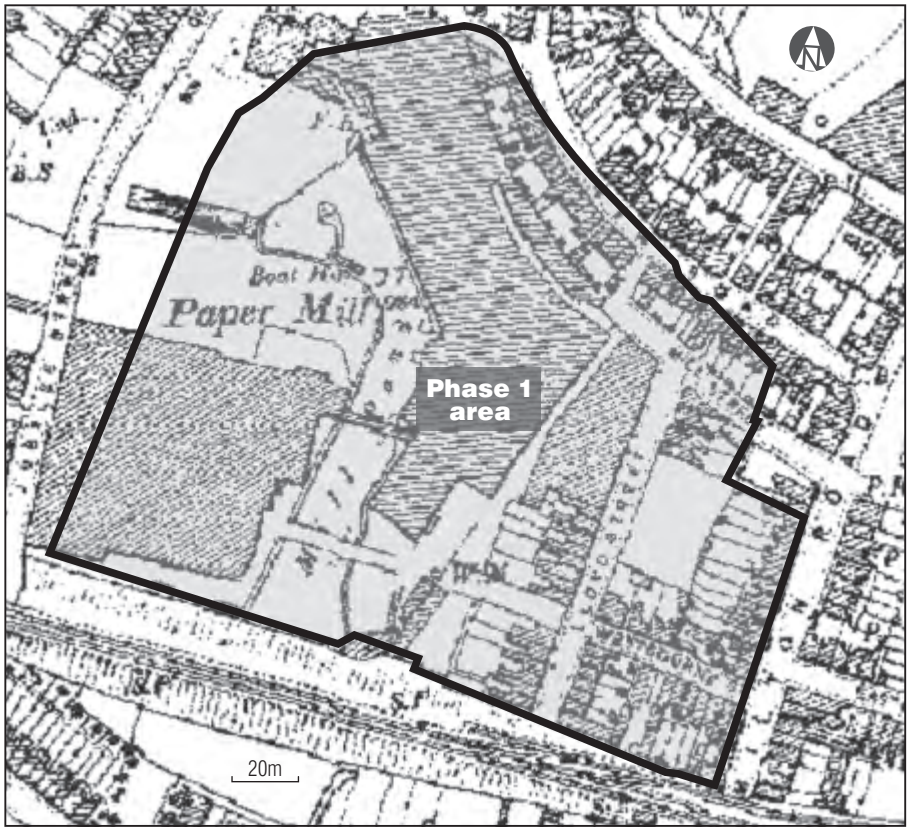
Excavation

The main excavation (Area A) was located on the southern side of the development area and focused on locations where trenches had identified pits, ditches, post-holes and other archaeological features and deposits of possible prehistoric, medieval and post-medieval date which were relatively undisturbed by the nineteenth- and twentieth-century industrial activity associated with the paper mill. In addition to the features predating the mill, Tr 12, located at the western end of the site, had also identified the eastern edge of the former mill pond and a brick wall forming part of the late nineteenth-century canalisation of that feature.

Areas B to D were smaller in extent and, apart from Area C, the remains were mostly of one phase. Area B, in the north-east corner of the development area was excavated to obtain a sample of the late Victorian frontage of Lloyd Street and associated elements of the adjacent terrace buildings. This trench revealed relatively well-preserved structural remains of this period as well as evidence for earlier clay quarrying. Areas C and D, targeted at specific industrial remains were almost completely composed of structural elements of what have initially been interpreted as boiler-flues, with few associated stratigraphic levels. Both areas were sealed by demolition deposits of the late nineteenth or early twentieth century.

The development of the site

The creek and its associated watercourses (G92) are known to have attracted human occupation from prehistoric times and some evidence of this was recovered from the site. The limit of the creek was

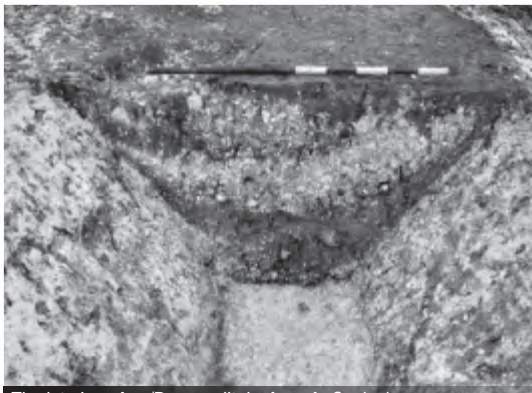


Sittingbourne Paper Mill: excerpt from the 1897 Ordnance Survey, showing mill buildings and adjacent streets (not to scale).

probably greater than today, and it is very likely to have extended into the present area examined. Deposits of yellow silt found at the western end of the area have not yet been fully analysed, but did contain biogenic evidence suggesting their original deposition in or by water, although the exact environment (fluvial or estuarine) will only be determined by further study. In any event most of the earlier deposits appeared to be considerably truncated by post-medieval industrial activity in this area. The earliest evidence of activity on the site (probably mid to late Bronze Age) was represented by struck flint implements and flint-working waste recovered from a very dark and at one time undoubtedly waterlogged infill of a shallow depression (G21) which traversed the main excavation area (A). This boggy area or former watercourse was probably formed from a spring-line on the eastern side of and toward the head of present day Milton Creek. In fact springs emerged just to the south of the railway line here as late as the mid nineteenth century; they are indicated on the Tithe map. Further environmental analysis will hopefully confirm its waterlain nature and give some idea of the conditions in the vicinity at this time; it is also possible that samples will provide material suitable for radiocarbon dating.

Large quantities of flint nodules and pebbles (G22), which formed small 'islands' and paths were found to punctuate this boggy area suggesting an early form of land reclamation, probably to gain access to the main watercourse which may have skirted its western side. Concentrations of flint-working waste in the deposits suggested that the actual knapping took place on the bank of the former channel and the waste flakes were thrown into the water. Two large, flint-filled post-pits (G6) and a number of smaller post- and stake-holes (G72) were also located between the boggy area and the eastern edge of the main watercourse which probably represent timber structures or platforms.

Although no discernible *in situ* evidence of later prehistoric, Roman or Anglo-Saxon activity was identified, a substantial flat-bottomed ditch (G33), which ran in a roughly north–south alignment along a slight brow or break in the slope toward the eastern end of the site, may have its origins in the later Iron Age or Roman period.



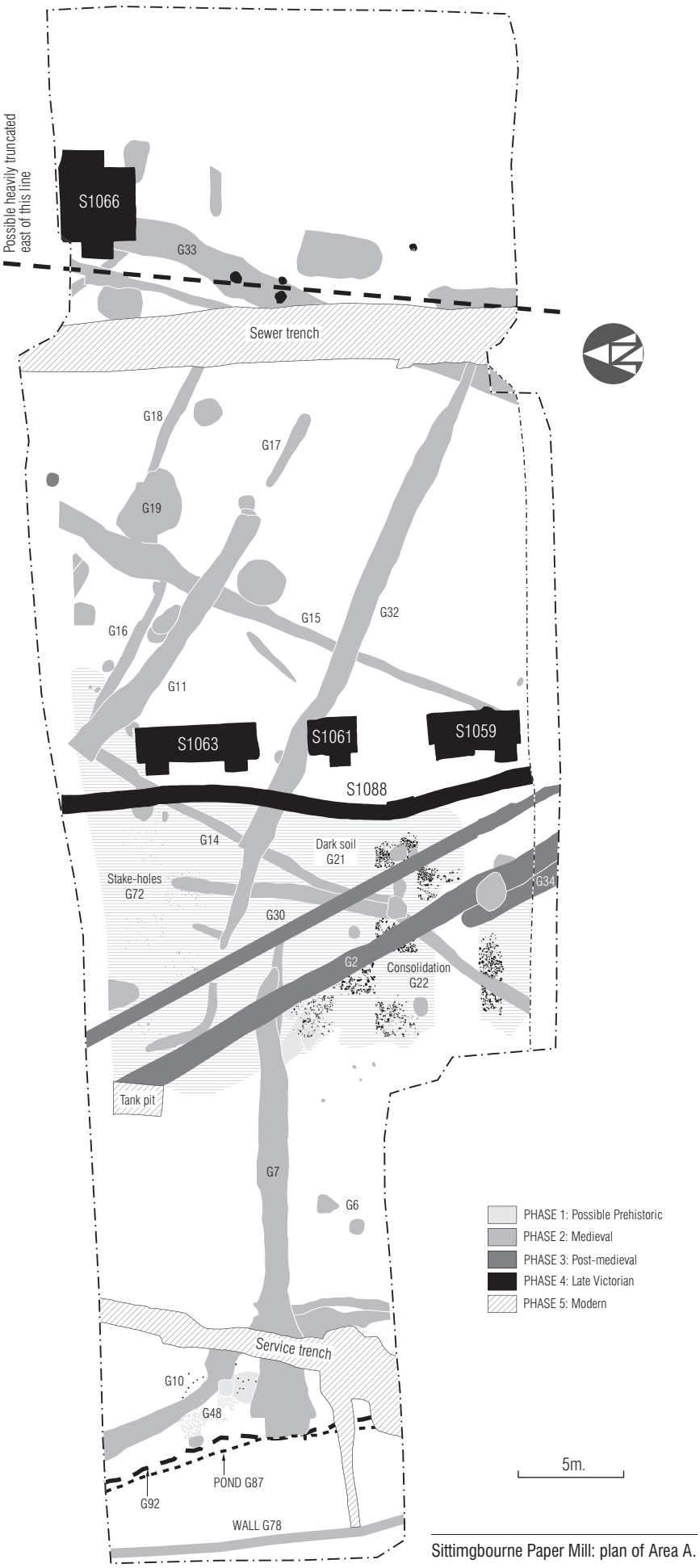
The late Iron Age/Roman ditch, Area A. Scale 1m.

The main phase of activity in Area A dated to the medieval period and consisted of a roughly rectilinear field system consisting of drainage and boundary ditches (G11, G14–G18, G32), an area of clay quarrying (intercutting pits) (G19) exploiting a brickearth-filled depression on the northern side of the site and a number of narrow drainage ditches which cut across the former boggy area. Several smaller pits, post- and stake-holes were also identified, although no definite buildings or other structures dating to this time were present. Apart from a few scraps of residual prehistoric pottery and flintwork, sherds of shell-tempered pottery, animal bone, oyster and other marine shells, as well as eggshell were recovered from many of the excavated features although perhaps not in the quantities which would suggest medieval domestic occupation on the site itself. The waste was undoubtedly domestic in nature however and is indicative of some sort of settlement activity in the immediate area. Further analysis of the pottery and environmental material will aid closer definition of the nature of this activity.

The landscape was undoubtedly agricultural at this time, with the ditches probably defining narrow

Excavating the prehistoric levels.

Prehistoric spreads of flint. Scale 1m.



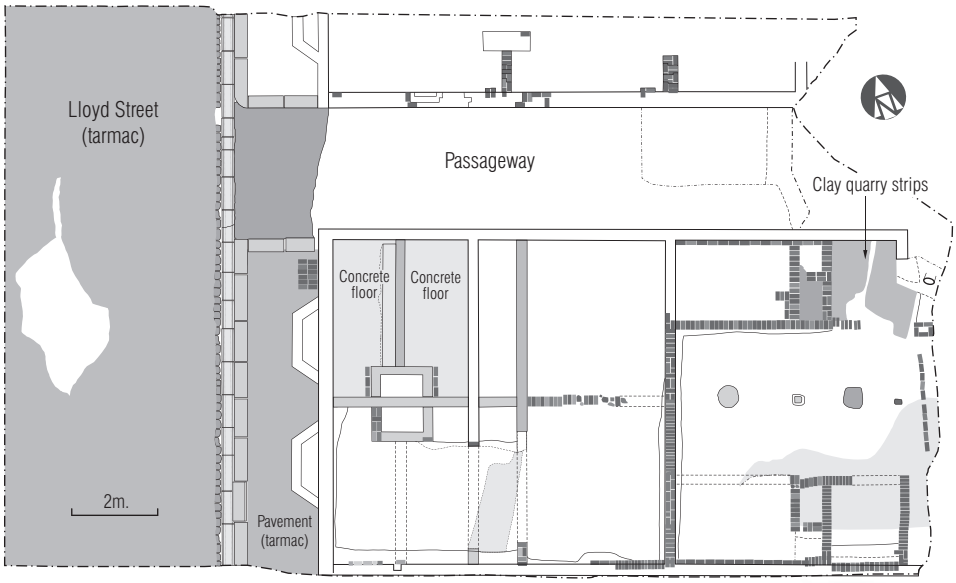
Sittimgbourne Paper Mill: plan of Area A.

fields which led down to the watercourse (G92). This feature, probably an earlier extent of present day Milton Creek, bounded the western end of the main excavation area (A) and remained a major landscape feature until and probably beyond this time. A rough flint cobbling (G48) and associated fence (G10) was laid along its eastern edge and a major east–west aligned ditch (G7, probably a drain) and a number of pits and hollows were cut into the creek bank. These features all contained dark clayey, and at one time waterlogged fills and all produced small scraps of medieval pottery and fairly large quantities of oyster and other marine shell.

The medieval features were covered in a thick layer of uniform silty clay, which due to its nature and disposition, can be confidently interpreted as colluvium or hillwash, a build-up of eroded soil caused by ploughing and other activity further upslope, being deposited lower down through the influence of rain and gravity. The deposit was increasingly truncated towards the east (by modern activity) and to the west had been removed by nineteenth-century development of the mill pond (G87). Although it is unusual to locate colluvium dating to the later medieval/early post-medieval period, this would certainly appear to represent its approximate period of deposition. Colluvium is often seen as an indicator of an over-intensive agricultural regime, which can denude the landscape and allow considerable erosion to take place, particularly on slopes; here therefore the layer is quite probably indicative of such an intensive use of the area. This episode basically eradicated and buried the lower lying field systems which do not appear to have been reinstated. Whether this decline can be related to the social upheavals of the fourteenth century is yet to be determined.

Worked flints and other material (including Roman pottery and a brooch) from this deposit suggest the presence of multi-period settlement further to the east, possibly in the area of the railway station. The upper level of this homogeneous layer also contained a mix of material of various periods up to

The eastern millpond wall. Scale 1m.



Sittingbourne Paper Mill. Plan of Area B

and including artefacts of post-medieval date, probably suggesting intrusion from manuring and ploughing. It is almost certain therefore that most of the area remained as open fields, throughout the later medieval and post-medieval periods (maybe under the field arrangements shown on the Tithe map) until the later expansion of the paper mill in the nineteenth century. Thus the site appears to indicate a regeneration of the landscape, with perhaps informal enclosure during the post-medieval period producing the present day layout (Croft *et al* 2001, para 3.70) and a return to agriculture, after a potential hiatus at some time in the late medieval period. There are indications of this type of progression across the fourteenth and early fifteenth centuries in other areas of Kent, (see for example Rady *et al* 2010, 218), and the site thus has strong potential to enhance the understanding of the landscape history of Kent at this time.

The colluvium was cut by three ditches (G2, G30 and G34). Finds recovered indicated a post-medieval date for these features. These alignments appear to reflect the field boundary shown in approximately the same position on the Tithe map.

Evidence for the industrial use (apart from papermaking) of at least parts of the site, were evident, mostly in the north-eastern corner of the Phase 1 area. Here definite evidence for brickearth

Victorian privies and the sewer to the rear of Lloyd Street. Scale 1m.

The surface and pavement of Lloyd Street, buried since the mid 1960s. Scale 1m.

Area D showing various phases of twentieth-century foundations cutting through the brick-built boiler flues. Inset: one of the firebricks.

quarrying in the post-medieval period was recorded. Evidence for the early mill pond was found at the extreme west end of Area A, where the edge of a large feature (G87) lined with a thick layer of sticky mud overlay partially eroded medieval features. The upper bank of this feature was pierced by numerous animal burrows as might be expected. It seems likely that the mill pond shown on earlier maps developed from the southernmost extent of the earlier creek, presumably dammed at its northern end when the eighteenth-century mill was constructed. The mill pond was canalized in the nineteenth century, probably by Lloyd, and the eastern side of this later pond was also found here, consisting of a brick wall (G78) 4.5m deep. The mill pond was gradually infilled, finally disappearing in the 1950s when the prominent water tower was built on the site.

The wall foundations of the Victorian terraces and associated outbuildings along the western side of the now razed Lloyd Street were present toward the eastern side of the site. The buildings closer to Milton Road had been completely removed during their demolition and subsequent landscaping, apart from cellars along the Milton Road frontage. A large cellar (S1066) with a coal chute was also uncovered in the north-eastern corner of excavation Area A. This once belonged to the house on the corner of Lloyd and Westbourne Street. An enamelled street sign for Westbourne Street was recovered in a damaged state from this coal cellar, discarded during the demolition of the properties. A row of small outbuildings (S1059, S1061, S1063) in the rear gardens of these houses were undoubtedly privies and fed into a Victorian brick sewer (S1088) that ran along the back. These were particularly interesting as they contained late nineteenth-century domestic rubbish associated with each individual property and its householders. This refuse, probably dumped when the privies went out of use, varied from house to house; a large assemblage of clay tobacco pipes from one, masses of broken china from several and one which contained nothing.

The assemblage of clay pipes, although not of any great age, is nonetheless interesting for its variety of forms and provenance, although many are quite common. Frequent motifs include oak or acorn designs, bird claws, and ribbed designs. Most date from the 1860s and were produced into the first decades of the twentieth century. One pipe is stamped with the mark of William Southorn & Co. This company (and others of similar name) had been

established in Brosely, near Ironbridge by the middle of the nineteenth century. Brosely was a well known centre of clay pipe manufacture with at least three factories. The Southorn works survive and are now part of the Ironbridge Gorge museum complex.

The best preserved part of this later Victorian and early twentieth-century period of activity was exposed in Area B, in the north-east part of the mill site. Here, a section of the street, complete with cobbling, early tarmac surface, gutter, curb-stones and pavement was uncovered. In addition, the foundations of two of the Victorian, two up-two down terraces were uncovered on the street's eastern side. These foundations were found to overlie distinctive clay quarrying strips cut to feed the extensive brick industry which flourished in this area during from the 1820s onward (Twist 1984, 3 and 10). Indications are that this part of the site was on the edge of the brickfields (which were mostly concentrated to the north-west and north-east; *ibid*, 17–19), as the brickearth was becoming thinner and often just surviving in 'pipes'.

Areas C and D contained evidence of the site's most important industrial past – papermaking. Two ranges of extensive brick-built boiler-flues were uncovered which probably heated water to process raw materials (rags, straw, wood pulp, etc) and produce steam to power machinery and heat the drying rollers. Both ranges consisted of long channels with associated flues, walkways, pipe-work and various fragments of iron tanks and other iron fittings. These heavily-fired structures can be roughly dated from stamped firebricks used in their construction, and almost certainly relate to the Lloyd years of the mill in the later nineteenth century.

Most firebricks were made in the midlands, Stourbridge being a famous centre of manufacture due to the suitability of the local clay and close supply of other raw materials such as coal. Of the twenty or so different firms operating there in 1874, a number are represented at Sittingbourne, including E J & J Pearson, active from 1860 and Harper & Moores Ltd (who exhibited at the Great Exhibition of 1871). Other firebricks were made further north, such as those by the well known firm of G H Ramsay and Co, whose works were originally at Derwenthaugh, Tyne and Wear, and whose firebricks are found all over the Commonwealth.

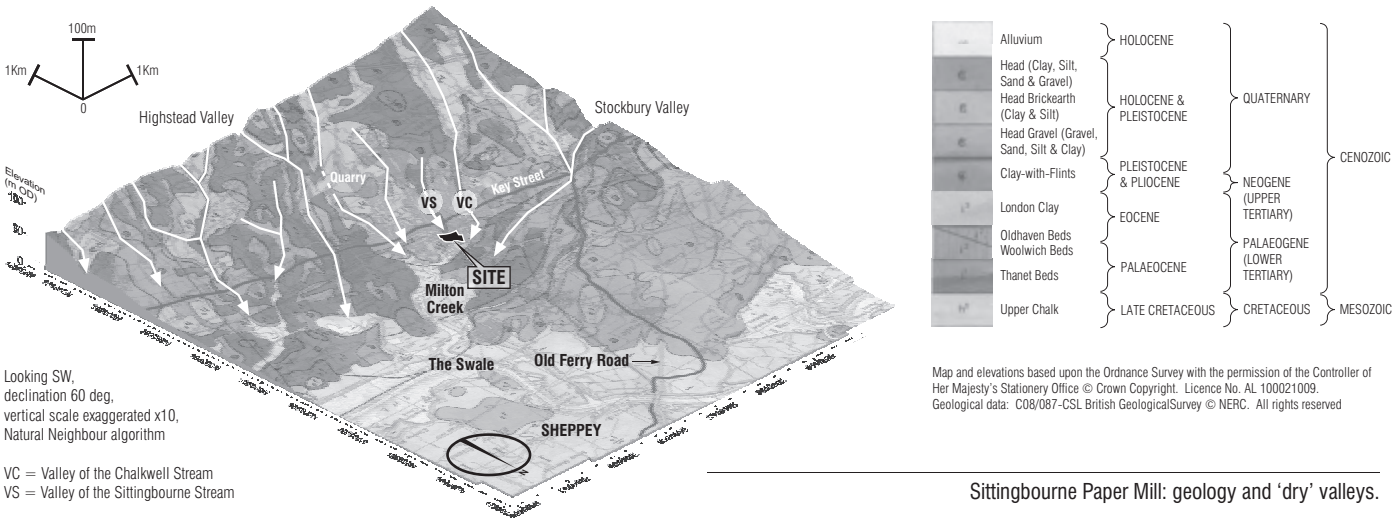
In Area D, only one main phase of these structures was located although minor alterations and additions were noted. The flues undoubtedly belonged to No 2 Mill constructed from 1891, and the associated chimney stack (maybe located not far south of the excavated area) is probably shown in photographs of the mill and its devastation by fire in the early twentieth century (Compass Archaeology 2007, fig 15 for example). The structure consisted of heavily burnt flue channels separated by unburnt channels of similar width. Preliminary investigations suggest that at least some of these remains represent the sub-floor housings and furnace-flues for Lancashire-type boilers, but this is not yet confirmed (see Palmer *et al* 2012, figs 1.3 and 1.6).

Area C had the most complex remains, with at least three, possibly four phases cut through or sealed by twentieth-century activity. These flues were within No 4 Mill, the oldest extant mill on the site, prior to demolition. This was much altered and added to on the south in the later nineteenth century, but the flues themselves align closely with the axis of the mill (north-west/south-east) which strongly indicates their relationship with the mill building. The earliest structures here may date to the early years of the Lloyd era (*c* 1876), when the first machinery was installed in the newly expanded mill (Compass Archaeology 2007, 33). These were of different form to all the other industrial structures exposed, with fire-brick arched chambers, and possibly represent a type of regenerative furnace where the intake air is preheated by exhaust gasses to improve efficiency (a system invented by Robert Stirling in 1816 (Naveaux and Shea 1982). The flues were subsequently rebuilt to a similar design to those in Area D, but on the same alignment. The new structures comprised two adjacent sets of three firebrick-lined linear chambers (separated by a walkway), set in reverse to each other. A massive concrete foundation must have been for the base of the chimney serving the northern flues, which suggests that the southern flues had their own chimney to the east. These structural remains may relate to enlargements and modifications made by Edward Lloyd in 1884 when 'a new boiler house with eight steel boilers was constructed with a 110 feet high chimney' (Compass Archaeology 2007, 33). Unfortunately this arrangement does not fit with the excavated evidence, there being only six channels (assuming one per boiler), and the arrangement in the ground suggests that there should be two chimneys (one at east and west). However, a photograph of the site prior to the extensive modifications of the 1890s (Compass Archaeology 2007, fig 10), if interpreted correctly, shows a chimney in a position that tallies with Area D, and moreover another, perhaps its counterpart to the east. Alternatively, later adaptations recorded (at present not dated) may represent part of these 1884 modifications. Further documentary research may solve this interpretational problem.

In any event, the features had become redundant by 1891–2 as a massive brick wall and concrete-based piers, aligned near north–south, which cut through the flue fabric, undoubtedly relate to the extensive alterations and additions instigated by Frank Lloyd after his father's death (above and Compass Archaeology 2007, 34–8).

The complex nature of these industrial structures meant that recording by conventional survey and planning methods would be expensive on time and labour. The survey firm J C White was brought in to record the furnaces using laser scanning technology, a method that has only become practical for use in archaeology during the last few years. The laser scanner emits thousands of laser pulses a second and as it traverses the site, records the time taken for each pulse of the beam to be reflected off any solid surface, from which in turn, each distance can be calculated to a few millimetres accuracy. Setting up the equipment in different locations thus allows what is termed a 'point cloud' to be constructed, a virtual 3D image of the solid artefact that can then be manipulated with computer software to form an accurate plan, sections or a 3D model. Using this technology, Areas C and D were surveyed within a day.

The flues and virtually all other earlier deposits and features were sealed by levels relating to the industrial use of the site up to the early twenty-first century. These layers varied considerably across the area, both in depth, morphology and stratigraphic complexity. Further analysis of these complex remains will undoubtedly be assisted by a planned programme of documentary research and by potential results of future proposed archaeological interventions on the Phase 2 part of the site, which encompasses much of Mill No 2, all of Mill No 3 and structures earlier than Mill No 3 that were removed upon its construction (such as the Mill Manager's House; Compass Archaeology 2007, 33 and fig 11). It is also possible that elements of the earliest eighteenth-century mill buildings may extend into the Phase 2 area.



Sittingbourne Paper Mill: geology and 'dry' valleys.

Geotechnical data at Sittingbourne Paper Mill

Simon Pratt

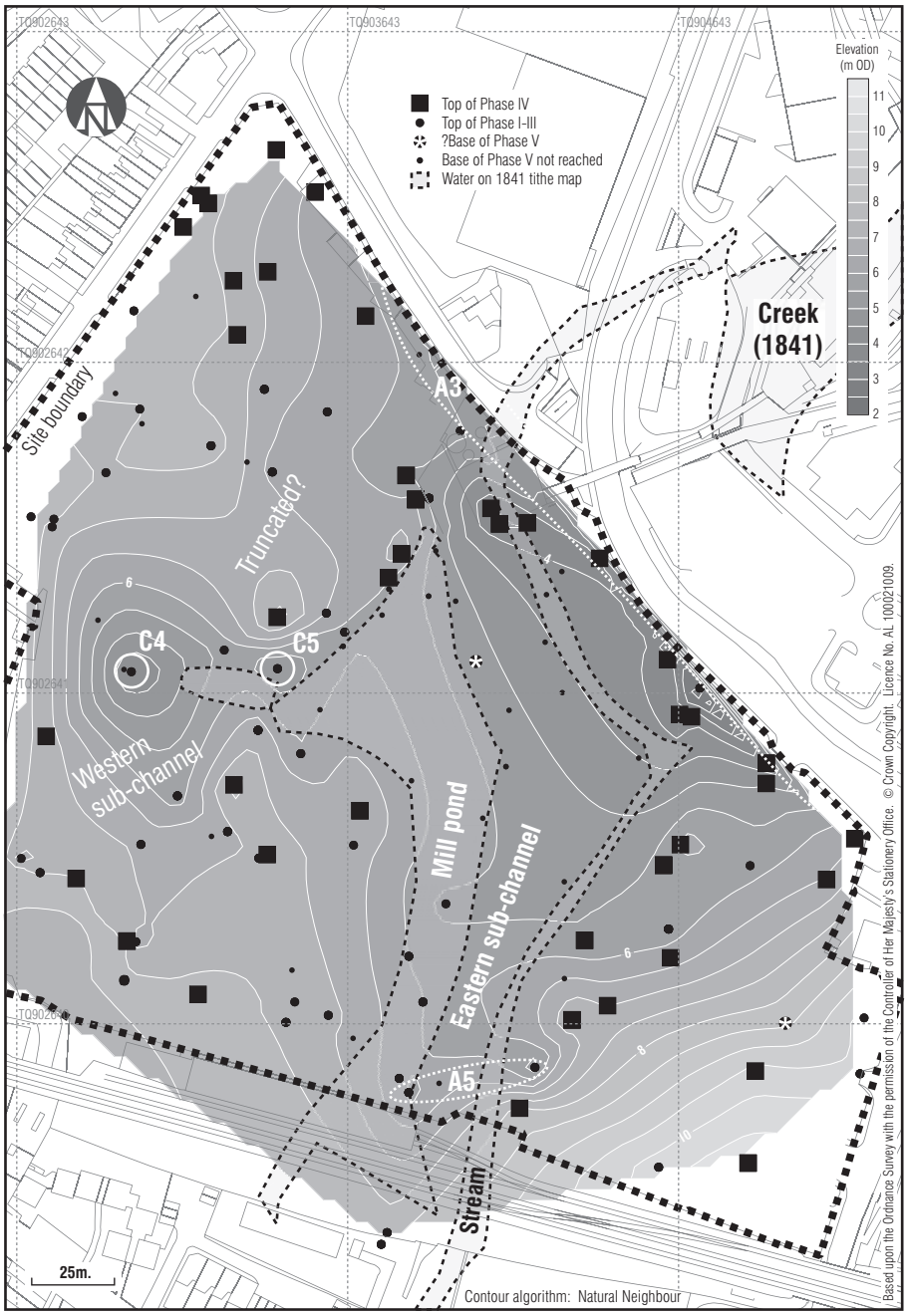
As part of the archaeological work at Sittingbourne Paper Mill, the Trust was asked to review geotechnical data from various boreholes and test pits sunk in the main area (south of Crown Quay Lane). Logs from four historic boreholes (TQ96SW10D, K, L and M) were retrieved from the British Geological Society's online database (BGS 2012). The logs of three geotechnical campaigns on the site (undertaken in 2008, 2010 and 2011) were consulted, as was an earlier review by Compass Archaeology (RSK 2011, apps F1, F4 and H3). Ordnance Survey digital contour data and 2007 ground level data (gathered by satellite-borne radar) on a 5m grid were also employed. To avoid conflict with phase numbers arising from conventional evaluation and excavation work on the site, those identified in the review were given Roman rather than Arabic numerals. As a potential test of reliability, the review deliberately did not include comparison with the conventional archaeological data (save for confirming the position of the mill pond shown on old maps).

Solid geology

BGS Sheet 272 shows the site almost entirely upon Upper Chalk, with the alluvium in the head of Milton Creek only just entering its northern side. Generally, the Chalk is often cut by solution pipes (Dines *et al* 1954, 76). In the immediate locality, the Chalk has been denuded of any Tertiary (Palaeogene or Neogene) deposits which may have overlain it, though some Palaeogene Thanet Beds and Lambeth Group deposits do survive to the north and east.

Drift geology and physical topography

The site lies on the southern margin of a shallow basin at the confluence of Stockbury Valley with either a westerly branch, or palaeochannel, of Highsted Valley or a minor valley paralleling it (the situation is obscured by a large quarry). These run



Sitingbourne Paper Mill: top of Phases I-IV.

into Milton Creek, which crosses the floor of the basin and passes through its northern bank onto The Swale and thence to the Thames Estuary. Stockbury and Highsted are part of a series of well-marked, more or less 'dry' valleys, with many tributaries and, typically, a Strahler Number (measuring branching complexity) of 3 or 4, which drain the North Downs towards the estuary. These valleys were, presumably, first formed by Pleistocene glacial (or permafrost?) melt waters but, unlike the Thames, Medway and Stour Rivers, did not accumulate significant gravel terraces although, as is the case with the Stockbury and Highsted valleys, they tend to contain Quaternary Head deposits, often gravels.

Between each pair of this series are various much narrower and shallower 'dry' valleys, seldom named, with very few or no tributaries and a Strahler Number of 1 or 2; these tend to contain less gravelly Head deposits, suggestive of lower energy environments and some, at least, may have formed later than the larger valleys. In both types some, if not all, of the finer Head deposits and smaller areas of gravels may have formed in the Holocene rather than Pleistocene division of the Quaternary.

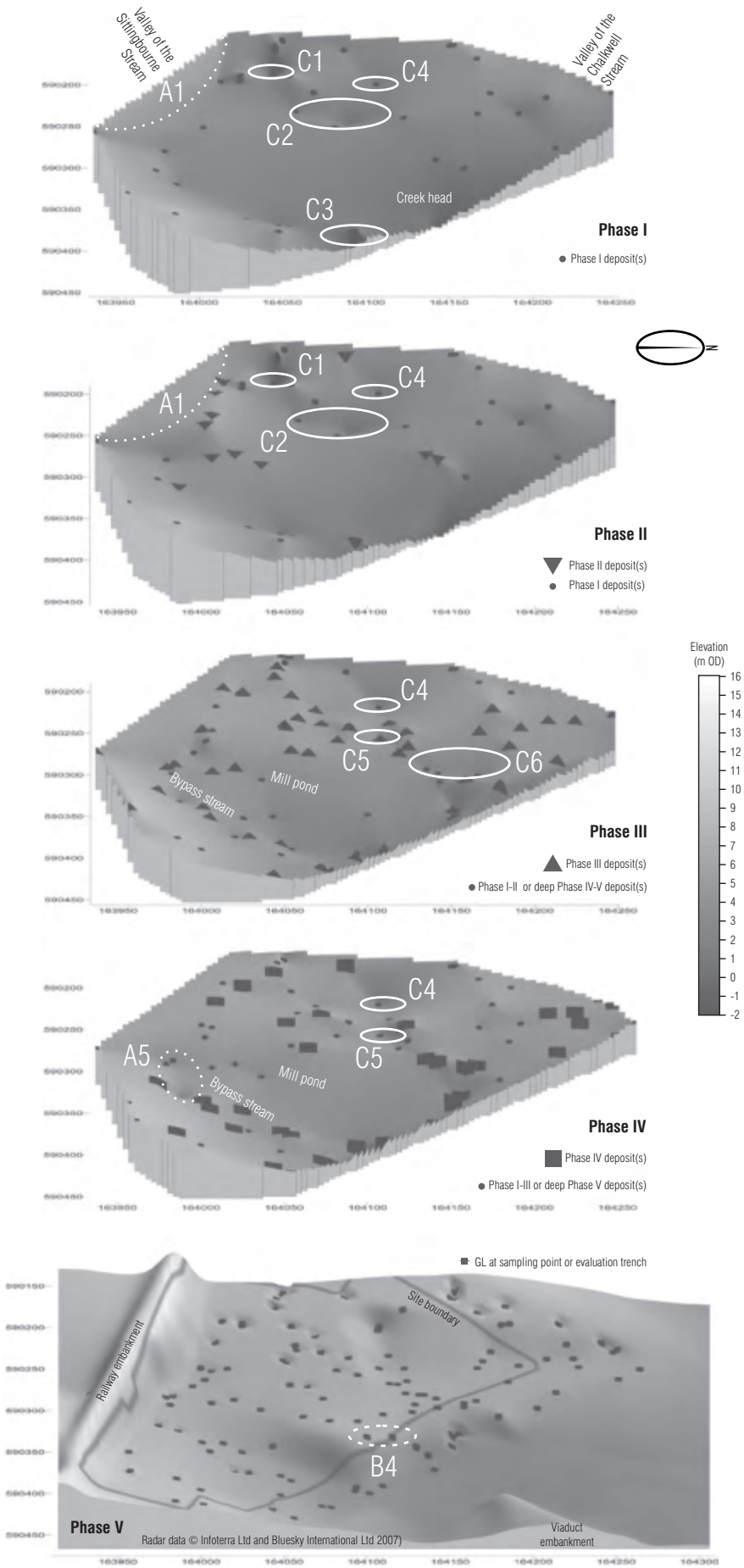
The site lies across the mouth of one of these minor valleys, carrying the Sittingbourne Stream, with its north-western edge roughly following the watershed between this valley and that carrying the Chalkwell Stream. Both valleys are shown as containing unspecified Head, which the BGS website amplifies to 'Clay, Silt, Sand and Gravel' (*ibid*). Both streams now run largely if not entirely underground but appear on eighteenth- and nineteenth-century maps. They were and are fed by springs which probably run, at least in part, along the upper reaches of the valleys, whose formation is probably related to them and to solution hollows in the Chalk.

Data quality

It was assumed that all sampling points fell where the logs or accompanying plans show them, but it should be borne in mind that geotechnical reports sometimes carry only intended positions, which may be metres or (rarely on heavily built-up sites such as this) tens of metres away from those actually sampled. This may also affect the associated ground level (GL).

None of the contexts were directly observed and logged archaeologically and the review relied exclusively on geotechnical descriptions in which, for example, medieval mortar might be identified as concrete, Roman tile as brick, or an ancient pit-fill as made ground. The interpretations and phasing applied to the contexts are, therefore, only tentative. Due to the lack of archaeological descriptions and dating evidence it was impossible, without reference to excavation results, to subdivide the key Phase IV usefully. Furthermore, the logging was carried out at various times by various organisations and individuals, presumably with varied equipment, training, experience and priorities, and several preliminary adjustments had to be made before the main analysis could proceed.

For example, several 2008–2011 positions lacked GLs which were, therefore, estimated from those of



Sittingbourne Paper Mill: progressive infilling and main anomalies deduced from geotechnical data.

neighbouring positions and/or a post-demolition levels survey. Satellite-borne radar data, gathered in 2007, matched these levels and the OS contours very well except in areas (most noticeably in the western part of the site) which had been completely covered by extensive buildings set into terraces, where the satellite data has, presumably, been interpolated between patches of open ground, resulting in dimpling around some sampling positions when the data sets were combined.

Phase I

This phase consists of the natural Upper Chalk, laid down during the Late Cretaceous epoch and dating to roughly 100–65.5 million years ago (MYA). In this stretch of the North Downs its surface dips naturally to the north-east and, beyond the site limits, is still overlain by deposits of the Palaeogene period (65.5–23 MYA). At the mill site, however, it has been entirely denuded and cut into by later features, including solution pipes and the valley of the Sittingbourne Stream.

Phase II

The sides of the valley of the Sittingbourne Stream are marked by rises in the Chalk, into which it is cut, beneath the south-eastern and north-western portions of the site and the valley's original formation probably dates to Phase II. The deposits of this phase consist of natural gravels and sands. Their distribution within the site is rather patchy, though most lie towards the southern margin. Their upper surfaces mostly fall from 7.19–7.42m OD along the southern margin to 1.97m OD in BH08/05. Rather than river terrace gravels, these probably represent Head material fanning out from the valley of the Sittingbourne Stream (though the most northerly might derive from that of the Chalkwell). It is likely that they have been cut into by Phase III (or immediately pre-Phase III) channels and solution hollows. It is possible, however, that Phases II and III are actually contemporary or interleaved, with II representing higher and III lower energy events, in the few cases where they have been identified at the same position, the latter always overlays the former. Given the relatively high energy required to transport such material, it is likely that the predominantly gravel groups were laid down during the Pleistocene rather than the Holocene and thus date from about 2.6 MYA to about 10,000 BC, though probably towards the end of that range. The predominantly sand groups may be broadly contemporary but they may, instead, pertain to Phase III.

Phase III

Phase III comprises what were identified as natural alluvial clay or Head deposits (excluding those assigned to Phase II). They occur, albeit discontinuously, over most of the site though only once above 8.00m OD. Taking their uppermost levels together, they clearly define the valley (though this may be in part due to artificial terracing) of the Sittingbourne Stream, possibly with two sub-channels converging to the north-east of a slightly higher tongue, and with the end of the Chalkwell Stream's valley entering the north-western corner. A deeper area, upon which both streams converge, represents the head of the early creek. Though a Pleistocene data cannot be ruled out, all these deposits probably relate to the Holocene (about 10,000BC or later). The western side of the eastern sub-channel and the northern part of the western match the recorded position of a mill pond shown on a tithe map of 1841 whilst the eastern side of the eastern sub-channel matches that of the partially culverted stream which presumably served as a by-pass channel. To what extent the Phase III deposits had been artificially cut to form these features could not be established from the geotechnical logs.

Phases IV–V

Phase IV consists of those deposits which were neither palpably modern nor apparently geological and may include buried topsoils and ploughsoils, late prehistoric or later archaeological horizons and some, mainly early, mill-period material. Most Phase IV positions were concentrated in the south-eastern area and along the north-eastern site boundary to the north-western corner, though a few lay in the central and south-western areas. None lay within or between the mill pond and bypass stream shown on the 1841 map, though a few were in the remnant creek head either side of the stream. All identifiable mill period and mill demolition deposits were assigned to Phase V.

Anomalies

Various anomalies were apparent when the data were translated into transects, contour maps and three-dimensional models. These can be divided into three general classes.

Class A (algorithmic artefact): caused by quirkish behaviour of the contouring algorithm under certain conditions. In the case of the Natural Neighbour algorithm, this usually takes the form of narrow zones of artificially high or low values running along part or all of an edge of the modelled area (eg, anomaly A1), though sometimes minima which should probably be linked by a low area are shown as isolated depressions (as with A5).

Class B (data error): perhaps due to a descriptive, interpretative or numeric mistake by the original observer but more probably to transcription errors or erroneous interpolations. Where feasible, these have been rectified on the basis of explicit assumptions and the resultant alterations incorporated into the figures. Dimpling of GLs around sampling points and evaluation trenches, when compared to satellite data, is probably due to the latter being interpolated beneath unbroken spreads of buildings, as are occasional high areas where low ones are expected (eg B5).

Class C (true anomaly): probably representative of the actual features. Six were identified: C1 and C2 probably represented solution pipes in the Chalk; C3 (if not due to a recording or transcription error) the same or a steeply banked channel in the Chalk; C4 was probably a modern feature rather than an extension of C2; C5 was probably a modern feature, possibly due to subsidence over C2; C6 was probably a Phase V feature but a late Phase IV feature may also have been present.

Minster Abbey, Sheppey

Simon Pratt

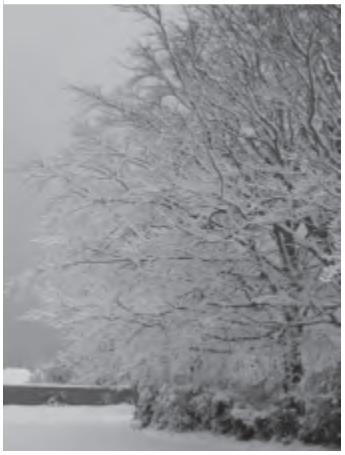
Before Minster Parish could apply for the relevant consents for proposed alterations and landscaping at Minster Abbey (NGR 59558 17300), evaluation trenching and building recording were required. However, the consents were a prerequisite for applying for any funding. To overcome this impasse, several members of staff (including the Director) offered to help in their own time but the bulk of the fieldwork, supervised by the author, was carried out by volunteers from across Kent, some from local societies or universities and others with no formal affiliations. Excavation began on a bitterly cold Saturday early in February 2012. Temporarily put on hold as a consequence of heavy overnight snow it was finally completed on 15th May. Post-excavation work began soon afterwards, again with volunteer support.

Six evaluation pits were cut; Trenches 1 and 5 to evaluate the impact of creating a link building between the church tower and the church hall; Trench 2 to examine a boundary wall west of the church, prior to forming an opening in the wall, and Trenches 3, 4 and 6 to examine cemetery deposits west of the church and south of the boundary wall, prior to re-grading an existing churchyard path.

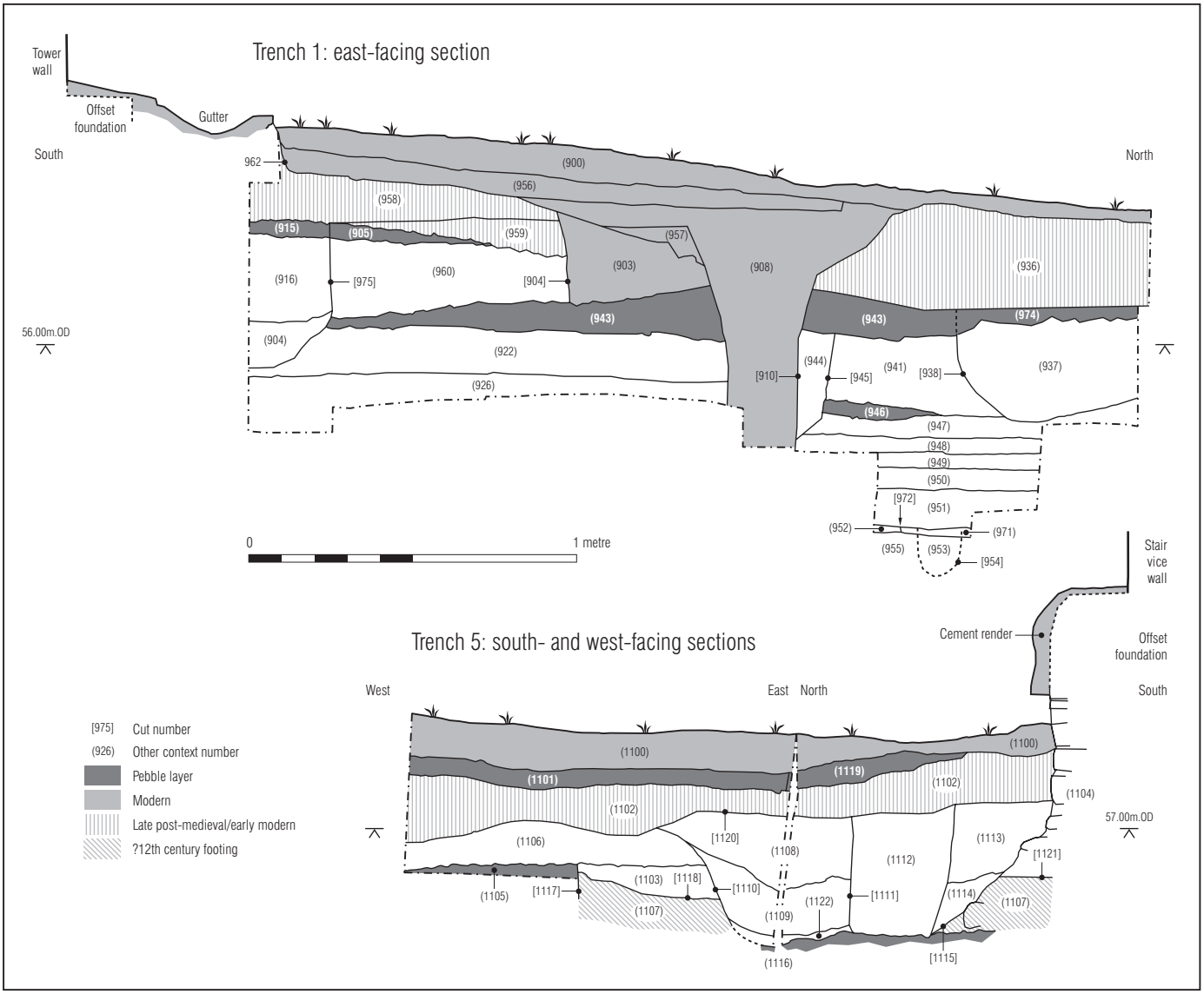
Prehistoric occupation and Roman activity was already known from the site and surrounds, as well as evidence for Anglo-Saxon and medieval phases of the convent (Gardiner 2000; KARU 1999; Philp and Chenery 1998; Pratt 1995; 2010; Slade 1993). The convent was founded by the dowager Queen Sexburga around AD 670 and from its chapel (much of which survives to eaves level) the present church has developed. The church underwent several modifications in the medieval period including the building of a tower with a pair of polygonal stair vices added to the western end of the original nave. Usually unnoticeable Anglo-Saxon and medieval features embedded in the fabric of the north wall of the church were clearly defined by the February snow and are shown in accompanying photographs.

The earliest features found during the evaluation of Trench 1 included a post-hole (954), perhaps part of a late Bronze or early Iron Age round-house previously identified beneath the church hall and what may have been the south-eastern corner of a rammed pebble foundation (not in section). A similar pebble surface (1116) was located in Trench 5

Also in Trench 5, a mortared flint wall footing (1107) continued the line of a foundation found previously beneath the church hall and attributed to the twelfth century (Philp and Chenery 1998, fig 9, W5). This footing ran beneath the vice foundations and had clearly been demolished in two stages: first (1121) the section beneath the line of the new tower and then (1118) after construction had reached at least



Minster Abbey and surrounds, 5 February 2012.



Minster Abbey, Sheppey: trench sections.

the offset level, the remaining part to the north. Next to this wall, the tower foundations sat in a deeper trench which had been cut from the top of a pebbled surface (1105 and perhaps 905 in Trench 1), possibly a construction horizon. One or two post-holes (1111 and perhaps 975) may have supported a construction scaffolding for the new tower. The offset foundation for the tower was well above this horizon, suggesting that the originally intended finished level was higher than modern ground level.

In Trench 1, two main levels of metallings (905 and 943), various levelling deposits and other features were cut through by at least five late eighteenth- to late twentieth-century features: one cut to re-bury skeletal material excavated from beneath the church hall. A probably medieval or post-medieval clay building raft found in Trench 2 had been cut back by modern disturbance to the line of the post-medieval and modern wall which now separates the church hall area from the higher graveyard to the south. Within the churchyard, the evaluation exposed only cemetery loams down to the proposed new level for the path. Only in Trench 6 was an undated clay and pebble horizon found at the lowest level.

In addition to the several Trust staff who rallied round, the author would like to thank the many other volunteers and especially Anita McRory, Stephen Daniels and Richard Hoskins along with churchwarden Cynthia Snelling and her colleagues.

Capital House, Northdown Road, Margate

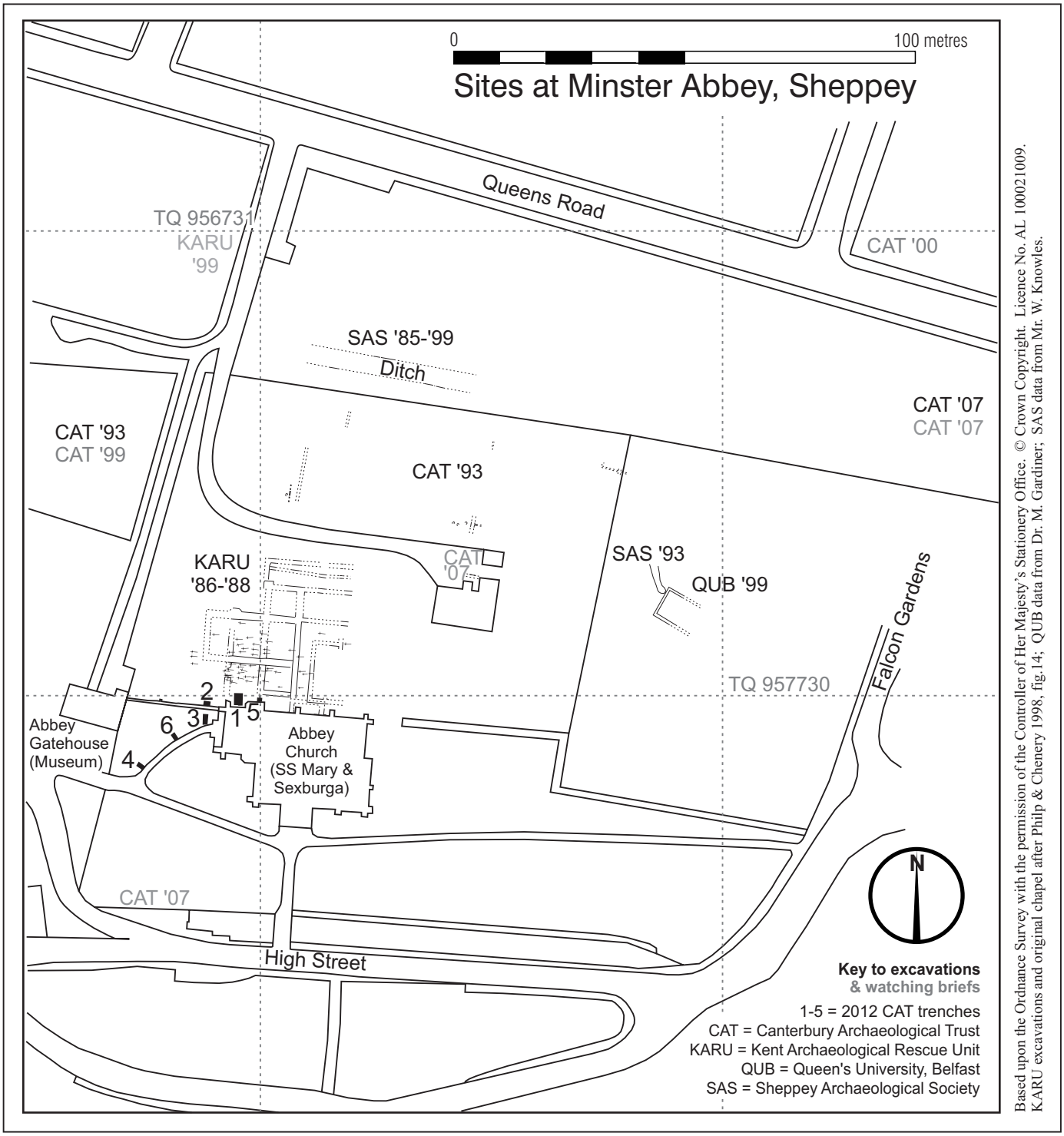
Adrian Gollop

Introduction

In April 2012 an archaeological excavation followed by an intermittent watching brief took place at the site of Capital House, Northdown Road, Margate (NGR 635750 171150). The work was commissioned by Denne Construction as part of preparations for the proposed redevelopment of the site for residential purposes.

Earlier evaluation, undertaken in January 2012 (Trenches 1–6; Gollop 2012b) had identified the presence of a large multi-phase ditch provisionally dated to the middle to late Iron Age (*c* 400–50 BC), possibly associated with an enclosed hill-top settlement to the north-west (Champion 2007, 106); other contemporary features included pits, drainage ditches, gullies and an extensive series of post-holes suggesting potential structural elements. Later features included a series of brick walls, floor surfaces and drainage runs, of late eighteenth- to nineteenth-century date, identified both at the front and rear of the site. Consequent excavation was targeted at three areas (Areas 1, 2 and 3) where the proposed development was to have its greatest impact on the identified archaeological remains.

Post-excavation work is ongoing so this report is an interim summary of the discoveries. Further stratigraphic and spatial analysis of the site records along with specialist assessment and analysis of the artefact assemblage, including the large pottery assemblage and human remains, means that the full chronological sequence of the activities discovered on the site are not fully understood and many of the features have therefore only been provisionally dated.



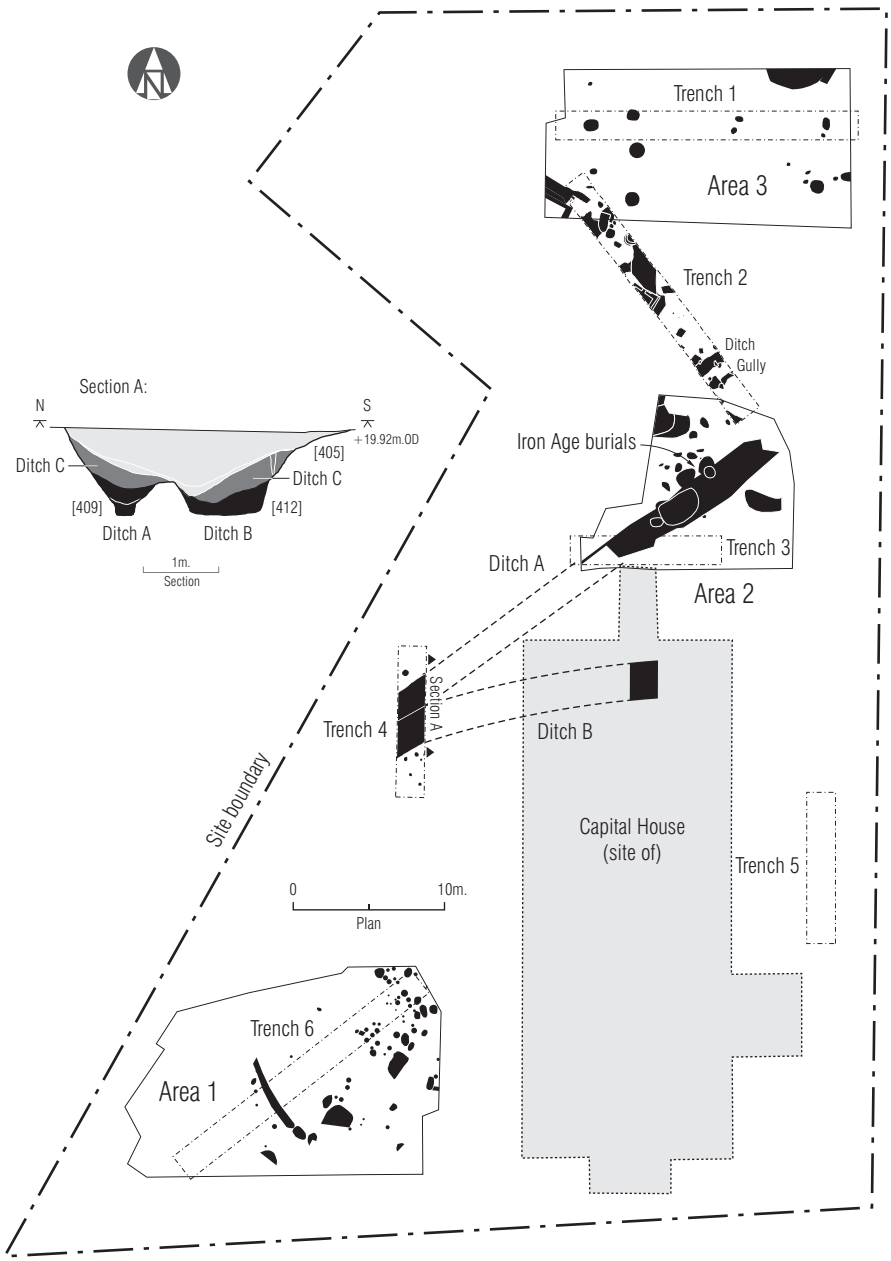
Minster Abbey sites (scale 1:1250).

Iron Age

The most significant features dated to this period were a number of ditches identified in Trench 4. Here at least three phases of activity were identified (Section A). The earliest phases comprised two parallel south-west to north-east aligned ditches (A and B), running side by side. The northerly ditch (A) was 1.25m deep and 1.40m wide with a V-shaped profile and the southerly (Ditch B) had a wide flat-bottomed U-shaped profile of a similar depth of 1.25m but was wider (2.05m). Both ditches had been deliberately backfilled with chalk rubble amongst which were occasional fragments of animal bone and oyster shell but no datable cultural material. Although there was no direct stratigraphic relationship it is suggested that Ditch A was cut first with a bank to its northern flank, and that this ditch was probably infilled and the bank consolidated during the cutting of Ditch B. A single post-hole found cutting through the fills of Ditch A might represent evidence for a wooden revetment.

After both ditches had become backfilled they were cut by a wider slightly shallower ditch (C, see Section A) which followed the same alignment. This later ditch had an extended U-shaped profile, was 1.06m deep and 3.75m at its widest. Amongst the clayey silt infills were frequent sherds of flint-tempered pottery dating to the mid to late Iron Age period (*c* 400–50 BC), though there was also one sherd of earlier date (*c* 800 BC). There were also large quantities of animal bone and occasional fragments of worked flint (waste flakes and exhausted cores), burnt flint, oyster and mussel shell.

Excavation revealed a further 35m length of Ditch A in Area 2. Here it was 1.02m deep and slightly wider at 1.70m. A later recut widened the ditch to 2.20m.



The prehistoric features (scale 1:500).

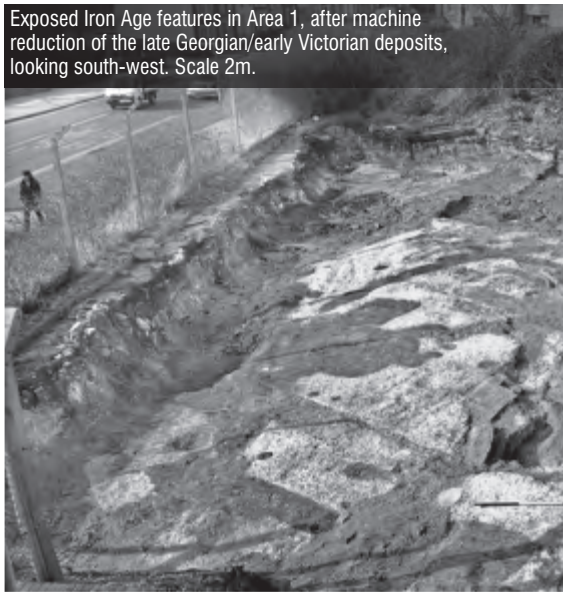
This recut is thought to be a continuation of Ditch C. Ditch B did not extend into Area 2, but was tentatively identified again during the watching brief maintained during the removal of the footings of Capital House. This would suggest that its alignment curved to the east-north-east.

The above multi-phased ditch system may be related to a hill-top settlement, traces of which have been excavated on Fort Hill, some 275m to the west, which, it has been postulated, may originally have been a promontory fort (Perkins 1997, 228). Although refuse pits containing middle Bronze Age to early Iron Age pottery were present the bulk of the activity appears to date from the late Iron Age to early Romano-British periods. Further Iron Age remains are also recorded *c* 300m to the north-west of the site (HER TR 37 SE 50) which are probably a continuation of the same settlement. Less than 100m to the north-west of the site, further Iron Age remains were excavated towards the northern end of Trinity Square in 2004. A sunken-floored building containing two inhumation burials, storage pits and post-holes suggestive of a timber palisade, all dated to *c* 550–300 BC were recorded (www.britarch.ac.uk/ba/ba78/news.shtml, accessed 24/10/2012). Even closer to the site, immediately to the north-west, two Iron Age ditches, one aligned south-west to north-east the other north-west to south-east, possibly forming a corner were recorded during salvage excavations at an extension to Trinity Court (John Villette, pers comm).

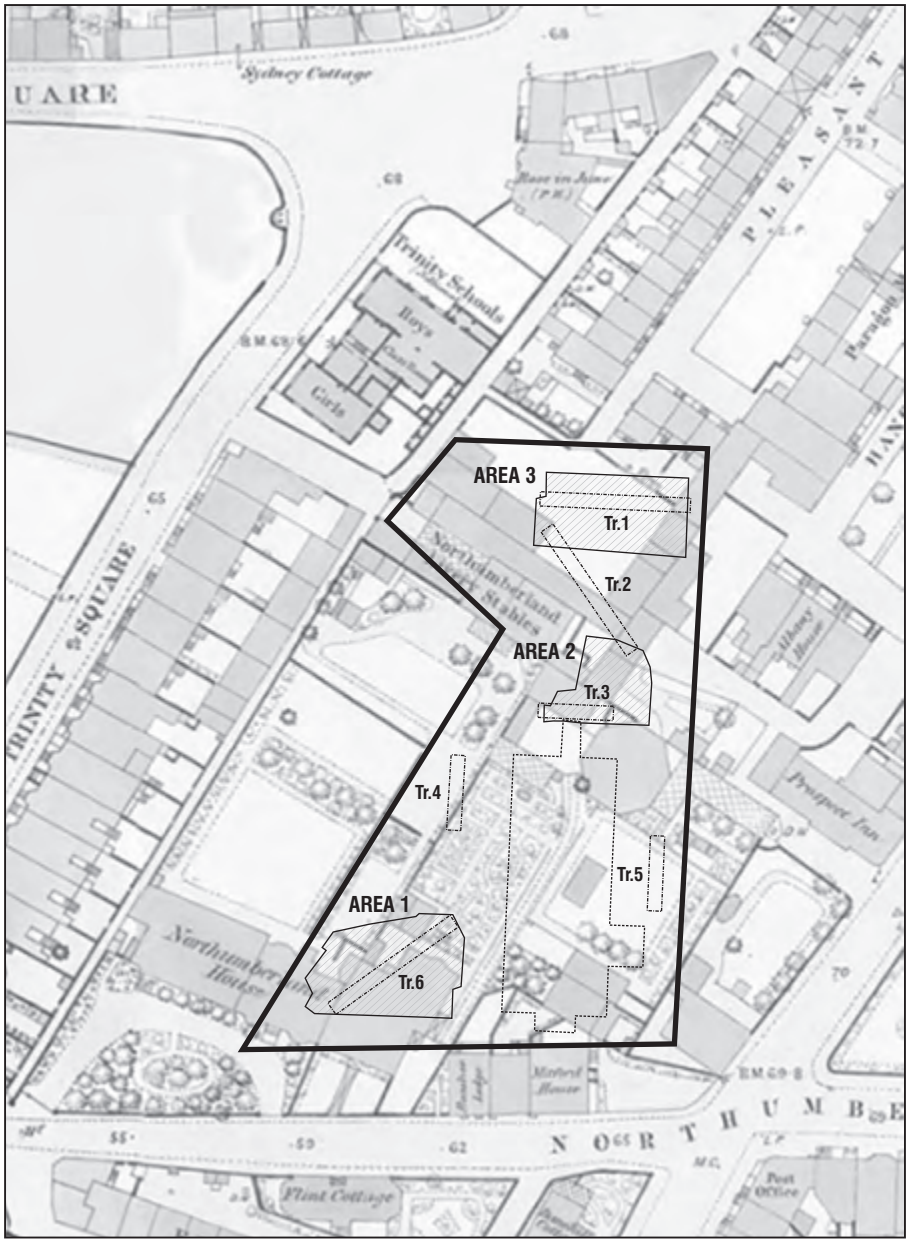
On the present site the main focus of Iron Age settlement activity was on the higher ground in the northern half of the site. Although this area had been impacted on by modern landscaping, which had truncated the upper surface of the underlying natural chalk, activity was evident through a series of post-holes, pits, ditches and gullies identified in evaluation Trench 2 and excavation Area 2. In Trench 2 a smaller ditch and gully, aligned parallel with the larger ditch complex, may represent internal divisions or drainage within the enclosure; further gullies and seven more post-holes may relate to yet unidentified buildings.

Two inhumation burials were recorded on the northern edge of Ditch A. Although skeletal

Area 1 during machine reduction, looking south-west.



Exposed Iron Age features in Area 1, after machine reduction of the late Georgian/early Victorian deposits, looking south-west. Scale 2m.



Trench locations and footprint of Capital House superimposed on the Ordnance Survey of 1873

preservation was poor the burials could be identified as those of an infant (aged one month to 2 years) and an older child (aged 5 to 12) (Bailey 2012). Both graves were small and indications during excavation were that the burials may have been in crouched positions. Although pottery from one of the burials is dated to the middle to late Iron Age period (*c* 400–50 BC), they appear to predate the ditches having been slightly truncated by the later ditch recut. The presence of at least one further burial was evident in the form of a disarticulated human phalanx, thought to be from an adult, recovered from the fill of the ditch recut.

To the south of the ditches further Iron Age activity was identified in the southern limits of evaluation trench 4, trench 6 and excavation area 1. Here a sequence of post-holes suggests the presence of buildings or other structures, though no obvious spatial alignments have yet been identified. Further features include two large pits both infilled with large amounts of burnt flint, possibly associated with pottery production, and the remnants of a possible ring-ditch.

Late eighteenth/early nineteenth centuries onwards

In the south-western corner of the site a series of brick walls with associated floor surfaces and a complex of concrete, ceramic and tile drains were recorded throughout Area 1. These represent an extensive building, or range of buildings, fronting Northdown Road (shown on the 1873 Ordnance Survey). The position of these buildings correlates with the eastern end of the late eighteenth-century Northumberland House, constructed in 1792. This building is shown (although not named) on the ordnance surveyor's *c* 1800 field drawing for the first edition Ordnance Survey map of Margate, and then depicted in detail, with formal landscape gardens to the front and rear, on the map of *c* 1873 by which time it appears to have been made into three dwellings. By 1896 the central part is identified as the 'Orphanage' and later the easterly building becomes the vicarage for Trinity Church. However, the basic plan of Northumberland

Late Georgian/early Victorian boundary wall, brick-lined cess tanks and stable surface exposed in Area 3, looking north-west. Scale 1m.


Detail of juvenile burial. Scale 1m.


Middle to late Iron Age ditch in Area 2, looking south-west. Scale 2m.

House continued relatively unchanged until the 1950s, despite damage in the Second World War.

A further range of buildings was identified to the rear of the site in Area 3, surviving where it appears land was not reduced during late twentieth-century clearances. Here a series of exposed brick walls with associated crushed sandstone and concrete floor surfaces, along with at least three brick tank-like structures, a large chalk tank and brick/chalk soakaways, correlate with the northerly edge of the Northumberland Livery Stables shown on early nineteenth-century maps and in detail on the first edition Ordnance Survey of *c* 1872. The exposed floor surfaces appear to represent the open yard shown on the above maps, but the presence of the remnants of walls partly exposed in these surfaces suggest that at some stage there were also covered buildings. A north-west to south-east aligned brick wall marks the boundary between the stable and late Georgian/early Victorian properties on Pleasant Place.

A large pit occupying the eastern end of Trench 3 marked the location of the late eighteenth-century mill known as Hooper's horizontal mill. Infilled with demolition debris, including eighteenth-, nineteenth- and twentieth-century brick rubble, this feature was disturbed and consolidated during the construction of Capital House. During the evaluation it was sample excavated (by machine) to a depth of 1.80m and a diameter of c 18m was recorded. Hooper's horizontal mill was constructed c 1780 and its working life was short, with its machinery being dismantled in 1827. The tower was destroyed by a bomb in the Second World War.

Acknowledgements

Work was directed by the author who wishes to thank the field team of Paul-Samuel Armour, Simon Holmes, Ross Lane, Adrian Murphy and Phil Mayne. Thanks are also extended to all at Abbotts Construction, and to Wendy Rogers at Kent County Council.

Westwood Road, Broadstairs

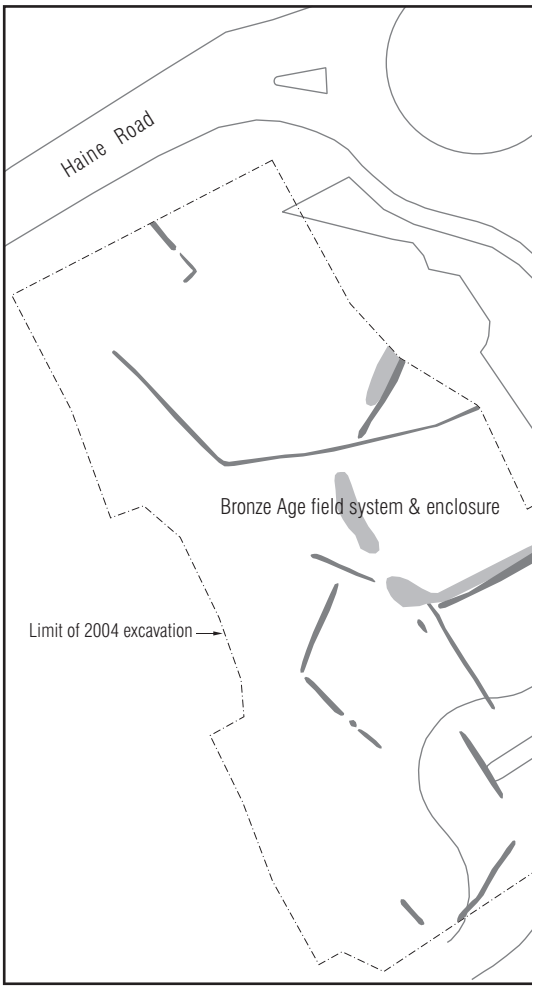
Ross Lane

An evaluation and subsequent excavation was undertaken on land at the junction of Westwood Road and Margate Road, Broadstairs (WRB-EV-12 and WRB-EX-12; NGR 636488 167861) in February 2012. The work was commissioned by RPS Planning on behalf of Location 3 Properties Ltd prior to development of the site for retail use with associated landscaping.

The site lies at the western edge of Broadstairs in the centre of Westwood Cross. Recent excavations immediately to the west of the site prior to the construction of the shopping complex revealed a number of prehistoric features. These included a Neolithic pit containing approximately 7,500 charred cereal grains, along with a Bronze Age field system and a large enclosure (WCT-EX-03; Gollop 2004). There was evidence for land use within the area continuing into the Iron Age in the form of further ditch boundaries and it is likely that the Westwood Cross plateau remained under agricultural use until the late nineteenth century.

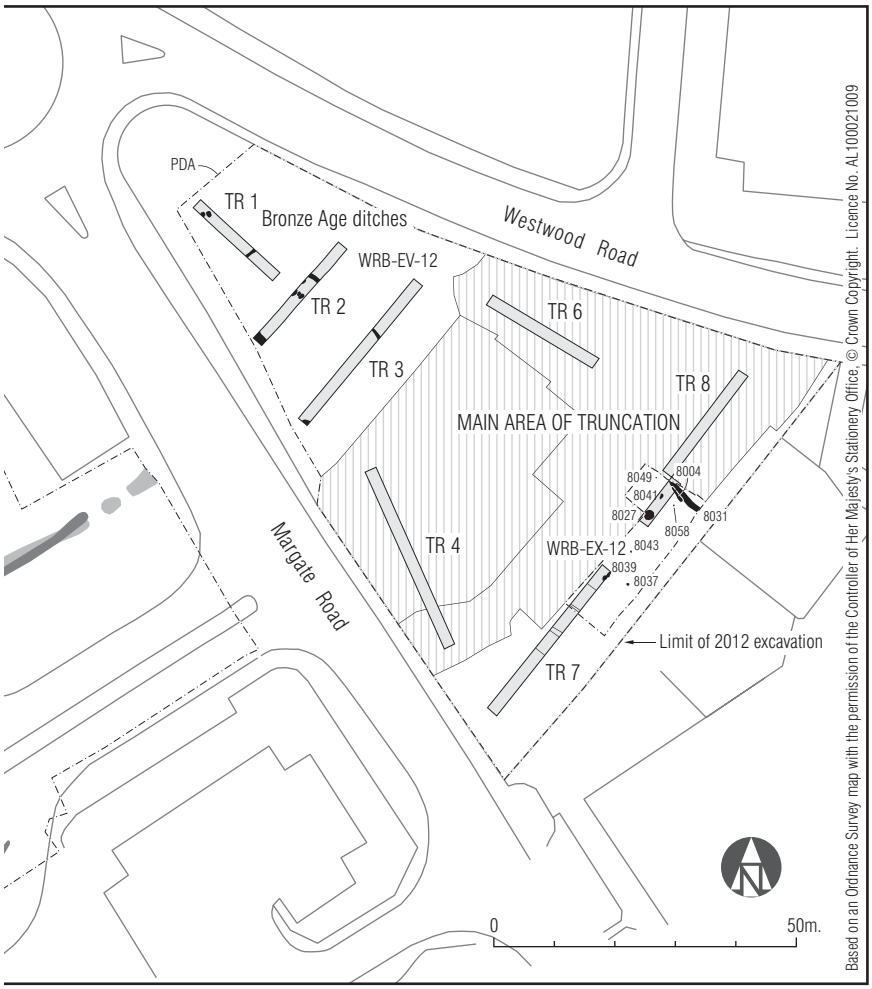
The recent evaluation consisted of eight evaluation trenches (Tr 1–8) which revealed parts of six north-west to south-east aligned ditch segments and two pits containing pottery dated to the Bronze Age which probably formed part of the larger Bronze Age field system identified in 2004. The majority of the site lay below the formation level of the development or had been truncated by previous structures. Subsequent excavation was thus limited to an extension of evaluation trench Tr 5, an area of 205m^2 located on the eastern side of the development, where a large pit [8027] had been identified tentatively dated to the Beaker period (*c* 2450–1700 BC).

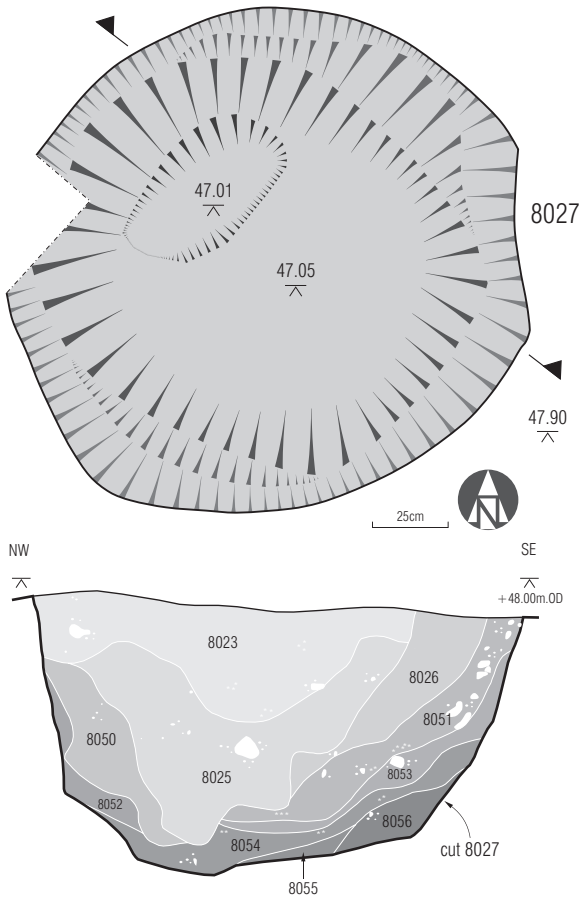
Investigation revealed the full dimensions of the pit, aligned roughly north-east by south-west, as 1.77m long, 1.66m wide and 0.85m deep. The profile was roughly u-shaped with a sharp break of slope at the top and steep undulating sides. A further sharp break of slope led to a flat base that sloped from the south-east to north-west down to a small hollow located on the north-west side.




South-west facing section of pit. Scale 1m.


Pit in plan, looking north-east. Scale 1m





Westwood Road location plan (scale 1:1250).
Plan and section above (scale 1:25).

The fill of the pit consisted of three distinct phases (see figure above). The primary deposits (8055 and 8056) consisted of mottled yellow green and red brown silty clay with no inclusions caused by natural erosion of the sides of the pit. These were sealed by a layer of light grey silt (8054) that contained charcoal and traces of carbonised plant material. A charred seed of a tree or shrub (*Prunus*) from this deposit produced a radiocarbon date of 2467–2215 cal BC (UBA–21279; 3876 BP ± 30 years). It was overlain by a 0.10m thick layer of mottled green yellow to red brown clay abutting the sides of the pit (8052 and 8053), probably weathered material from the upper sides and edge of the feature. It was followed by a phase of deliberate fills (8050, 8051 and 8026) that abutted the sides of the pit in tip lines, forming a 0.29m thick sequence of dark brown clay silts with charcoal, traces of charred cereal grain and seeds, burnt flint and natural flint inclusions. Overlying these was a 0.53m thick deposit of yellow green to red brown redeposited natural clay (8025) and a 0.40m thick deposit of brown clay silt (8023) that contained a single fragment of Beaker pottery and a possible worked flint.

The function of the pit remains unclear. Its large size suggests that it was for storage. Environmental analysis of the backfill (p 82) revealed small amounts of charred plant remains including cereal grains, small seeds and hazelnut shell. This type of feature can be associated with settlement activity and may have been the focus of a small camp.

The excavation also revealed a north-east to south-west aligned boundary ditch with a re-cut (8031/8004), along with three post-holes (8037, 8043, 8058), a stake-hole (8049) and two tree-throws (8039 and 8041). This evidence, along with the features identified in the evaluation trenches to the north-west, extends the mid to late Bronze Age field system identified to the west.

Material evidence relating to the Beaker period is predominantly found within funerary contexts, for example monumental round barrows and flat graves with associated inhumations (Masefield 2011, 10). Thus it is unusual and of some interest to encounter Beaker pottery in a non funerary context.

Thanks are extended to Rob Masefield of RPS planning; and Simon Mason, Heritage Conservation Group, Kent County Council for their assistance. The Trust team included Paul-Samuel Armour, George Carstairs, Simon Holmes, Hazel Mosley and Laura O'Shea. Bulk soil samples were processed by Enid Allison with the assistance of Alex Vokes.

Richborough Road, Ramsgate

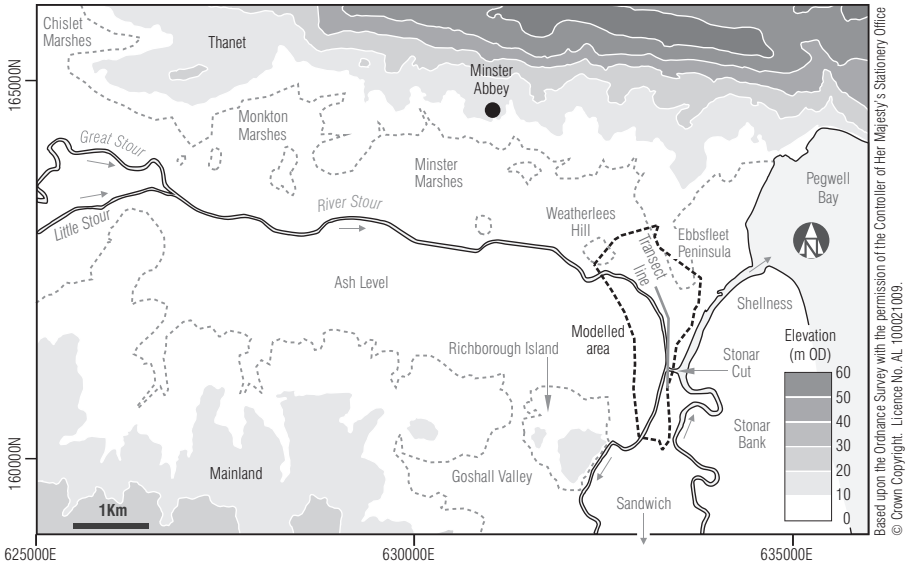
Simon Pratt

During the year we carried out geoarchaeological investigations, or watching briefs on geotechnical sampling at Ramsgate Road (Richborough), London Golf Club (Stansted), Brunswick Road (Ashford) and Millbank Road (Ashford). This work was carried out in collaboration with the Quaternary Scientific (QUEST) team from the University of Reading. The investigations at Stansted and Ashford, to the relief of the respective clients, found little of archaeological or geoarchaeological interest but the first, on the site of a former fireworks factory (at NGR 63335 16150) immediately south of Richborough Power Station, and accompanied by a review of earlier data, has contributed to our knowledge of (or, perhaps more truthfully, raised questions about) the Wantsum Channel's prehistory and history.

As the power station had been decommissioned in 1996 and the familiar cooling towers demolished, somewhat explosively, shortly before our augering, National Grid kindly released previously restricted geotechnical borehole data inherited from the Central Electricity Generating Board (CEGB) and held by the British Geological Society (BGS), from beneath and around their site just south-west of the Ebbsfleet Peninsula. These were combined with other old geotechnical and geoarchaeological data to determine approximate target depths for the new work and to model the deposits over a wider area.

Background

The Wantsum valley, occupying a syncline in the bedrock Chalk and Thanet Beds and presumably eroded by one or more channels in the Pleistocene,



Richborough 1: topographic setting

probably flooded *c* 4000 BC, forming a limb of the sea and separating Thanet from mainland Kent. Its eastern end lay between the Ebbsfleet peninsular and what is now Sandwich. It held the great Roman port at Richborough, but this may already have fallen victim to the Wantsum's gradual silting by AD 449 when, according to the Anglo-Saxon Chronicle, Ebbsfleet was the landing point of Hengist and Horsa (Garmondsway 1972, 12–13). Various later sources place Augustine's 597 landing at Richborough, Ebbsfleet or just 'Thanet' whilst Sandwich Haven was first mentioned in 665 (Colgrave 1927, 29; Hardman and Stebbing 1941, 43).

Around AD 670 Minster Abbey was founded, according to a fifteenth-century source, 'near the sea' (*ibid*, 45). This convent had its own ships, at least two of which were (re-?) built nearby in the mid eighth century, probably at its own port (though this may have been Sandwich). It is not clear whether Sandwich and Ebbsfleet then still lay on opposite sides of a single inlet (as suggested by the confusion over Augustine's earlier landing place), but later references indicate two connected watercourses. Following the abandonment of the convent due to Viking raids beginning in the ninth century, their channel was probably left derelict.

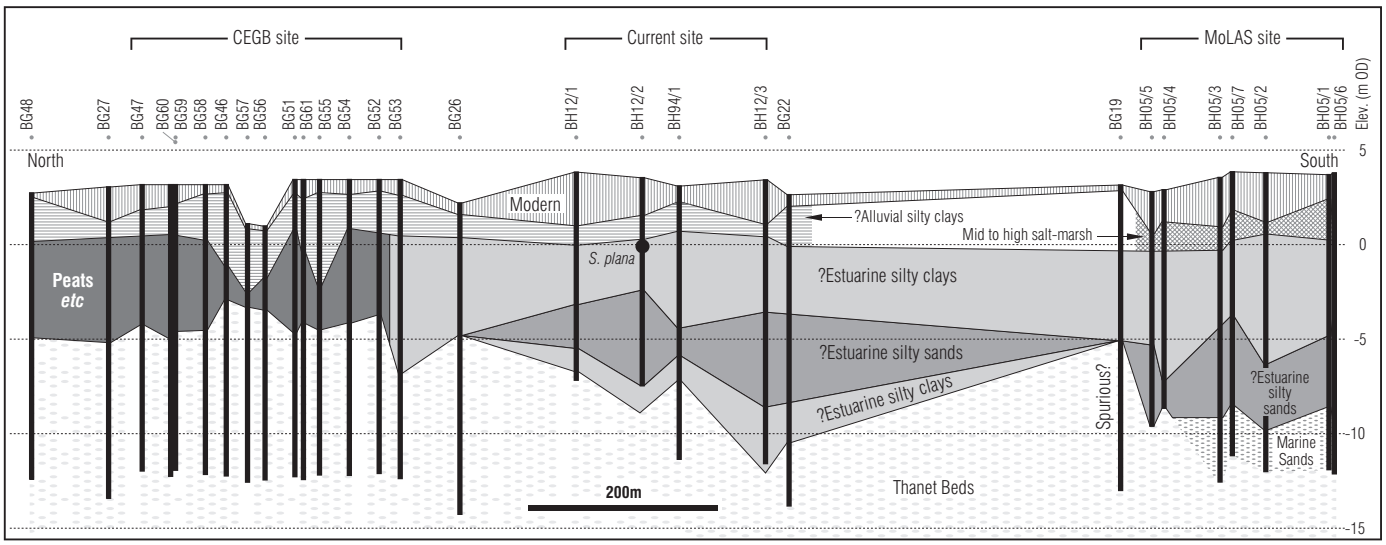
By the early eleventh century, Sandwich was in the possession of Christ Church Priory whilst Minster's estates had passed to St Augustine's Abbey (Davis 1934, 571; Hardman and Stebbing 1941, 47; Tatton-Brown 1984, 19). In 1027, the latter's new Abbot, Aelfstan, found the Ebbsfleet entrance impassable and he sought the right to use that at Sandwich (Hardman and Stebbing 1941, 48). This failed and he was also denied permission for a new wharf, probably at the southern end of Stonar. Finally, he made an abortive attempt to re-open the northern route by cutting a great dyke at Ebbsfleet. In contrast, the Sandwich channel was probably still navigable for its full length by Earl Godwin's fleet in 1052 (Garmondsway 1972, 179). In 1242, after a long struggle between the Priory and Abbey, it was agreed 'for the sake of peace ... that for the future there be free access by ship to the channel of Minster by the river of Sandwich' (Davis 1934, 208).

Meanwhile, broad shingle spits spread across the Wantsum's eastern end, probably through a combination of on-shore and long-shore drift: the latter working northwards from around Deal and, for a while perhaps, southwards from Pegwell, although the more general trend is northwards (Hardman and Stebbing 1940, 73–74; Hearne *et al* 1995, 241–242; Spurr 2005, 21). Tidal mud-flats formed behind these banks and gradually developed into salt marsh suitable for inning (reclamation) as pasture. The loss of most of the flow which had passed through the Ebbsfleet channel and its consequent deviation through the longer (and thus lower gradient) Sandwich route would have exacerbated this silting. In 1266 mills were burnt at Stonar and Ebbsfleet (Hearne *et al* 1995, 249): these were probably tidal-powered and would have worsened the silting still more. By 1313 even Minster's link to the Sandwich channel had been sacrificed to inning (Dowker 1897, 135–136).

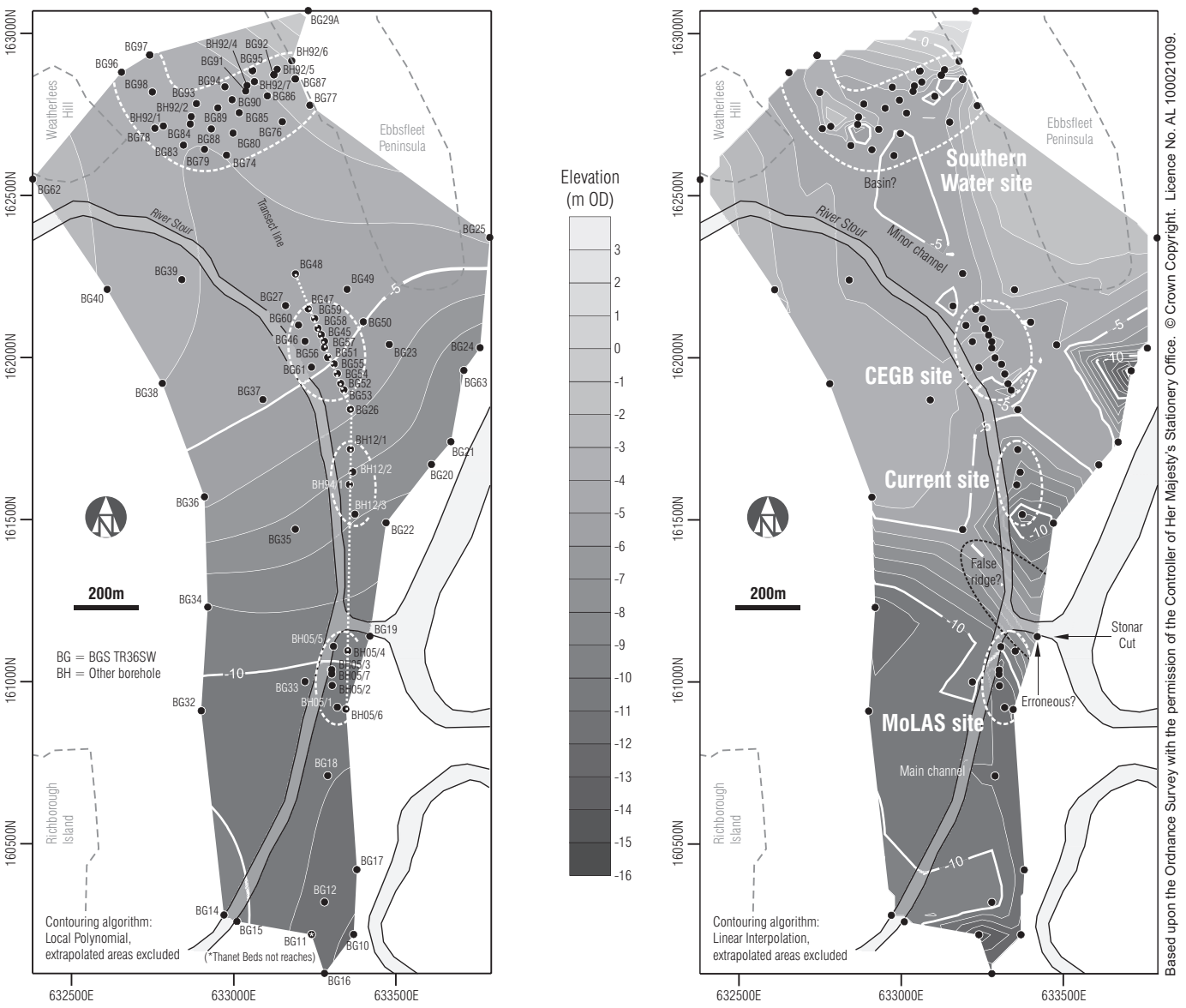
By the sixteenth century most of the Wantsum had silted up or been reclaimed and it was no longer navigable to large vessels (Hardman and Stebbing 1940, 73–74), though an ambitious scheme was mooted, *c* 1548, to create new straight channels east and west of Sandwich and a mole, which would have combated the longshore drift, by the new entrance and a new haven for Sandwich was proposed *c* 1574 (NA SP 16/154/31). A more detailed map of 1775 shows no northern inlet to the Stour between Weatherlees Hill and the Peninsular, although there is one apparently draining the former and another, labelled 'Minster cut', to its west (Hardman and Stebbing 1940, opp 69). To improve drainage, the Stonar Cut was opened about this time, short-circuiting the Stour's long final meander and, effectively, finally admitting defeat in efforts to keep open the approach to the Cinque Port at Sandwich.

Early geomorphology

Borehole data show the Thanet Beds falling from around -5.2 to -3.0m OD under the CEGB site to about -6.5m to -8.0m OD at the Ramsgate Road site (Green *et al* 2012) and thence to -12.0m OD just south of the Stonar Cut. A study by the Museum of London Archaeology Service (MoLAS), centred on



Richborough: north–south borehole transect (vertical scale exaggerated x20).



Richborough: levels on Thanet Beds.

a site just south of the Cut, had already traced this general profile (Spurr 2005; id 2006) and extended it southwards but, with very limited data from north of the Cut, had not appreciated the unevenness of the bedrock in the northern area. However, an auger transect by Wessex Archaeology on a Southern Water site between the Ebbsfleet peninsular and Weatherlees Hill shows a clear depression between them (Hearne *et al* 1995, 245, 258–260) and this becomes more pronounced when one includes data from geotechnical boreholes (BGS TR36SW74–98) sunk for the same development.

Applying some contouring algorithms (such as Local Polynomial) to OD values on Thanet Beds results in a smoothed-out overall surface, which clearly shows the north side of the main depression underlying the Wantsum with, perhaps, an inlet to the north. However, other algorithms (such as Linear Interpolation) retain finer detail and suggest the presence of a shallower channel passing beneath the CEGB and Southern Water sites and, perhaps, widening into a basin. It is possible that this valley was purely a tributary, formed by drainage from Thanet's southern margin, but it seems more likely to continue westwards, under the Minster Marshes and to have been an earlier, northerly route for the Pleistocene channel or to represent its splitting into two or more channels perhaps influenced by a minor fold in the underlying chalk. Being shallower, it would have flooded later than the southern channel. Its route may have influenced that of the historic Ebbsfleet channel and the possible basin might represent artificial enhancement of a naturally sheltered anchorage.

In addition, algorithms in the second group retain a suspiciously high value for the top of Thanet Beds in BGS borehole TR36SW19 (which probably lay just south of, rather than, as indicated by the supplied coordinates, within the Stonar Cut). This results in a possibly false ridge being drawn between it and TR36SW35. If the former borehole's data is erroneous (the typed log merely records 'Grey Sand' from -5.08m OD to the borehole base at -13m OD, only a pencilled annotation identifies it as Thanet Beds), the current site is probably over the northern bank of the main channel, though lacking the marine sands found farther south. If, instead, it is correct, it places the current site within the northern channel's deeper mouth.

Silting up

On the MoLAS site, a consistent series of Holocene sediments had been identified overlying the Thanet Beds. At its base, generally between -12.0m and -9.5m OD, were marine beach sands overlain by sandy silts and clays passing up to silty clays, representing a progressive transformation from estuarine mud and sand flats to low salt marsh. A radiocarbon date of 2130–1880 BC was obtained from near the top of this sequence. These deposits were overlain, from about -0.5 to +2.3m OD, by organic clays representative of mid to high salt marsh. A similar sequence, but with estuarine(?) clays in place of the basal sands, was recorded in an earlier geotechnical borehole on the current site

Ramsgate Road, Richborough: *c* 1610 copy of a *c* 1548 proposal for improving the course of the Stour. North is to the bottom. © British Library Board. Cartographic Items Cotton MS. Augustus I.1.54.

(Mills 1994; BH94/1) and at neighbouring positions (BGS TR36SW22, 26 and 53). No basal sands were found in the new work (BH12/1–3), though a little sandy gravel, perhaps an extension of the Stonar Bank shingle, was found at the bottom of BH12/2. For much of the medieval period, the Ramsgate Road site would have been in the intertidal zone, within an estuarine environment at the eastern end of the Wantsum. The intertidal species Scrobicularia plana (peppery furrow shell) was found in BH12/2 between -0.46 and +0.28m OD, suggesting estuarine conditions prevailed until very late in the sequence. With regard to this it may be noted: that one end of the stretch over which Sandwich could claim water dues was, in 1023, called Peppernass (British Library Stowe Ch 39; Hardman and Stebbing 1941, 46–47); that, with variant spellings, it was shown on the southern side of the Stour's mouth in *c* 1548 (British Library Cott.Aug.I.1.54), *c* 1585 (British Library Royal MS 18D.III. f22; Hardman and Stebbing 1941, pl I) and in 1596 (Hannen 1914, opp 85); that this was still called Pepperness in 1941; and, though the Ordnance Survey now show it as Shellness, that S plana currently forms a major component of the shell bank there (Andrew Linklater, pers comm).

On the Southern Water site, Wessex Archaeology had identified Thanet Beds at around -1.7m OD, on the Thanet side of the northern channel, overlain by high salt marsh dated to *c* 3500–3300 BC and probably representing a marine transgression (Hearne *et al* 1995, 307–308; Spurr 2005, 21–22). This was covered by middle salt marsh developing, probably by the Roman period, into estuarine mudflats which were eventually sealed, at around 1–1.6m OD, by alluvial(?) clay. Within and flanking the northern channel, the CEGB data show the Thanet Beds are mainly overlain by about 5m of peaty silts, interspersed with clays and gravelly sands. The Southern Water geotechnical logs have not been examined in such detail, but there too the Thanet Beds were overlain by a mixture of peats and clay silts. The logs are insufficiently detailed to determine whether the peats equate to the lower parts of the Wessex sequence but the CEGB ones, at least, were capped (and perhaps partially cut into) by what were probably alluvial silty clays, generally at about 0.0 to +2.7m OD. These peats (a trace of which may have survived in BH94/1) may also be equivalent to the mid to high salt marsh identified to the south by MoLAS but the other deposits, including deeper alluvial(?) silty clays, might relate, at least in part, to activities within or flanking the historic Ebbsfleet channel if this was indeed its route.

The writer would like to thank TW Services Ltd (who funded the Richborough work) and their consultants Lee Evans Planning, National Grid plc, the BGS, Andy Linklater, Keith Parfitt and the QUEST team, upon whose report this article draws.

Folkestone Roman villa

Keith Parfitt

The second season at the East Wear Bay Roman villa (NGR 62407 13700) ran between May and November 2011. The excavation is a major component of a three year Heritage Lottery funded community project entitled 'A Town Unearthed: Folkestone Before 1500' (ATU). The excavation is being undertaken by volunteers led by Trust, working in association with Canterbury Christ Church University and the Folkestone People's History Centre. Additional funding for the work has come from the Kent Archaeological Society and the local Roger De Haan Charitable Trust.

Starting in mid July, we worked more than 130 days on site, with some very significant results. The excavations took place across a piece of ground in front (ie south-east) of the main villa house. This was the area assumed to have once been occupied by the villa courtyard and gardens where ornamental features such as pools or statues might have been located. It is also that part of the site most imminently threatened with collapse into the sea. Previously, during the excavations of 1924, S E Winbolt and his team had looked only very briefly here and found nothing of interest (Winbolt 1925).

The area examined in 2011 measured about 16 by 14m, set in the angle between the front corridor wall of the villa's central range and its projecting north-east wing. This area was found to be free from any significant modern disturbances beyond the continuous narrow trench cut around the outside of the main walls by Winbolt and a Second World War dug-out.

The new season's work re-affirmed the findings of the previous year and again demonstrated that a substantial thickness of stratified archaeological deposits exist on this part of the site. In fact, the deposits here were found to be even more developed than in the 2010 area, with a recorded thickness of up to 1.75m below the base of the modern topsoil. This is a quite remarkable build-up of deposits on what is essentially a rural site. Investigation established that much of the accumulated soil derived from habitation before the construction of the Roman villa complex.

The first major feature encountered was an extensive layer of rubble representing the final courtyard surface of the Roman villa, and this marked the start of a long stratified sequence going back into prehistory. At the base of this sequence, the surface of the natural Gault was sealed by a succession of clay deposits producing significant amounts of struck flint, flint-tempered prehistoric pottery, animal bone and marine shell, although there were only two small associated features.

The surface of the uppermost clay layer was cut across by a sunken, metalled trackway (christened by the diggers the 'Rocky Road'), running north-west by south-east and associated with pottery provisionally dated to around 100 BC. At some stage a child had been buried by the side of this track. A short distance further to the north-east was a substantial subrectangular oven pit. These

Volunteers working on early Roman levels below the villa, looking west.

discoveries, together with a scatter of odd post-holes, appeared to represent the earliest features of a settlement continuously occupied throughout the late Iron Age and into the Roman period.

Eventually, the trackway went out of use and the hollow became filled with soil and domestic rubbish. At one point a pit had been cut into these accumulated soils to allow the insertion of a burial urn containing cremated bone. Subsequently, the levelled area became occupied by hearths and chalk floors relating to two separate timber buildings, each one rebuilt several times but neither very large or of substantial construction. Traces of a possible four-post structure, perhaps a raised granary, were also recorded close by. All these structures would seem to date from the late first century BC.

After the timber buildings had gone out of use the area was cut across by a succession of ditches, running on various axes. These probably served to delimit rectangular fields and enclosures, further traces of which had been found during trenching to the north-east of the villa in 2010. Some of the ditches were of substantial proportions and the latest ones discovered in 2011 seemed to be early Roman in date. The final ditch in the sequence had been deliberately backfilled, probably sometime during the late first century AD, to make way for the construction of the first villa.

Once the ditches were levelled, the 2011 area was covered by more soil and clay before rough, patchy metalling was laid down as a courtyard in front of the Roman villa. No evidence of any associated garden or ornamental features was discovered and the whole arrangement appeared somewhat work-a-day and lacking much refinement. The metalling did, however, yield one important find – an engraved gemstone, found near the main entrance. This had presumably been lost by someone entering or leaving the house, becoming trampled into the pebbled yard

Staff and volunteers working on the late Iron Age levels, looking north, while Kate delivers a tour.

'The Rocky Road', looking north-west.

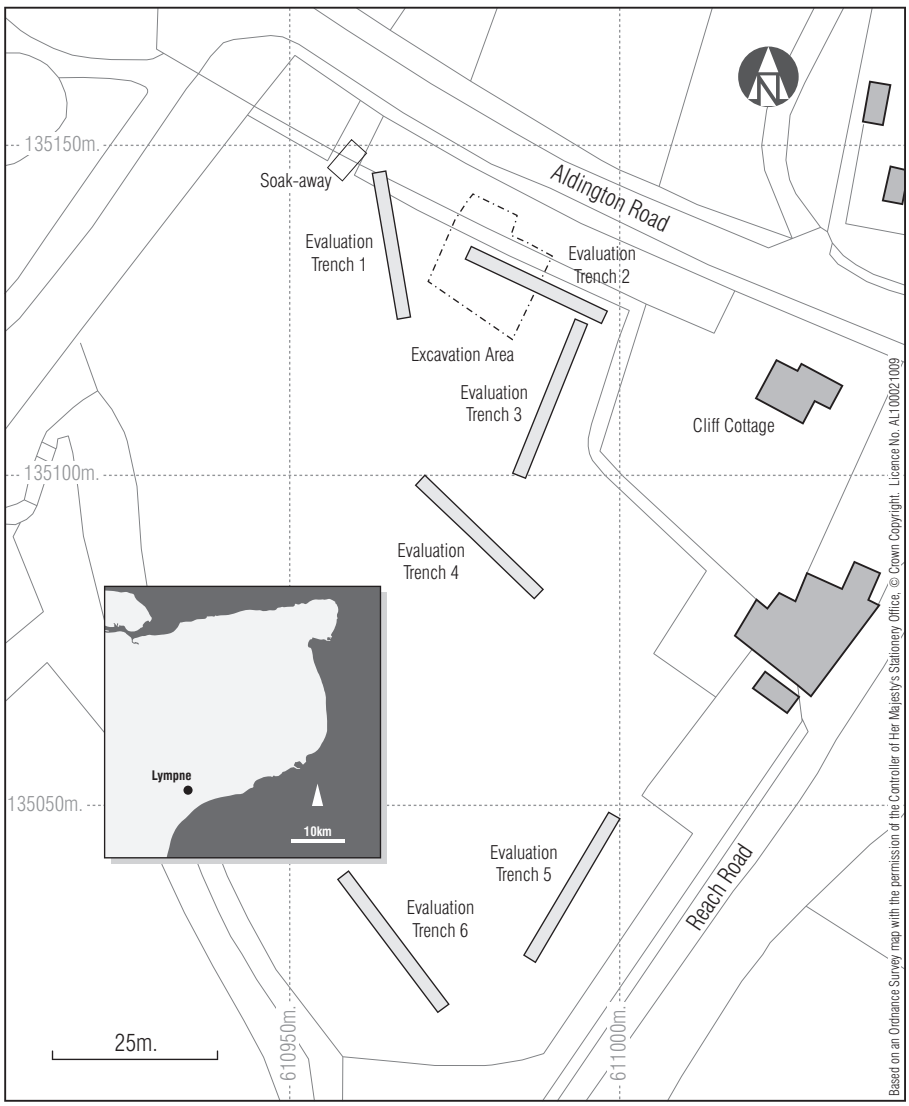
surface without being noticed. On the north-east side, during the earlier part of the fourth century, the yard became covered by a mixture of abandonment soil, building debris and accumulated domestic rubbish. Quite clearly, this part of the courtyard was now out of use. Subsequently, a section of the villa roof collapsed onto the courtyard, followed by masonry from the walls. It would seem that at least part of the villa was by then ruinous and unoccupied.

Later, however, the roof-fall, collapsed masonry and soil and debris layers over the courtyard were all sealed by a deliberately laid rubble surface which seemed to constitute a new (upper) courtyard. Interestingly, mortar fragments and obvious building stones were scarce, suggesting that much of this material did not come from demolished walls of the villa. Along the south-western side of the excavated area, closest to the main entrance into the villa, the new rubble layer occurred at two distinct levels. Nearest the building it existed as a clear platform, the outer edge of which lay some 6.25m forward of the front wall. A sloping rubble bank around 0.30m high separated this raised area from the remaining spread. As well as pottery and animal bone, the soil matrix in which the stones were set produced eight coins. Their dates indicate that the rubble cannot have been laid before the mid to late fourth century AD. It is not entirely clear what was going on then but the heyday of the Roman villa had certainly passed and the new courtyard may have been laid down as a work area after the main house was abandoned.

A thin layer of dark soil accumulated over the rubble surface. This contained much broken pottery, animal bone and marine shell, together with a further nine coins, all of which are of fourth-century date, one perhaps being as late as *c* AD 390. The general absence of the very latest Roman coin issues reaching Britain, however, suggests that activity on this part of the site did not continue much into the fifth century. After the villa was finally given up the site appears to have remained largely unoccupied until the present day.

A significant quantity of finds was recovered from the 2011 excavation. The bulk of the material consists of pottery, animal bone, marine shell, Roman roofing tile and prehistoric flintwork. There are also more than 800 registered small finds, including coins, brooches, glass, iron implements, rolled lead weights probably from fishing nets and quernstone fragments. Of special interest are the engraved gemstone, four pieces of a small Mother Goddess figurine, a complete iron writing stylus, a decorated Iron Age bead of blue glass, and an important collection of thirty-six Iron Age coins.

The second season's work at Folkestone has yielded some remarkable results and show that a great deal of new information is still to be recovered from this long-known site. It is clear that the excavated Roman villa complex occupies the site of a much older settlement, which as yet has seen only limited investigation. Intact stratification, untouched by previous excavation, would appear to survive across much of the area but the entire site is ultimately threatened by coastal erosion. Without doubt, much more work is warranted here.



Otterpool Campsite, Lympne: site location plan.

Otterpool Campsite, Lympne

James Holman

During late February to early March 2012 excavation took place in part of the Port Lympne animal park (NGR 610977 135094) prior to the creation of a new campsite. Initially the project was to comprise six evaluation trenches cut over the parts of the development where significant groundworks were to take place, but following the discovery of archaeological remains, the tight schedule of work (the camp-site was due to open in mid May) led to one of the trenches being enlarged immediately so that a small open area excavation could take place.

The site lies immediately adjacent to the south-west side of Aldington Road, the route of which follows the line of the Roman road between Lympne (*Portus Lemanis*) and the roadside settlement of Westhawk Farm (Millett 2007, 149). To the south of the site an Anglo-Saxon cemetery was located in about 1828 during quarrying. The burials included grave goods such as spearheads, swords, shield fittings and buckles as well as pottery and glass vessels (Richardson 2005, 49). Lying to the north of the development area, on the other side of Aldington Road, is 'Bellevue', recorded by the Moated Sites Research Group as the location of a moated manor. In 1961 the surviving remains of a timber barn relating to this manor were recorded, but already roofless and much decayed, it was demolished soon afterwards (Kent HER).

During the evaluation four trenches (1–4) were cut in the northern and central parts of the site over the locations of a proposed new car park, access road and service building. Trenches 5 and 6 were cut to the south in an attempt to locate traces of the Anglo-Saxon cemetery. In the event, despite the proximity to the Roman road no remains dating to this period were identified and no trace of the cemetery was found. The southern part of the site clearly had been terraced and any archaeological remains removed.

Medieval remains were identified in trenches 1, 2 and 4 and trench 2 was expanded to form the excavation area. The earliest feature on the site appeared to be a hollow way that extended at roughly 90° from the line of Aldington Road, running from north-east to south-west across the site. Probably of similar date was a series of pits, with two excavated in evaluation trench 1 and four in the excavation


The site during excavation.


The large medieval refuse pit. Scale 1m.

area. All contained large quantities of medieval pottery, though only two were cut as refuse pits. One of these contained a semi-articulated animal burial. The remainder were cut as cess-pits, later backfilled with domestic rubbish. Most were too deep to excavate fully with hand augering suggesting that some were up to 2m deep.

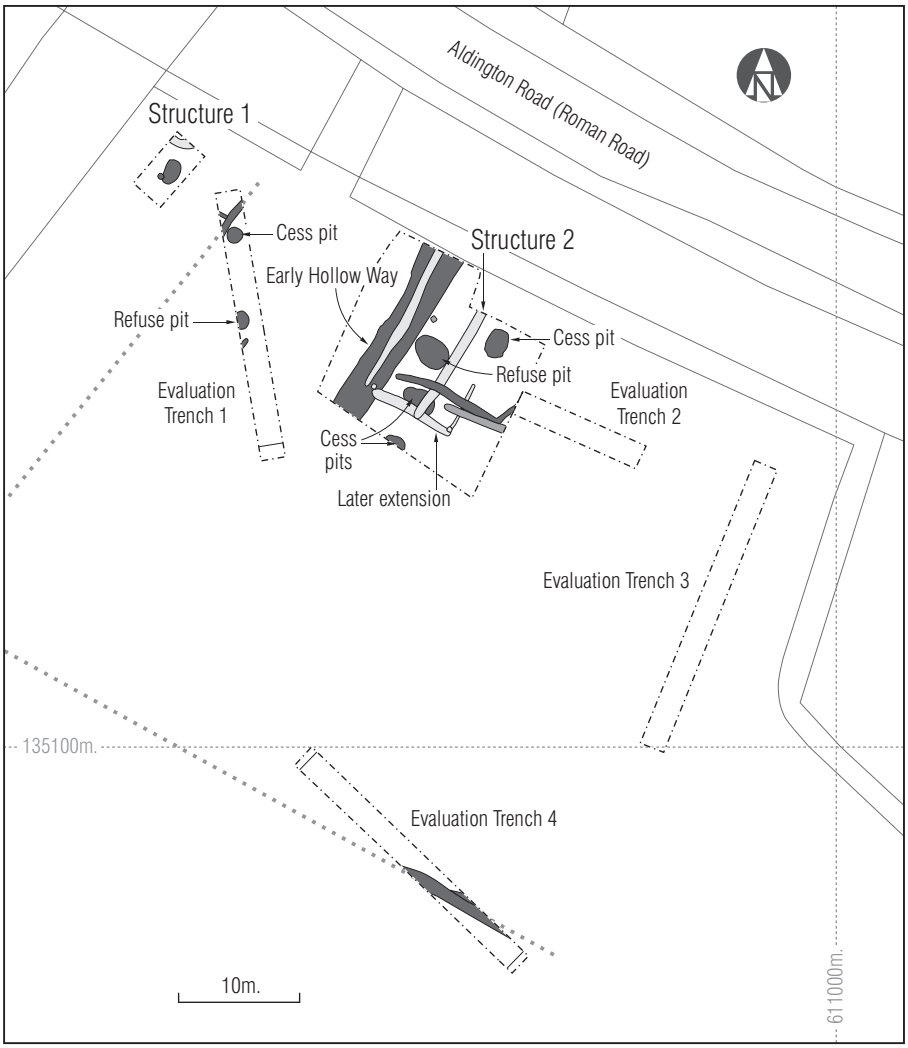
After the pits had gone out of use and backfilled, two buildings were constructed. The first, structure 1, was discovered within a soak-away cut adjacent to evaluation trench 1; only one corner of this was identified with the remainder lying outside of the excavation area.

The second building, first identified during evaluation, lay within the main excavation. It comprised a series of linear trenches, each of which would have contained a substantial timber ground beam for the superstructure of the building. Initially the structure covered an area some 8.25m wide by 13.25m long with its northern wall beyond the area of excavation. It was aligned on a similar north-east to south-west axis to the hollow way, though the western foundation trench appeared to cut through the centre of this feature indicating that the route had gone out of use before the structure was built. An extension of the southern wall and a further less substantial ground beam to the east appears to indicate a later addition to the building. This extension was small by comparison with the main building, covering an area only 3.35m wide by 4.8m long and with one open side. The building may have lain within a rectangular enclosure represented by two ditches located in evaluation trenches 1 and 4.

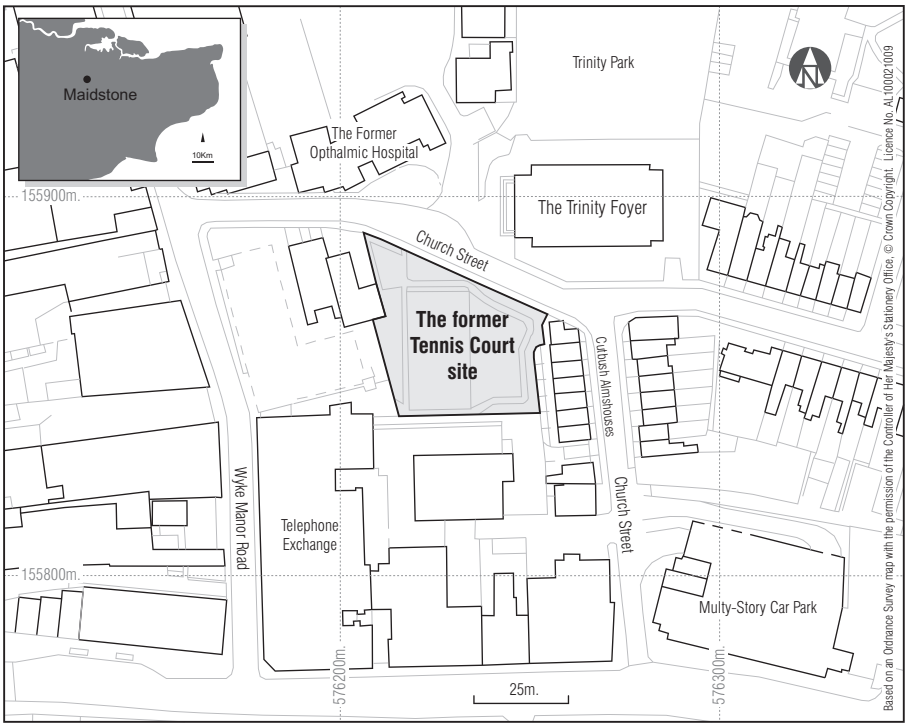
Preliminary dating of recovered pottery suggests that medieval activity on the site began in the thirteenth century and continued through to the mid fifteenth. Only a handful of other finds were recovered; a small whetstone, a glass bead and a couple of unidentified copper alloy objects. One of the latter was unfortunately lost when high winds caught the plastic bag it had been placed in and blew it across the site into the nearby cheetah enclosure. There were no volunteers to retrieve it... The building itself was likely to have been agricultural with environmental data suggesting that crop-processing was taking place in the vicinity (pp 82–3). It seems to have been demolished during the fifteenth century. Together with the earlier pits and the enclosure, it could well have been associated with the nearby moated manor.

Following the demolition of the building the line of the hollow way appears to have been re-established, removing the top of the western wall foundation of Structure 2, and continuing in use until the latter part of the eighteenth century. After that, the route was backfilled with large quantities of ragstone and the area reverted to open pasture. This ragstone may have come from quarrying to the south of the site which removed much, if not all, of the Anglo-Saxon cemetery during the early part of the nineteenth century. It is likely that the terracing identified in trenches 5 and 6 also related to this activity.

The archaeological works were carried out under the direction of the writer with the assistance of Russell Henshaw, Hazel Mosley and Ross Lane. Thanks are extended to the Howletts Wild Animal Trust for funding the archaeological works and to Ben Found of Kent County Council for his assistance.



Otterpool Campsite, Lympne: excavated features.



Church Street site location plan (scale 1:2000).

Church Street, Maidstone

Laura O'Shea

During February and March 2012 excavation took place on land formerly occupied by a tennis court and gardens adjacent to Church Street, Maidstone (NGR 576229 155861, centred). The work followed an earlier evaluation and strip and map exercise, commissioned by Golding Homes Ltd in advance of redevelopment for housing.

The initial evaluation revealed late prehistoric to early Roman activity in the form of three ditches located within the eastern area of the site. Based upon these findings it was decided that full-scale excavation should take place within the central and eastern side of site, comprising a relatively small roughly rectangular-shaped area.

The site is situated to the immediate east of Maidstone town centre on gently sloping ground, approximately 21–23m above sea level. To the west is the River Medway and the main Roman road that linked Rochester to the iron-rich Weald and beyond. The site would therefore originally have benefitted from commanding views across the river as well as access to a good communication network. Whilst the medieval settlement of Maidstone is assumed to be largely bound by the river and to the south by the Archiepiscopal Palace, the full extent of the earlier prehistoric and Roman settlement remains unknown. Prior to evaluation, no significant prehistoric data had been recorded from the immediate vicinity of the site other than in the form of occasional find-spots. Roman artefacts and possible buildings have been discovered within the general locale and activity relating to medieval occupation was noted in advance of the development of the former Ophthalmic Hospital, situated directly to the north of the site.

The present site was part of open fields until the nineteenth century, when it was laid out as formal gardens. The extensive stone walling forming the northern boundary of the site is the sole remnant of the garden of Thomas Cutbush on whose land almshouses (immediately west of the excavation) were built in 1865. A tennis court, complete with terracing and landscaped surrounds, was built in the early twentieth century and the development area was cleared of numerous trees and overgrown shrubs prior to the evaluation in November 2011.

Machine-stripping revealed a series of well-preserved ditches, pits and post-holes which were all sample excavated. The earliest evidence for activity on site comes from the presence of a series of late Iron Age ditches identified towards the eastern boundary of the site. Although these features were a clear indication of early land division, their precise function remains unclear. They were all on the same alignment (north-east to south-west) and later ditches were also aligned in this direction. They may represent a settlement boundary. They contained pottery of a roughly similar date (late Iron Age) suggesting they were cut one after another over a relatively short period of time, re-establishing the boundary. Other finds retrieved from the ditches included a few fragments of metalwork, in particular a fine example of a complete Roman brooch (dated to *c* AD 50) as well as two Roman coins.

Further west an enclosure ditch on the same alignment was identified, stretching for 28.5 metres across the excavation area with an entrance to the north 3.5 metres wide. This was the only part of the ditch exposed during the excavation, so the full extent, shape and size of the presumed enclosure remain unknown.

Lying between the enclosure ditch and the eastern boundary ditches was another ditch, running on the same alignment about 1 metre west of the eastern ditches. This varied between 0.5–0.9 metres wide and had a maximum depth of 0.29 metres with a shallow scooped profile. Its fills produced pottery of late first to early second century date, suggesting a Romano-British continuation of the earlier boundary division.

Immediately west of this were three shallow post-holes forming an alignment running roughly parallel with the southern part of the Romano-British ditch. They could not be dated, but appear to be related to this to this north-east to south-west land division.

A cluster of five subcircular pits was located within the western area of site, west of the earlier enclosure ditch. They were just over a metre in diameter, apart from one more substantial pit over

Recording one of the late Iron Age ditches. Looking north.

Intercutting ditches. Scale 1m.

One of the Roman pits. Scale 1m.

A Roman key from one of the pits.

A brooch recovered from one of the ditches.

two metres in diameter which cut the late Iron Age enclosure ditch. Pit depths ranged from 0.39 to 1.37m. Each pit contained a similar sequence of deposits indicating the disposal of domestic and human waste. Environmental samples taken from the fills (p 89) confirmed that they had served as cess-pits, but not exclusively, as metalworking and domestic waste residues were also retrieved. Pottery from the pit fills has been dated to the late Iron Age through to the second and third centuries AD. Two items of note were recovered from the lower deposits of two of the pits: a large Roman key and the base and lower section of a white pipe-clay figurine. The presence of this pit cluster suggests a settlement within the vicinity and there is good potential for further archaeological features to be located beyond the western limits of the excavation.

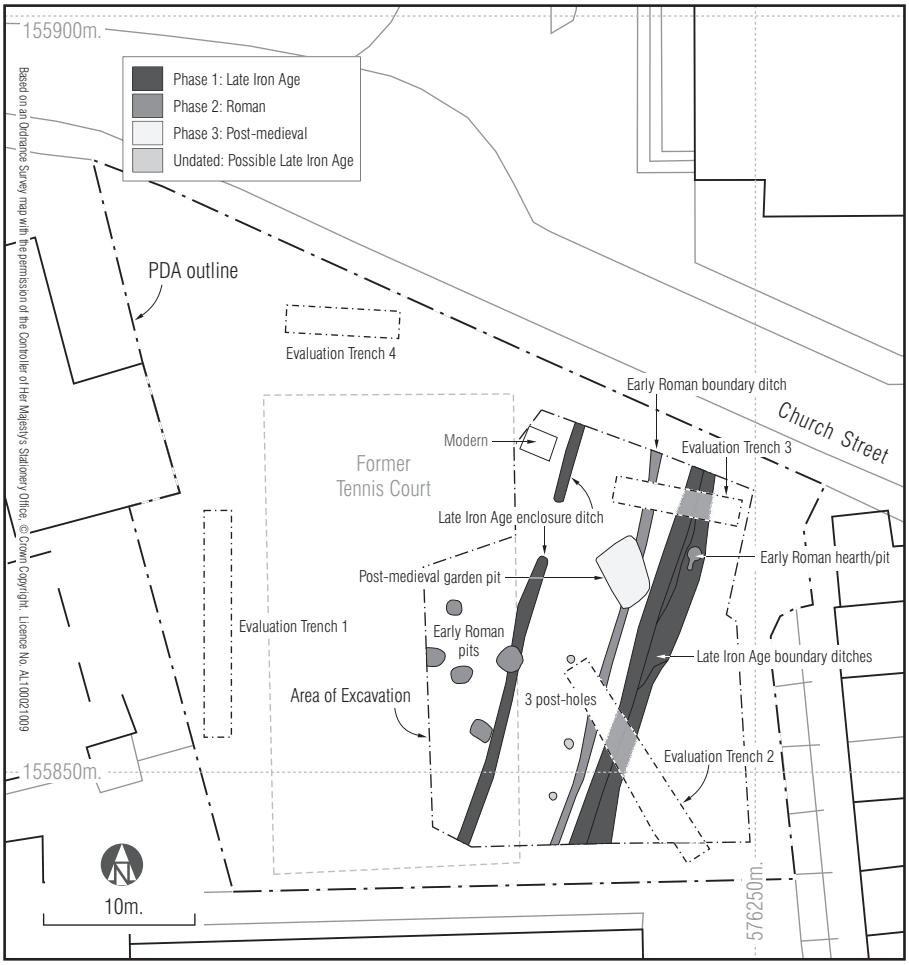
Other features included a possible hearth located within the north-eastern corner of the site set on the infilled late Iron Age boundary ditches, surrounded by a spread of daub and yellow clay mottling. Redeposited clay formed a roughly circular outline with a possible flue entrance infilled by carbon and frequent pottery sherds of early Roman date. Environmental sampling revealed a fair quantity of daub or heat-affected earth, presumably part of the hearth fabric, though the feature had been heavily truncated by later activity.

Much later in date was a large subrectangular shaped pit located towards the centre of site,. It contained fragments of post-medieval clay pipe, peg-tile and coal and it is likely this feature was a garden or cess-pit perhaps associated with the Victorian almshouses.

A large amount of pottery (over 8kg) was recovered from site. This was mostly dated to the late Iron Age (late first century BC–early/mid first century AD) and included native 'Belgic' types and occasional imported early Gaulish fine-wares. Less than 40 per cent of the assemblage was dated as Roman and appears to be of mainly first- or second-century date, although some material could date to the third century.

The excavation at Church Street has proved to be of high archaeological potential and has added considerable new data to the emerging picture of Maidstone's late prehistoric and early Romano-British past. The site has clear elements of boundary and enclosure development indicating land division, as well as settlement evidence in the form of domestic rubbish pits during the late Iron Age and early Roman periods. It would appear that this area was left relatively undisturbed from the third century AD right through to post-medieval times when the area was open fields until becoming formal gardens in the nineteenth century.

The author would like to extend thanks to the excavation team of George Carstairs and Paul Tasker for their assistance and support on site



Church Street archaeological features (scale 1:500).

This figurine base came from another of the Roman pits.

BUILDING RECORDING AND RESEARCH

Diocesan and Payne-Smith School, Broad Street, Canterbury

Peter Seary

Diocesan and Payne-Smith School, south wing.

The buildings of the Diocesan and Payne-Smith School were assessed on behalf of the King's School. The buildings (formerly those of Canterbury's National Schools) stand on the site of the extra-mural ditch, between the city wall and Broad Street approximately mid way between Northgate and the ancient Queningate. A bastion projects into the playground, and the medieval and later water supply enters the Cathedral Precinct just to the north-west of this. Interestingly, one of Canterbury's archery butts, which was erected over the city ditch in 1518, probably extended into the site of the present playground.

By the mid seventeenth century, various buildings and enclosures had encroached upon this part of the ditch, and, throughout the eighteenth century, the city leased it out in various parcels. During the early nineteenth century, many of these were occupied by builders and other tradesmen, responsible for Canterbury's expansion. These included a carpenter's shop and yard, with outbuildings and a small house, on the site of the present playground. Following an Act of Parliament in the 1830s, the city sold the parcels into private hands.

In 1845, three of the parcels were purchased by the Trustees of the Diocesan Society for the Education of the Children of the Poor throughout the Diocese of Canterbury as the site for new National Schools, to replace those occupying the former County Gaol on St Dunstan's Street. National Schools were the responsibility of the National Society for Promoting the Education of the Poor in the Principles of the Established Church in England and Wales, and were overseen, in part, by local clergy. They represent an attempt by the Church of England to recover ground lost to the rapidly spreading, non-denominational British Schools, and employed a similar system of monitorial teaching. The site was to house three new schools, for 180 boys, 180 girls, and 180 infants, respectively.

Roof construction in the south wing.

In 1846, the young Gothic revivalist William Butterfield (1814–1900) was appointed architect of the new schools – perhaps partly on the strength of his recent work at the nearby St Augustine's College. The resulting buildings would be typical of his early work, showing many similarities of detail with St Augustine's, and also with one of Butterfield's early vicarages, at Coalpit Heath, Gloucestershire (*c* 1844). They blended local materials (and to a lesser extent local building styles) with Butterfield's vocabulary of widely distributed gothic prototypes and occasional curious inventions.

The schools were built by the Canterbury builder, Edward Homersham, between November 1847 and probably November 1848; they opened in January 1849. The existing buildings on the site were demolished and the ditch backfilled to street level. In plan, the main schools building comprised two wings at right angles. The girls and infants had their schoolrooms in the ground-floor rooms, respectively, of the north and south wings, the boys on the first floor of the south wing, reached by an external stair. The first floor of the north wing contained flats for the school mistresses, together with their kitchen, scullery, pantries, and water closet; its roof has been altered, but would originally have been of similar slope to that of the south wing, punctuated by small, mullioned windows in gablets.

A low 'stair turret', housing the main entrance lobby, rose in the angle between the wings, on the Broad Street side.

The walls were of brick, faced with ragstone rubble, rendered and painted internally. Quoins, window surrounds and other dressings were of Caen stone. Timber-work was of oak and Memel fir, both high-quality materials and mainstays of Butterfield's architecture (Thompson 1971, 178). Exposed oak, in the schoolrooms, was varnished 'to bring out the grain'. The roofs and dormers were clad with white Brabourne tiles, perhaps, like the ragstone, chosen because they were traditional local building materials.

Butterfield provided each schoolroom with windows of a different, more-or-less gothic, design. Because of the distribution of these rooms, different kinds of window occurred in differing combinations in each elevation, contriving the variety and asymmetry favoured by Butterfield and other gothic revivalists. The infants' schoolroom was lit by pairs of small lancet-like windows, subdivided by transoms – an odd design Butterfield had also used at St Augustine's and at Coalpit Heath. The boys' schoolroom was provided with a large, decorated-traceried window, with cinquefoil heads and dagger-like lights, in its gable end. The windows were glazed 'lozenge wise'

Detail of a mid nineteenth-century plan of Canterbury (CCA-DCc-PLAN/CANT/138).

with lead cames, with York-stone window seats internally. Each school was provided with a heavy Riga wainscot door, with a fourth at the Broad Street entrance.

All three schoolrooms were similar in plan, sixty feet long by twenty-four wide, but the boys' and girls' schoolrooms were considerably loftier than the infants'. They had inch-thick floorboards, deal skirting boards, and may have been provided with plain wainscoting. They had strikingly simple ragstone fireplaces with stone fenders – the chimneypieces of ashlar with drafted margins; flat-arched with a plain key. The girls' and infants' schoolroom ceilings, were carried by exposed, varnished spine beams resting on rows of timber posts, with diagonal up-braces. These timbers were a typically odd Butterfield feature, far too slender for the building's 'gothic' pretensions – aesthetically unsatisfactory, perhaps, but providing a relatively unobstructed view.

The boys' schoolroom, on the first floor, was open to the roof; its principal rafters, wall plate, and purlins were similarly planed and varnished for display. It was of collar-braced form, which Butterfield favoured early in his career: the collars were carried on pairs of curved braces, which, disconcertingly, lacked corbels and wall posts. 'Butterfield preferred a clear start to the roof at the top of the wall' (Thompson 1971, 181) and, in this case, brought the braces straight down onto the wall plate, compensating for this weaker construction with iron screw bolts throughout the truss. The feet of the braces were presumably, as today, concealed behind ashlering, presumably clad with timber like the common rafters. Above each collar rose a king post, with a pair of outward curving struts.

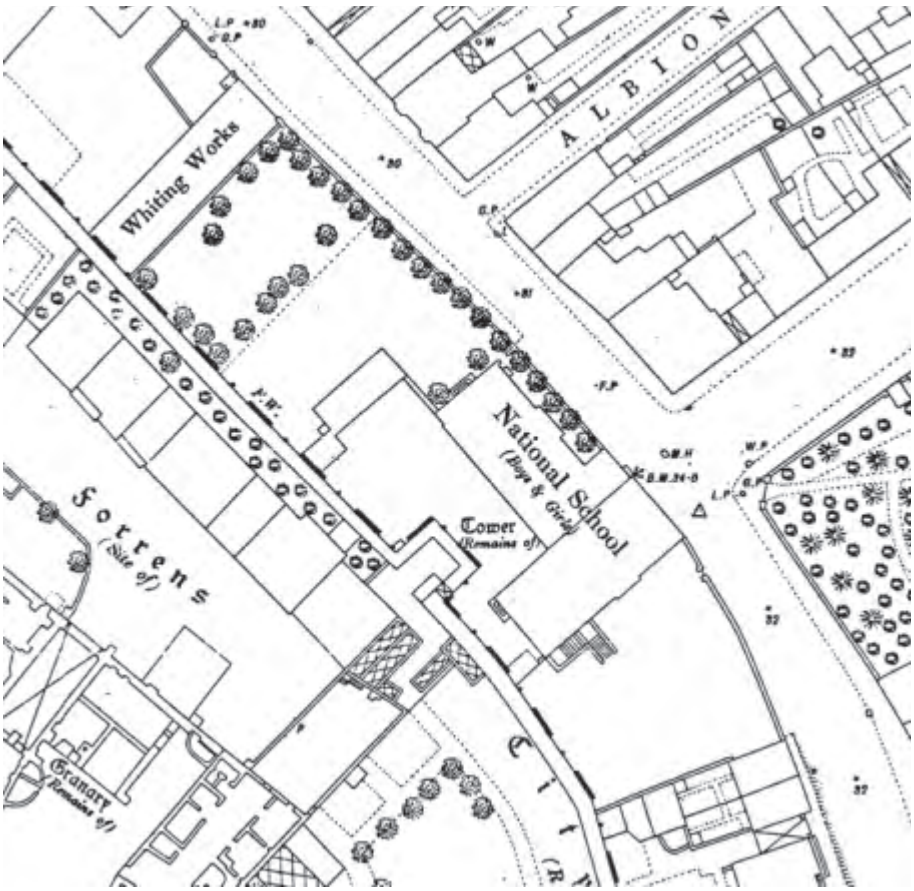
Each school had its own playground, segregated by walls, privies, and ancillary buildings. That for the boys lay to the south of the building, the girls' playground to the north and the infants' between the school building and the city wall. They were closed off from Broad Street by the present ragstone boundary wall, with a chamfered Caen-stone coping.

Education at the Diocesan Schools would have been in many ways quite dissimilar from that experienced today – not least in its pervasive religiosity: doctrine, liturgy, and Biblical history were considered at least as important as literacy or numeracy. The whole of each school would have been taught in groups dispersed around its single large schoolroom, probably seated on U-shaped arrangements of forms, and with parallel rows of desks at one end of the room for writing practice. Very likely, the Diocesan Schools would have opened following Dr Bell's monitorial system fairly faithfully, as stipulated by the National Society, with the general teaching carried out by monitors under the master's supervision. An exception was the Infants' School, where the master would sometimes teach the whole school 'simultaneously', seated on a gallery – a relatively recent innovation – with the older pupils, presumably, at the back, and the younger at the front.

Early on, a series of alterations to the school buildings began, reflecting changes in teaching practice, sanitation, and the increasing influence of the miasmic theory of disease. From the mid nineteenth century, partitions were inserted forming classrooms, distinct from each schoolroom. In 1880, a house for the master of the school was built against the north-west side of the site. The gable end towards Broad Street was of ragstone, but the other sides were of red brick, with sandstone quoins and mullioned windows. The distinctive casement lights were of cast-iron, in imitation of lead cames.

The boys' school, which had always had problems of discipline, finally closed in 1906. The other Schools were reorganised with the infants downstairs and the girls upstairs. The building narrowly avoided Beazley and Burrows' extensive alterations, designed in 1914, but were remodelled during the 1930s. The infants' and girls' schools were united in 1932, and divided into seven classes, requiring additional classrooms. The side walls of the north wing were raised in height, under a shallower roof, and the former mistresses' accommodation swept away. At this date, sunlight was especially valued in health; the new classrooms were cross-lit by large, timber-framed windows and segregated by glazed partitions.

At the start of the Second World War, brick-built, surface air-raid shelters with reinforced concrete roofs were built in the playground. From the middle of 1940 invasion seemed likely, and Canterbury, was fortified to delay the penetration of enemy forces toward London. The following year, the Diocesan School found itself on the 'inner perimeter,' of the improved 'Canterbury Fortress,' which here followed the line of the city wall. The school was commandeered as a 'fortified house,' with a concealed defensive position in its south wing covering the roadblock at the junction of Military Road. The school roof was damaged during the 'Baedeker Raids' at the start of June 1942; thereafter, a civil-defence rest centre was established in the school, replacing those which had been destroyed. Later that year, the school united with the Payne-Smith School, which had lost its own buildings.

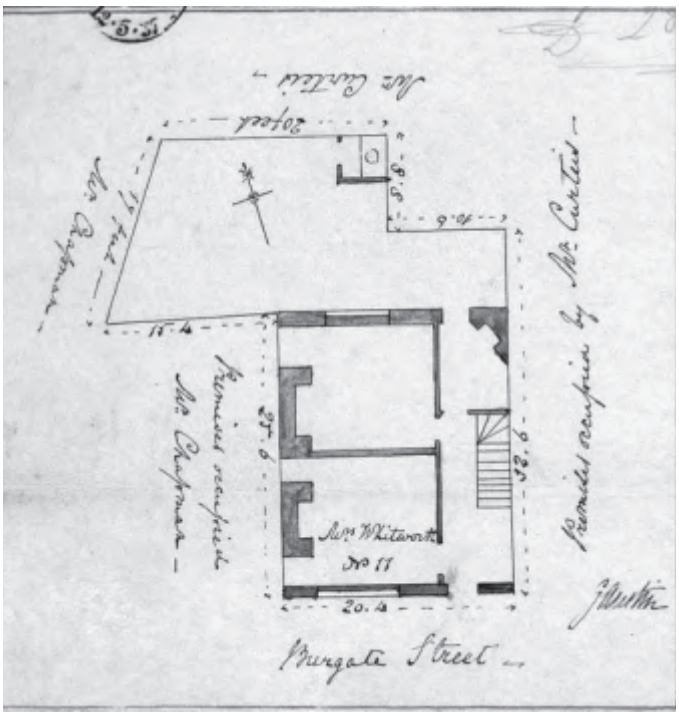


Detail of first edition Ordnance Survey, 1874.

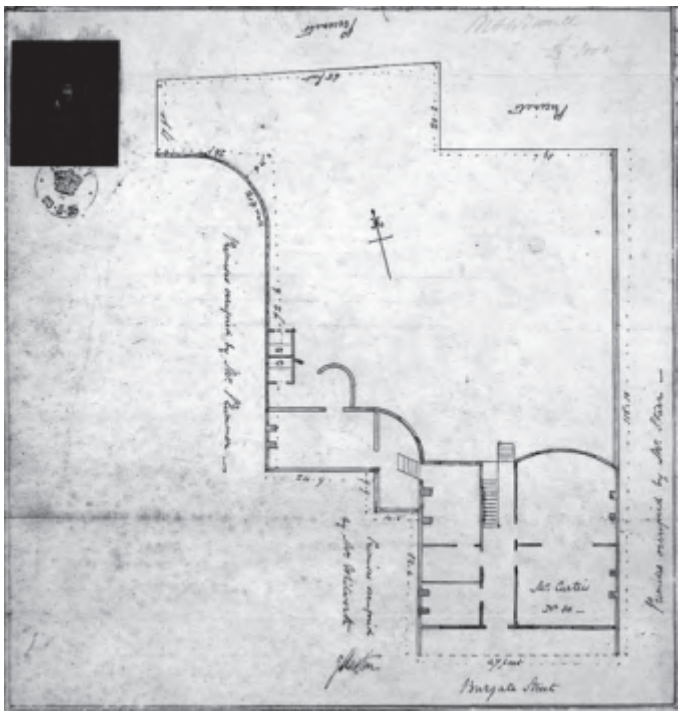
Nos 11 and 12 Burgate and No 14c The Precincts, Canterbury

Rupert Austin and Peter Seary

Two properties in Burgate and an adjacent building in The Precincts were assessed for the Dean and Chapter, in view of proposed alterations. These were Nos 11 and 12 Burgate and No 14c The Precincts. Inspection of the fabric was supplemented by brief documentary research. No 12 Burgate appears to have formed part of a late medieval building, comprising a



George Austin's 1835 plan of No 12 Burgate (CCA: U/62/21/A1/2/2/4/1) detail.



George Austin's 1835 plan of No 11 Burgate (CCA: DCc/BB/74/73), detail.

row of at least four tenements fronting Burgate. Nos 11 Burgate and adjacent 14c The Precincts originated in the early nineteenth century as a single large dwelling known at one time as 'Burgate House.'

The present No 12 Burgate was built, possibly toward the end of the fifteenth century, as part of a row fronting the north side of the road. This comprised at least four two-storey tenements arranged parallel with the street, under a continuous roof. These may have been built by the Priory (or perhaps a tenant) with the intention of leasing them out. Probably, they would each have comprised a ground-floor shop on the street with living accommodation or a workshop behind and accommodation over. The row extended about 25 feet back from the frontage, roughly in line with the late twelfth-century boundary wall of Christ Church Priory. Judging by carpenters numerals in the roof, No 12 Burgate was the fourth tenement, in a row beginning to the west with the present No 15a. Both documentary and structural evidence suggest there may have been at least one further tenement, eastwards, where No 11 now stands. No 12 has been greatly altered over the years and only fragments of its medieval fabric survive.

The first floors of the tenements were probably jettied toward the street, and their roof seems also to have been jettied, front and back. Little else can be said of the original elevations, although evidence may well survive concealed elsewhere in the row. Internally, the four extant tenements may have been arranged more-or-less identically. They seem to have been divided front from back, and side to side, by lath-and-daub partitions extending up to the roof. These were each placed slightly off-centre, forming larger rooms at the front, small ones behind, and a narrower 'bay' in the eastern half of each tenement. These narrower eastern bays do not seem to have been smoke bays, since they contain no trace of soot (it is not yet clear how the tenements were heated). Stairs to the first-floor chambers rose against the rear walls of the main front rooms. These chambers were originally open to the crown-post roof.

At the Dissolution of Christ Church Priory ownership of the Burgate shops and tenements passed to the Dean and Chapter of the New Foundation. There were

12 Burgate. Georgian staircase and archway.

12 Burgate.

14c The Precincts.
Nineteenth-century principal staircase.

11 Burgate.

extensive prebendal houses and gardens behind them in the South Precinct. The north side of Burgate in the vicinity of Nos 11 and 12, was becoming increasingly important, and large new houses were built there during the early seventeenth century. At the time of the *Parliamentary Survey* in 1650 No 12 Burgate comprised 'a shoppe, a kitchen, a buttery, two chambers over them, and two garrets over them.' Evidently, by this time, much of the original north–south aligned partition had been removed from No 12 Burgate (certainly above ground-floor level and probably in the front half of the ground floor) whilst ceilings had been inserted into first-floor chambers, forming the 'garrets' in the roof space; dormer windows would probably have been introduced to light these rooms, but the present ones are probably later work. Perhaps later in the seventeenth century the first floor was rebuilt at a higher level in new timber. The rear wall was underpinned in brick, at both ground- and first-floor levels, and the present cellar was probably excavated around this time.

At the time of the *Parliamentary Survey*, the site of No 11 Burgate was occupied by two distinct tenements, fronting the street. The eastern one seems to have been a relatively grand affair, comprising 'a hall, a parlour wainscoted, a kitchen, a sellar, with two roomes over them, a buttery, two garrets, a pump house, a wood house and a garden.' Possibly, the present cellar under No 11 Burgate preserves its dimensions. The western tenement, which may possibly have formed part of the late-medieval row, comprised 'a hall, a kitchen, two rooms over them, two garrets, a back yard, and a little garden.'

No 12 Burgate was refurbished and reorganised during the eighteenth century. A new dog-leg staircase was built between the ground and first floors, with tall, thin, turned balusters and a moulded handrail, typical of the early to mid Georgian period. A new partition was inserted on the ground floor to create a small lobby around the foot of the stairs and the street entrance; a fine, keyed, timber archway led through to the rear. The present chimneys are probably also of eighteenth-century date, although they may have replaced earlier ones. Their brickwork does not seem to have been plastered, so the rooms may well have been panelled.

By the end of the eighteenth century The Oaks were a fashionable meeting place. The Elizabethan regulation against families dwelling in the Precincts had lapsed prompting a wave of improvement and enlargement of prebendal houses. By 9 December 1803, Edward Walsby had obtained the lease of the two tenements on the site of the present No 11 Burgate, which he demolished to make way for a large new house. (Around the same date, Thomas Starr, auditor to the Dean and Chapter, rebuilt the neighbouring house to the east.) George Gilbert (Shirley 1938, 23) tells us Walsby's new house was intended for his sister-in-law, Mary Bisset, though it was subsequently asserted he had built it for his wife. Bisset seems to have moved into the new house fairly soon after the death of her father in 1803; she lived there for some three years, but had left by the middle of 1808.

This was a large double-pile building, under two low hipped roofs at different heights. The front range, facing onto Burgate, was of three storeys, with a small cellar, and was set back behind a forecourt with a low wall and railings. The rear range (corresponding with the present No 14c The Precincts) was lower, of two storeys – elevated somewhat above its garden, but apparently without a cellar. The street elevation, of four bays, was timber-framed, clad with buff mathematical tiles; it rose to a slender cornice with thin plain modillions. The side elevations were of red-brick: the garden front, apparently tile hung, with a broad, shallow projecting bay on the east side, and a fine set of Portland-stone stairs to the garden door. Possibly from the outset, a series of red-brick, single-storey service rooms and outbuildings extended westwards, from the Kitchen at the north-west corner, along the back of No 12 Burgate.

The principal stair between the ground and first floors survives in excellent condition, with a mahogany handrail and newel and spiral curtail. The ground-floor hallway was provided with a Roman Doric cornice with beaded rosettes under the mutules; those of the two ground-floor reception rooms had subtly different combinations of foliage and cereal motifs; that of a first-floor reception room had a Vitruvian scroll with flowers. Original fireplaces, of timber and grey-veined marble, in a variety of Adam and classical designs, survive. Bed

and dressing rooms on the first-floor had reeded cornices and skirtings; there were servants' rooms on the second floor.

Following Mary Bisset's departure, the house was sub-leased to wealthy tenants, during which period Jane Austen used it occasionally as a short-cut between The Oaks and Whitefriars. After Walsby's death in 1815, his ailing widow, Henrietta, moved into the house, remaining there until her death the following year. Thereafter, it was occupied by various relatives and tenants, and was used, during the middle of the century, as a school. Late in the nineteenth century it was occupied by elderly friends of John Ruskin, who also stayed there on occasion.

From the early nineteenth century down to the twentieth, No 12 Burgate was a private residence, having a living room at the front to the west of the lobby, with a wide window (perhaps a former shop window) onto the street; a kitchen in the north-west corner, and a scullery, with a corner fireplace, in the north-east. There was a small yard at the rear, with a privy in the corner. The rear elevation was raised, perhaps early in the century, to form a full third storey, jettied-out slightly over the yard.

During the twentieth century, the back of No 11 Burgate was divided off and became No 14c The Precincts. It was damaged during the Second World War and subsequently repaired. Nos 11 and 12 Burgate were thrown together, accommodating a series of cafes, restaurants, pubs, and bars.

Sir Roger Manwood's Hospital and Manwood Lodge, Hackington

Peter Seary

The hospital trustees commissioned an assessment of the grounds of Sir Roger Manwood's Hospital and Manwood Lodge, Hackington.This noted various questions regarding Hackington's obscure, but highly important, medieval topography and history. There was however, rather more that was new to say concerning its history from the mid sixteenth century onwards.

Around 1563, Sir Roger Manwood (*c* 1525–1592), an influential judge, was given St Stephen's Manor, Hackington. His character and agenda would leave a lasting impression on the parish. Manwood is best known locally as a benefactor, endowing, besides his almshouses in Hackington, a school at Sandwich and a house of correction in Canterbury. As the last of these suggests, however, there was a stark contrast between Manwood's charity and his implacable condemation of idleness and criminality. Besides informing his judgements, sentencing and legislation, Manwood's strict distinction between the deserving and the undeserving poor would find expression in his charitable works and bequests, at Hackington and elsewhere.

Shortly after being granted the manor, Sir Roger Manwood erected a grand new brick house there, on a courtyard plan, behind an imposing gateway flanked by tall, octagonal turrets. This has since been demolished, but stood on the site of the present recreation ground, to the south of St Stephen's Church, perhaps in the place of the former Archdeaconry. Part of its fabric was observed during a watching brief in 1993; documentary evidence suggests it faced west onto St Stephen's Road. The house would be known by a variety of names including 'St Stephen's House' (not to be confused with the present building of that name); the 'Place' (a dialect term for a manor house; Pegge 1874), or 'Place House'; and lastly as 'Hales Place' (until it was demolished in the eighteenth century and the name adopted for its replacement).

Possibly in 1573 (although the present datestone says 1570), Sir Roger Manwood built a 'hospital of seaven brick almes-houses' near to the gate of his house, 'having a forecourt, and back gardens belonging to them, for six aged, honest, poor marryed, or unmarryed persons to live in.' The row of six generously proportioned almshouses for six almspeople, numbered from east to west, is well known. The seventh house, which Manwood described as a 'double howse', wider than the others, forms the core of the present Old Beverley public house, at the west end of the row. Originally, the row was clearly of long, narrow, rectangular footprint, without significant projections to the front or rear. The elevations were decorated with brick diaper patterns typical of the period, and with ornate stepped gables to each end, and at each end of the front elevation. Manwood himself noted the similarity of design between these almshouses and the school he had established at Sandwich in the 1560s. Gardens behind the almshouses would probably have been divided between the pensioners in long and narrow plots behind each house. Certainly, those who were sufficiently able would have been expected to grow their own food. It is by no means certain there would ever have been fences between the plots, however, except perhaps between the sixth almshouse and the 'double house' at the west end.

In 1583, Sir Roger Manwood added what he termed a 'cloyster' in front of the almshouses, 'for the said poor to walk or sett in.' This was probably a timber-framed pentice along the front of the building, rather than the quadrangular enclosure its name suggests. This may well have been the decaying 'penthouse' taken down around 1774; traces may still have been evident in the early twentieth century. Around 1590, he enclosed the hospital forecourt, within 'a brick wall made brest high,' and erected a water conduit therein. This we are told, was 'not only for the private service of his own houses, but also for the publick and free use of all his neighbours, and his almespeople' – a typical pre-industrial charitable act. The front and back of this structure bore square stone tablets, bearing his name and titles: 'ROGERUS MANWOOD/ MILES CAPITALIS/BARO SCACCARI/1590.'

Late in the sixteenth century, Sir Roger Manwood's career followed a familiar trajectory of apogee, followed closely by controversy, humiliation, and death. During its closing decades, Sir Roger Manwood made several bequests relating to St Stephen's Church. In 1588, he surrendered his lease of St Stephen's vicarage and settled it on the vicar as a perpetual augmentation – the latter having apparently been impoverished by the suppression of oblations to the medieval image of St Stephen. He also made repairs to the church, and rebuilt its south transept in brick to house his family pew and burial-vault, with a richly carved monument. He is thought, also, to have given the church two new bells, and, in 1591, a late medieval font, imported from another church and inscribed with his own name and titles.

There was probably never a foundation charter for Sir Roger Manwood's Hospital at Hackington. Instead, Manwood used his will, of 12 December 1592, to lay down regulations, and establish endowments, providing the first clear statement we have of how the buildings were intended to be used. Manwood also took the opportunity to expound much of the philosophy behind his charitable works. Even the


Manwood lodge.

form of his funeral was designed to frustrate the 'vagrant or idle poore' by eschewing the 'troublous and disordered doales usually to be doun at the days of buryalls amongst numbers of people disorderly flocking and assembling from sundry parishes and places and farr from their owne dwellings.'

> I have founded and made at St Stephen's an hospitall and rowe of seaven bricke almeshowses with a cloister and conditt fore courte gardens and backsides all of brick buildings as the Sandwich schoole howse is, of whiche seaven almeshowses the south corner howse being a double howse I will [...] shall for ever be the dwelling howse of the parish clerke for the tyme being neere at hands for readye service in all churche matters and for safe custodye there of all wooll flax hempe or other stuff for the parish stock to sett the poore on worke. And to be from tyme to tyme putt forthe to spinning or other working and to be receaved in wroughte everye fridaye or second fridaye att furdest. And afterward to be soulde att the market and the worthe to renewe the stocke from tyme to tyme for perpetuall settinge the poore in woorke, and the other sixe almeshowses for sixe aged poore and honest persones maried or unmarried.

By this time, then, the function of the large seventh almshouse was to provide a convenient home for the parish clerk and secure storage for Manwood's parish stock. The role of Sir Roger Manwood's Hospital thus went well beyond mere provision for the elderly, but supported the churchwardens' work in the wider regulation of the parish, and sought to provide employment for its able-bodied poor, to prevent them from becoming a burden.

The six deserving almspeople at the Hospital were to be allowed to retain their rooms indefinitely, unless there were grounds for removing them, and the charity was to see to all their material needs. They were to eat their Sunday dinners in the hall of Manwood's 'cheife howse att St Steven's.' Every Friday, they were to be given twelve pence, and every Sunday and Wednesday, a penny wheat loaf; every three years they were to have new caps, gowns and shoes; the almshouses were to receive four cartloads of fuel, yearly. The hospital was to be visited annually and inspected by the Mayor of Canterbury or his deputy, and aldermen.

> Religious observance was a vital part of almshouse routine. Manwood's almsfolk lived next to the parish church [...] the almspeople were expected to attend morning and evening prayer most days. [...] Attending morning service they were to sit together in their own pew, their behaviour watched over by the effigy of Manwood which had been set up according to his wishes in the south aisle (Sweetinburgh 2007: 69-70).

Manwood carefully stressed the 'joined-up' way in which his various institutions particularly his school at Sandwich, his almshouses at St Stephen's, and his house of correction in Canterbury, worked together for the good of the poor and the wider 'common wealth.'

> And like as I ment my free grammer schoole [...] for helpe of yowth, and my St. Stevens almeshowses for helpe and reliefe of age, so for middle age and lustie bodies to be sette on woorke and kepte from idleness, I have likewyse made a correction howse with a common woodyard and backsides [...] for restrainte of such as will not by labourre live honnestlie in theire parrishes att home, those are to be broughte and placed in the howse of correctione, there to be sett on woork with straite and harde diett [...] and due punishmente, till they doe soe amend and become honeste laboure takers as some honneste howse holder will take them in to service.

Sir Roger Manwood died on 14 December 1592, and was succeded by his son Sir Peter. Sir Peter's 'large family, his inattention to his properties, and his lavish style of living brought financial difficulties which caused him to leave the country in August 1621' (Knafla 2004). It fell to him to pay the rent charges for Sir Roger Manwood's Hospital, which was, in any case, inadequately funded by the dispositions of his father's will. By the time of his death, in 1625, he had sold off some four fifths of the estate, mostly lying at some distance from Canterbury, 'to divers persons,' who sometimes resisted paying their rent charges toward the support of the hospital. His son, Sir John Manwood, was pestered by Canterbury's Mayor, whose task it was to collect the funds, and entered a bill in Chancery, seeking to apportion the rents more fairly. The Mayor observed that it would be better:

> for the credit and reputacion of the complainant to see his grandfather's will performed and to pay the said poor almesfolkes himselfe rather than to let them suffer extream penury and starve for want of main tenance especially the said almeshouses standing neer to the gate of [his] principall or mansion house [...] in Hackington.

A partial solution was reached at this time, although it was not until the 1790s that the mess of the hospital's finances would be fully untangled, by one of the parishioners. Around 1637, Thomas Colepeper bought St Stephen's House.

Most likely during the Civil War period or Commonwealth, Sir Roger Manwood's monument and perhaps his family vault, in the parish church, appear to have been attacked: 'the erected memorial of a deceased benefactor basely slighted, unworthily suffer'd to continue defaced, and to be totally ruinated by persons who have, do, and may greatly partake of the eminent benefits of his commendable acts of charity.'

By this time in the mid seventeenth century, the house was in poor condition, 'an old fashioned low built brick building and much out of repaire and some [parts?] like to drop down.' Possibly in 1675, it was purchased by Edward Hales, who soon enclosed it, along with the parish church, within a park. During the mid eighteenth century, the fifth baronet, another Sir Edward Hales (1724–1802), began work on a huge new mansion, on higher ground north-east of the church, to replace the sixteenth-century house. Cozens, in 1793, opined that the new house would, were it ever completed, be 'more fit for the residence of a monarch than for a simple country gentleman.' The present Manwood Lodge incorporates part of the gateway to the entrance drive – the thick, brick 'clasping buttress' at the corner of the building forming a gate post to one of two probable pedestrian gates flanking the vehicle entrance.

The Drilling Shop, Chatham Dockyard

Peter Seary

A building presently known as the 'Foundry' at Chatham Dockyard was recorded for the University of Kent ahead of proposed repairs and alterations. This building proved to have played a modest, but interesting, part in the story of mechanisation and industrialisation at the dockyard, illustrating several wider military and technological developments. It was built – possibly during the 1830s – during the first advance of steam power and the increasing use of metal components at the dockyard. It was placed against the north side of the dockyard Engine House,

recently completed by John Rennie and Edward Holl, where it could draw power from one of the two Boulton-and-Watt beam engines.

In 1845 the building was known as the 'Drilling Shop' and was probably used to drill iron components – including armour-plating – for warships. It would have been convenient for the nearby, early nineteenth-century Smithery and its associated workshops. Although a lean-to, it was of very solid construction with the heavy steam-powered drilling machinery suspended from its roof-timbers. The roof was of very sturdy king-and-queen-post construction, reinforced by various other timbers, and bolstered by two rows of four timber posts. Components, shaped in the Smithery, would have been brought in through one of two large segmental-headed portals in the end walls, passing out by the other. They may have been carried on rails, with lifting gear of some kind at each end, to load and unload the items.

Architecturally, albeit simplified, the building followed the adjoining Engine House, staying close to a style which Holl, the Navy Board architect, had introduced at Chatham since around the turn of the century.

In the mid nineteenth century Chatham Dockyard took over national responsibility for recycling old copper from ships' hulls and during the 1850s, the Drilling Shed was converted to store old sheathing.

Chatham Dockyard's increasing specialization in Naval iron-working suited it to the construction of the warship *Achilles* in the early 1860s, which would be of the greatest importance to the future of the dockyard (MacDougall 2009). Alongside extensions to the Metal Mills, in 1861 the former Drilling Shop was brought back into use as a workshop, with new machinery and with a boiler-makers' workshop in a new extension toward the riverside. The building continued in use as a Machine Shop throughout Chatham's dominance of Naval shipbuilding, and on into the early twentieth century. Thereafter, it may well have served as a Tools Shop, in the clandestine manufacture of submarines, down to the Second World War.

Late twentieth-century alterations were fairly ephemeral, and the building survives little altered, apart from the removal of the timber posts and machinery, and alterations to the two portals. Admirably, the University of Kent's proposed alterations, designed by Purcell Miller Tritton, were almost completely reversible.

Monkton Mill and the Monkton seamark

Peter Seary

Inspection of Trinity House minutes at the London Metropolitan Archives, the Mill Collections at the Templeman Library, and various other sources has cast light on post-medieval and modern structural remains uncovered during the Thanet Earth excavation of 2007-8 (Rady 2010, 16).

The earliest of these related to the cross-trestle foundations of the former Monkton post-mill, one of several windmills overlooking Thanet until the early eighteenth century. The structure in question was probably the last of a series of windmills in this vicinity: there was one here in 1596 and there may have

been others dating back into medieval times. From an early date these may well have been used as seamarks by sailors navigating the Thames Estuary. By lining prominent marks on the horizon with other features nearer the shore, pilots could keep to fair channels and avoid hazardous sands. From the sixteenth century the more important of the seamarks became, in part, the responsibility of Trinity House.

Monkton Mill seems to have disappeared from the Thanet skyline in the early 1780s – probably in 1782, certainly by late September 1783. Local tradition tells us it was taken away to be rebuilt just down the road at Sarre, but this has long been considered doubtful. Tales of mill relocations are often spurious, whilst the present Sarre Mill is a smock-mill, rather than a post-mill, and is firmly dated to 1820. For once, however, local tradition proves to have been correct – almost certainly, the mill at Monkton was indeed translated to Sarre, where it preceded the present structure.

A mill is attested at Sarre long before 1820, and this, unlike the present smock mill, was wholly of timber. In 1783, one Henry Creed insured 'his Windmill timber built situate at Sarr' for £300. When this mill was offered for sale in 1788 (*Kentish Gazette* 25 January), it was noted that it had been 'built within these few years', suggesting it may well have been new when Creed took out his insurance policy. If this is so, it was erected more-or-less exactly when Monkton Mill disappeared. What is more, Henry Creed's obituary of 1819 noted he had been 'many years since, a miller at Monkton' (*Kentish Gazette* 17 April 1818). The excavated evidence supports the idea of relocation. The mill footings seem to have been carefully and completely removed, and the base dug-out – rather than, for example, merely burnt down or left to rot in the ground.

By this time, Monkton Mill had become an important seamark, and sailors immediately complained of its removal. On 24 September 1783, Trinity House ordered that a replacement 'beacon or sea mark [...] be erected [...] to direct ships in crossing the Middle Ground into the Gore instead of Monckton Mill which has been lately taken down' (Minutes) Their first timber beacon may have been completed late in October, and seems closely to have resembled a ship's mast, complete with rigging and probably a capstan, and surmounted by a large timber vane. This does not seem to have been sufficiently conspicuous, however, and was supplemented by a second, similar, mast and vane in November 1785. Very likely, these two masts correspond with two large post-holes, containing eighteenth-century artefacts, identified in the excavation.

The augmented beacon soon failed however, being 'blown over from the south to north in a violent gale of wind, in consequence of which the new fan lays downwards with the southernmost standard turn'd up by the braces, which standard has sprung in two places; the old fan is shatter'd to pieces, the capston head is split off, & most of the braces are broken' (Trinity House Minutes). A second replacement beacon was ordered in May 1786 and completed late the following June, but this also proved short-lived being blown down around the end of 1790.

Clearly, a more substantial construction was required and in August 1791 Trinity House ordered 'a beacon to be built of brick on the same spot at Monkton on which the timber one lately stood.' This was raised by a Mr John Gray, who may well have been local, having been promised the materials of the previous beacon in part payment. Hasted (1799, 302) provides an early description:

> About half a mile to the right of the road from *St. Nicholas* to *Birchington*, and adjoining to the *summer road* from *Sarre* to *Margate*, is a *large obelisk*, about ten feet diameter and twenty-nine high, built with brick and capped with stone; it stands on the spot, where formerly stood a *windmill*, which was a *peculiar sea-mark*. On the north side is an inscription, shewing that it was erected *by the corporation of the Trinity House* in 1791, *for the safety of navigation*.

The Monkton Beacon shortly before its demolition.

He was broadly accurate concerning its diameter, but greatly underestimated its height, which was probably nearer forty feet. The base, diminishing ever so slightly and defined by a sharp weathering-in, accounted for about a quarter of this height. Above this, the obelisk may have tapered slightly more noticeably, and possibly with a slight convexity, before terminating in a stone conical cap. It may well, like similar structures, have been rendered and painted to protect the brickwork. Its foundation, a little under eleven feet in diameter, in a tight construction cut, was found during the excavation. It was formed in header-bond brickwork around a hollow centre. An early view suggests the obelisk may, early on, have been surrounded by a simple cast-iron railing, which perhaps accounts for a series of small pits, surrounding the base – unless these were from the scaffolding used during construction.

Around this time, the number of beacons and buoys provided by Trinity House was increasing rapidly. Purpose-built beacons on land, such as this, were however always relatively rare, and masonry beacons rarer still – the majority of these would have been lighthouses. Early the following century (1810) Trinity House bought the towers of Reculver Church (Seary 2012, 60), and rebuilt The North Down Beacon, or Whitfield Tower, at Kingsgate as a polygonal obelisk (1818). The Monkton Seamark and its various alignments seem to have been especially valuable in avoiding the edges of Margate Sand:

> *Monckton Sea Beacon* marks the north spot of Margate Sand, as it stands upon high land, in a line with the *Lower Hale Grove*. *Upper Hale Grove*, rather more to the westward, points out to the pilot the west end of Margate Sand. (Cooke 1819, xvi)

> Monckton Sea Beacon, the mark for the north spit of Margate Sand, is upon high land in line with Lower Hale Grove and a mill near Birchington church; whilst Upper Hale Grove, rather more to the westward, points out to the pilot the west end of Margate Sand, through a small farm at Upper Hale, to a buoy moored on Pan Patch, at the south-east corner of Pan Sand, on the northern edge of the Queen's Channel (Watts 1819, 47–8).

The late nineteenth and early twentieth century saw the Monkton Beacon neglected, as such structures became less important to shipping. In August 1920 it was inspected and found to be in poor condition: 'the brickwork is cracked and bulging and bricks have fallen out in places, particularly on the southern face' (Trinity House Minutes). The likely cost of repair focused Trinity House's attention on its continuing value to navigation, and two years later it was scheduled for demolition. This had been carried out, by the Foads of St Nicholas-at-Wade, by 25 October 1922. It did not go entirely unlamented:

> Sir, – it was not without a little petulant regret that I noted during the Christmas holidays this old landmark of years had been removed. Your last issue contains the explanation that it was no longer needed by Trinity House, but that would seem hardly a positive reason for its demolition. One wonders that no protest has been heard from the Monkton inhabitants, whose presiding genius it must have reigned for generations. Or beneath the cold official explanation of "No longer needed", was there a hint of some subtle and sinister suspicion, as in the case of "The Column" of Mr Marriott's novel – Yours faithfully
>
> IN MEMORIAM
>
> (*Isle of Thanet Gazette* 20 January 1923).

Such was some people's affection for the beacon that a relic of the structure was preserved: 'the cone which was perched at the summit of the obelisk' was re-erected 'in the rock garden of Monkton Court' (Igglesden 1932, 77). Its former site is attested in the name of the present Seamark Road.

The post-medieval brick-built seamark, with the earlier cross shaped foundation, probably for a windmill. looking south. Scales 2m.

The south oculus window, Canterbury Cathedral

Rupert Austin

The south oculus window forms part of the clerestory of the south-east transept of Canterbury Cathedral. Part of the late twelfth-century rebuilding of the choir after the great fire of 1174, and in the new gothic style, it can perhaps be attributed to William the Englishman. With its sister window in the north-east transept, the pair comprise two of the cathedral's largest, earliest and most important windows. The ongoing campaign of restoration at the cathedral provided a unique opportunity for detailed study of this window, located some 18.5m above ground level.

The feature that distinguishes oculi from more common medieval rose windows is the absence of stonework within the openings. The stained glass is supported instead by elaborate iron frames, the '*ferramenta*'. Remarkably the original medieval *ferramenta* survives. External iron grills were once fitted to both windows, but only the south retains this feature. These have generally been considered to be later strengthening, but recently Dr Jane Geddes proposed that these were also original, acting to stiffen and strengthen the *ferramenta* in the manner of a space frame (Geddes forthcoming).

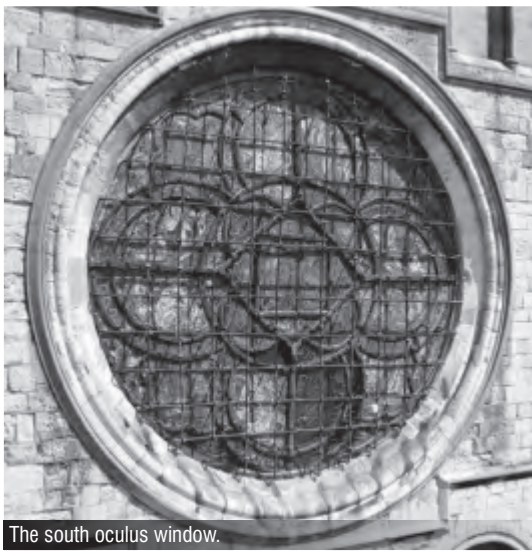
The oculus window was presumably once a true circle, but as a result of movement is now slightly elliptical, at some 4.756m wide and 4.600m high. Fortunately the use of wrought iron, a ductile material, combined with the construction method seems to have allowed the *ferramenta* to accommodate the distortions without too many problems.

The stone voussoirs forming the exterior opening have all been replaced through various restorations, most perhaps in the nineteenth century, and no original masonry survives. Stone replacement has also occurred internally, but not to the same extent, and significant original fabric remains.

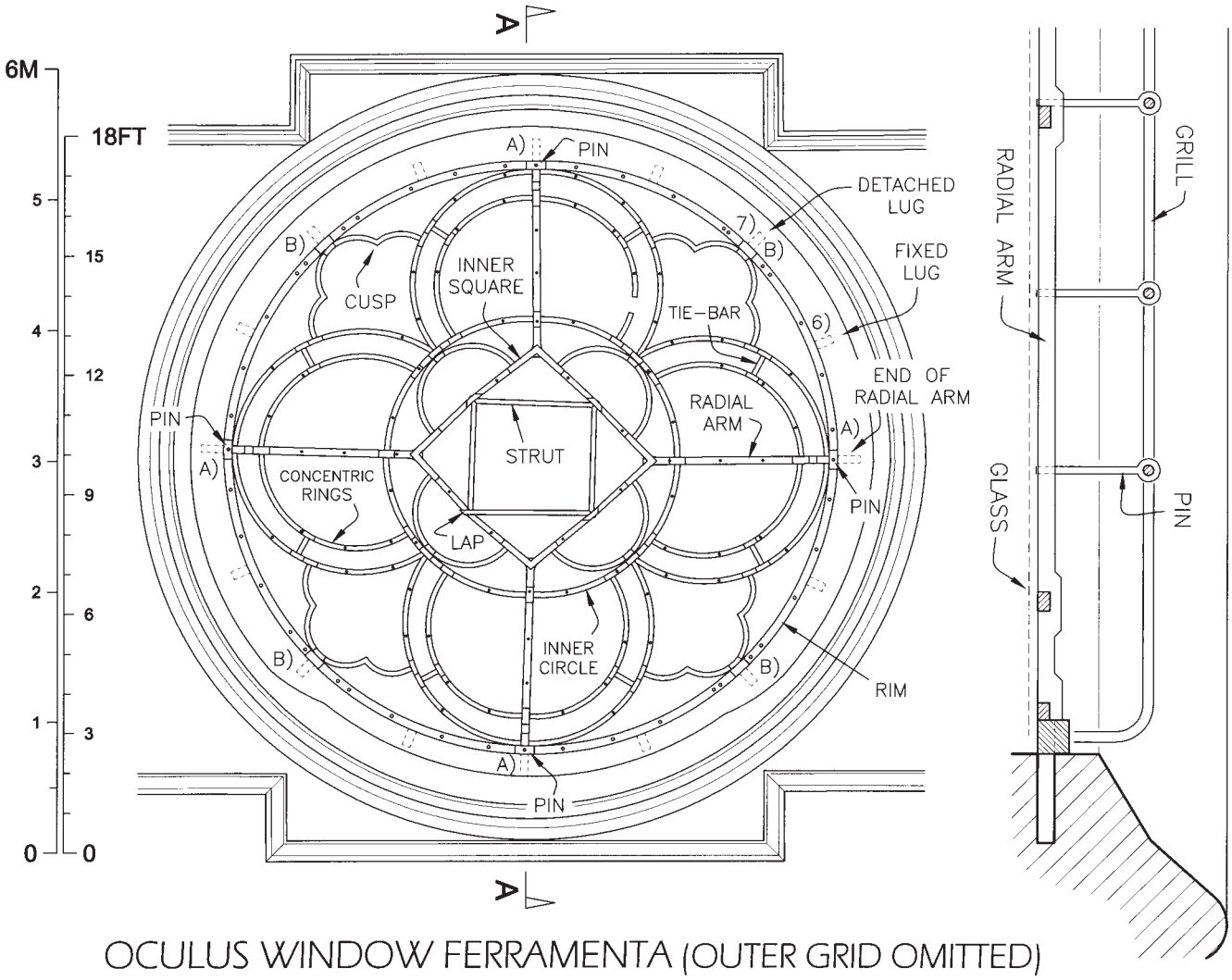
Inner ironwork/armature

The rough uneven surfaces of the *ferramenta* inner frame have the hammered appearance of wrought iron with the laminations in the sides of the bars further evidence that they are hand forged. The inner frame comprises fifty individual components arranged in a geometric pattern. The impression on inspection is that the components were produced in advance and assembled later. Nearly all fit together using bare-faced mortice and tenon joints, but unlike many carpentry joints, no pegs or pins are present.

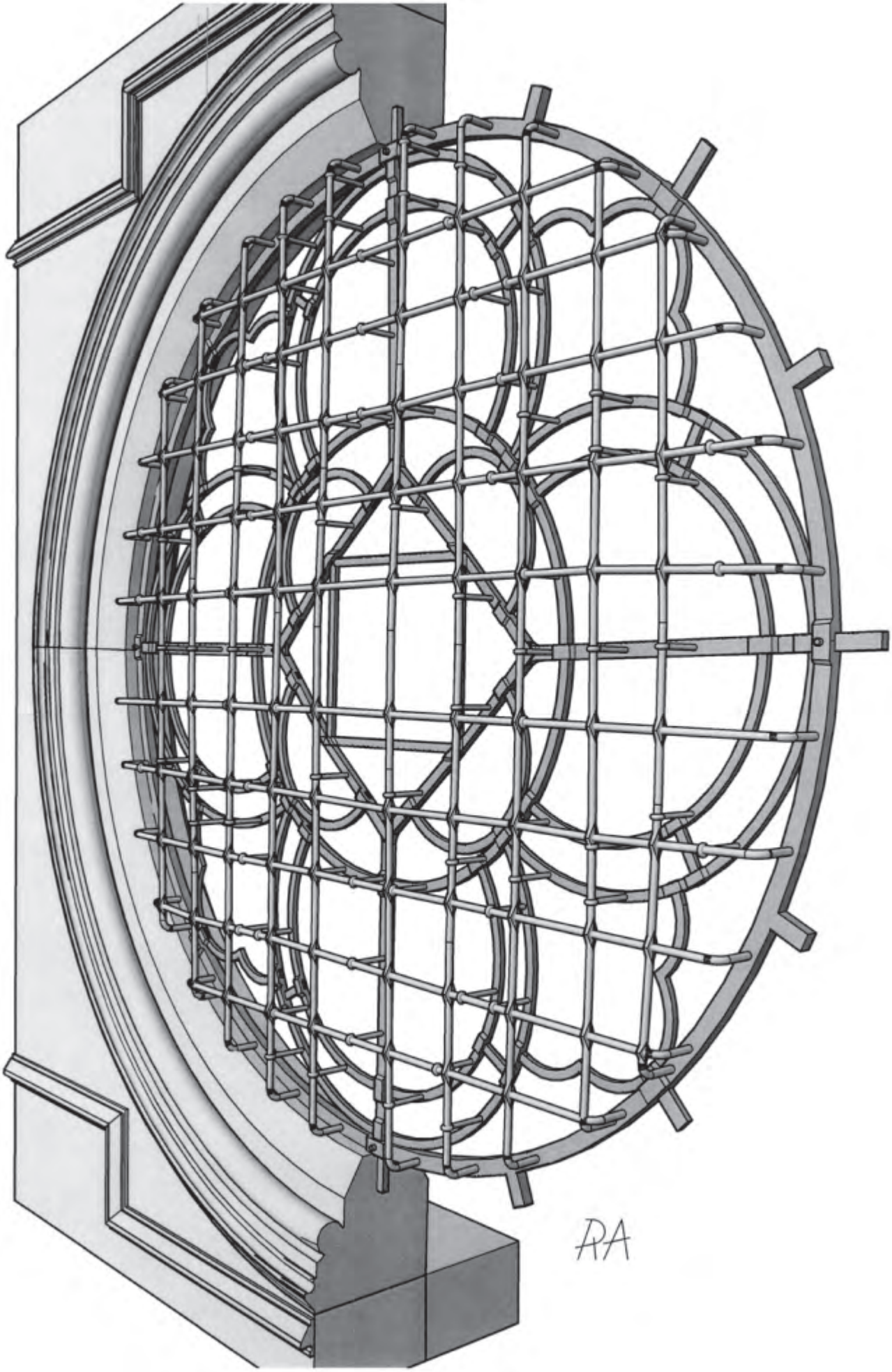
Repairs to the masonry made during the current restoration campaign show the frame to be secured in place with sixteen lugs. These project radially from its outer rim, but interestingly they are not all the same. Those at the 0, 90, 180 and 270° positions are in fact the ends of the frame's main radial arms, which pass behind the rim by means of a full lap joint (see below). Those at the 45, 135, 225 and 315° positions are detachable. They comprise short bars with bare-faced tenons, the tenons driven through mortices in both the outer rim and the cusped iron bars, thereby not only securing the rim to the masonry but also the



The south oculus window.



OCULUS WINDOW FERRAMENTA (OUTER GRID OMITTED)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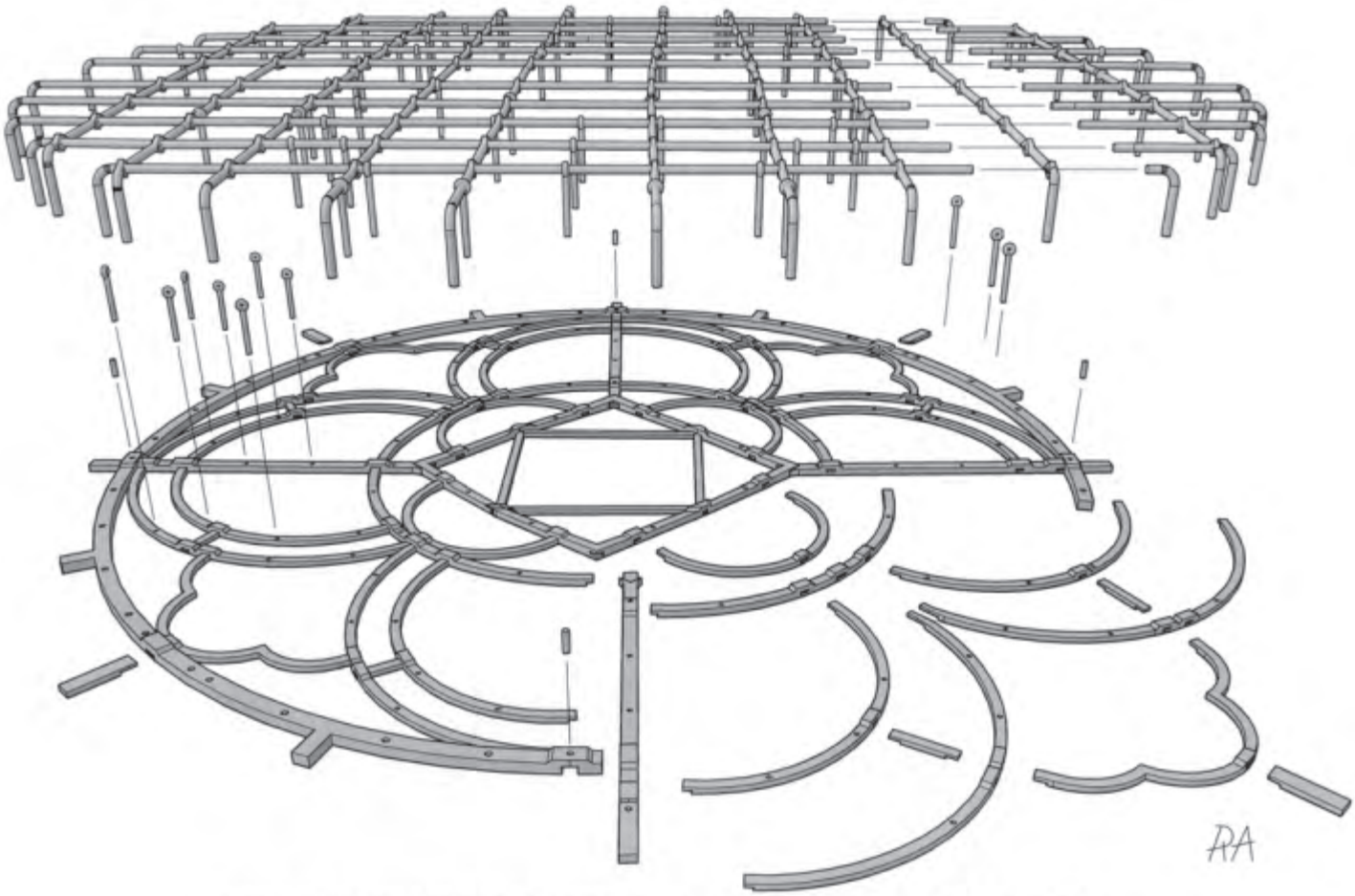


EXPLODED VIEW OF OCULUS WINDOW FERRAMENTA

frame's inner geometry to the rim (see below). The remaining eight lugs are permanently fixed to the rim. Inspection shows these to be separate pieces welded in place. The lugs might have been set in lead in the original masonry, but none is presently visible.

Several different ways to assemble the frame can be conceived, but the easiest and most logical is one that starts from the middle with the inner square and works outwards. The semicircular elements would be added next and then perhaps the four main radial arms. Once all the geometric elements were assembled, the outer rim could be dropped in place. This comprises a single piece of iron, one that was presumably formed by welding shorter sections together.[1] Importantly the rim passes over the radial arms, by means of full lap joints, allowing it to be laid over the inner geometry. It is secured to the arms with iron pins, the ends of which are hammered over in the manner of a rivet. The assembly was then finished by driving in the four detached lugs, which secured the inner geometry to the outer rim in four more places.

Outer grill

The outer grill comprises ten horizontal and ten vertical iron bars, each of round section and typically 20mm in diameter. All are of some length, the longest spanning the full width of the window, and it seems likely therefore that they were formed by welding shorter lengths of bar together. The horizontal bars pass through the vertical bars. This was achieved by hammering small flats onto the vertical bars, at the points of intersection, and punching through holes of the required diameter.

The grill stands off the main frame by approximately 190mm, but still lies behind the outer plane of the window. It is held in place with approximately five dozen stanchion pins. These pins are located in holes in the frame and have eyelets on their ends that wrap around the aforesaid bars. The eyelets seem a deliberately loose fit around the bars, the connection tightened with copper wedges.

An important observation concerns the connection of the pins with the frame. The holes into which they are set have clearly been punched, not drilled, as a slight distortion or swelling can be seen in the sides of the bars where the pins are located. The holes must have been punched through hot iron, for the distortion would have been greater had they been punched through cold iron, if indeed this was even possible. This proves the grill to be original to the window because it would have been impossible to carry out hot work such as this at a later date with the window *in situ*.

Stained glass

The stained glass panels, as one would expect, fit against the inner face of the ironwork, and are held in place in the usual manner with small iron lugs and wedges. The lugs are located in small square holes in the iron frame, these holes, like those securing the pins, punched through when the iron was hot.

Where was the *ferramenta* assembled?

This is an important question. Was the *ferramenta* assembled *in situ*, atop the transept, or was it assembled on the ground and hoisted into position in one piece? The latter seems more likely. With the exception of lifting it, this approach would seem to present the least number of problems. The ironwork has been estimated to weigh around one ton. It is therefore a substantial weight, but surely not one that would be beyond the capabilities of a gang of strong men with ropes and pulleys. The presence of radial lugs around the frame's rim suggests the window's masonry was built around the ironwork, rather than the ironwork being placed into a finished opening. It must therefore have been supported in position with temporary wooden shores whilst the masonry was formed.

Copton Manor Barn, Sheldwich, Faversham

Rupert Austin

Copton Manor can be found in a relatively isolated rural setting approximately 2.3km to the south of Faversham on the A251 Ashford Road. The manor house is Grade I listed, and contains a former open-hall with cross-passage and soot blackened roof.

A Grade II listed medieval barn lies approximately 80 metres to the north of the house (NGR 60173 15910) at the centre of a former farm. Most of the farm buildings were demolished during the second half of the twentieth century, but the 1907 Ordnance Survey map and a 1940s aerial photograph show the farm at its height, before buildings started to disappear.

An overgrown rickyard survives to the north of the medieval barn today, beyond which are dilapidated late nineteenth-century stables, for working horses, and a wagon lodge. A small, late nineteenth-century timber-framed animal shelter still projects from the north elevation of the barn, at its west end. A foldyard lies to the south of the barn which was once surrounded by further animal shelters, but only one of these survives, in use as stables. A seventeenth-century barn was once located at the south corner of the foldyard, but this too has been demolished. Closer to the house are stables for riding horses, also Grade II listed, a stable yard and other buildings including a granary.

Entries in the Henry of Eastry list for Copton, a Christ Church manor since before the conquest, suggest that the buildings of the manor were in place by the late thirteenth century.

> 1287 - Repair of solar and cellar with pantry £3.10 – 4.
> 1294 - The hall, solar and barn were re-roofed with tile at a cost of £6.[2]

A mid to late thirteenth-century date seems likely for the house, should these entries refer to its solar and hall. Inspection of fabric, however, suggests a later date for the barn and it could be the 'new' barn referred to in Christ Church accounts made under Prior Chillenden (1391–1411) (Margaret Sparks, pers comm.). The listed building entry suggests a fifteenth-century date, but this seems too late as the structure contains archaic features observed in other Kent barns recorded by the Trust, notably Littlebourne, Frindsbury and Ozengell (Austin 1997; 2005a; 2005b). These too are substantial aisled barns with Frindsbury, before a devastating fire in 2003, the largest of Kent's medieval barns. Littlebourne barn has recently been dated by dendrochronology to AD 1307–27, Frindsbury barn to AD 1403 (Arnold *et al* 2002). These and Copton barn are typical of the predominantly arable, corn growing eastern half of the county, where the great religious establishments of Christ Church Priory and St Augustine's Abbey held considerable lands. Within the Weald, in the western half of the county, where cattle predominated, smaller and rather different barns are more common.

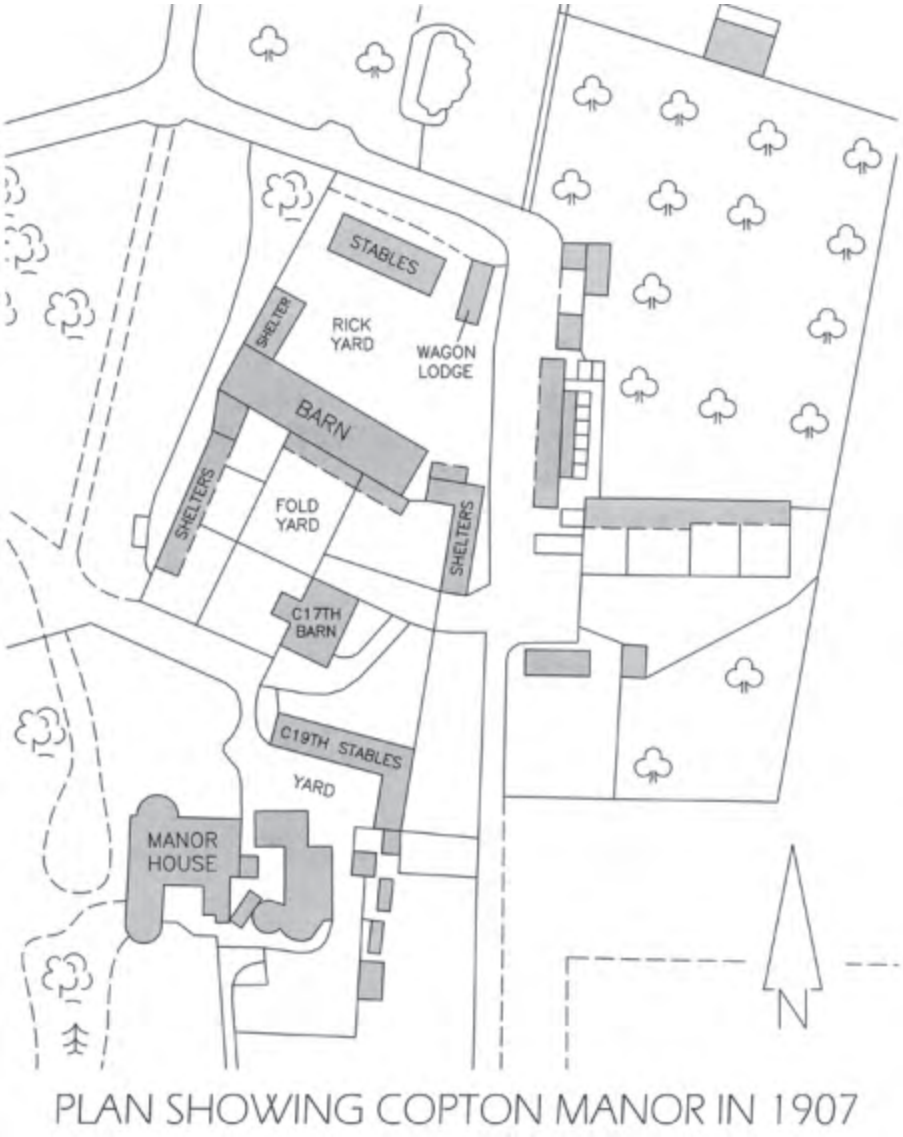
The barn has been neglected in recent years, and together with the north stables, was recently sold destined for conversion to residential use. An historic buildings record of the barn formed a condition of planning consent for this conversion and the Trust was commissioned to undertake this. The work was carried out during May 2011.

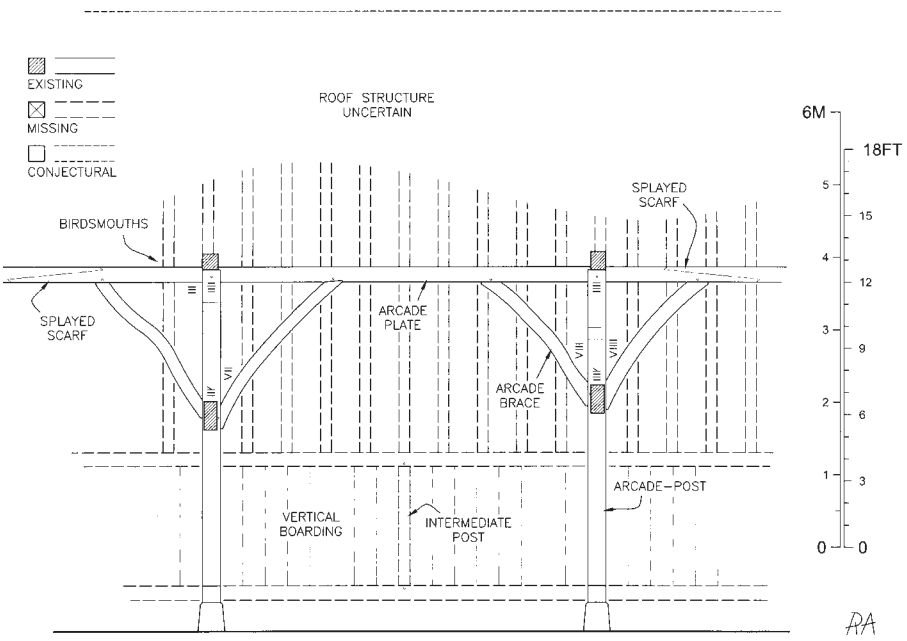
The medieval barn

The barn has seen numerous alterations over the years, many destructive, but though the building is by no means well preserved, much medieval fabric survives. The barn faces north, towards the rickyard, and is aligned east-north-east by west-south-west (for simplicity an east–west alignment is adopted here).

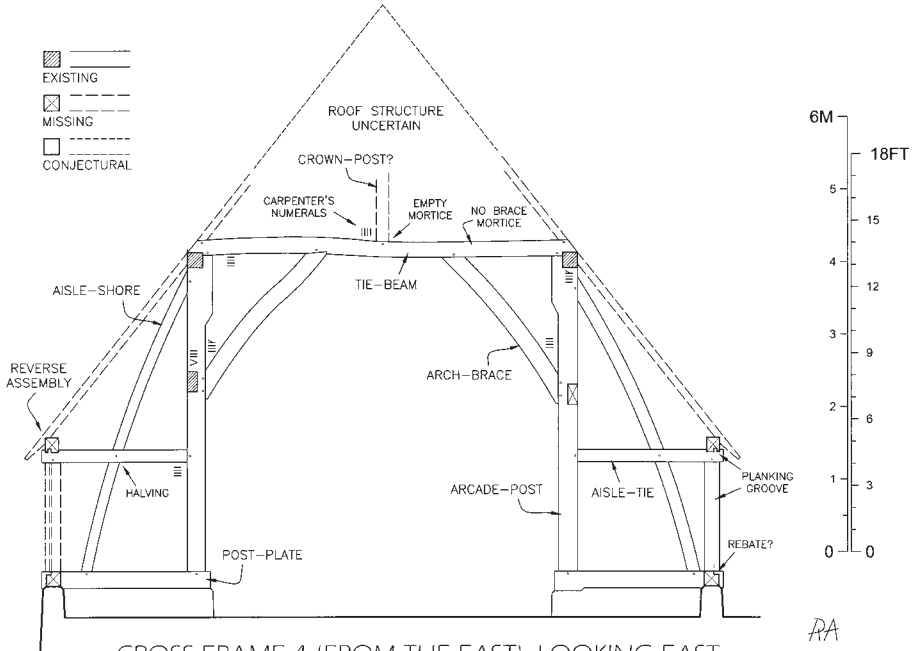
The north and east elevations of the barn.

The barn is fully timber-framed, measuring approximately 36.4m long by 9.3m wide. Its framing must once have sat upon low masonry dwarf walls of flint and stone, but these have all been rebuilt in brick. It comprises five full bays, of broadly similar length, and at its east and west ends are two cantilevered half bays with axial posts. For the purpose of this report the bays and frames are numbered from the east. The building was originally fully aisled with aisles extending around both ends, but unfortunately the north aisle has been removed within bays 1–3. Evidence suggests that the barn is of one build throughout and has not lost or gained any bays (see below). It housed two threshing bays at one time, within the third and fifth bays and therefore symmetrically placed. It is not clear if these were present from the outset, but it is likely. The barn is constructed in a conventional manner for an aisled structure of this period and locality.





BAY 4, SECTION TO SOUTH



CROSS-FRAME 4 (FROM THE EAST), LOOKING EAST

Cross-frames and reverse assembly

The barn's six cross-frames, except for some later alterations, are of identical construction, their timbers fixed together with mortice and tenon joints. Arcade-posts with shouldered jowls support the tie-beams and arcade-plates in the usual manner. Braces spring from these posts to the undersides of the tie-beams and arcade-plates. Passing shores descend from high on the rear faces of the posts into the aisles, crossing the aisle-ties by means of halvings before meeting the outer ends of the post-plates. Interestingly no spandrel struts, a feature often seen in early barns (and aisled-hall houses) are present within the frames here. Aisle-ties fixed to the rear faces of the arcade-posts cross the aisles to the aisle walls. Significantly the barn's wall-plates sit atop these ties, an arrangement that is known as reverse assembly – wall-plates normally sit below the tie-beams. Reverse assembly is a feature of early barns and aisled-hall houses. Interestingly the barn's first and last cross-frames incorporate re-used timber, the posts here lacking jowls (see below).

Arcades and arcade-plates

The arcade-plates are divided into three broadly equal lengths down each side of the barn, these lengths joined together with long splayed scarfs located above the threshing bays. This neat and uniform arrangement is one of several features that suggest the barn is of one build throughout its length. Interestingly they face in different directions, perhaps revealing the order in which the barn was assembled.

The arcade- and arch-braces are all substantial timbers of roughly square section, typically 17.8 x 20.3cm (7 x 8in). They are generally gently curved but occasionally irregular in shape as a consequence of the timbers used to form them. Such stocky braces are consistent with the barn's early date – in a later barn the braces would be thinner and more plank like.

Cantilevered end bays

The barn's cantilevered end bays are formed in the usual manner with the first and last tie-beams supported on the flying or cantilevered ends of the arcade-plates. Axial posts with up-braces are present beneath the centres of the tie-beams; there are no corner posts in a barn with such end bays. The ends of the barn, like the sides, are aisled, and the aisle construction seen within the cross-frames, including the reverse assembly, is repeated here (see above). Passing shores and aisle-ties are therefore tenoned into the outer faces of the axial posts as before.

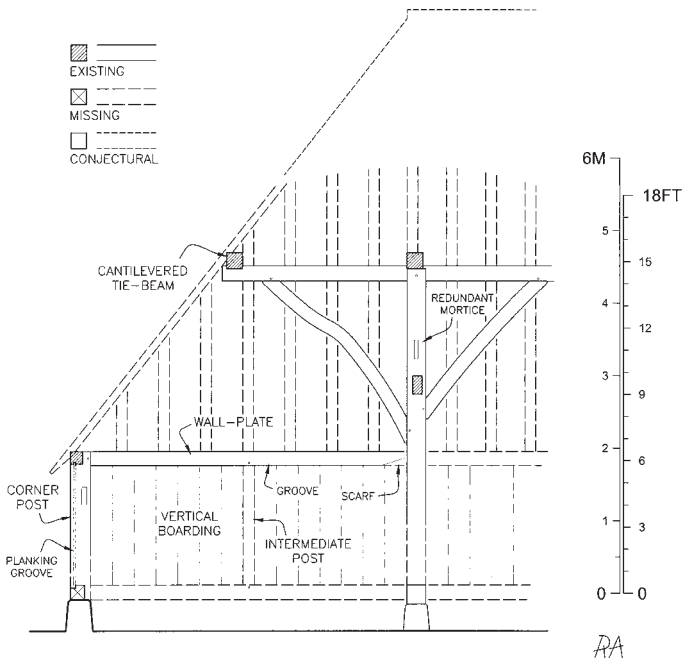
Aisle walls

The aisle walls are the most vulnerable part of any barn and are usually the most repaired. Copton Manor barn is no exception and its aisle walls have been almost completely rebuilt. A few original timbers do, however, survive at the east end of the barn, and with them evidence for the original arrangement.

The medieval corner post and central aisle-post survive in the east wall and atop them, the original wall-plate. The posts are unjowled, but do have upstands, these passing the aisle-ties to meet the soffits of the wall-plates, where they are fixed with tenons. Such upstands are another feature of early barns. Inspection of the wall-plate reveals mortices for two intermediate posts that have been removed, showing the wall was originally divided into four wide panels. The extant studs are all later insertions. Surprisingly no mid-rails were present in this wall, but the wall is relatively low (approximately 1.9m from soffit of ground-plate to top of wall-plate) and mid-rails, a common feature in other medieval barns (eg Frindsbury and Littlebourne but not Ozengell), were perhaps considered unnecessary.

The wide panels and lack of framing in this wall is surprising at first, but further inspection provides an explanation. A wide groove can be seen on the soffit of the wall-plate, showing that the barn's elevations were originally fitted with thick vertical boards. Grooves for these boards are also present in the sides of the aforementioned posts. This heavy boarding would, to some degree, have functioned as a structural skin, the walls requiring less framing and bracing than would have been the case if lath and daub had been used.

A medieval wall-plate also survives within the barn's south wall, in its first bay, supported by the aforementioned corner post and an aisle-post. A groove for boarding is present on the soffit of this timber too. Grooves in the sides of the aisle-post confirm this is an original timber. Interestingly it is



BAY 1 (EASTERNMOST), SECTION TO SOUTH

Detail of south arcade-posts, east end of barn, showing arrangement of posts, braces, arcade-plate, tie-beams and aisle-shores.

tenoned atop the post-plate, revealing that the barn's ground-plates were originally interrupted by the post-plates, another feature of medieval barns also seen at Frindsbury, Littlebourne and Ozengell. Later continuous ground-plates have been fitted around the rest of the barn, but a few original aisle-posts survive, these easily identified by the boarding grooves in their sides. All now rest on the later ground-plates.

Entrances

Evidence for original medieval entrances was lost when the aisle walls were rebuilt. Later tall wagon doors have been built in the north wall, within bays 3 and 5, these opposed by lower openings in the south wall (see below). These may well supersede the original entrances, which were perhaps lower, passing beneath the aisle wall-plates. Entrances in these locations would have given the barn symmetry, and also the best possible access to its interior.

Roof

The original roof can be seen in the 1940s aerial photograph, at which time it was thatched, but in the mid twentieth century thatch was replaced with a corrugated asbestos roof. The medieval roof was hipped to the east and west. No medieval roof timbers survived the twentieth-century rebuilding and evidence for the original arrangement is scarce. Empty mortices can, however, be seen atop the centres of the tie-beams and it has been suggested that crown-posts once sat in them. Unusually, there are no mortices in the tie-beams for the down-braces that are typically attached to crown-posts. Mortices are, however, present at the ends of the tie-beams for the principal rafters.

Although a conventional crown-post roof may indeed have covered the barn, the lack of down-braces is odd, and other roof forms should not be ruled out. Roofs without purlins are not uncommon and in this case the central mortices would have accommodated crown-struts. Roofs combining crown-posts and a central purlin with scissor braces are also known. Unfortunately unless evidence such as an early photograph of the barn's interior comes to light, we will never know.

Re-used timbers

The barn's first and last frames incorporate some interesting re-used timbers, the most notable of which are the arcade-posts. These appear to have been arcade-posts in their previous life, salvaged perhaps from an earlier barn. Such timbers also occur in aisled hall houses, but if those here had come from such a source, one might expect them to be soot blackened from a hall's open fire. Redundant lap joints can be seen at the heads of the posts. The south aisle tie within cross-frame 1 is also re-used, and notable for the redundant notched lap joint that can be seen on its east face. Lap joints can also be seen within the cantilevered west bay. The braces that spring from the axial post here are lapped to the tie-beam, suggesting the post, tie-beam and braces have also been re-used.

The re-used timbers are of interest. The presence of lap joints, generally only found in the earliest of our timber-framed buildings, suggests the timbers came from a thirteenth- or perhaps even twelfth-century structure. Perhaps they came from the barn mentioned in the 1294 entry in the Henry of Eastry list for Copton as being re-roofed at this time, and presumably therefore already of some age, but this can only be conjecture.

Interior of the barn, viewed from the west end, above inserted mezzanine floor.

Eighteenth- and early nineteenth-century alterations

The barn's aisle walls were almost completely rebuilt in later years, their varied appearance showing they were repaired in a piecemeal manner over a period

of time. The original flint and stone dwarf walls have been replaced throughout with brick, their appearance suggesting a nineteenth-century date.

Later wagon doors and south entrances

A tall wagon door was added to the north side of bay 5, leading onto a threshing floor. Its roof has been dismantled and replaced with corrugated asbestos, but it can be seen on the 1940s photograph. This shows it terminating in a gable directly above the aisle wall. A second wagon entrance was added to the north side of bay 3 and can also be seen on the photograph, but this was removed in the mid twentieth century when the aisles here were dismantled. The north wagon entrance had a projecting canopy with a hipped roof and the different construction of the two entrances suggests that they were added at different times, though it could be that the west canopy was cut back at some time.

Both wagon doors were opposed by wide but lower entrances in the barn's south wall. These have both now been reduced in size and smaller doors fitted. It is of note, however, that the ground level is lower on this side of the barn, and unless there were once earthen ramps, wagons or carts cannot have been drawn into the building through these entrances. Carts or wagons may perhaps have been brought close and straw or other produce tossed through. It is of note that the dwarf wall steps down below the west entrance, presumably to facilitate loading here. A later timber threshing floor is present in bay 5, its boards pegged to joists laid across brick piers. Another such floor may have been located in bay 3, where there is now a worn brick floor. The aforementioned southern entrances may have created a draught across these threshing floors, allowing the corn to be winnowed; winnowing doors are common in threshing barns.

Twentieth century

Floors were inserted into the fourth, sixth and seventh bays of the barn, but these are modern. Concrete was also poured between and over the timbers, in the sixth and seventh bays, and applied over the dwarf walls, apparently to create a more secure and easily cleaned environment for animals. The aforementioned corrugated asbestos roof was also installed during the latter years of the barn's use.

Ewell House, Graveney Road, Goodnestone

Rupert Austin

Ewell Farm is located in a rural setting on the south side of Graveney Road, approximately 2km east of Faversham. The former farmhouse, now Ewell House (NGR 60342 16085), lies to the south of the farmyard, but is no longer part of the working farm, which now comprises a collection of mostly modern buildings. The property is Grade II* listed and is divided into two residential dwellings, the first in a north–south aligned range at the west end of the house, the second in the main body of the building to the east. The latter part of the property was recently purchased and the new owners have begun an extensive campaign of repair and refurbishment. Historic building recording formed a condition of planning and the Trust was commissioned to carry this out during the early part of 2012.

South elevation of Ewell House during the works.

Medieval

Ewell House possibly dates back to the fourteenth century with the remains of a timber-framed, open-hall house behind later brick elevations. The house has been dramatically altered over the years, and all that now survives of its fourteenth-century origins is the high-end wall and crown-post roof of its hall. The hall was large in comparison to many of its type, suggesting Ewell to be an important building, one owned and occupied by a successful family, though not perhaps quite of gentry status. It seems likely the hall was originally flanked by in-line wings, but these have been lost, that to the west replaced, in perhaps the fifteenth century, with a cross-wing, and that to the east simply demolished. The later cross-wing is now the best preserved element of the house. The original wings were likely floored, accommodating therefore both ground and first floor chambers, the upper chambers open to the roof. The building would have been covered by a single roof, hipped to the east and west. Evidence suggests, albeit tentatively, that the original house was aisled, on one if not both sides.

Open-hall

The open-hall comprised two bays and was aligned roughly east–west. It measured 9.9m long by 7.4m wide. A dais-beam still survives within its east wall, showing this to be the high-end. Service doors are present in the later west cross-wing, confirming this to be the low-end of the house.

Crown-post roof

Much of the hall's original roof remains, heavily soot blackened as one would expect. The roof is of crown-post form, with soulace braces whose presence together with a possible splayed scarf within the collar purlin suggests a fourteenth-century date. The central crown-post is unfortunately missing, but would probably have been decorated.

Soot-blackened crown-post roof over former open-hall, looking west. Note soulace braces.

The undecorated high- and low-end crown-posts do survive, flanked on their north and south sides by long curved down-braces, and on their east and west sides with short up-braces (to the collar purlin). An empty mortice for an easterly up-brace from the east crown-post confirms the loss of the east high-end bay.

High-end wall

The high-end wall of medieval halls were often more elaborately framed than their low-end walls, so as to emphasise the more important part of the house. The high-end wall here is indeed attractively framed, and survives largely unaltered. Its most prominent feature is a handsome dais-beam located at the level of the present inserted first floor. The beam is cyma, cavetto and roll moulded, the central cavetto deep and pronounced and consistent with an early date. The beam might be crenellated along its top edge, but the extant inserted floor conceals any such detail. The framing above and below the beam comprises wide studs and intermediate posts, quite closely spaced at roughly 610mm (2 ft) centres. Long curved braces descend into the wall from the principal posts, to the north and south, on both the ground and first floors, passing the aforementioned studs and intermediate posts by means of halvings.

No evidence for a dais bench is present, but such evidence is not always found (perhaps the bench was free standing). There is tentative evidence for a dais-spere – a short screen that protected the dais bench from the door to the high-end wing. The moulding on the dais-beam is interrupted towards its south end, and a vertical peg has been driven down through the beam, perhaps to secure the head of a spere. Nails and nail holes are also present at this point, on the post and brace below. These details are rather crude; the spere could be a later feature.

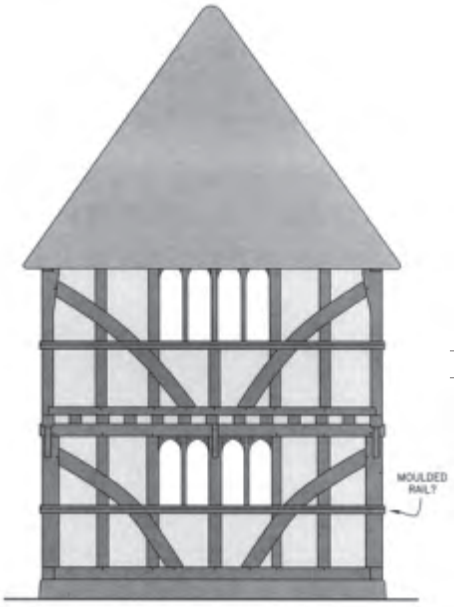

High-end wall of former open-hall from ground floor living room.

The parlour door and missing aisle(s)

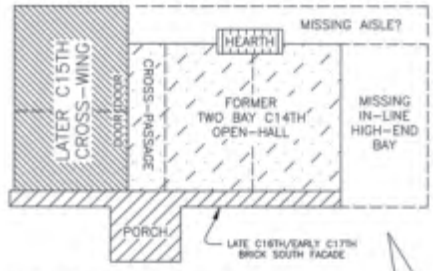
Intriguingly, and despite possible evidence for a dais-spere, no parlour door is located in this wall. One possible explanation for its absence is that it was located within a now missing aisle. Observations made during the recent works strongly suggested the hall was aisled to the north. The most compelling was the absence of a medieval elevation in what is now the hall's north wall. One might have expected at least the remnants of a wall to have survived here, but only nineteenth-century fabric was exposed during the recent works. However, this would not have been a wall if there were originally an aisle along this side. A beam belonging to the hall's later inserted floor (see below) was observed instead. This provided further evidence for an aisle. Its outer face was ovolo moulded and interrupted by a number of rotted out joist mortices, suggesting the inserted floor continued into our missing aisle. It is possible an aisle was also present along the south side of the hall, but no evidence has yet come to light here.

Low-end wall and cross-passage

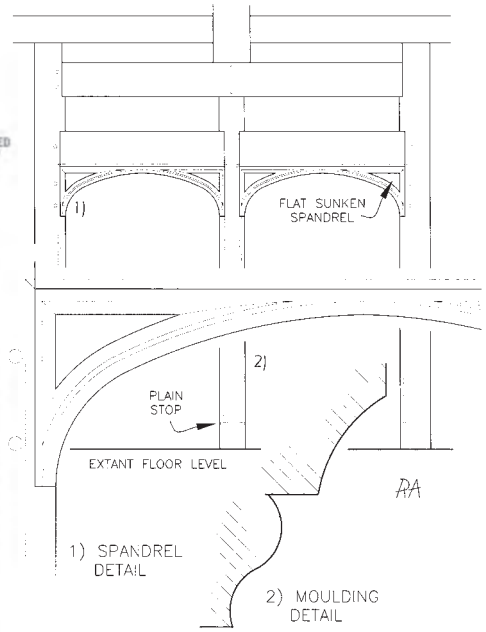
The hall's low-end wall unfortunately no longer survives, being dismantled when the extant cross-wing (see below) was built and the east wall of the new wing took its place. A cross-passage invariably passed through the low bay of a hall, the front and rear entrances to the house leading into either end of this passage. Such a passage was undoubtedly present here. A modern porch now stands where the north entrance into this passage was located. A two-storey, late sixteenth- or early seventeenth-



RESTORED VIEW OF NORTH ELEVATION OF CROSS-WING



PHASE PLAN SHOWING MAIN BUILDING COMPONENTS



EAST FACE OF CROSS-WING SERVICE DOORS (RESTORED)


Medieval traceried window in west ground-floor wall of cross-wing.


North-west corner of cross-wing during works. Note remnants of window cills/rails and inserted doorway.


Cross-wing crown-post.

century brick porch (see below) stands where the south entrance was located.

A fifteenth-century cross-wing

A two-bay cross-wing now replaces the hall's original in-line west wing, its features suggesting a fifteenth-century date. The presence of two service doors in its east wall suggests the house retained its medieval arrangement and open-hall at this time. The wing is effectively its own freestanding structure, with framing independent of the hall. The framing of its elevations is characterised by relatively closely spaced (approximately 1m centres) intermediate posts and long curved braces. The wing is covered by a conventional crown-post roof, hipped to the north and south. The north hip survives intact, but the south hip is later work. The attractive central crown-post has an octagonal shaft with a moulded base and capital.

The wing is jettied to the north, and was presumably once jettied to the south, before this elevation was rebuilt (see below). It accommodated two ground floor rooms, presumably service rooms (a buttery and pantry) and a single first floor chamber, originally open to the roof. The upper chamber seems to have been rather grand for the low-end wing of a house, and it is possible the distinction between high and low ends was partly reversed at Ewell, the master bedroom or solar perhaps occupying this chamber, even though it lies above service rooms. Such reversals are unusual but not unknown.

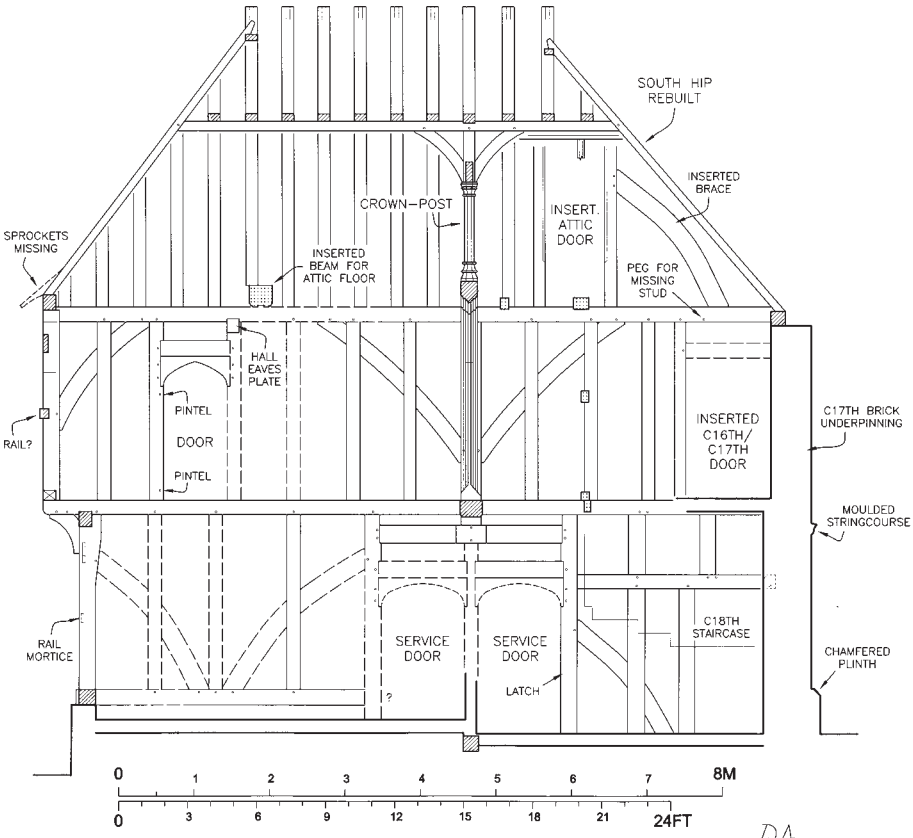
Windows

One of the wing's most prominent features was its elaborate and attractive windows, the presence of which is consistent with a high status building. Evidence for these is visible in both the north and west wall, but only one survives, illuminating the north ground-floor chamber. All the windows were fitted with tracery to give each window opening four lights. The tracery was carved onto separate window heads, housed beneath the wing's plates, and tenoned into the sides of the window posts. The tracery in the surviving window has pointed two-centred arches with pierced spandrels. The window jambs and mullions were moulded with cyma and cavettos, the mouldings terminating in broach stops. The window cills formed part of a continuous and slightly projecting rail that ran the full length of the elevation. These rails were perhaps moulded externally, but all have now been lost.

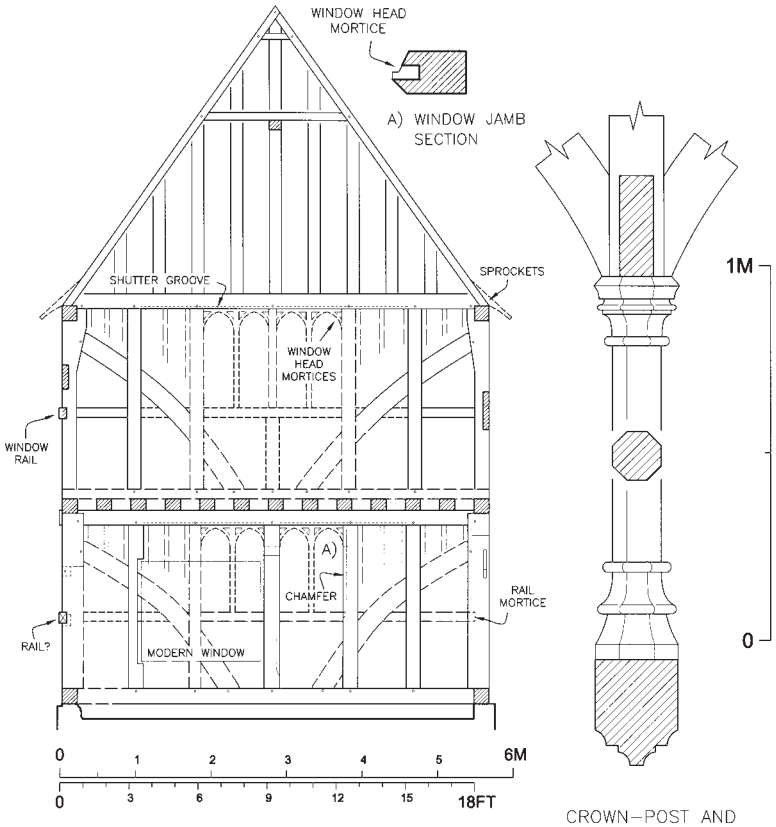
The windows, like those in most medieval buildings, would have been unglazed, and shuttered at night or during bad weather. Grooves for shutters can be seen above the openings. All but one of these slid horizontally, as in most buildings, but because the surviving ground floor window lay close to the corner post, its north shutter was arranged to slide vertically.

East wall

The wing's east wall is mostly internalised by the former hall, but it does project slightly beyond the main body of the house to the north. The most prominent feature of this wall was its two side-by-side



EAST WALL OF CROSS-WING, INTERIOR FACE
(PARTIALLY RESTORED)



NORTH WALL OF CROSS-WING, INTERIOR FACE (PARTIALLY RESTORED)

CROWN–POST AND TIE–BEAM MOULDING

service doors. Only one of these remains in use, the other has been blocked. Investigation showed the doors were fitted with low, four-centred door-beads, their best sides to the hall. The door jambs were cyma and cavetto moulded.

A similar, but smaller and rather more intriguing blocked doorway survives in this wall at first floor level in the north bay. The up-brace from the wing's north-east corner post here is deliberately shorter than the others, so as to miss the door, confirming it to be an original feature. It retains its original four-centred door head with plain sunken spandrels. Like the service doors, its best face lies to the east. Holes for iron pintles on which the door would have hung, can be seen in the west face of the frame.

The door's purpose is a matter for debate. It opens above the north door that led into the cross-passage of the former open-hall. One possible explanation for the feature is that a two-storey porch was added to the house, when the west wing was built and the door led into a small porch chamber. Our putative north aisle however, would have been removed here by any such porch.

Late sixteenth- or early seventeenth-century modernisation

The house was thoroughly refurbished and modernised in the late sixteenth or early seventeenth century. The south elevation was rebuilt in brick, perhaps becoming the front of the building at this time. The open-hall was floored, to create a ground floor hall and first floor hall chamber, and a chimney constructed. Attic or garret rooms were formed and a first floor staircase created, within the cross-wing, to provide access to them.

The inserted first floor comprises a series of intersecting beams, arranged to form a handsome twelve compartmented ceiling over the ground floor hall. The beams, typically for the period, are ovolo moulded – the common joists are hidden by a lath and plaster ceiling. No evidence for partitioning was observed beneath the floor, showing the ground floor hall to have occupied the whole footprint of the former open-hall. It has since been subdivided by modern partitions. The hall chamber similarly occupied the whole of the first floor.

A chimney heated the newly formed ground-floor hall, set against the north wall in its high-end bay. Unfortunately the hearth has been heavily rebuilt, and its lintel replaced, but remnants of the original ovolo and cavetto moulding jambs remain. New stairs were usually formed when a hall was floored, but none can be seen so perhaps they were replaced by the present modern staircase.

Garret (attic) rooms

The inserted attic floor is simpler than the compartmented first floor, comprising only one central north–south aligned beam and two east–west aligned spine-beams. The floor has been located slightly above eaves level, and therefore partly within the roof, so as create a lofty hall chamber. The former open-hall's tie-beam and crown-post must have been removed when this floor was inserted. Two

Framing of late sixteenth- early seventeenth-century cross-wing attic stairwell exposed during works.

garret rooms were created above the new attic floor, illuminated by dormer windows along the north slope of the roof. A garret must also have been formed in the missing east wing, for an attic door leading to it was inserted through the hall's high-end wall. This was blocked when the wing was demolished.

Inserted cross-wing partitions, attic floor and attic stairs

The cross-wing's upper chamber was also floored over and an attic formed, with the inserted floor resting on the original tie-beam and a new east–west aligned beam. The new beam is moulded like those inserted in the hall, suggesting a similar date. A staircase, to the new attic, and partitions were formed in the wing's upper chamber at this time, in its south bay. The partitions formed a stairwell and also divided the chamber into two rooms. The stairwell was protected by an attractive balustrade at attic level. This survives intact and comprises both square sectioned and hand turned balusters beneath a moulded handrail. Only the first step of the staircase is original, which typically, for the period, is a solid oak tread. The rest have been replaced with modern treads and risers. Painted decoration, including two Tudor roses and a pomegranate, common motifs of the period, was revealed in the stairwell during the renovations.

A new south elevation and porch

The house probably faced north originally, towards the farm, but was perhaps reversed to face south at this time and its south elevation given a fashionable new brick facade. The south wall of the cross-wing was dismantled and the south bay truncated, to bring the wing in line with the new brick elevation, and a new south hip formed.

Detail of balustrade around cross-wing attic staircase, showing turned balusters and moulded handrail.

Painted decoration on cross-wing timber exposed during works.
Note Tudor rose (left) and pomegranate (right).

The new south elevation rises from a chamfered plinth and has a cavetto and ovolo moulded first-floor string course. Its windows have all been altered but were perhaps originally mullioned and transommed, probably in brick though oak frames are also possible. A two-storey porch covered by a small clasped side-purlin roof formed the central element of the new elevation. Its entrance has an ovolo moulded four-centred arch flanked by shallow brick pilasters. Small windows with cavetto moulded brick mullions, were included in the east and west walls.

The eighteenth century

Little eighteenth-century fabric is present today. The only significant survival is an attractive, mid eighteenth-century, open-well staircase within the south bay of the cross-wing giving access to the first floor. The turned baluster and moulded handrail of this staircase are typical of the period.

Detail of inserted close-studding and original, but blocked, two-light first floor window in the south-east (front) wall of Pett Dane cottage.

Pett Dane, Eastling, Faversham

Rupert Austin

Pett Dane is located in an isolated woodland setting approximately 1.1km south-east of Eastling and 6.3km south-west of Faversham (NGR 597447 156345). This small timber-framed cottage, probably once part of a small farmstead, but more recently used to accommodate staff of the Belmont estate, was recently Grade II listed. It is in a poor state of repair and new owners commissioned an archaeological assessment of the property preliminary to refurbishment. This was carried out in July 2011.

The oldest part of the property is a two-bay, two-storey timber-framed structure that forms the front range. The general appearance of this range suggested it to be a relatively straightforward structure of perhaps early sixteenth-century date, but closer inspection, revealed a more complex history. A number of inconsistencies suggested that the building had been dismantled and reassembled and that the structure is older than it first appears, brought to its present location perhaps in the early sixteenth century. Some modifications appear to have been made to its original design and arrangement during its reassembly, possibly as an attempt to update the structure. Our work also found that the house was longer in the past. Trial trenches excavated at its north-east end revealed a platform cut into the natural subsoil, which presumably supported a missing bay perhaps demolished in the eighteenth century.

The range presently measures 7.38m long by 5.87m wide and is aligned roughly north-east by south-west. Its oak frame, which sits on low flint and stone dwarf walls, has seen many alterations and losses over the years. Evidence suggests that the building originally possessed a crown-post roof (empty mortices for a missing crown-post and braces can be seen atop the central tie-beam), but this was rebuilt in modern times. Both bays were floored from the outset with a large two-bay chamber occupying the first floor and two smaller single-bay rooms the ground floor. The slender floor joists are laid on-edge, and of broadly sixteenth-century appearance, but they are fitted into larger, earlier mortices in the central bridging-beam. This is one of the inconsistencies: it is unlikely that they have been replaced as they support the jetty. There is no original trimmed opening in the floor for stairs, suggesting they were located in a missing bay. Stairs were introduced, later, in both bays. Only those in the north-east remain.

The building is end-jettied to the south-west with the jetty constructed in the usual manner, but is not jettied to the north-east, another clue that a bay has been lost. A curved down-brace descends from the first-floor south-west corner post, but interestingly none descends from the present north-east post. This is further evidence for a lost bay. Similar down-braces were present in the other elevations, on both ground and first floors.

One of the most prominent features of the range is its close-studded elevations. Such framing is characterised by wide, closely spaced timbers, the gaps between of similar width to the timbers themselves. Some patches of lath and daub survive between these studs. Again, close inspection

General view of south-east (front) elevation of cottage.

Detail of jetty construction, south corner of south-west bay. Note integral jetty-bracket and corner post.


General view of first floor of bays, looking north-east. Note modern roof and original central tie-beam atop jowled posts.


General view of ground floor of north-east bay, looking south-east. Note slender, on-edge first floor joists.

revealed a surprise. Small round-ended mortices, for earlier concealed staves, can be seen in all the elevations, showing that the close studding is a later feature. This change from concealed staves, to close-studding, is good evidence that the frame has been dismantled and reassembled. The studs are tenoned in place making them difficult to insert into a standing structure. They must have been introduced in order to update appearances when the range was reassembled. Before then the elevations would have comprised large lath and daub panels with only the primary timbers exposed to view. Such framing could date from any point in the fifteenth century, if not slightly before.

The front elevation of the range is the best preserved. An unglazed, two-light window was once present on its first floor, within the centre of the elevation, but is now blocked with lath and plaster. Mortices for diamond section mullions, and a groove for sliding wooden shutters can be seen over the window. A small, single-light window was once present on the ground floor, within the south-west bay and a larger window in the north-east bay. These are now replaced with modern windows.

The rear (north-west) elevation is poorly preserved, but most of its original arrangement can be determined. The elevation is internalised by the modern rear extension, and before this a lean-to (see below), but evidence for a central, two-light, first floor window, like that in the front wall, confirms it was originally an external wall. A small, single-light window was once present at ground level, within the south-west bay, opposite that in the front wall.

The north-east elevation differs from the other elevations, its features suggesting an eighteenth-century date. It seems likely that the framing here was rebuilt when the north-east bay was demolished. It rests upon a brick dwarf wall, its jowled corner posts slender in comparison to the posts elsewhere. The elevation, unlike that to the south-west, is also unjettied, and lacks bracing. The absence of nail holes, for laths, and the unweathered appearance of the timbers, suggests the elevation was weatherboarded from the outset.

A brick and flint chimney, of perhaps seventeenth-century origin, survives against the rear wall of the range. This is much altered, but some original tumbling-in survives where its flue gathers. Surprisingly it is now located at the corner of the range, but if our lost north-east bay is added it occupies a more central, and useful location. The chimney must have been formed when the range was reassembled.

A brick built single-storey lean-to, of eighteenth- or nineteenth-century date, once abutted the rear wall of the range, but this was replaced, in 1997, with a two-storey extension. The 1894 Ordnance Survey map shows the building with its original lean-to and also outbuildings to the north-east and north-west. A well is shown close to the north-west side of the house.

Pett Dane proved to be an intriguing building. If was moved from elsewhere, was it from far or close by? Was an entire building moved, or only a part? What sort of building was it and how was it arranged? Its well-lit interior suggests it was probably domestic – was it part of a medieval open-hall? More information will hopefully come to light as refurbishment work proceeds.

The Old Archdeaconry, The Precincts, Rochester

Rupert Austin and Peter Seary

The Old Archdeaconry, a Grade II listed building, is located on the southern edge of the precincts, close to Rochester Cathedral (NGR 57420 16835). An historic building appraisal was requested by Medway Council in order to inform planning decisions with respect to the historic fabric during proposed refurbishment. This was carried out in November 2011. Externally, this large, handsome, but rambling building appears to be of the eighteenth century, with nineteenth-century additions, but closer investigation shows the property has earlier origins.

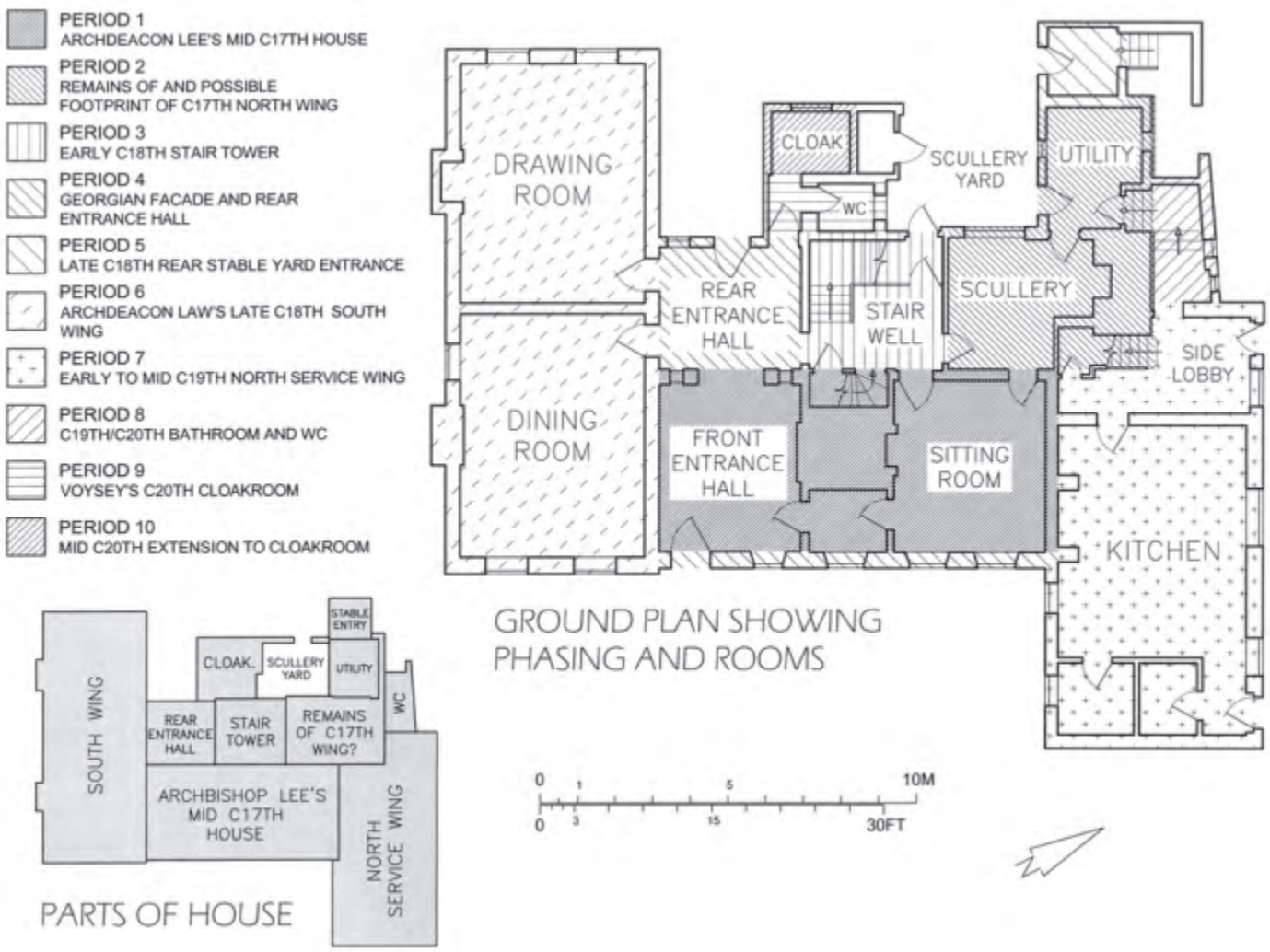
Medieval

The building straddles the line of a fourteenth-century section of Rochester's city wall. None of this is still upstanding within the building, but a short length does survive to the rear forming the present north boundary of the garden. As one would expect of a city defence, it is massively built, measuring approximately 5 feet 6 inches (1.67m) in width. It is formed of roughly coursed rubble, comprising mostly ragstone and flint. The line of the wall is also preserved in the division between the main range and the north wing of the house.

St Andrew's Priory was surrendered to the Crown in 1540 and a New Foundation established *c* 1542. Six prebendaries or canons were appointed in 1543, and were provided with houses among the former conventual buildings. Unfortunately many of the best sites had been retained by the King, for a palace, and shortly afterwards given to Lord Cobham, apparently leaving relatively poor accommodation for the prebendaries.

By 1593 the ground inside the city wall in the vicinity of the present Old Archdeaconry, and south of Minor Canon Row, was known as the 'Hog Yard', suggesting past agricultural use. This has led to some suggesting


General view of front (east) elevation of house showing Archdeacon Law's late eighteenth-century Period 6 wing (left), mid eighteenth-century re-fronting of Archdeacon Lee's Period 1 seventeenth-century house (centre), and mid nineteenth-century Period 7 service wing (right).



the Old Archdeaconry was once a farmhouse, but no part of the present building appears to pre-date the mid seventeenth century. If there were a farmhouse here, this must have been entirely removed when the present house was erected.

The seventeenth century

Archdeacon John Lee, 1661 to 1679

John Lee, a Fellow of Magdalen College, Oxford, was installed as Archdeacon of Rochester at the Restoration. Since 1639, when the sixth stall was annexed to the archdeaconry, the archdeacon had necessarily been a prebendary. At the time of Lee's appointment, the sixth stall had had its prebendal house, the Archdeaconry, in one of the monastic offices near the west end of what is now Minor Canon Row, but this had become uninhabitable and Lee was granted a new property in the Vines. Whilst it is possible Lee moved into an existing building, evidence suggests a new house, the present Old Archdeaconry, was built for him.

Lee's mid seventeenth-century timber-framed house

The remains of Lee's house can be found within the centre of the present building, additions having since been built to the north, south, and west. Inspection shows his house to have been an entirely timber-framed structure, but only parts of this have escaped later rebuilding. Lee's house appears to have comprised three bays, with a combined length of approximately 10.39m and a width of 5.03m. These bays still survive, albeit with many alterations. They show that his house was aligned north–south, and of two storeys throughout, with garret rooms in the roof. The north and south bays contained the dwelling's rooms, the short 2.3m long central bay a chimney. This arrangement has essentially survived until the present day, albeit now as part of a larger house. The chimney appears to have had hearths on both the ground and first floors from the outset, the dwelling's main rooms therefore always being heated,

North ground-floor room of Archdeacon Lee's seventeenth-century, Period 1 house, showing eighteenth-century refurbishment (panelling, doors, fireplace etc).

as we would expect by this period. The attic hearths are probably later features.

Cellars are present beneath the north and south bay of Lee's house, on either side of the chimney. Their walls are of brick and stone construction, but only that beneath the south bay would appear to be an original feature with its dimensions similar to those of the room above.

The roof of Lee's house survives, but is mostly hidden by lath and plaster. Some purlins and a collar can be seen, suggesting it is of staggered butt side-purlin form, a type that was introduced during the seventeenth century.

Although much of the general form, and some of the details of Lee's house can be determined, numerous questions remain. How for example was it entered, how were its rooms connected, and where were the stairs to the first floor located? With so little of the structure remaining or visible, it is perhaps unwise to make too many suggestions, but a couple can perhaps be made.

There is good reason to suggest that the low-end of Archdeacon Lee's house containing the service rooms lay to the north, the high-end, containing the best rooms, to the south. A barn, and later a stable yard and coach house, were located close to the north end of the building. One would certainly want to keep the better rooms of a house well away from such odorous and unsightly features. A large open garden lay to the south, by far the best place to site your parlour and master bedroom. Unsurprisingly the house is still orientated this way, the extant south wing containing the property's most handsome rooms. It also seems likely that Lee's house was of lobby entry form, the cross-passages that were an almost universal feature of medieval houses, and common in transitional buildings of the early post-medieval period, abandoned by this time.

Archdeacon Thomas Plume, 1679 to 1704, and a missing north wing

Archdeacon Lee died in 1679, and was succeeded by Thomas Plume DD. An east–west aligned brick wall and chimney survive at the north end of the house, forming the north wall of the utility room and scullery. It is suggested these are the remains of a lost wing, the appearance of the brickwork suggesting a date in the third quarter of the seventeenth century. The putative wing could, therefore, have been the first significant addition to the house, and perhaps the work of Plume. No more of its fabric appears to survive within the building.

The early eighteenth century

Archdeacon Thomas Spratt, 1704 to *c* 1719, and the rear stair tower

Archdeacon Plume died in November 1704 and was replaced by Thomas Spratt MA FRS, the son of Rochester's bishop of the same name (Rawlinson 1717, 106). The second significant addition to the house was perhaps the substantial, three-storey stair tower that is located against the rear wall of the property. The features of this tower suggest it

Early eighteenth-century, Period 3 staircase. Note contemporary doors and small-square panelling.

Detail of turned balusters and moulded handrail of early eighteenth-century, Period 3 staircase.

was built in the early eighteenth century, and it can perhaps therefore be attributed to Spratt. The structure is square in plan, measuring approximately 3.84m along each side. It must have abutted our putative north wing on its north side, but originally faced open ground to the south, the extant rear entrance hall here later work (see below). The tower is timber-framed, but this framing is presently concealed by lath and plaster internally, and weatherboards externally. Its roof is inaccessible, but appears to be of clasped side-purlin form, and therefore different to the butt side-purlin roof of the original house

A spacious and handsome open-well staircase, with full and quarter landings, rises up through the tower, providing access to the first, second and attic floors of the house. This is formed in pine, and is certainly the property's finest feature. Its stocky, turned balusters are morticed and tenoned into moulded handrails and closed strings. The newels are surmounted by caps and spherical finials and turned pendants hang beneath them. Part of the roof of Lee's house was removed, at the rear, to allow an attic level landing to be formed at the head of the stairs.

The stair tower was provided with nine doors, thereby giving it comprehensive access to the house. All remain in use today, most still fitted with their original pine, plank-and-ledge doors. Ovolo-moulded battens have been nailed to these doors to give the impression of panelling, a common technique at this time. Six of the doors lead to the east, serving the original seventeenth-century house. Three lead to the north, originally into our putative north wing, but now into later rooms. Small square panelling survives within the stair tower at ground level. It is of pine and of similar appearance to the aforementioned doors, and perhaps therefore original. The tower's original windows were perhaps mullioned and transomed, with leaded lights, but have been replaced.

Rear attic dormers

Two dormer windows were added to the roof of the house, against its rear slope, in perhaps the late seventeenth century. One still survives, albeit blocked and internalised by the roof of a later rear entrance hall. This had a two-light window. Shallow rebates for its leaded glass, and mortices for its wooden stanchion bars, to which the leaded glass was secured, can be seen. A sloping timber board fitted externally above the opening, to protect the window from the weather, still survives.

The mid eighteenth century

Archdeacons Bridges, Bradford and Denne, 1720 to 1767

Archdeacon Spratt was succeeded in 1720 by Henry Bridges. Bridges seems to have died early in 1728 and he was replaced by Samuel (or William?) Bradford, who was appointed on 13 June 1728, but died exactly a month later. His successor was John Denne, who was archdeacon until 1767.

The Georgian facade

Probably during either Bridges' or Denne's archdeaconry the house was provided with a Georgian frontage. Such remodelling was commonplace at this time. Many aspired to a new Georgian house, but most could not afford to move or rebuild their older properties and they resorted instead to disguising their homes, which were usually timber-framed, with new brick facades.

This new frontage is now sandwiched between the later facades of the south cross-wing and north

service wing. In many respects this work resembles the front of the nearby Minor Canon Row, dated 1736, and is probably of broadly similar date. Most of the front of Archdeacon Lee's timber-framed house appears to have been removed at this time, but a few timbers (the principal posts) have survived behind the later brickwork.

The elevation's neat, uniform appearance is typical of the period with windows, five on the first floor, four and a door on the ground floor, all equally spaced. The ground-floor windows have attractive rubbed-brick window heads, which are flat and well executed. The window heads and reveals are picked out in brighter, redder bricks. The sashes, characteristically for the period, are fitted flush with the façade (the present frames are later replacements). The front door has been replaced (see below), but its predecessor is shown in a 1930s sketch (Wheatley 1939) and appears to have had a fanlight. Fanlights are generally a late eighteenth-century feature and this door, if correctly represented, is also likely to be a replacement. The modillioned timber cornice is also perhaps a later fitting, introduced to match that of the south wing (see below).

Front ground-floor recepetion room of Archdeacon Law's late eighteenth-century, Period 6 south wing.

The rear entrance hall

The front entrance to the house was presumably relocated to its present position when the new façade was built. This may have initiated changes at the rear, for the extant rear entrance hall, which lies directly opposite the newly formed front door, comprises similar brickwork. A handsome Georgian doorcase, with fluted columns and a dentilated entablature with triglyphs, leads into the rear hall, but this seems rather elaborate for a back door, and may have come from elsewhere. It is perhaps the original front door.

Interior refurbishment of the central range and other changes

The rooms of Lee's seventeenth-century house were surely refurbished when it was re-fronted. Plain unfielded and unmoulded panelling, moulded dado rails and timber cornices of this period now line the walls of the north ground-floor room (now the sitting room). A cast-iron hob grate of perhaps late eighteenth- or early nineteenth-century date has been fitted to the room's hearth. The south ground-floor room, now the front entrance hall, may have been similarly refurbished, but has since been remodelled (see below). The first-floor bedrooms were also fitted with plain unfielded and unmoulded panelling and moulded dado rails, but only along their front walls. Timber cornices also run around these rooms. Folding timber shutters were fitted to the window openings and two-panel doors introduced. The extant small dormer windows in the front slope of the roof must also have been added at this time.

A lost eighteenth-century wing

Baker's Rochester map of 1772 shows the Archdeaconry as an L-shaped building, with a forward projecting wing at its north end, inside the line of the city and precinct wall. Just such a wing is present here now, but this appears to be of early to mid nineteenth-century date (see below) and is surely a later replacement. That it replaces an earlier wing is perhaps confirmed by the aforementioned 1930s sketch, which shows a different structure to the present, smaller and of a single-storey, with a single round-headed window in its gabled east wall. Both this and its replacement were probably service wings.

The late eighteenth century

Archdeacon Law, 1767 to *c* 1827

John Law became Archdeacon following John Denne's death in 1767, and continued in office until *c* 1827. Law appears, like other archdeacons, to have altered the house soon after moving in, adding the large south wing extant today.

The south cross-wing

The south cross-wing remains largely unaltered, and is necessarily aligned east–west, measuring approximately 14m long by 5.7m wide. Its original windows are all located in the east and west walls; none are present in the north. They have stone sills, flat window heads of rubbed red brick, and sashes with thin glazing bars. Several of the sashes have now been replaced. Unlike the windows of the earlier Georgian facade, those here have recessed sash boxes. All are fitted with internal folding wooden shutters.

The wing's rooms are generously proportioned, with high ceilings, their architectural treatment restrained, as one would expect for the period, with plastered

Adam fireplace in west ground-floor room (drawing toom) of Archdeacon Law's late eighteenth-century, Period 6, south wing.

Detail of central tableau of Adam fireplace, west ground-floor reception room of Archdeacon Law's late eighteenth-century, Period 6, south wing.

rather than panelled walls. All are heated, except the first-floor dressing room, the hearths served by two chimneys projecting from the south wall. Two reception rooms are present on the ground floor, now the dining room and drawing room. Both have shallow cornices, moulded dado rails and simple skirting boards. Their best features are undoubtedly the two handsome Adam fireplaces. These are of pine with finely detailed, applied decoration, perhaps cast in plaster. Their woodwork would originally have been painted, the plaster decoration perhaps lacquered or varnished and appearing white on a coloured ground. The paint was stripped away in the twentieth century (see below).

Two bedrooms, a dressing room and small landing are present on the wing's first floor, the treatment of these rooms simpler than those of the ground floor. The central dressing room is accessible from the front bedroom, but also from the landing, perhaps so a maid could enter without disturbing the occupants of the bedroom. The south wing was not provided with a staircase, and access to its bedrooms was therefore from the main house, through the upper floor of the rear entrance hall. Its first floor is higher than those of the earlier parts of the building, and a short flight of steps was introduced.

New stables and coach house

By 28 June 1778 the stables belonging to the Archdeaconry had fallen into 'a very ruinous and dilapidated state and incapable of any repair'. It was ordered that they 'be forthwith pulled down'. The Archdeacon was allowed 'to build new stables on a piece of ground in the Hog Yard adjoining his prebendal house'.[3] Thus the Archdeaconry grounds were extended northwards, further into the late medieval precinct. A four-horse stable and double coach house were erected along the western edge of this plot, against the east elevation of the St Margaret's Parsonage barns.

The early to mid nineteenth century

Archdeacon Walker King, 1827 to 1859, and the north service wing

The appearance of the present two-storey north wing suggests it dates from King's archdeaconry, rather than Law's. It was suggested, above, that it replaces a smaller eighteenth-century wing. Most recently it has been referred to as a coach house, but we have seen that a new coach house and stables were built further to the north in the eighteenth century, and this cannot have been its intended use. Its misidentification can surely be attributed to its conversion into a motor garage in modern times (see below). It most likely had a service use at first, with perhaps a kitchen on the ground floor and servants' accommodation above.

The wing stands on lower ground to the north and its floor levels are therefore below those of the main house. It is brick built, of two storeys, and aligned east–west. Significantly the wing faced north (its original windows and entrance are all located in

Late eighteenth-century or early nineteenth-century cast-iron hob grate.

the north wall) towards the stable yard, this alone suggestive of service use. A softwood king-post roof, of typical early to mid nineteenth-century construction, covers the wing.

Archdeacon Anthony Grant, 1860 to 1883

Archdeacon King died in 1859. His duties were executed, for a time, by the honorary canon Robert William Shaw, before the new archdeacon, Anthony Grant, was appointed the following year.

The late nineteenth century

Archdeacon Samuel Cheetham, 1883 to *c* 1908, and the remodelling of the front and rear entrance halls

Anthony Grant died 25 November 1883 and was succeeded by Samuel Cheetham. Cheetham, no doubt keen to impress guests upon their arrival at his house, was perhaps responsible for altering and refurbishing the front and rear entrance halls – the appearance of these rooms is certainly of this period. The wall between the front and rear halls was knocked through, and a wide opening, with depressed segmental arch, formed. A new fireplace, in the Jacobean style, was fitted to the hearth in the front hall.

The present front doorcase was perhaps the finishing touch to Cheetham's refurbishments, for it bears his monogram. His door has a shouldered architrave and broken, swan neck pediment, and is formed in Portland stone. The shield at the centre of the pediment contains the letters A, D and R, presumably for the Archdeaconry of Rochester. Beneath the pediment's left and right scrolls are Cheetham's intertwined initials.

The twentieth century

Archdeacon Tetley Rowe, *c* 1908 to 1915, and Voysey's rear cloakroom

Archdeacon Rowe commissioned a rather ugly and ill-considered alteration at the rear of the premises. This was carried out by 'Mr. Charles Annesley Voysey, the restorer of simplicity and bright colour in domestic architecture. He was the son of the Rev. Charles Voysey, who was deprived of his living for heretical teaching, and was the founder of the Theistic Church' (Wheatley 1939).

Voysey's cloakroom was a single-storey structure, with a flat roof. Its south elevation cuts awkwardly into the Georgian doorcase leading to the rear entrance hall. The first edition Ordnance Survey suggests the cloakroom replaced a structure of similar footprint.

Archdeacon Donald Tait, 1915 to 1932, and the restoration of the Adam fireplaces

The Adam fireplace in the drawing room (and presumably also that in the dining room) was restored by Tait, albeit not to his friend, Canon Wheatley's, entire satisfaction.

Archdeacon Donald Tait during his residence had the drawing room mantelpiece carefully relieved of many coats of paint which hid the delicate beauty of this Adam mantelpiece, unsurpassed for its charm and artistry probably in Kent. It is hoped that an appropriate coat of paint may be granted before long to hide the knots and blemishes in the wood which were not meant to be exposed; its present nakedness is quite unseemly (Wheatley 1939).

Conversion of the north wing into a garage

A garage was perhaps formed in the north wing during the first half of the twentieth century. A wide entrance was formed in the wing's east wall, with double doors and a segmental arch of rubbed brick to match the windows of the house.

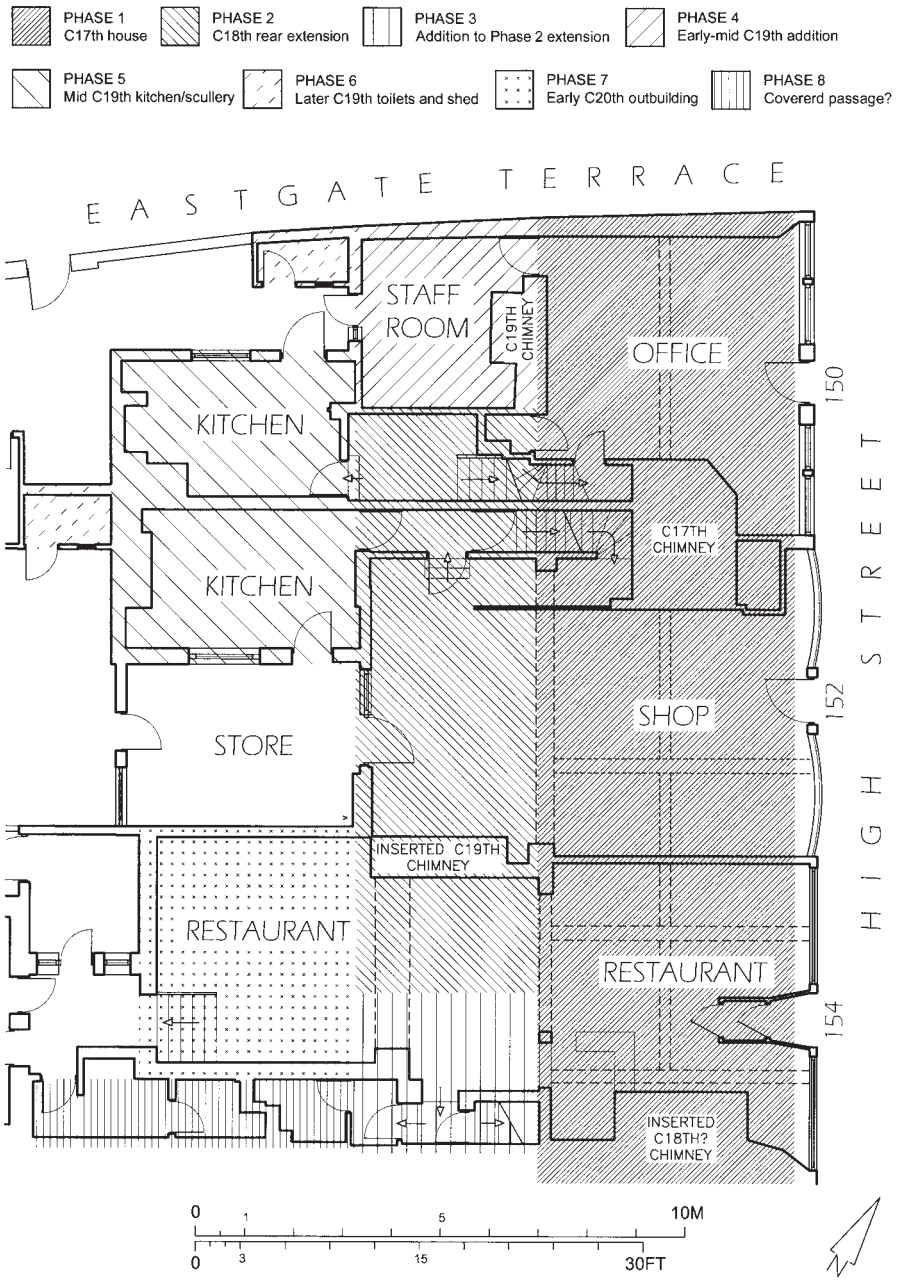
King's School buildings

The stable yard and associated buildings to the north of the house were annexed off to the King's School in the second half of the twentieth century, and a new science block built on the site. The large garden to the south of the Old Archdeaconry, which survived well into the second half of the twentieth century, also passed into the hands of the Kings School, and has been similarly developed.

Nos 150, 152 and 154 High Street, Rochester

Rupert Austin

Nos 150, 152 and 154 are located on a corner plot along the south-west side of Rochester High Street (formerly Eastgate Street), where it meets Eastgate Terrace (NGR 57447 16829). They occupy one of Rochester's finest and most prominent historic buildings, a large timber-framed, seventeenth-century, Grade I listed town-house. An archaeological



GROUND PLAN, SHOWING PHASING

Nos 150, 152 and 154 High Street, Rochester. North-east (front) elevation.

appraisal of the property was commissioned in support of a planning application prior to alterations and refurbishment and this was made in March 2011. The property has grown considerably in size since it was built, the original seventeenth-century structure now forming the north-east range of the property, fronting the High Street. Unsurprisingly it is this part of the building that is of the most interest. Later brick built additions of the eighteenth and nineteenth centuries have been built on the plot to the rear.

The seventeenth-century house

The original part of the house is aligned parallel with the street and measures approximately 19.8m long and 5.7m deep. It is of three storeys throughout with attics. This part of the building has remained largely unchanged externally, its elevations, aside from the modern shop fronts, well preserved and retaining their original timber-framed construction. The front elevation is jettied at each floor towards the High Street. It is now surmounted by three large jettied gables, but these are later, perhaps eighteenth-century work.

The most prominent features of the front elevation are perhaps the generously proportioned oriel windows. These are mullioned and transommed, the central oriels particularly large and impressive, being eight lights wide, their width broken by king mullions. All have canted sides and ovolo/cyma moulded mullions. Opening iron casements, hung on


Interior of decorated seventeenth-century bay post at centre of oriel window, first floor living room.


Mullioned and transommed oriel window, first floor, north-east (front) elevation.

Mullioned and transommed window to second floor closet, and decorated base of seventeenth-century chimney, north-east (front) elevation.

Detail of carved seventeenth-century jetty bracket.

Detail of carved post beside flush, first floor window, north-west front elevation.

iron pintels, were once present in the lower tiers of these oriels, the casements presumably secured with drop stays. Iron stantion bars, to which their leaded glass was fixed, survive within each light.

Investigation revealed a significant lost feature of the elevation. The oriels were originally flanked by clerestory lights, forming a run of continuous fenestration along both the first and second floors. The horizontal rails running through the elevations, at the level of the oriels' transoms, are in fact the sills of these clerestory lights, which are now blocked with later plaster.

The impressive fenestration did not, however, appear to have satisfied whoever built the house, for most of its timber frame was also highly decorated, externally. The decoration is typical of the period, being mostly of geometric, strapwork design carved in shallow relief on the timbers. Numerous brackets are present beneath the jetties and oriel windows, and these too are decorated, some sculpted into figure heads, others embellished with further geometric designs.

The three later gables atop the High Street elevation suggest the building comprises six equal sized bays, but closer inspection quickly shows it actually resolves into five unequal bays. These bays, which we will number from the north-west, are covered with a staggered, butt side-purlin roof, with windbraces, a roof type that was first introduced around this time.

An attic or garret occupied the roof space from the outset. This is presently subdivided into three rooms, but these were probably formed in later years, when the building was split into three properties. The roof space was probably more open at first and interrupted only by the original chimney in the second bay (see below). An original attic window survives in the extant north-west gable. Smaller dormer windows were perhaps present along the front slope of the roof, before the present gables were built.

Investigation showed the first and second floor, north-westernmost rooms to have occupied the first bay. These were heated by the hearths of a substantial chimney located within the building's narrow second bay. The first floor room still retains its original hearth; elsewhere they have been blocked, or fitted with later fireplaces. The chimney is embellished with a geometric pattern where it emerges from the roof and perhaps originally terminated in tall, separate shafts, but these have been lost, the chimney now reduced in height. Larger two-bay rooms were located to the south-east of the chimney, on the first and second floors; these were also heated. Unheated single bay rooms occupied the fifth and last bay of the house; the chimney that rises up through the building here is a later insertion.

Only a few of the aforementioned rooms retain their original size and shape. Many have been subdivided or altered in some way, by inserting or removing walls. This is particularly the case on the ground floor, where later alterations have made it difficult to understand the original arrangement. There was clearly a room to the north-west of the chimney, but how the structure was subdivided to the south-east is unclear. No original partitions remain, and only one first floor bridging beam survives between bays four and five. No partition appears to have been present beneath this timber. There must have been a second beam to the north-west, but the floor has been rebuilt here and this timber, along with any evidence for a partition, has been lost.

It is not clear how the upper rooms of the house were reached, or how they were connected. No original doors or stairs survive within the building, or visible evidence for such features. A single winding staircase could have been located behind the original chimney, as this was a common location. Another common position was within a projecting rear stair tower. The two extant staircases were probably introduced in the eighteenth century, when the house was subdivided. We might also consider the possibility that the seventeenth-century house was once larger, and that we have lost a rear wing or outshot, replaced by the present clutter of eighteenth-century and nineteenth-century additions. The wing might have projected at right angles to the main range, perhaps facing onto Eastgate Terrace. Buildings with an L-shaped plan were not uncommon at this time and stairs could have been located in this wing. Unfortunately no evidence for such a feature is presently visible.

The asymmetric arrangement of the building, with its single chimney placed towards one end suggests, tentatively, that the property was built as one large dwelling, rather than as a row of two or three smaller dwellings. Its considerable size and lavish external decoration suggests it was perhaps the capital mansion of a wealthy merchant, or an important townsperson. The upper floors seem to have been domestic in nature, but the ground floor may have had other uses. Town-houses were frequently used for retail at street level, and this may have been the case here. It is notable that the beams passing over the first and second floor rooms are moulded whereas those over the ground floor rooms are plain and undecorated

Footnotes

1 This would have been a substantial component, but it seems eminently possible to have positioned/rotated it, as it was assembled, such that the required parts could be heated.
2 BL MS Cotton Galba E IV 102v.
3 MA: DRc/Ac/13

PALAEOENVIRONMENTAL STUDIES

Enid Allison

Sites in Canterbury produced the majority of the bulk samples processed during the year, with smaller numbers from elsewhere in Kent. Assessment and analysis of plant and animal remains from sites excavated in previous years was ongoing, notably from Thanet Earth and sites associated with the first time sewerage system in New Romney: some details from the reports produced are summarised below. Work was also carried out on insect remains from a variety of sites outside Kent.

No 28 St Dunstan's Street, Canterbury

Roman, medieval and post-medieval deposits (pp 1–9) produced a wide range of biological remains and cultural material. The animal and plant remains will be of considerable value for site interpretation, having the potential not only to produce information on diet and the local economy, but also on the social standing of the inhabitants of the area.

Charcoal was especially common where there was evidence for metalworking or industrial activity, including from a Roman pit that contained much slag and hammerscale. Charred cereal remains and pulses were recovered from many samples representing all the periods of activity on the site. The relative abundance of pulses in some deposits was notable. Further analysis of the charred plant assemblages will provide data on diet, production and processing of food crops, and local land use. For assemblages where crop weeds are present, the range of plant species represented may also provide information on the type of land where crops were grown.

Mineralised (probably phosphatised) plant remains, most of which had clearly originated in human faeces, were common or abundant in some deposits. The richest mineralised assemblages were from a raked out ash deposit from a possible Roman industrial feature, the fills of two post-medieval cess tanks, and a probable cess pit that also contained many small fish bones. Mineralised plant material of faecal origin has the potential to provide direct information on the human diet that is usually lacking from the study of charred plant assemblages. Mineralised fly puparia were particularly well-represented in the fill of a post-medieval cess tank that had obviously provided an attractive breeding ground for flies.

Alex with a wooden ball found in a sample from St Dunstan's Street.

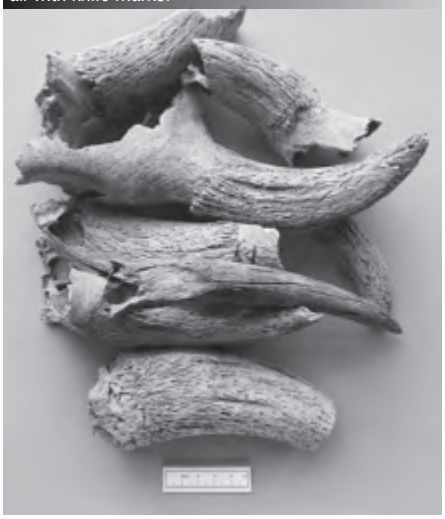
Marine mollusc shell was chiefly of oyster, but several other edible species were recorded in smaller quantities. Fish bones were common and well-preserved in some deposits, and all periods of activity were represented. Fish bones are generally rather delicate and mineralisation appeared to have played some part in their survival in deposits with a clear cess content. Bird remains were dominated by the remains of domestic fowl, but geese, ducks, swan and raven were among other species represented. A number of essentially complete domestic fowl skeletons (comprising hundreds of bones) were recovered from the fill of a post-medieval cess tank. Finds of complete skeletons usually represent individuals that either died of natural causes, including disease, or were culled for reasons other than for food. Feather fragments were noted in the same deposit. The bulk of the mammal bone assemblage was recovered by hand-collection during excavation, but has been augmented by material recovered from bulk samples. A proportion of the bone fragments in many of the samples had been charred or calcined which is characteristic of the burning of waste in domestic fires.

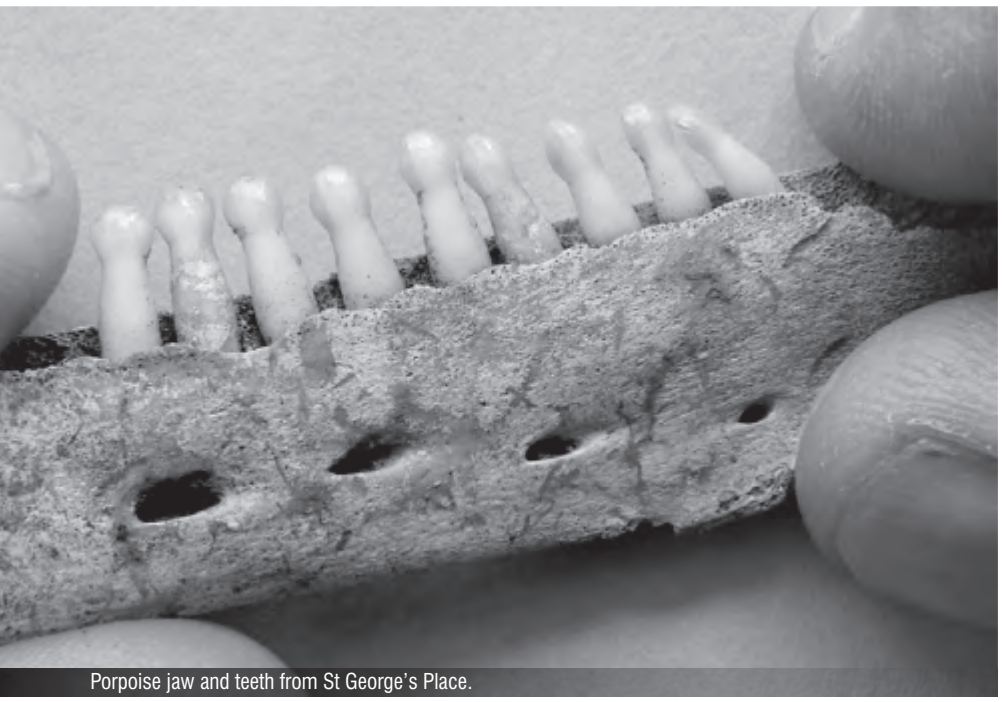
St George's Place, Canterbury

Medieval and later refuse pits excavated at St George's Place (p 16) produced a wide variety of material including good sized assemblages of fish, bird and large mammal bone. An initial impression of the mammalian assemblage was that horn cores were notably common and that many of them had knife marks either where they had been removed from skulls or indicating removal of the outer horn, presumably for horn-working. The horn cores were mainly of cattle but occasional sheep and goat horn cores were also represented.

A few other bone finds were also worthy of note. A fragment of a lower jaw of a harbour porpoise (*Phocaena phocaena*) was recovered with other animal bones from a pit of probable early medieval date. This adds to a number of records of porpoise from the area, and there appears to be distinct connection with ecclesiastical sites. In Canterbury, porpoise bones were recorded from twelfth-century deposits associated with domestic occupation on two sites within the cathedral precincts (Driver *et al* 1990, 240; Sabin *et al* 1999), and more recently from Whitefriars (Bendrey forthcoming). Finds elsewhere in the south-east have been from Lewes Priory (Lyne 1997) and Westminster Abbey (Locker 1976). Additionally, several caudal vertebra from at

Some of the horn cores from St George's Place, all with knife marks.





Porpoise jaw and teeth from St George's Place.

least two porpoises, some with signs of butchery, were recorded from early medieval deposits at Townwall Street in Dover, finds that are likely to represent butchery of animals caught incidentally with fish, with the meat perhaps being consumed elsewhere (Bendrey 2006). The low numbers of remains recovered suggests that porpoises were not systematically hunted, rather that there was opportunistic use of animals stranded on the shore or accidentally entangled in fishing nets. A further possibility is that porpoises were imported from France where it is known that systematic hunting did occur. Documentary records appear to suggest that by the eleventh century porpoises were a delicacy of the southern English nobility (Sabin *et al*).

Bird and fish bones were both well represented on the site. Pigeon bones were relatively common which may also suggest deposition of rubbish from high-status or ecclesiastical households in some of the pits. Fish remains included gilt-head bream (*Sparus aurata*), a relatively uncommon and sought after species.

Red Cross Centre, Canterbury

Bulk samples from what initially appeared to be unpromising deposits at the Red Cross Centre (p 18) produced a surprising quantity of well preserved animal and plant remains, together with evidence for metalworking. Fish bones were common in many of the samples in contrast to the few mostly undiagnostic fragments of large and medium sized fish that were collected by hand during excavation. Fish were particularly well represented in pits where cess had been present and it is likely that mineralisation had enhanced survival. Bird remains were relatively common and domestic fowl, geese and at least two species of ducks were represented. Plant remains were preserved by charring and mineralisation, the latter in features that had contained cess. Charred remains included cereal grains, pulses, other seeds (including crop weeds), and hazelnut shell. Grain and pulses were particularly abundant in one of the pits. Mineralised woodlice and millipedes were common in features that had contained cess, and there were smaller numbers of rather poorly preserved mineralised fly puparia.

The assemblages are potentially of importance since the earlier deposits excavated are thought to be of late Anglo-Saxon date (pending dating of pottery). To date, relatively little palaeoenvironmental work has been carried out for the Anglo-Saxon period either within Canterbury or in the surrounding area by comparison with earlier and later periods.

Westwood Road, Broadstairs

Deposits filling a possible Neolithic or Beaker period pit, and a pit and ditches probably dating to the mid to late Bronze Age (pp 42–3) were sampled. The soils on the site were 'dry' and the sediments within the sampled features appeared to be oxidised, with iron-staining due to drainage. Generally there is poor survival of organic remains in such sediments, with the exception of plant remains reserved by charring. There was also considerable evidence for bioturbation in the form of very abundant calcareous granules produced by earthworms, shells of subterranean snails, obviously modern beetles, and rooting by recent plants. Traces of pot, burnt flint and a number of flint flakes were retrieved from some samples. The latter are to be checked for evidence of flint working. Charcoal of several species of trees and shrubs from the fills of the Neolithic pit were identified by Lisa Gray. Some of the fragments are to be used to date the feature. Small assemblages of charred plant remains were recovered from some of the later features.

Otterpool Campsite, Port Lympne

All of the deposits sampled were of medieval date and associated with agricultural activity (pp 48–9). Rather variably preserved charred cereal grains and pulses were common or abundant in a number of samples, and charred hazelnut shell noted in one. The majority of the pulses noted during scanning were rounded and of pea-size or smaller, although possible field beans were seen in a minority of samples. Vertebrate remains were sparsely represented and generally rather poorly preserved. Some of the mammal

Gilt-head bream dentary from the lower jaw (total length 65mm). The circular areas are tooth sockets. Right: photo reconstruction of the jaw.

and fish bone had been either charred or calcined which was suggestive of the burning of waste on domestic fires.

Church Street, Maidstone

Charred cereal remains were common in samples taken from Roman pits, a hearth and two ditch fills (p 51). One of the latter appeared during excavation to contain the remains of a hearth structure. Mineralised plant remains, most of which had clearly originated in human faeces, were present in small quantities in some of the pits. Other than a small assemblage of fish bone from one of the pits, few other remains recovered had much potential to provide environmental data.

The community project at the Roman villa, Folkestone

Alex Vokes

During the 2011 summer season of excavation of the Folkestone Roman villa (pp 46–8) bulk samples were taken from Iron Age pits, early Roman ditches from the main courtyard area, and hearths and post-holes. It was hoped that plant and animal remains retrieved from the samples would provide evidence of human diet, agricultural practices, what the local environment might have been like at the time the villa was occupied, and what local resources were exploited. Being so close to the sea it was expected that fish bone and marine shell might be present in the samples.

In order to retrieve this material and therefore gain an insight into the lives of the people who lived and worked at the villa over the years, a team of fourteen volunteers and two work experience students were trained in the technique of 'bucket flotation'. This technique provides a reliable method of separating the samples into three fractions. Each sample is initially sub-divided into quantities no larger than 5 litres and soaked in water and sodium carbonate which helps to break down the clumps of sediment and release any material locked within them. The sediment is agitated by mixing it by hand to encourage the lighter material to float which is then poured onto 0.5mm mesh and collected on a tray and left to dry. This fraction is termed the 'washover' and might include, for example, charred plant remains, charcoal and snail shells. The next two fractions are collectively termed the 'heavy residue' and are collected using nested 1mm and 2mm meshes. The heavy residue, as the name suggests, is the heavy material that remains at the bottom of the bucket and might include pot sherds, tile fragments, animal bone, fish bone, slag and small artefacts that may have been missed during trowelling. By using the fine mesh sizes, material that might otherwise go unrecognised during excavation because it is small or fragmentary (for example tiny copper pins or very fine fish bone) can be recovered and identified. The material recovered helps to create a vivid picture of life in the past, complementing knowledge gained from the initial excavation stage.

At time of writing the volunteers have almost completed the sample processing. They always turn up ready and willing to get the job done, they are enthusiastic and cheerful and have worked hard and done a fantastic job. They have been a joy to work with and we hope they all come back for more! Once all the samples have been processed they will need to be sorted to identify all the environmental and archaeological material they contain and the volunteers will be just as crucial during this stage as they have been for the processing, so we hope to encourage them all back!

Bird remains from New Romney

(Allison 2012a)

Bird remains recovered from medieval and early post-medieval deposits along the route of the New Romney and Greatstone First Time Sewerage Scheme were predominantly waste from the preparation and consumption of food. Domestic chickens and geese were the most common species, and chickens were probably kept as much for their eggs as for their meat. Bones of a variety of wild birds, including duck and waders, provided evidence that some wildfowling activity occurred in coastal and marshland habitats, probably on a seasonal basis.

Bones of juvenile rooks or crows were recovered from a number of deposits spanning the medieval and early post-medieval periods. Morphological separation of bones of these two species is problematic, especially since all of the examples from New Romney were from immature birds and therefore incompletely ossified. All the birds represented were the same age (skeletally immature but approaching full size), and knife marks present on one bone, suggested that they were not casualties from local populations, but birds deliberately targeted for food. It is most likely that the remains are from rooks rather than crows: they nest colonially in trees which would present a more convenient target for fowlers than more solitary crows, and crucially, unlike crows they

Rookery at Roche Court near Salisbury.
Inset: drawing of a rook by Thomas Bewick, from *A History of British Birds*, 1826.

Traditional Rook Pie

(from Darwin 1950)

Ingredients:
Young rooks
Flaky or short pastry
A little butter
Flour and stock
A little salt and pepper

Draw, pluck and skin the rooks and remove the backbone (it is bitter). Season with salt and pepper. Stew in a little water. Then, place the birds in a pie-dish and cover with stock, thicken with butter and flour. Cover with pastry and bake for 1 hour and 30 minutes in a moderate oven.

Rook pie sufficient for 5 to 6 persons

(Mrs Beaton's Everyday Cookery)

Ingredients:
6 young rooks
¾ lb. of rump steak
¼ lb. of butter or good dripping
½ pint of stock
Salt and pepper
Paste (pastry)

Skin the birds without plucking them... Draw in the usual manner, remove the necks and backs, and split the birds down the breast. Arrange in a deep pie-dish, cover each breast with thin strips of steak, intersperse small pieces of butter or dripping, and add as much stock as will three-quarter fill the dish. Cover with paste, and bake... Before serving, pour in, through the hole on the top, the remainder of the stock.

typically eat invertebrates rather than carrion - there is a widespread generally held taboo against the consumption of carrion eating birds.

Rooks were traditionally eaten in many parts of Britain, usually being stewed and then baked in pies, and in some places consumption continues to the present day. Ticehurst (1923) noted an entry in the account rolls of the Monastery of Durham for 1378–9 referring to young rooks as food, rook pie was mentioned by Charles Dickens in Pickwick Papers, and a recipe for rook pie was provided, among others, by Mrs Beaton. It has sometimes been suggested that the 'four and twenty blackbirds baked in a pie' of the nursery rhyme may actually have referred to rooks, although blackbirds and other small birds were regularly eaten in their own right during the medieval period. Rook pie appears to have been regarded, at least in rural areas, as a spring dish for the poorer classes, with the middle of May being the optimum time for culling fledglings that have left the nest but have not yet flown (Dangar 2002). The fledglings are known as branchers because they remain on the branches of the trees where they have fledged, and they are preferred to older rooks because of their superior taste which is gamey, rather like pigeon. Despite being formerly regarded as poor man's food, rook has recently undergone something of a revival, even being served as a fashionable food in a top London restaurant (Scottish Recipes website).

Nowadays where the tradition of taking branchers persists, they are shot from the trees, usually on or around the 12th of May. In the medieval period it is more likely that they were obtained by climbing, using a bag to collect the birds, which may have involved some risk as the nests are usually in the upper parts of the trees. The bones recovered from medieval deposits at New Romney were all from the distal parts of the wing or the lower parts of the leg, indicating removal of the parts of the limbs that bear no meat. The post-medieval material consisted of six bones presumed to be from the same individual: fragments from the lower legs, an ulna with knife marks caused during removal of the lower part of the wing, and several vertebrae. The presence of the vertebrae is significant since recipes for preparing rooks recommend removing the vertebral column because it has a bitter taste (Darwin 1950). At the present day only the breast meat is normally eaten.

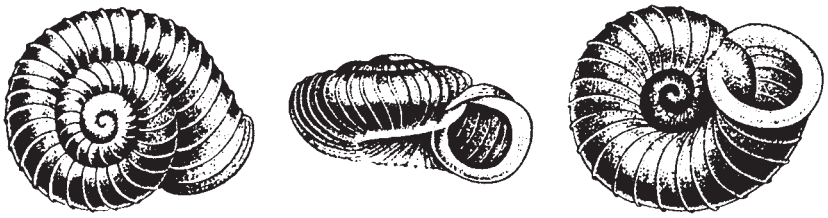
Land snails from Thanet Earth

John Carrott and Alison Foster

Excavations in advance of construction work relating to the Thanet Earth horticultural development at Brooksend on the Isle of Thanet were carried out between October 2007 and October 2008. Analysis of various categories of remains was carried out during the year. This has included work on land snails from the fills of ring ditches associated with five late Neolithic/early Bronze Age barrows (Barrows 1, 2, 3, 4 and 6) and from a major Iron Age boundary ditch that were analysed to provide information on the ancient landscapes of the area and evidence of the possible effects of human activity (Carrott and Foster 2012).

The composition of the snail assemblages suggested that much of the area was already cleared of trees and other substantial vegetation by the late Neolithic/early Bronze Age, with consistent evidence for the presence of bare earth and/or exposed rock surfaces. Hints of greater vegetative cover remained in the vicinity of Barrow 1. There were indications for the possible onset of arable farming around Barrow 2 around this time, and in the latest sample of this date there were hints of the regeneration of more substantial vegetation. This implies that pockets of woodland/scrub/hedgerow habitat had remained within the largely cleared landscape, providing havens for shade-loving snails that were able to recolonise any areas that were allowed to become overgrown.

Snail assemblages from the fills of the Iron Age boundary ditch suggested that the surrounding area may have begun to be used as grazing land for sheep at this period. Assemblages from later prehistoric fills of the barrow ring-ditches suggested that, in

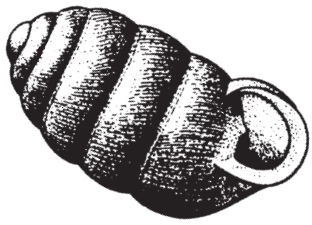


Vallonia costata (from Kerney and Cameron 1979, scale: 12:1), generally found in very dry open places and common at Thanet Earth.

the main, the area remained open with possible evidence for the beginnings of arable agriculture around Barrow 1 and perhaps grazing land around Barrow 4. Occasional hints of the regeneration of more substantial vegetation were recorded from undated (but overlying prehistoric and underlying a medieval midden layer) deposits within the ring-ditch of Barrow 3. Again this implies that such habitats had persisted within the largely open landscape throughout the intervening period. Mollusc assemblages from these deposits and also from undated (but overlying prehistoric) contexts within both ring-ditches of Barrow 1 provided evidence suggesting the continuation of arable farming close to these features.

The upper fills of some of the barrow ditches were accumulated during the medieval period. Land snails in deposits of this date in the ring-ditches of Barrows 2 and 3 appeared to imply a continuation of arable farming in those areas. For Barrow 2, however, changes in the assemblage composition through the deposit suggested a corresponding change in principal land-use away from the growing of crops and in favour of the creation of grazing land. It should be noted that both of these medieval deposits were middens and that elements of the land snail assemblage from each were almost certainly introduced by human activity.

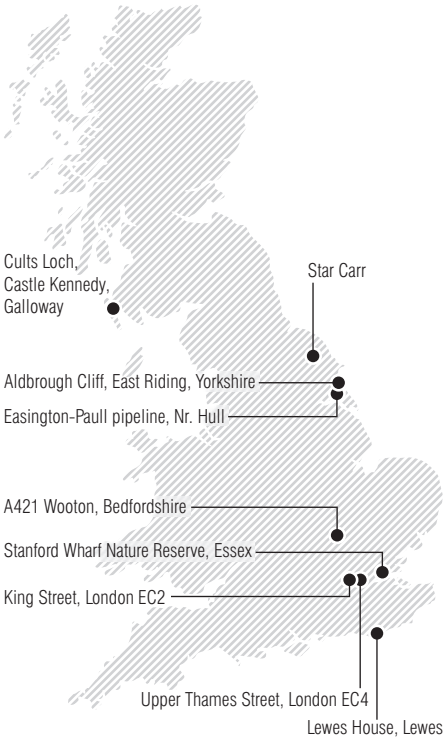
During field work, the excavator had noted that the upper fills of features had been heavily disturbed by modern ploughing over much of the site. The small numbers of identified mollusc remains from these deposits, coupled with large numbers of unidentified shell fragments, were largely consistent with this. In the uppermost fills of the Iron Age boundary ditch and the ring-ditch of Barrow 6, however, the evidence suggested that the small numbers of snails were a genuine reflection of the original assemblages present, reflecting rapid, perhaps deliberate, infilling of the final remnants of the ditches. Samples from the upper fills of the ring-ditches associated with Barrows 1, 2 and 3 (all located in the south of the excavation area) provided at least some relatively large identified snail assemblages, with the implication that these areas had been subject to less modern disturbance by ploughing. This is contrary to the excavator's notes, however, which reported extensive deep plough damage in all three. Each snail assemblage continued to be primarily composed of open ground/grassland taxa, with those from the ring-ditches of Barrows 1 and 3 suggesting the continuation of arable agriculture, and those from the ring ditch of Barrow 2 following the trend towards stable-surfaced grazing land seen in the underlying medieval midden deposit.



Pupilla muscorum (from Kerney and Cameron 1979, scale: 12:1), common in dry exposed places.

INSECT WORK from sites outside Kent

Nomenclature of beetles follows Duff (2008).



Locations of the insect sites.

Star Carr, Vale of Pickering

(Allison 2011a)

Human occupation and activity at Star Carr appears to have taken place during the early Mesolithic period (10,000–8500BC). The site lies on what was formerly a peninsula on the north-western shore of a large lake, now known as Lake Flixton. At the present day the area is relatively dry land. Excavations at Starr Carr were first carried out between 1949 and 1951 by Grahame Clark (Clark 1954). Later excavations and gradual mapping and survey of the ancient lake shore revealed not only that activity at Star Carr was more extensive than originally thought, but also that there were at least twenty other sites of similar date in the area. In recent years a team from the Universities of Manchester and York, led by Nicky Milner, Chantal Conneller and Barry Taylor, has conducted further investigations on the margins of the ancient lake and also on what would have been drier land (Star Carr website). Assessment of insect remains from the latest phases of work (Allison 2012b) has now been followed by analysis of insects from four sequences through early Holocene lake sediments.

Insect remains were abundant in the lower parts of the sequences becoming sparsely represented in the uppermost parts. They provided little direct evidence for human activity but have shed considerable light on the nature of the local environment.

Aquatic beetles and bugs were well-represented throughout, providing information on water conditions at the edge of the lake. Silting appeared to have increased over time, and in the later parts of the sequences beetles were consistently recorded that suggested mud had become more common both in and beside the water, and that fen-like conditions with litter were becoming more prevalent.

Various plant feeding insects provided strong evidence for richly vegetated lake margins, and for waterside litter and moss. *Cyphon* species which are typical of swampy conditions were very common. Various leaf beetles and weevils (Chrysomelidae and Curculionidae) provided strong evidence that aquatic and marginal vegetation included *Potamogeton*, bur-reeds (*Sparganium*), reedmace (*Typha*), sedges (*Carex*), waterside Ranunculaceae (buttercup family, perhaps including marsh marigold (*Caltha palustris*)), reed sweet-grass (*Glyceria maxima*) and Lamiaceae such as hemp-nettles (*Galeopsis*) and dead-nettles (*Lamium*).

There was considerable insect evidence for woodland or scrub close to the lake. Beetles and bugs associated with catkins and leaves of birch (*Betula*), willows (*Salix*) and poplars (*Populus*), including aspen (*P tremula*), were commonly recorded, tying in well with the evidence from plant macrofossils. There was also a range of insects associated with old trees with bracket fungi or dead or rotten wood that may have been introduced into the deposits either with deliberately laid timber or brushwood, or from wood and twigs naturally accumulating in the lake from nearby trees and shrubs.

Bromius obscurus, a leaf beetle that currently has a very restricted distribution in Britain, was found in samples spanning the full range of deposits. It is known to have been present in Britain in the Late Glacial period and has now been recorded from Mesolithic assemblages at Star Carr and at nearby

Rosebay willow-herb.

Position of Star Carr in palaeo-Lake Flixton (from original map by Barry Taylor).

Seamer Carr (Kenward and Large 1997). It was thought to be extinct in Britain throughout much of the Holocene until the late 1970s when it was found to be living secretly in Cheshire (Kendall 1982). It is found primarily on rosebay willow-herb (*Chamaerion angustifolium*). No willow-herb remains were seen amongst the plant macrofossils and the insect remains provided the only clue to its presence at Star Carr. This not only contributes a vivid picture of the local environment at Star Carr – rosebay willow-herb with its long pink flower spikes is one of our most striking flowers - but is also of interest since it is intolerant of shade and implies the existence or creation of clearings among the trees and scrub. This has considerable relevance in view of episodes of burning that appear to have taken place on the site, and also with possible beaver activity. At the present day rosebay willow-herb is found in two types of habitat: firstly unstable natural areas such as stream sides, cliffs and screes in northern England and Scotland, and secondly a variety of sites where soil disturbance by humans or burning has taken place. Some authors have suggested that the first group is native whereas the second may represent a post-medieval introduction. Generally it can be regarded as a 'pioneer' species (i.e. among the first plants to colonise a barren area). In ancient woodland the plant appears for a few years after coppicing and dies as the woodland regenerates but it is not usually abundant and is often confined to bonfire sites. In North America it has always been associated with clearings, burnt areas and beaver activity (Rackham 1986, 57–9).

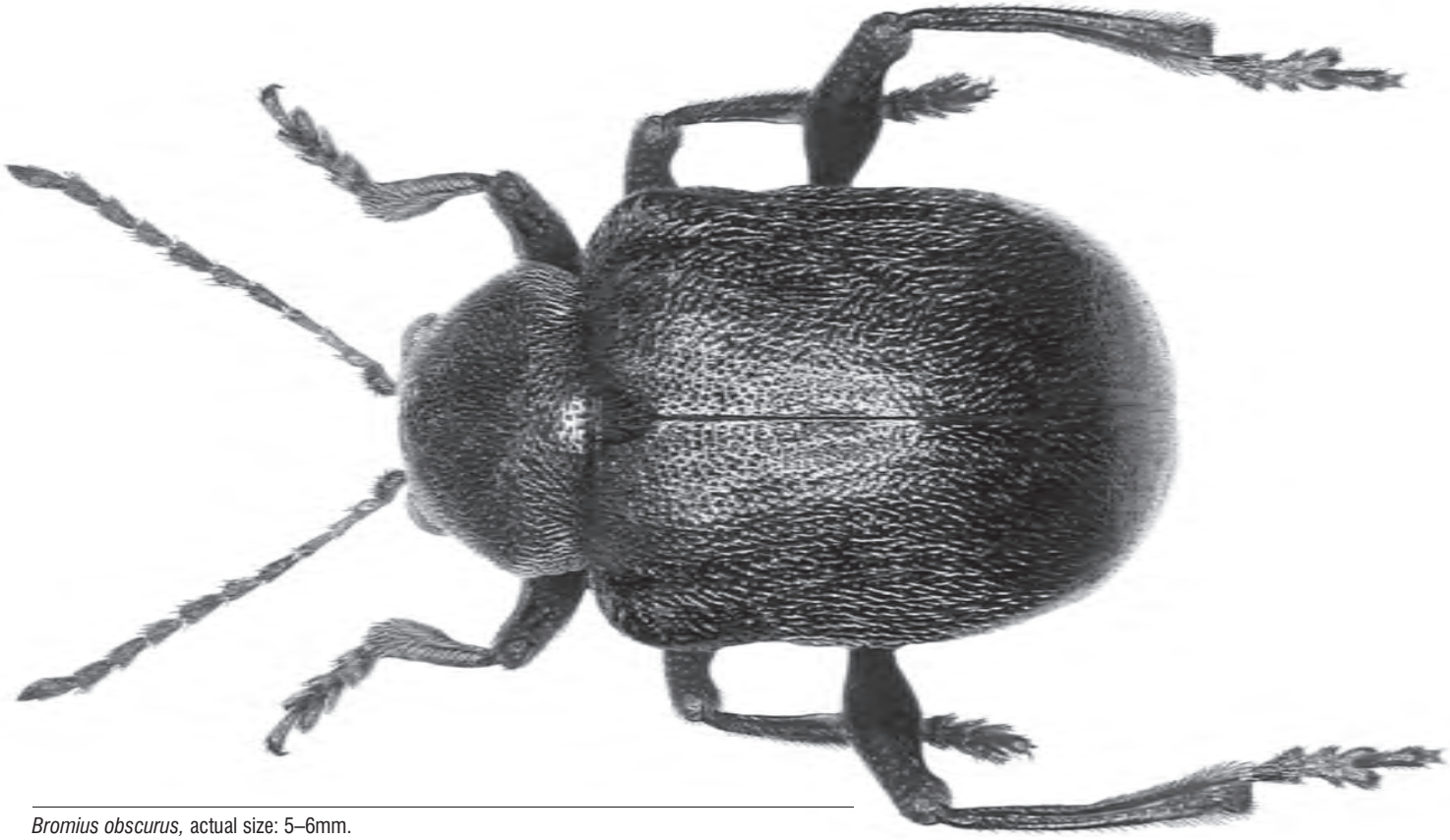
The distribution of many insects is heavily influenced by temperature and consequently their past distributions can be used as indicators of climatic conditions. A number of beetles and bugs recorded from Star Carr are currently either confined to, or more typical of, the southern parts of Britain, their occurrence implying mean temperatures in the Vale of Pickering at least equal to those prevailing in the most southerly parts of Britain at the present day.

It is hoped that more excavation work in the environs of Star Carr will be carried out over the next few years. Work in 2012 is focussing on potentially earlier deposits on Flixton Island in the middle of the lake.

King Street, London EC2

(Allison 2011b)

Insect remains were examined from the waterlogged fills of two pits excavated at 29–33 King Street by



Bromius obscurus, actual size: 5–6mm.
© U Schmidt 2006 www.kaefer-der-welt.de & www.kaefer-der-welt.com.

Elaphrus cupreus, actual size: 7–9mm. © U Schmidt 2006 www.kaefer-der-welt.de & www.kaefer-der-welt.com.

Museum of London Archaeology (MoLA) in 2006. The pits were provisionally dated to the early Roman and Saxo-Norman periods and it was possible to identify some of the organic waste dumped within them from distinctive groups of beetles.

A characteristic range of insects in the Roman pit indicated that stable manure formed a major part of its fill. Grain pests were particularly common: rusty-red grain beetles (*Cryptolestes ferrugineus*) and saw-toothed grain beetles (*Oryzaephilus surinamensis*) were most numerous, with lesser numbers of grain weevils (*Sitophilus granarius*) and small-eyed flour beetles (*Palorus ratzeburgi*). All four species are commonly recorded from Roman deposits in Britain from the earlier stages of occupation onwards. The saw-toothed grain beetle is often common in very spoiled grain and the small-eyed flour beetle is a particular indicator of foul grain and other rotting residues. Poorer quality grain is more likely to have been used as animal fodder than as human food and it would have been common for spillage on stable floors to have become very rotten (Kenward 2009, 280).

The Saxo-Norman pit was thought to have originally been used for tanning, and later for refuse disposal. Reflecting this, insect remains within the fill had diverse origins. The most obvious insects were a considerable number of bean weevils (*Bruchus* spp) that almost certainly arrived in faeces. These beetles lay their eggs on the pods of legumes growing in the fields. The emerging larvae penetrate the pod and bore into the seeds, where they continue to develop (Harde 1984, 284). The adult beetles only emerge after harvesting, unless they have the misfortune to be eaten in infested peas or beans. They survive passage through the gut remarkably well and are often a common inclusion in ancient cess deposits. Other more poorly preserved material in the pit may have come from sweepings from within buildings and perhaps from other sources. In particular, a group of beetles and bugs from tree bark and rotten wood were highly suggestive of a residue from the tanning process, or for the disposal of spent tan bark.

Upper Thames Street, London EC4

(Allison 2011c)

Cable percussion boreholing of alluvial deposits associated with the River Thames was carried out at Watermark Place, Upper Thames Street by Museum of London Archaeology (MoLA) in 2005. Samples examined for insects were from deposits dating from the early Mesolithic up to the later prehistoric or Roman periods.

An early Mesolithic deposit thought to have formed in an ancient channel or at its margins contained insects associated with reeds (*Phragmites*), rushes (*Juncus*), reedmace (*Typha*), Lamiaceae (such as hemp-nettles (*Galeopsis*) and dead-nettles (*Lamium*)), and nettles (*Urtica*). A somewhat later deposit was thought to relate to migration or diminishment of the channel and a phase of vegetation growth and accumulation. Insect remains and other invertebrate remains indicated that standing water may have been present for at least part of the time, and certainly that conditions had remained constantly wet. Beetles represented were typical of damp ground and waterside habitats with aquatic and marginal vegetation, and accumulations of wet litter. By the later part of the Mesolithic period, woodland or scrub appears to have developed, and the area seems to have become increasingly wet. Aquatic beetles were common, providing indications of a muddy, running fresh water channel. Terrestrial insects indicated that the ground was muddy and well-vegetated, with accumulations of wet litter, and there were probably areas of standing shallow water with fluctuating water levels. Trees and dead wood habitats were indicated, and there were hints of well-drained soils and perhaps grassland with grazing animals.

The uppermost sample examined was thought to be a tidal mud that had accumulated much later than the other deposits following a severe scour event. Groups of beetles and molluscs from clean, clear running water habitats and also from muddier conditions were suggestive of the mixing of material that would occur under a tidal regime. A distinctive group of synanthropic beetles (ie favoured by the presence of man and human activities) indicated that material from human occupation had been incorporated into the deposit. The range of species suggested that stable waste, and perhaps debris from other types of buildings, was represented. The presence of three species of grain pests in this deposit also had a bearing on the date of the deposits which were thought by the excavator to be either late prehistoric or Roman. All three pests are commonly found together in Roman deposits in Britain, but do not occur in pre-Roman deposits (Buckland 1978; Smith and Kenward 2011).

A421 road improvements, near Wooton, Bedfordshire

(Allison 2011d)

Insect remains were examined from fills of a possible waterhole revealed during archaeological work connected with improvements to the A421 by Oxford Archaeology in 2009. The feature was thought to

have been one of three waterholes that were dug in the second half of the second century in association with enclosures that had been in existence since the late first century AD. The position of the waterholes on the enclosure boundaries suggested that each may have been used in conjunction with an enclosure. The waterholes were relatively short-lived, all being infilled during the middle part of the third century (Simmonds 2010).

The insect assemblages recovered from the earliest and uppermost fills of the feature were very similar in most respects. They indicated that standing water was present more or less permanently, probably with seasonal fluctuations in water level, and it could have functioned as a waterhole if livestock were kept in the enclosures. There was also good insect evidence for local terrestrial conditions. Generally, an open, sunny site, and grassland with thistles (*Cirsium* and *Carduus*) and plantains (*Plantago*) was indicated. There may also have been hedgerows or isolated trees. Scarabaeid dung beetles were common enough to imply a significant population of grazing animals nearby. A distinctive suite of insects typical of litter from buildings and stable waste also suggested either direct dumping of such material into or very close to the waterhole or, perhaps more likely, manuring of the enclosures that had resulted in some material becoming incidentally incorporated into the fills of the feature. Manuring using a variety of materials and domestic waste as well as dung appears to have been practised from the Late Neolithic onwards in western Europe (Bakels 1997).

Stanford Wharf Nature Reserve, Essex

(Allison 2011e)

Stanford Wharf Nature Reserve covers an area of 44 hectares, bordered to the west by Mucking Creek and to the south and east by the Thames Estuary. Archaeological work was undertaken as part of an ecological mitigation program at the London Gateway Port development which involved the creation of a new inter-tidal mudflat in an area of former marshland to provide a replacement ecological habitat, primarily for wading birds. The new mudflat was created by reducing the ground level by approximately 0.5m and breaching the sea wall to allow tidal inundation. Excavations in advance of this, carried out by Oxford Archaeology South, revealed a sedimentary sequence dating back to the Pleistocene period, and evidence for prehistoric, Roman and limited medieval activity (Anker *et al* 2010).

Samples examined for insect remains were from an Iron Age peat deposit within alluvium, a Roman ditch dated on pottery evidence to the third century, and from deposits within a mid to late Roman cess pit. Bean weevils were common in the cess pit, presumably from consumption of infested pulses. The cess pit had acted as a pitfall trap for various ground beetles (Carabidae) and other insects from the immediate surroundings that provided considerable information on local environmental conditions.

Lewes House, Lewes, Sussex

(Allison 2011f)

A number of samples from excavations at Lewes House by Archaeology South-East were assessed for their potential for insect analysis. All were from the fills of pits dating to the eleventh to fourteenth centuries, some of which had been identified as cess pits and others as backfilled quarry pits. None of the samples were from waterlogged deposits and the likelihood of the presence of significantly sized insect assemblages was therefore low. If present at all, remains were most likely to be mineralised (probably phosphatised). Mineralised remains of various groups of invertebrates are sometimes common in urban archaeological deposits, especially woodlice (Isopoda), millipedes (Myriopoda) and fly (Diptera) puparia. In the event, examination revealed that very little insect or other invertebrate material was present in the samples, and what was noted had no potential for analysis.

Aldbrough Cliff, East Riding of Yorkshire

(Allison 2012c)

An archaeological strip and map was carried out by Oxford Archaeology North in 2011 ahead of the construction of coastal protection works at the Aldbrough Gas Storage Facility near the village of Aldbrough. Insect remains preserved by anoxic waterlogging were common in the basal fill of a large, steep-sided ditch associated with a rectilinear enclosure. The ditch was at least 55 metres long but had been truncated by cliff collapse. Pottery evidence indicated a late Iron Age date for the basal deposit (Wegiel *et al* 2011).

A small group of aquatic insects and water flea ephippia indicated that the ditch had contained shallow, muddy, standing water for at least part of the time, but most of the insect assemblage was from terrestrial habitats and provided information on ecological conditions in the wider environment outside the ditch. The general indications were for open, rather dry ground on light soils. Some ground beetles (Carabidae) hinted at the existence of cultivated land, but there was stronger evidence both for grassland and for the presence of grazing animals nearby. The author obtained similarly convincing evidence for grassland used for grazing from Late Iron Age/Romano-British ditch fills excavated in 2004 in advance of the construction of the Aldbrough Natural Gas Storage Facility itself (Schmidl *et al* 2008).

Insect assessments resulting in further work

Insect assessments were carried out on samples taken by Oxford Archaeology North along the route of the Easington to Paull gas pipeline near Hull, and from a crannog at Cults Loch, Castle Kennedy in Galloway excavated by AOC Archaeology (Allison 2011g, 2012d). Recommendations were made for further work on both groups of material.

Acknowledgements

Sample processing was mainly carried out by Alex Vokes, with Hazel Mosley undertaking some processing and recording of remains recovered in the later part of the year. John Adams provided invaluable help with the upkeep and renovation of the wet-sieving equipment, and we are grateful to Ian of Dilton Skips who removes all the sludge created by sample processing. Volunteers Ann Chadwick, Bob Robson, Allison Spensley, Marina Hamankhail and Krystyna Zaleska carried out much of the sorting of the dried residues from bulk samples to recover artefacts and biological remains to pass on to various finds and environmental specialists. Sample processing from the Folkestone Roman villa was carried out by Mike and Anne Barry, Ian and Kate Beeby, Pat Cocks, Jill and Gerald Cramp, Carol Kane, Bonnie Knapp, Norma Lawson, Sue and John Mills, Roma Mortimer and Norma Pocher, together with work experience students Harry and Serena

Allison Spensley and Krystyna Zaleska sorting sample residues.

THE FINDS DEPARTMENT

Andrew Richardson

The past year saw the staff and volunteers within the finds team working on material from a wide range of sites. Finds from a number of excavations were washed, dried, marked where appropriate, packed, and recorded in the Integrated Archaeological Database (IADB). Those in Canterbury included St Lawrence cricket ground, 28 St Dunstan's Street and St George's Place. Sites outside Canterbury that produced finds assemblages included Sittingbourne Paper Mill and Franklyn House, Sturry.

The finds assemblage recovered from the excavation at 28 St Dunstan's Street was large and significant; nearly 3000 bulk finds records and just under 600 small finds records were entered in the IADB, representing many thousands of individual objects. The assemblage included objects of all periods from the late Iron Age through to the modern era. Notable finds included the base of a glass vessel (SF107) and a range of bone finds, including a comb (SF39), a decorated handle (SF283) and a *ligula* (SF307). A large number of copper alloy objects from the site included brooches, a hooked tag, lace tags, buckles, pins, tweezers, a book clasp and mounts.

The major excavation at Sittingbourne Paper Mill produced a finds assemblage of primarily post-medieval and modern date. This included a large quantity of clay tobacco pipes, some with elaborately decorated bowls. An unusual find was a battered street sign bearing the name 'WE[ST]BOURNE [STRE]ET', a now vanished street that once existed on the site.

The assessment and analysis of the finds from earlier fieldwork was ongoing throughout the year. This included work on material from the Beaney Institute, Canterbury Christ Church, the Cathedral, Hallet's Garage, the Tannery, the Marlowe Theatre and Whitefriars in the city of Canterbury and from Fordwich Garage in Sturry, the New Romney Sewerage Scheme, Thanet Earth, the Whitfield-Eastry by-pass and the Meads. The latter site, in Sittingbourne, which produced a large sixth- to seventh-century cemetery, was in the ownership of two separate developers and an assessment report on the half of the site owned by Marston's Inns and Taverns was completed as part of the long process of analysis and publication of this important site.

The completion of the second season of excavation at East Wear Bay, Folkestone (see pp 46–8), as part

Some of the glass and bone finds from 28 St Dunstan's Street.

Copper alloy objects from 28 St Dunstan's Street.

The street sign from Sittingbourne Paper Mill.

Some of the clay tobacco pipes from Sittingbourne Paper Mill.

of the 'A Town Unearthed' (ATU) project, added a large and important assemblage of prehistoric and Roman finds to the material excavated in the 2010 season. Processing and initial recording of this material took place both in the Finds Department at Canterbury and in the Trust's facilities in Dover. A dedicated team of ATU volunteers, led by Kate Holtham-Oakley, has spent thousands of hours washing, marking and packing this material and this work is ongoing at the time of writing. Detailed cataloguing of the hundreds of coins and small finds from the site has been undertaken by David Holman, of Dover Archaeological Group (for the coins) and Amélie Vallee, a Belgian archaeologist, who worked with the Trust from January to March 2012 as part of an EU-funded internship.

The ongoing work with volunteers in Canterbury, Folkestone, Dover and Sittingbourne, along with the hosting of European interns like Amélie, underlines the strong community and educational role played by the Trust. As part of this the finds team regularly contribute to and assist with events and exhibitions in Canterbury and beyond. During 2011–12, members of the team were involved with events to commemorate the thousandth anniversary of the Viking siege of Canterbury, delivered numerous talks across Kent and beyond, facilitated access to the collections held by the Trust to researchers and assisted with the preparation of material for a major international exhibition focussed on the Dover Bronze Age Boat


Belgian archaeologist, Amélie and a notable Roman find from the ATU project – a hare brooch.

PUBLICATIONS

Jane Elder

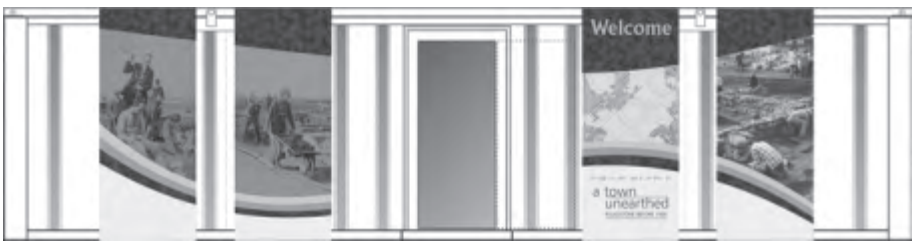
Looking at my diary for the year 2011-2012 it's easy to see what was the focus of our attention in the publication department: Buckland Anglo-Saxon cemetery. As has often been the case with reports published in our monograph series, we had to work to a tight schedule in order to meet the deadline imposed by English Heritage grant funding, but, with the help of many patient specialists and the invaluable assistance of staff at the British Museum, we did it.

The excavation at Buckland took place in 1994. Keith Parfitt directed the work, and when what had been planned to be a small excavation of a few Anglo-Saxon graves looked like becoming something much, much bigger, he contacted Leslie Webster at the British Museum. In her foreword to the book, Leslie describes what happened: 'And so it was that on a bright summer's day, a small group of us from the British Museum's Departments of Medieval and Later Antiquities and of Conservation, stood marvelling in the site hut as box after box was opened to reveal some of the first astonishing finds from this excavation – iron weapons, glass vessels, gold pendants and garnet-inlaid brooches, some Kentish-made, others brought from southern Scandinavia and Merovingian Gaul. '

That visit began a collaboration that continued right up to publication. Orbit Housing, the site developer, funded the excavation and presented the finds to the British Museum, which in turn undertook the finds conservation and drawing programme. The British Museum also provided specialist support on site and in the post-excavation process and later contributed funds towards publication. English Heritage provided funds, first for analysis and, at the end of the process, a publication grant.

With so many stages along the way and with so many people involved over such a protracted period it might be expected that pulling the final publication together would be a difficult job. But it was not so. The meticulous preparation by Keith and his 'partner-in-crime' Barry Corke, meant that though the job was a big one, it went relatively smoothly. This was also in no small part due to the professionalism of Kate Morton at the British Museum, who not only prepared the illustrations for us, but also helped liaison with various specialists.

Buckland Anglo-Saxon Cemetery, Dover by Keith Parfitt and Trevor Anderson is available from Oxbow Books (www.oxbowbooks.com), or to personal callers at 92A Broad Street, Canterbury. Price £35.00 (£30 to Friends of the Canterbury Archaeological Trust).



Elevation of the visitor cabin at the Folkestone Roman villa excavation showing exterior decorative panels. Designed by Mark Duncan and Peter Atkinson, bright and colourful panels encouraged visitors to enter the exhibition to find out more about the excavation and the 'A Town Unearthed: Folkestone before 1500' community project

EDUCATION

Marion Green

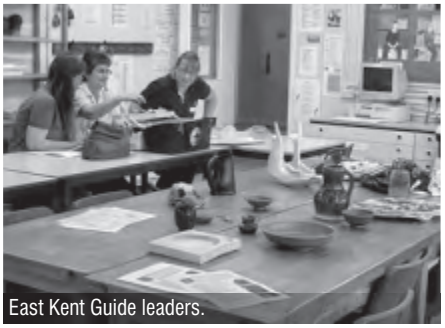
There are now many elements to the Trust's core Archaeology in Education Service (http://www.canterburytrust.co.uk/learning/) which continue to receive the support of the Kent Archaeological Society. In the past year there have been various visits to Kent schools, including multiple workshops on the Isle of Sheppey, at Halfway Houses Primary and Queenborough Primary. The latter was associated with a KCC regeneration project around the site of Queenborough Castle and Andy Macintosh did a sterling job where visible remains were slight and place names and models were very useful! We've also dipped into the world of Scouts and Guides with East Kent Guide leaders getting their hands on some of our CAT KITs.

Currently, the Education Service also has considerable involvement with the partnership projects 'A Town Unearthed, Folkestone before 1500' and 'Boat 1550 BC'.

Here are a few tasters of recent work.

Linking up with the BBC

Andy, Helen and Jacqui were well occupied when we joined up with the BBC's 'Dig!' events around the country last summer. Our Little Dig activity is very popular with families and it went on a road show around four of Kent's libraries – Ramsgate, Deal, Tonbridge and Gravesend. Ironically, Little Dig trenches are pretty big and logistics were a bit challenging in a couple of those but once in place everyone had a good time, including library staff who appreciated hosting a different kind of attraction. The Little Dig activity is fun (sense of discovery) and educational (interpreting the buried finds). We also took part in another local BBC 'Dig!' event hosted by Ash Heritage Group. This time our theme was what we can learn from excavated human remains and Hayley (in-house osteoarchaeologist) and Alex's enthusiasm went down very well with visitors.



East Kent Guide leaders.

Little Dig at Gravesend Library.

A Town Unearthed – coming back for more

The second season on Folkestone's East Cliff saw a new area of excavation and a new visitor cabin. This was a great asset as the previous year the exposed volunteers and visitors suffered from battering winds, enough to lift a marquee (on loan from Keith, but as we found, not fit for a cliff top). We were later loaned a scout tent (sturdier with improved protection). But it was thanks to Nick Spurrier's fundraising that we ended up with the best of all, a strong fit for purpose cabin. This story is beginning to sound like The Three Little Pigs.

The cabin meant we could have a small exhibition, cover for school groups and a place in the corner for Keith and his records (very welcome) and one of the ATU volunteers, Pat, even planted flowers outside (nice touch).

In that second year, Folkestone district schools who took advantage of learning opportunities from the East Cliff excavations were St Peter's CEP, St Eanswythe's CEP, Seabrook Primary, Morehall Primary, Highview School, Christ Church Primary, Dymchurch Primary, Palmarsh Primary, Sellindge Primary, Saltwood CEP, Oakwood School, St Mary's CEP, Churchill School, Pent Valley Technology College and Folkestone Girls Grammar School, with most of these enjoying multiple visits. Several volunteers took the opportunity to work with the young people on site and in schools and Yvonne, Pat, Roma, David and Dan all struck the right level of engagement. They say being around children and dogs keeps you young and there were plenty of both at East Cliff.

The ATU project includes building some Folkestone specific Archaeological Resource Kits (ARKs) of handling finds; more of this next year, but in the meantime the ARK Guide can be downloaded at http://www.canterburytrust.co.uk/learning/resources/ark_teacher_pack/

ATU images on opposite page: **1**: ARK teacher guide. **2**: Fund raising secured cover for a small exhibition and Keith's records. **3**: General view of excavation. **4**: Making flour using a replica quern with volunteer David. **5**: Roma illustrates the volunteer role with the project. **6**: Volunteer Yvonne engaging with the young visitors. **7**: Learning the skills on Work Experience placement.

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Boat 1550 BC

In the first year of this EU project, attention mostly focused on making the replica boat and staging the first phase of the travelling exhibition. There is a formal Education strand to the project as well and partners have begun work on a teaching and learning programme. Included in this will be production of sets of 'Bronze Age' kits for use in each of the three project countries during and after the project; to this end, sets of replica items are being commissioned to illustrate Bronze Age technologies and culture and so far a set of beautiful ceramic 'beakers' have been made. Next on the shopping list are the palstave axes.

While reviewing the year's work, I made a note of colleagues who have been involved in various activities, so I'm going to end with a 'thank you' to Alex, Andrew Savage, Andy Macintosh, Hayley, Helen, Jacqui, James, Laura and Ross

Boat 1550 BC replica Bronze Age beakers.

THE FRIENDS

David Shaw

There have been a number of changes to the Friends' committee during the year. Miss Anne Oakley and Miss José Rogers have stepped down from their respective administrative posts. Mrs Ann Vine has retired as Visits Organiser but will stay on the Committee. We have been fortunate in finding several new members to take on tasks on the Committee: Miss Jane Blackham is now looking after the organisation of newsletter delivery as well as publicising our events; Prof Chris Bounds has taken over as secretary to the committee; Miss Julia Scarlett is our new Newsletter Editor; Mr Steve Rogers has agreed to be our meetings coordinator; Mrs Sue Chambers has joined the committee as an ordinary member. The Chairman is extremely grateful to all his colleagues for their help and support in furthering the work of the Friends.

The Friends had a successful year of activities. In 2011 these included a visit to the Godmersham and Crundale Heritage Centre, with Godmersham Church and Godmersham Park gardens; a repeat visit to Saltwood Castle; visits to Allington Castle, the Westgate Towers Museum, and a second visit to the Roman villa excavations at Folkestone, and finally a tour of Margate and the Turner Gallery. A visit to the Dover Bronze Age Boat reconstruction took place in March 2012. Talks included the annual Frank Jenkins Memorial Lecture (organised jointly with the Canterbury Historical and Archaeological Society), a very successful symposium on new discoveries on Roman Canterbury with five speakers from the Trust's staff, which drew an audience of about 100, and a talk on 'Policing the Past: Seven Years of Tackling Heritage Crime in Kent and Beyond' by the Trust's Finds Manager, Andrew Richardson. A full programme of guided walks was once again organised for the Canterbury Festival by Meriel Connor; this year's revenue for the Friends was once again over £1,700.

Members of the Friends receive a newsletter three times a year as well as a copy of the Trust's annual report *Canterbury's Archaeology*.

www.canterburytrust.co.uk/friends/friends.htm

The Friends continue to make grants to the Trust for equipment, building maintenance and for staff development. Grants of around £7,000 were given to the Trust for repairs and modifications at the Kingsmead store and at the Broad Street buildings. A grant of £1,500 has been made for the purchase of a digital camera and associated equipment. The Friends have also purchased a new printer for the Education Officer. Funding has been provided for several members of staff to attend courses and conferences, including help towards the costs for two members of the Trust's staff to speak at a conference in Italy.

As in previous years, I have to report that our membership numbers are stuck in the 370s whereas our target is to have 400 regular subscribers. If you are not already a member of the Friends, you can pick up a membership form from the Trust's offices, or download one from the Friends' pages on the Trust's website, or contact me on friends@canterburytrust.co.uk

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BIBLIOGRAPHY

Allison, E 2011a, 'Insect remains from four sequences of deposits excavated at Star Carr, Vale of Pickering, North Yorkshire, in 2010: Technical report. (Site Code SC10)', unpublished Canterbury Archaeological Trust client report 2011/121

Allison, E 2011b, 'Insect remains from Roman and Saxo-Norman pits excavated at 29-33 King Street, London EC2 (Museum of London Site Code KGT06)', unpublished Canterbury Archaeological Trust client report 2011/56

Allison, E 2011c, 'Insect remains from Borehole 23 at Mondial House, 90 Upper Thames Street, London EC4 (Museum of London Archaeology Site Code UPM05)', unpublished Canterbury Archaeological Trust client report 2011/152

Allison, E, 2011d, 'Insect remains from the waterlogged fills of a second to third century waterhole excavated on the route of the A421 near Wootton, Bedfordshire (Oxford Archaeology Site Code A421BD09)', unpublished Canterbury Archaeological Trust client report 2011/64

Allison, E 2011e, 'Insect remains from excavations at Stanford Wharf Nature Reserve, London Gateway, Stanford-le-Hope, Essex (Oxford Archaeology South Site Code COMPA09)', unpublished Canterbury Archaeological Trust client report 2011/146

Allison, E 2011f, 'Assessment of samples from Lewes House to establish their potential for insect analysis (Archaeology South-East Site Code LHH05)', unpublished Canterbury Archaeological Trust client report 2011/155

Allison, E 2011g, 'Assessment of insects and other invertebrates from ditch fills excavated along the route of the Easington to Paull pipeline (Oxford Archaeology North Site Code EP09)', unpublished Canterbury Archaeological Trust client report 2011/71

Allison, E 2012a, 'Bird remains from archaeological excavations along the route of the New Romney to Greatstone first time sewerage scheme, Kent (Canterbury Archaeological Trust Site Codes NRP3.EX05, NRP3.WB05, NRSM.EX05, NRPL. WB05, SSNR.EV04)', unpublished Canterbury Archaeological Trust client report 2012/34

Allison, E 2012b, 'Star Carr, Vale of Pickering, Yorkshire', *Canterbury's Archaeology 2010–2011*, 80–82

Allison, E 2012c, 'Insect remains from the basal fill of an Iron Age ditch at Aldbrough Cliff, East Riding of Yorkshire (Oxford Archaeology North Site Code ACS11)', unpublished Canterbury Archaeological Trust client report 2012/20

Allison, E 2012d, 'Assessment of insect remains from archaeological excavations at Cults Loch, Castle Kennedy, Galloway (AOC Project code 20238-4)', unpublished Canterbury Archaeological Trust client report 2012/22

Andrews, G 1985, *The Archaeology of Canterbury: An Assessment. Historic Buildings and Monuments Commission*, London

Andrews, J, Dury, A and Herbert, W 1769, A Topographical map of the County of Kent, in twenty five sheets, on a scale of two inches to a mile

Anker, K, Biddulph, E, Carey, C and Foreman, S 2010, 'Stanford-le Hope Nature Reserve, London Gateway, Stanford-le-Hope, Essex. Volume 1: Post-excavation assessment and updated project design', unpublished Oxford Archaeology report

Austin, R 1997, 'Littlebourne Barn', *Canterbury's Archaeology 1995–1996*, 51–7

Austin, R 2005a, 'Manor Barn, Frindsbury', *Canterbury's Archaeology 2003–2004*, 49–50

Austin, R 2005b, 'Ozengell Barn, Ozengell Grange, Ramsgate', *Canterbury's Archaeology 2003–2004*, 40–2

Bailey, A 2012, 'Osteological Report on the Human Skeletons from Capital House, Margate', unpublished report, prepared for Canterbury Archaeological Trust

Bakels, C C 1997, 'The beginnings of manuring in western Europe', *Antiquity* 71, 442–5

Bendrey, R 2006 'Mammal bone' in K Parfitt, B Corke, and J Cotter, *Townwall Street, Dover: Excavations 1996, The Archaeology of Canterbury New Series,* Volume III, 321–53

Bendrey, R forthcoming, 'Mammal remains from Whitefriars, Canterbury' in A Hicks and M Houliston, '*Whitefriars Excavations 1999–2004*' forthcoming

Bennett, P 1978, 'Excavations at 16-21 North Lane' in 'Some minor excavations undertaken by the Canterbury Archaeological Trust in 1977–78', *Archaeologia Cantiana* xciv, 165–91

Bennett, P 1983, '1 Cossington Road', *Canterbury's Archaeology 1982–1983*, 27

Bennett, P 1987a, 'Cranmer House, London Road' in S Frere *et al*, 56–73

Bennett, P 1987b, '1 Oaten Hill Court' in S Frere *et al*, 41–3

Bennett, P 1991, 'Starr Place, St Dunstan's, Canterbury', *Canterbury's Archaeology 1990–1991, 7–9*

BGS 2012, *Borehole Record Viewer,* British Geological Society, accessed 11 June 2012, <http://mapapps.bgs.ac.uk/boreholescans/boreholescans.html>

Britton, J and Brayley, E W 1807, *The beauties of England and Wales; or, delineations, topographical, historical and descriptive,* viii, London

Brooks, N 1984, *The Early History of the Church of Canterbury,* Cambridge

Brown, J 2008, 'Archaeological Desk Based Assessment of the British Red Cross Centre, Lower Chantry Lane, Canterbury, Kent', unpublished Northamptonshire Archaeology client report

Buckland, P C 1978, Cereal production, storage and population: a caveat, in S Limbrey and J G Evans (eds) *The effect of man on the landscape: the lowland zone,* Council for British Archaeology Research Report 21, London, 43–5

Carrott, J, and Foster, A, 2012 'Technical Report: Mollusc remains from excavations at Thanet Earth, Isle of Thanet, Kent (site code TE EX07)', *Palaeoecology Research Services Report* 2012/21

Champion, T 2007, 'Prehistoric Kent' in J H Williams, *The Archaeology of Kent to AD 800,* Woodbridge

Clark, J G D 1954, *Excavations at Star Carr,* Cambridge

Colgrave, B (ed) 1927, *The Life of Bishop Wilfrid by Eddius Stephanus,* Cambridge (reprinted 1985)

Compass Archaeology 2007, 'Former Sittingbourne Mill and Wharf Site, An Archaeological Desk Based Assessment and Walkover Survey', unpublished client report

Cooke G A 1819, *Walks through Kent: containing a topographical and statistical description of the County and of the Isle of Thanet, in particular,* London

Cozens Z 1793, *A Tour Through the Isle of Thanet,* London

Croft, A, Munby, J and Ridley, M 2001, *Kent Historic Landscape Characterisation, Final Report. Volume 1: Main Report,* Kent County Council, English Heritage and Oxford Archaeological Unit, May 2001

Cross, R 1996, 'Shelford – proposed landfill extension: archaeological desk study', unpublished Canterbury Archaeological Trust client report, 1996/26

Dangar, A 2002, 'Pie from the sky', Telegraph website http://www.telegraph.co.uk/gardening/3300692/Pie-from-the-sky.html consulted 28.3.12

Darwin, B 1950, *Receipts and relishes being a vade mecum for the epicure in the British Isles,* London

Davis, A H (ed) 1934, *William Thorne's Chronicle of St Augustine's Abbey, Canterbury,* Oxford

Detsicas, A 1983, *The Cantiaci,* Stroud

Diack, M 2003, 'St Dunstan's Terrace', *Canterbury's Archaeology 2001–2002,* 14–17

Dines, H G, Holmes, S C A and Robbie, J A 1954, *Geology of the country around Chatham,* British Geological Survey, HMSO (reprinted 1989)

Dowker, G 1897, 'On the landing-place of St Augustine', *Archaeologia Cantiana* xxii, 123–43

Driver, J C, Rady, J, and Sparks, M, 1990 *Excavations in the Cathedral precincts 2: Linacre Gardens, 'Meister Omers' and St Gabriel's Chapel,* The Archaeology of Canterbury IV, Maidstone

Duff, A (ed) 2008, *Checklist of beetles of the British Isles,* Wells, Somerset: privately printed

English Heritage and Kent County Council 2004, *Kent Historic Towns Survey Sittingbourne: Archaeological Assessment Document*

Evison, V I 1982, 'Anglo-Saxon Glass Claw-beakers', *Archaeologia (Second Series)* 107, 43–76

Field, T and Routledge, C F sd, *Canterbury, the cathedral church of Christ and the remains of its monastic buildings and the ancient church of S Martin: a short guide and history*

Frere, S S, Bennett, P, Rady, J and Stow S 1987, *Canterbury Excavations: Intra- and Extra-Mural Sites 1949-55 and 1980-84,* The Archaeology of Canterbury VIII, Maidstone

Gardiner, M 1997, 'The exploitation of sea-mammals in medieval England: bones and their social context', *Archaeological Journal 154,* 173–95

Gardiner, M 2000, 'Excavations at Minster Abbey, Sheppey', unpublished, QUB

Garmonsway, G N 1972, *The Anglo-Saxon Chronicle,* London

Geddes, J forthcoming, 'The ferramenta of the oculi at Canterbury Cathedral' in *Proceedings of the British Archaeological Association conference, 2009*

Gollop, A 2004, 'Westwood Cross, Broadstairs. Detailed archaeological investigations on land at Westwood Cross, Broadstairs', Canterbury Archaeological Trust archive report

Gollop, A 2010, *28 St Dunstan's Street, Canterbury, Kent. Archaeological Evaluation,* unpublished Canterbury Archaeological Trust client report 2010/82

Gollop, A 2011, 'Archaeological Evaluation at the British Red Cross Centre, Lower Chantry Lane, Canterbury, Kent', unpublished Canterbury Archaeological Trust client report 2011/45

Gollop, A 2012a, 'Hallet's Garage, Nos 25–27 St Dunstan's Street, Canterbury', *Canterbury's Archaeology 2010–2011*, 12–17
Gollop, A., 2012b, 'Capital House, Northdown Road, Margate: Archaeological Evaluation Report', unpublished Canterbury Archaeological Trust client report, 2012/4
Gostling, W 1774, *A walk in and about the city of Canterbury,* 1st edition, Canterbury
Green, C P, Young, D S and Batchelor, C R 2012, 'A report on the geoarchaeological borehole investigations and deposit modelling on land at Ramsgate Road, Richborough, Kent', QUEST unpublished report
Harde, K W 1984, *A field guide in colour to beetles,* edited and with additional introductory material by P M Hammond, London
Hardman, F W and Stebbing, W P D 1940, 'Stonar and the Wantsum Channel (Part I Physiographical)', *Archaeologia Cantiana* liii, 62–80
Hardman, F W and Stebbing, W P D 1941, 'Stonar and the Wantsum Channel (Part II Historical)', *Archaeologia Cantiana* liv, 41–61
Hasted E 1799, *History and Topographical Survey of Kent*, fourth edition, Canterbury
Hannen, H 1914, 'An account of a map of Kent dated 1596', *Archaeologia Cantiana* xxx, 85–92
Hearne, C M, Perkins, D R J and Andrew, P 1995, 'The Sandwich Bay Wastewater Treatment Scheme Archaeological Project 1992-1994', *Archaeologia Cantiana* cxv, 239–354
Helm, R 2010, 'Archaeological evaluation on land at 23 Oaten Hill, Canterbury, Kent', unpublished Canterbury Archaeological Trust client report 2010/57
Helm, R and Rady, J 2010, *Excavations at Market Way, St Stephen's, Canterbury,* Canterbury Archaeological Trust Occasional Paper No 8, Canterbury
Hicks, A 2009, 'South precincts, Canterbury Cathedral. Phase 1. An archaeological desk-based assessment', unpublished Canterbury Archaeological Trust client report 2009/145
Holman, J 2012, 'St Lawrence Cricket Ground, Kent County Cricket Club, Old Dover Road', *Canterbury's Archaeology 2010–2011*, 17–21
Houliston, M 1990a, 'Martin Walter's Garage, St George's Place', *Canterbury's Archaeology 1988–1989,* 10–12
Houliston, M 1990b, 'Nos 4–5 Upper Bridge Street', *Canterbury's Archaeology 1988–1989,* 10
Houliston, M, Andrews, J and Anderson, T 1995, 'An archaeological Watching Brief at 8 Vernon Place, Canterbury', unpublished Canterbury Archaeological Trust client report 1995/12
Igglesden C 1932, 'Monkton' in *A Saunter through Kent with Pen and Pencil,* xxvi, Ashford
Jamieson, A and Andrews, E S 1919, *Elementary Manual on Heat Engines, 16th* edition, London
Jenkins, F 1956, 'A Roman tilery and two pottery kilns at Durovernum (Canterbury)', *Antiquaries Journal* xxxvi, 40–56
KARU 1999, 'Development on Land at Vicarage Road, Minster, Isle of Sheppey, Report on Watching Brief', unpublished Kent Archaeological Rescue Unit report
Kendall, P 1982, *Bromius obscurus* (L.) in Britain (Col., Chrysomelidae), *Entomologist's Monthly Magazine* 117 (for 1981), 233–4
Kenward, H 2009, *Invertebrates in archaeology in the North of England,* Northern Regional review of Environmental Archaeology, Research Department Report Series 12-2009, English Heritage
Kenward, H K and Large, F 1997, 'Technical report. Insect remains from Seamer Carr landfill site: ecological reconstruction of a Mesolithic shore', *Reports from the Environmental Archaeology Unit, York* 97/30
Kerney, M P and Cameron, R A D 1979, *A field guide to the land snails of Britain and North-west Europe*, London
Knafla L A 2004, 'Sir Peter Manwood' in *Oxford Dictionary of National Biography,* Oxford, 573–6
Lane, R 2012a, 'Fordwich Garage, Sturry', *Canterbury's Archaeology 2010–2011,* 31–3
Lane, R 2012b, 'An assessment report for an archaeological excavation at the site of the former Fordwich Garage, Sturry, Kent', unpublished Canterbury Archaeological Trust client report 2012/5
Linklater, A 2007, 'Watching and recording brief at 14 Cossington Road, Canterbury', unpublished Canterbury Archaeological Trust archive report
Linklater, A and Dekker, E 2010, 'The discovery of a *Quadrans Novus* at The House of Agnes, St Dunstan's Street, Canterbury' *Archaeologia Cantiana* cxxx, 65–82
Locker, A 1976, 'The animal and bird bones' in G Black (ed), 'Excavations in the sub-vault of the misericord of Westminster Abbey, February to May 1975', *Transactions of the London and Middlesex Archaeological Society* 27, 176–7
Lyne, M 1997, *Lewes priory. Excavations by Richard Lewis 1969-82,* Lewes
MacDougall P 2009, *Chatham Dockyard, 1815-1865: the industrial transformation,* Navy Records Society 154
Marsh, R 2007, *The History of Sittingbourne Mill,* m-Real, Sittingbourne
Masefield, R 2011, 'Former Build Center Site, Westwood Road and Margate Road, Westwood Cross, Thanet – an archaeological Written Scheme of Investigation', unpublished report
Meaney, A 1964, *Gazetteer of Early Anglo Saxon Burial Sites,* London
Millett, M 2007, 'Roman Kent' in J Williams (ed), *The Archaeology of Kent to AD 800,* Woodbridge
Mills, A 1994, 'A report on a ground investigation at the former Astra Pyrotechnics factory, Ramsgate Road, Sandwich, Kent', Kent Site Investigations Ltd, unpublished report
Naveaux, R and Shea, J 1982 'Method for Improving Regenerative Furnace Efficiency', *The Glass Industry*, 63 (1–2),14–19
Newhook, R and Holman, J 2008, 'St Lawrence cricket ground, Old Dover Road, Canterbury', *Canterbury's Archaeology 2006–2007,* 8–10
Palmer, M, Nevell, M and Sissons, M 2012, *Industrial Archaeology: A Handbook,* Council for British Archaeology Practical Handbook no 21, London
Payne, G 1878, 'Roman coffins, of lead, from Bex Hill, Milton-next-Sittingbourne', *Archaeologia Cantiana* ix, 164–73
Pegge S 1874, 'Dr Pegge's Ms. alphabet of Kenticisms, and collection of proverbial sayings used in Kent', *Archaeologia Cantiana* ix, 50–147
Perkins, D R J 1997, 'The Police Station, Fort Hill, Margate' p 228 in 'Researches and Discoveries; a report on the work of the Trust for Thanet Archaeology', *Archaeologia Cantiana* cxvii, 227–64
Philp, B and Chenery, M 1998, *Prehistoric and Monastic sites at Minster Abbey, Sheppey, Kent,* Kent Archaeological Rescue Unit, West Wickham
Pilbrow, J 1871, 'Discoveries made during excavations at Canterbury in 1868', *Archaeolgia* xliii, 151–64
Potter, G 2004, 'Land at the northern end of Hawthorn Road, Sittingbourne ME10N. An archaeological post excavation assessment', unpublished Compass Archaeology report
Pratt, S 1995, 'Minster-in-Sheppey', *Canterbury's Archaeology 1993–1994*, 26–8
Pratt, S 2010, 'Minster-in-Sheppey', *Canterbury's Archaeology 2008–2009*, 39–41
Pratt, S and Holman, J 2010, '28 St Dunstan's Street, Canterbury, Residential (retirement homes), Watching brief on geotechnical boreholes and service location test pits', unpublished Canterbury Archaeological Trust client report 2010/40
Rackham, O 1986, *The history of the countryside,* London
Rady, J 2009, *Excavations at North Lane, Canterbury 1993 and 1996*, Canterbury Archaeological trust Occasional Paper No 6, Canterbury
Rady, J 2010, 'Thanet Earth, Monkton', *Canterbury's Archaeology 2008–2009,* 1–16
Rady, J, Holman, J and Henshaw, R 2010, 'Excavations at Thanet Earth 2007-2008: Assessment Report', unpublished Canterbury Archaeological Trust report 2010/77
Rady, J, Tatton-Brown, T and Bowen, J 1991, 'The Archbishop's Palace, Canterbury', *Journal of the British Archaeological Association* cxliv, 1–60
Rawlinson, R 1717, *The History of Antiquities of the Cathedral Church of Rochester,* London
Richardson, A 2005, *The Anglo-Saxon Cemeteries of Kent: Volume II (Appendices),* British Archaeological Reports, British Series 391, Oxford
Rivet, A L F and Smith, C 1979, *The Place-Names of Roman Britain*, Batsford
Roach, D J undated, 'A short account of the history and development of Bowater mills at Sittingbourne and Kemsley', Bowaters Lloyd Pulp & Paper Mills Ltd (unpublished)
RSK Environment Ltd 2011, 'Former Mill and Wharf Site, Sittingbourne, Kent – Update of Archaeological Desk-based Assessment', unpublished client report, http://www.ukplanning.com, accessed 11 June 2012
Sabin, R, Bendrey, R, and Riddler, I 1999, 'Twelfth-century porpoise remains from Dover and Canterbury', *Archaeological Journal* 156, 363–70
Schmidl, A, Allison, E, Carrott, J, and Beacock, A 2008, 'Technical Report: Plant and invertebrate macrofossil remains from excavations at the Aldbrough Gas Storage project, Aldbrough, East Riding of Yorkshire (site code: AGS2004)', *Palaeoecology Research Services Report* 2008/28
Scottish Recipes website http://www.scotting-recipes.com/rook-pie.html, Consulted 28.3.12
Seary, P 2012, 'Reculver Towers', *Canterbury's Archaeology 2010–2011*, 55–60
Shirley J (ed) 1938, *The Reminiscences of the Reverend George Gilbert (1796–1874), a King's Scholar of Canterbury, a Master of Arts of Corpus Christi College, Cambridge, Vicar of Syston and Prebendary of Lincoln*
Simmonds, A 2010, 'A421 Improvements: M1 Junction 13 to Bedford. Post-excavation assessment and project design', unpublished Oxford Archaeology report
Slade, B 1993, *Minster Abbey, Isle of Sheppey, an account of the excavations, Santa* Maria Publications, Minster

Smith, D and Kenward, H 2011, 'Roman grain pests in Britain: Implications for grain supply and agricultural production', *Britannia* 42, 243–62
Spurr, G 2005, 'Former Brown & Mason Yard, Ramsgate Road, Sandwich, County of Kent: a geoarchaeological assessment report', MoLAS, unpublished report
Spurr, G 2006, 'Former Brown & Mason Yard, Ramsgate Road, Sandwich, County of Kent: a geoarchaeological report', MoLAS, unpublished report
Sparks, M 2007, *Canterbury Cathedral Precincts. A historical survey,* Canterbury; Dean and Chapter of Canterbury
Star Carr website http://www.starcarr.com/
Sweetinburgh S 2007, 'The Poor, Hospitals and Charity in Sixteenth-Century Canterbury' in R Lutton and E Salter (eds), *Pieties in transition: religious practices and experiences, c1400-1640,* 59–73
Tatton-Brown, T 1984, 'The Towns of Kent' in J Haslam (ed), *Anglo-Saxon Towns in Southern England, Chichester,* 1–36
Thompson P 1971, *William Butterfield,* London
Ticehurst, N F 1923, 'Some British birds in the fourteenth century', *British Birds* 17, 29–35
Twist, S J 1984, *Stock Bricks of Swale,* Sittingbourne Papers No 2, The Sittingbourne Society
Urry, W 1967, *Canterbury under the Angevin Kings,* London
Urry, W 1980, 'Master Hamo Doge, founder of the Chantry', *The Parish of St Martin and St Pauls: historical essays in memory of James Hobbs, Canterbury,* 36–40
Watts R B 1819, *Aquatic Itinerary,* London
Weekes, J 2011, 'A Review of Canterbury's Romano-British Cemeteries', *Archaeologia Cantiana* cxxxi, 23–42
Wegiel, B *et al,* 2011 'Aldbrough Cliff, East Riding of Yorkshire. Strip, map and record: Archaeological post-excavation assessment', unpublished Oxford Archaeology North report
Wheatley, S W 1939, 'Historical notes' republished 1992 as 'Canon Wheatley's Historical Notes' by the City of Rochester Society
Willis R 1868, 'The architectural history of the conventual buildings of the monastery of Christ Church, Canterbury', *Archaeologia Cantiana* vii, 1–206
Willson, J 2005, 'An archaeological and historical desk-top assessment of an area of land known as No 41 St. George's Place, Canterbury, Kent', unpublished Canterbury Archaeological Trust client report 2005/55
Winbolt, S E 1925, *Roman Folkestone,* London

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