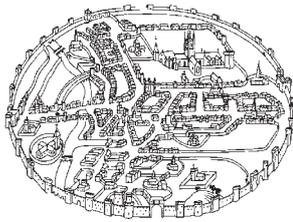




**CANTERBURY'S ARCHAEOLOGY
2010 – 2011**

**35th annual report of the
Canterbury Archaeological Trust** 56



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92a Broad Street, Canterbury, Kent, CT1 2LU
tel: 01227 462062, fax: 01227 784724
email: admin@canterburytrust.co.uk
http://www.canterburytrust.co.uk

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Front cover: Medieval copper alloy pin from the Whitefriars excavations.

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35th ANNUAL REPORT



2010
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TECHNOLOGY
2011



EXCAVATION

Canterbury Cathedral Precincts

Alison Hicks

Between March 2010 and March 2011, three archaeological investigations were undertaken within the precincts of Canterbury Cathedral, associated with a traffic management scheme. At each of the three vehicular routes into the precincts, Mint Yard Gate, Postern Gate and Christ Church Gate, installations were to be erected to control access. At Mint Yard Gate, the installation took the form of a rising barrier,

whilst rising bollards were positioned at Christ Church Gate and Postern Gate.

Each trench and pit required for the scheme was archaeologically hand excavated, primarily by Phil Mayne, with the assistance of Adrian Gollop and the Cathedral Works Department. To them I extend my grateful thanks, not least for the work undertaken at Postern Gate, which required night working to maintain daytime access into the precincts. Canterbury Archaeological Trust would also like to thank the Dean and Chapter of Canterbury Cathedral for funding the work.

Christ Church Gate

Christ Church Gate (centred at TR 614984 157859) is a Grade I Listed Building, constructed c 1520, lying towards the south-west of the cathedral precincts, on the north side of Burgate, by the Buttermarket. It contains two entranceways, a postern gate, to the west, used only for pedestrian access, and a wider carriage gate, to the east, today used primarily for pedestrians but also providing vehicular access when required.

Works associated with the installation of a rising bollard required the cutting of a foundation pit, within which the bollard mechanism would rest. The pit, up to 1.40m deep, was set within the centre (east–west) of the main eastern gateway, towards its southern side. The early stages of excavation revealed water and gas service pipes running north–south across the pit and the remains of a substantial piece of masonry. These features required a scheme redesign, in order to minimise the impact on the intact structure whilst avoiding the mains services. Following on-site discussions, the bollard mechanism was set within a smaller pit than originally intended, slightly off-centre, so that only a small area of masonry had to be removed. Elsewhere the masonry remains were incorporated into the concrete foundation structure.

Additional works were required to provide power to the bollard mechanism. These involved the cutting of a trench, through the cobbled road and the adjacent pavement, to lead from the gateway into No 1 The Precincts. Much of this work was undertaken along existing service runs although new trenching was cut where the routes diverged, close to No 1.

Uncovered within the bollard foundation pit were wide masonry remains running across the width of the gateway (east–west). They were cut, on their eastern side, by modern service runs. The lower levels were formed of large angular flints and rare ragstone fragments bonded with orange-brown mortar containing common small chalk lumps. The masonry was constructed with a lower offset supporting up to six courses of masonry, 0.80m high. Above, resting upon a thin skim of mortar, lay masonry of a different build, predominantly comprising large flint nodules, and rare chalk and ragstone fragments along with Tudor brick, bonded with light brown mortar containing common chalk lumps. The upper wall lay directly upon the earlier,

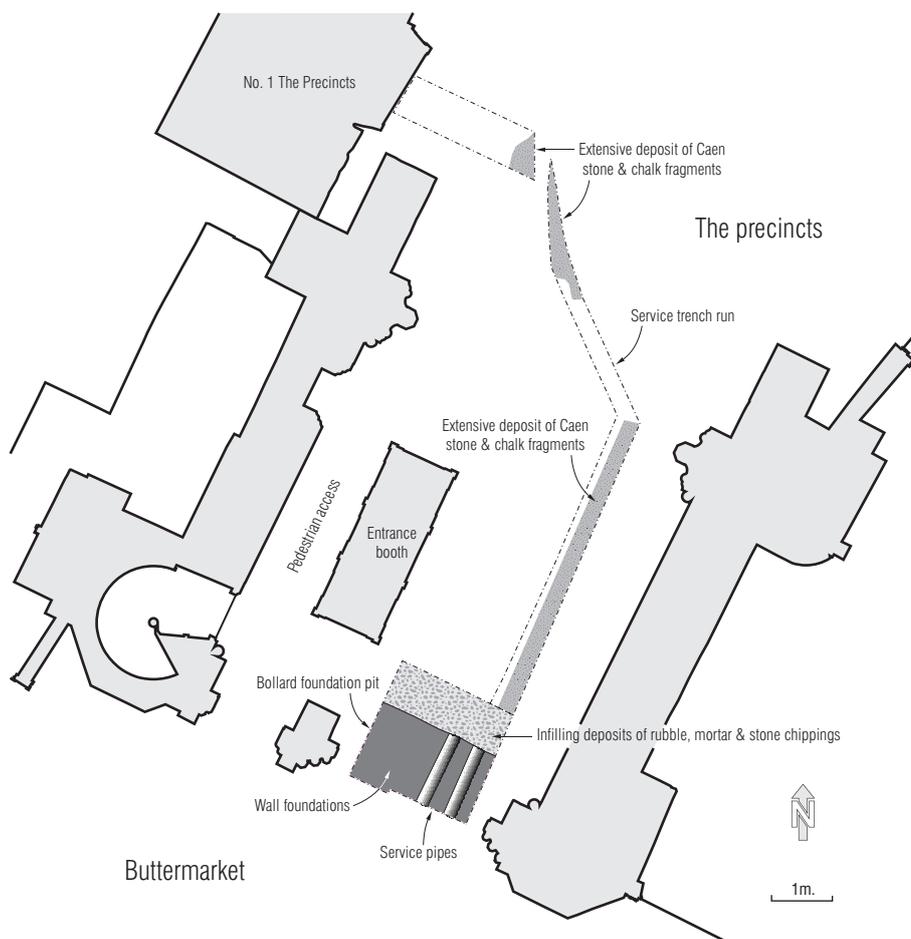
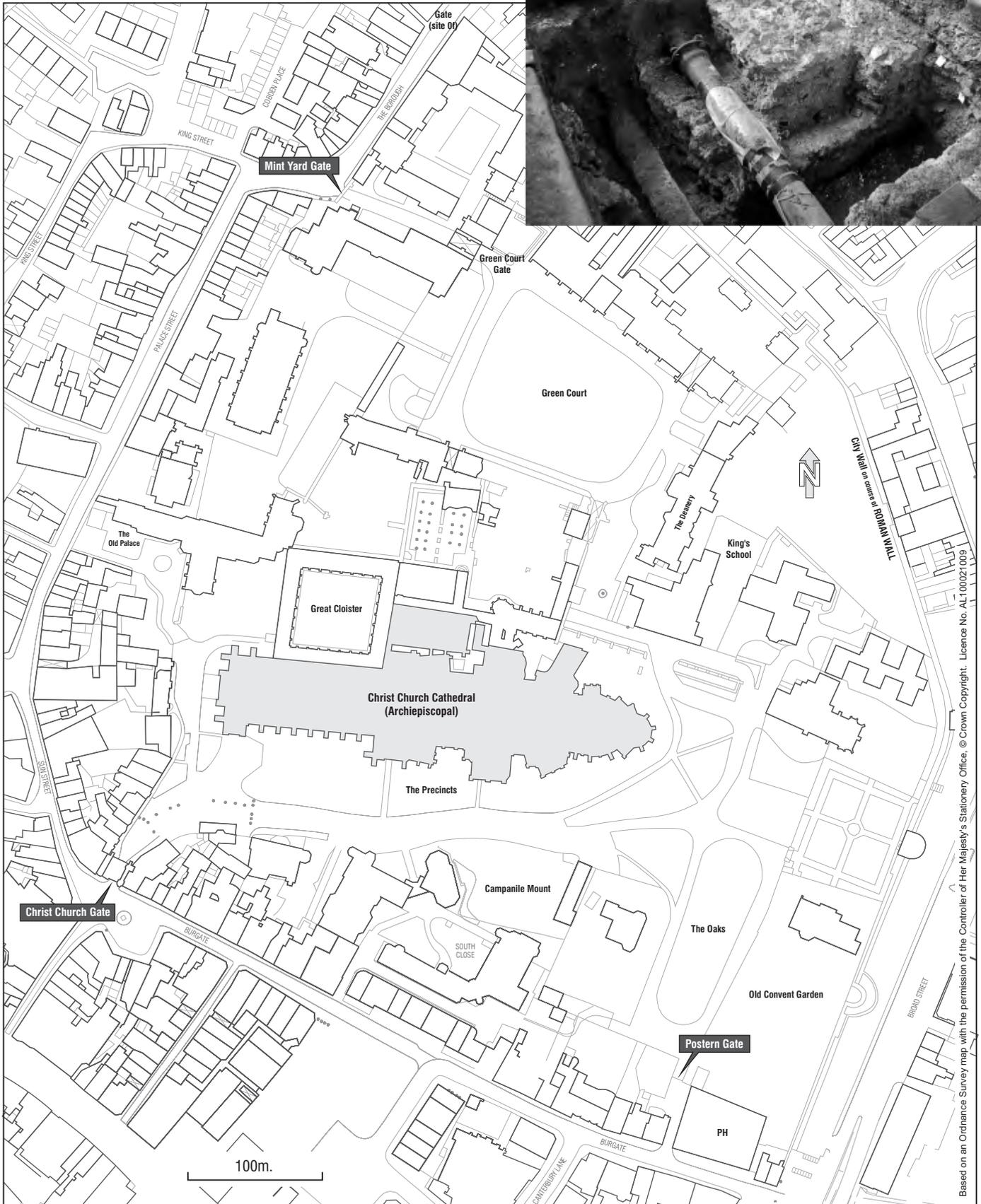


Fig 2. Trenches excavated within Christ Church Gate, and the principal archaeological remains uncovered (scale 1:125).

Two phases of wall foundation revealed within the Christ Church Gate bollard pit, looking south-west. Note the lighter mortar of the upper course. The infilling deposits of rubble, mortar and stone chippings, previously in the foreground, have been removed, but are visible in the labelled section bottom right.



The location of Christ Church Gate, Postern Gate and Mint Yard Gate (scale 1:4000).

following exactly the same alignment. It stood to an average height of one course, 0.15m, but towards the south, where the lower wall dropped away, the upper masonry deepened in compensation to reach a height of three courses (0.45m).

The upper masonry evidently forms part of the Christ Church Gate which stands today, the remains modifying earlier walling to form substantial bridging foundations for the monumental gateway. An interpretation of the lower fabric, however, needs to consider the history of the gate site prior to the erection of the current edifice.

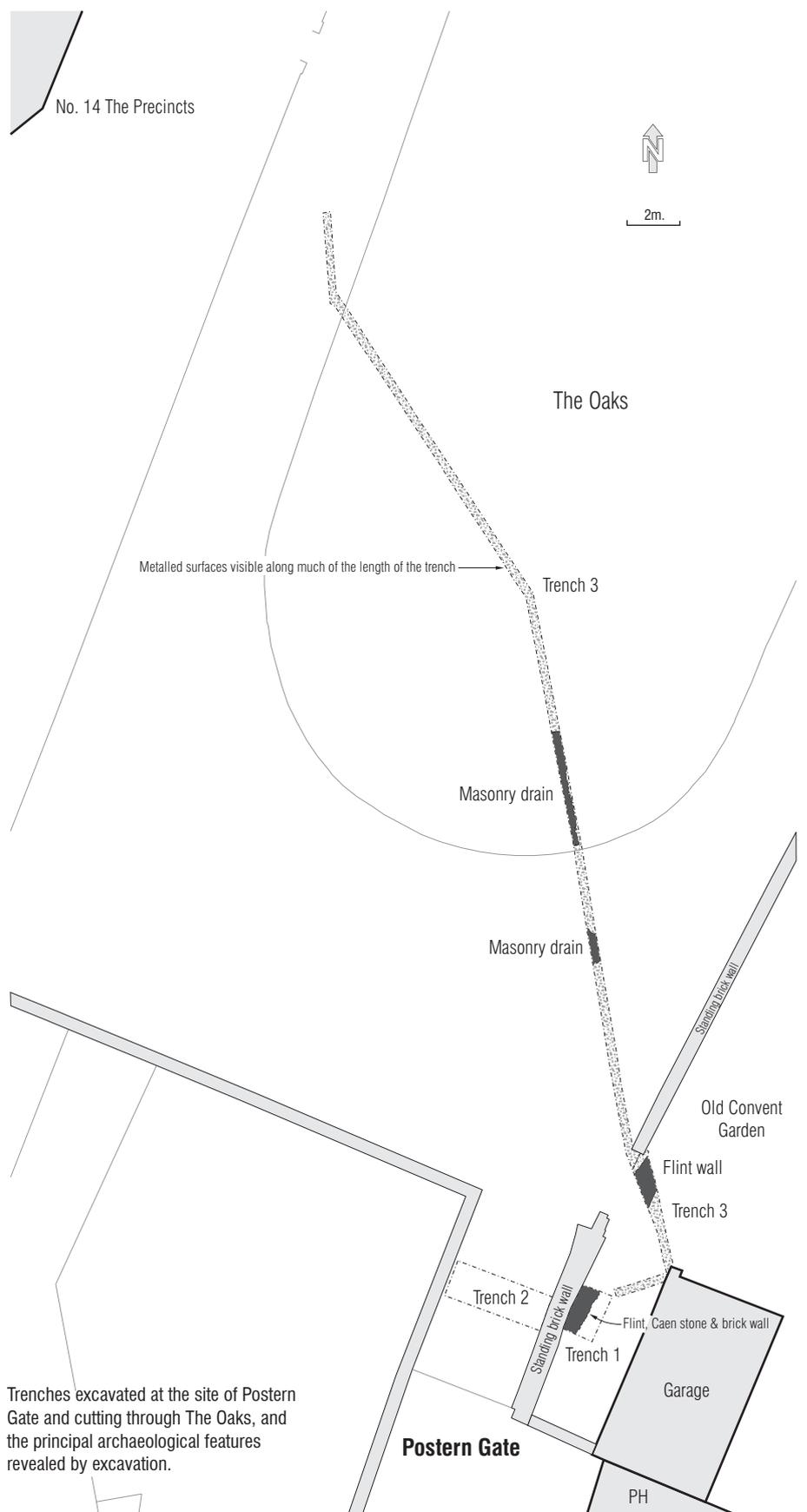
Before c 1202, the gate area is thought to have accommodated part of the lay cemetery of the priory, which 'extended to the extreme western end into the corner between Burgate and Sun Street' (Sparks 2007, 196). The entranceway into the lay cemetery appears to have lain further to the north-east, but bounding the cemetery from the street frontage would almost certainly have been some form of precinct wall. By c 1202, a gateway is known to have existed at the site of Christ Church Gate, leading into an inner area occupied by the causeway and shops, although what form this gateway took is unknown.

It seems, therefore, that the lower masonry has the potential for two interpretations: it may have formed a length of the early precinct boundary wall, or it may have formed bridging foundations for the earliest gate erected on the site. At the time of writing, both seem equally probable, though it is hoped that further analysis of finds recovered from abutting deposits might give weight to one or the other. Whichever interpretation is correct, the masonry appears to have been levelled prior to the subsequent scheme of works: if an earlier precinct wall, perhaps to allow access through a gateway; or if gateway foundations, to form the current Christ Church Gate.

Within the north side of the trench, abutting the masonry remains, lay a sequence of infilling deposits which appeared to have been deliberately dumped to raise the inner area of the gateway following the demolition of the earlier masonry. They comprised layers of stone rubble, crushed mortar and Caen stone chippings. Within the carriageway, the excavated service trenches provided evidence of an extensive deposit of crushed Caen stone chippings and chalk, perhaps debris generated by the construction of the current gate, conveniently used as bedding material for the carriage surface. Overlying the deposit and the masonry foundations were modern layers associated with the present cobbled roadway and paving.

Postern Gate

The traffic management scheme at Postern Gate (centred at TR 61519 15778) involved three elements of work, required to provide a functioning rising bollard mechanism. The first was associated with the bollard control unit, located upon a concrete plinth positioned on the east side of the wall forming the eastern boundary of the gateway. The plinth foundations were set within a 0.77m deep pit cut through the existing concrete surface (Trench 1). The second element of work, and the principal component of the scheme, was associated with the installation of the two rising bollards. These were set within a pit, up to 2.15m



Trenches excavated at the site of Postern Gate and cutting through The Oaks, and the principal archaeological features revealed by excavation.

deep, extending across the full width of the tarmac road just north of the gateway (Trench 2). The third part of the scheme was associated with the provision of a three-phase electricity supply, both to the control unit and to traffic lights positioned north and south of the rising bollards. The nearest suitable supply was at

No 14 The Precincts. Laying of the cables required the cutting of a linear trench (Trench 3), up to 0.65m deep, through the concrete surface adjacent to the control unit and through the tarmac roadway and concrete car park surfaces within an open area of the Precincts known as 'The Oaks'.

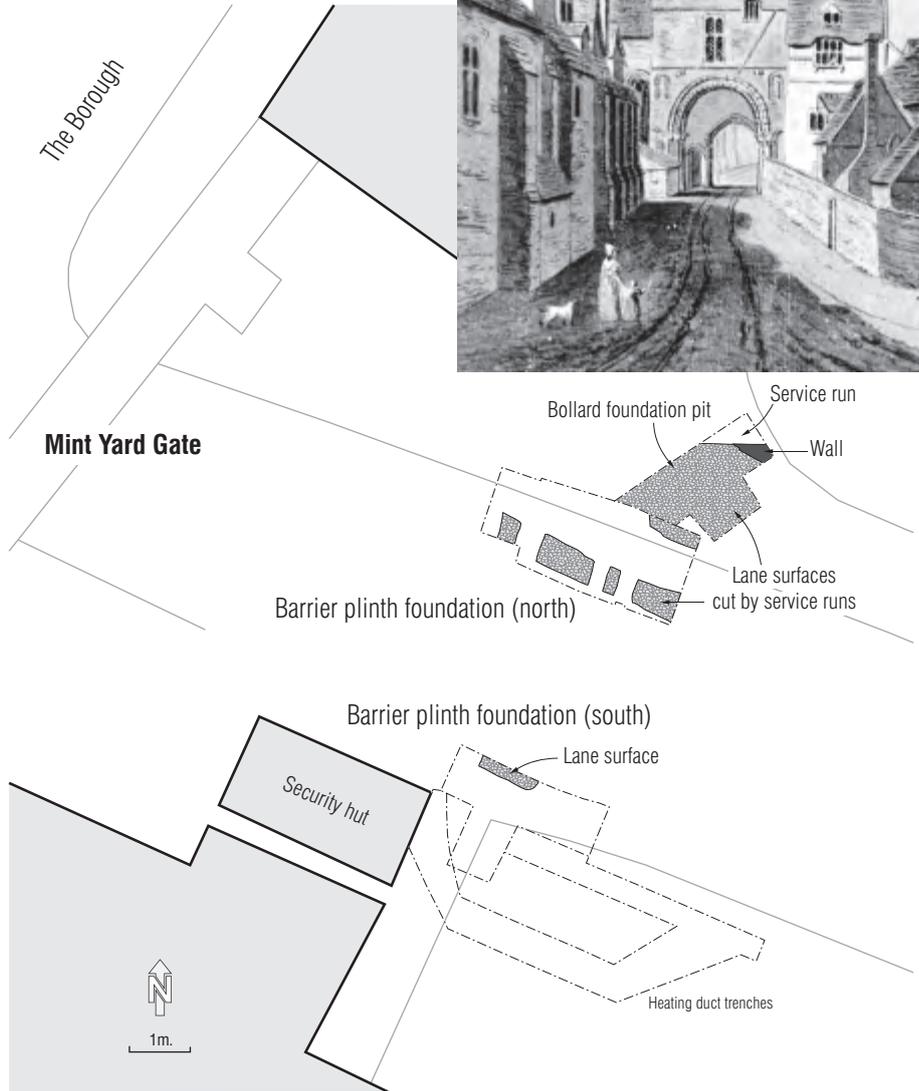
The earliest remains encountered were eleventh-/twelfth-century pits and soils in Trench 2. Postern Gate (not a standing gate, but the name given to a modern entranceway along a post-war service road, providing access from Burgate into the precincts) is positioned immediately adjacent to, but just outside (ie south of), the line of the medieval monastery boundary wall. North of the wall lay open grounds of the cathedral precincts, whilst to the south lay ground flanking Burgate, carved into occupied plots since the Anglo-Saxon period. The sequence of soils and rubbish pits in Trench 2, spanning from the eleventh/twelfth century into the post-medieval period, probably lay within the rear ground of the Burgate properties. There was no evidence of structural occupation here, although occasional spreads of metallurgy suggested the presence of work areas.

Neither Trench 1 nor Trench 3 extended to sufficient depth to uncover remains of the medieval monastic complex. Within both, only post-Dissolution levels were exposed. With the establishment of the New Foundation in April 1541, a corporate body was established to ensure that the cathedral continued, 'composed of a dean and twelve prebendaries, assisted by twelve minor canons, six preachers, a deacon and a sub-deacon, twelve lay clerks or singing men, ten choir boys and their master who might also be the organist. These were to be served by two sub-sacristans, two vergers, two gatekeepers (who were also to be barbers), one manciple, two butlers, two cooks and four bellringers' (Sparks 1990,

Trenching across The Oaks, looking north-west. The masonry just visible at the base of the trench, in the foreground, forms part of a post-medieval drain. Scales 1m and 0.2m.



Watercolour by Job Bulman c 1776. The view looks east towards Green Court. The position from which it was painted is approximately that of the current Mint Yard Gate. Reproduced by permission of Canterbury Cathedral Archives.



The location of the installation pits at Mint Yard Gate and the principal archaeological remains.

21). The abandonment of the communal lifestyle required the conversion of existing buildings to form individual properties suitable for personal use. The twelve prebendaries were each assigned a stall in choir, and a property for their use.

Trench 1 and the south-east end of Trench 3 both lay within the south-west corner of the Stall III grounds, positioned towards the southern end of the Convent Garden and containing a timber-framed property; built in 1547, it remained occupied, with extensions and modifications, until the later years of the nineteenth century. The trenches largely contained post-medieval soils which would have lain within the Stall III land, although two lengths of wall were also uncovered. That within Trench 3 was formed exclusively of large flint nodules bonded with light brown chalk-flecked mortar. The length within Trench 1, aligned slightly further west, cut lower post-medieval soils and was formed of flint nodules, rare Caen stone and brick, bonded with pale brown sandy mortar. Both walls predated the brick walls that stand today, that in Trench

1 being overlain by the current wall and that in Trench 3 being partly cut away by the wall foundations. The walls revealed by excavation probably represented earlier remains of the Stall III western boundary, which appears to have been successively rebuilt and repaired over time, slightly moving alignment in the process. Abutting the masonry remains, in both trenches, were further post-medieval soils and patches of flint metallurgy which could have formed rough surfaces, subsequently overlain by modern levelling deposits and surfacing.

The Oaks, through which Trench 3 was largely cut, was thought to have been predominantly open ground both before and after the Dissolution. The surrounding boundary walls were erected throughout the sixteenth and seventeenth centuries as new properties were established. Trees stand in The Oaks today, and probably have done for centuries. Documentary sources record the felling of oak trees by Parliament men in the 1650s, but sometime after the Restoration trees were replanted, predominantly

limes, apparently to form a pleasure garden (Hicks and Seary 2009, 32). Post-medieval maps depict walkways and paths crossing and encircling The Oaks, whilst Sparks notes that the area was used in recent years 'as a cricket or football ground for the choristers' (Sparks 2007, 196).

The earliest deposits within The Oaks were of post-medieval date and confirmed the area as external ground. Revealed, however, were not only garden soils but a succession of flint metalled surfaces, of quite broad extent, suggesting that the ground may have, at times, been greater utilised than previously thought. The church yard, further north and west, is known to have been covered with gravel, perhaps 'for the sake of the Michaelmas Fair, and the general condition of the ground' (Hicks and Seary 2009, 31), rather than, as Oakley suggests, because it was 'occasionally used in the eighteenth and nineteenth century for the drilling of soldiers' (Oakley 1979, 45), and it seems that The Oaks may have been, too. A more unusual discovery was a masonry drain, constructed of mortar-bonded Reigate stone, rare brick and sandstone. Some pieces within the fabric were evidently re-used architectural blocks, perhaps originating from some of the monastic buildings demolished in the years after the Dissolution. The hitherto unsuspected feature probably drained waste water from post-medieval properties lying south and east of The Oaks, away to the north to feed into a complex of precinct drains. Overlying were deposits associated with nineteenth- and twentieth-century landscaping.

Mint Yard Gate

The insertion of a rising barrier at Mint Yard Gate involved the cutting of a series of shallow trenches within the roadway and pavement, inside (ie east of) the current gateway (centred at TQ 61496 15814). The trenches were to accommodate the barrier plinths, two static bollards and a new length of heating duct replacing a section which required relocation.

Few remains of archaeological note were recorded, although external surfaces of flint cobbles, crushed mortar, tile and brick were thought to have formed part of an east-west aligned lane leading from the Borough to Green Court Gate. The lane has been in existence since the medieval period, perhaps since the eleventh century, and remained an open thoroughfare until the Victorian period, when the west end was enclosed by the current Mint Yard Gate. The lane is shown on Job Bulman's watercolour of c 1776, leading towards Green Court, bounded to the left (north) by the King's School and to the right (south) by a house, later the grange. The nature and depth of the deposits revealed during excavation suggests that they represented post-medieval and modern resurfacings.

Also revealed was a wall, aligned approximately east-west, constructed of flint, ragstone and Caen stone, which probably formed part of the building range, lying north of the lane, originally constructed as an almonry chapel and school in the early fourteenth century. The building was converted into a headmaster's house and schoolroom c 1573 and

remained standing, with modifications, until 1865. The length uncovered by excavation is thought to have represented a late, post-medieval, element of the property.

Later features and deposits were of modern date, associated with the formation of the current roadway, pavement and, to the south, a garden, together with the laying and relaying of various mains services.

Carlyon House, Palace Street, Canterbury

Richard Helm

During July and August 2010, the Canterbury Archaeological Trust excavated an area of approximately 47m² located to the rear of Carlyon House, 33–36 Palace Street, Canterbury (NGR 615040 158091). The work was undertaken in advance of the construction of a new single-storey games room and kitchenette on behalf of the King's School. Initial evaluation and photographic recording of existing nineteenth-century brick outbuildings against the eastern boundary wall of the proposed development prior to their demolition was followed by archaeological excavation of the new building's footprint to a shallow formation depth of approximately 0.3m below the existing ground surface.

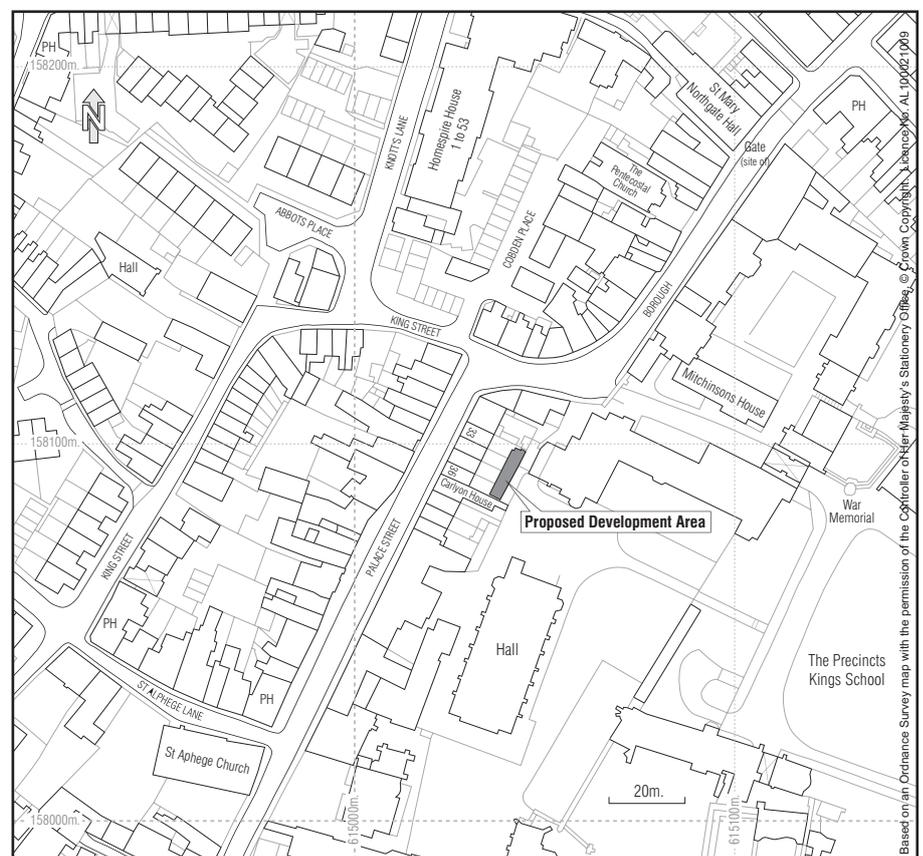
Carlyon House is situated within the former precinct of the Archbishop's Palace, established by Archbishop Lanfranc in c AD 1070 (Rady *et al* 1991). The site would originally have occupied an open area



Nineteenth-century outbuildings before demolition, looking north-east.

in the north-west corner of the Outer Court (Pratt 2005), demarcated by a stone boundary wall running around the whole of the palace precinct, with access to Palace Street through a gate house to the west. The principal buildings of the early palace, comprising two ranges forming an inverted T-shape in plan, were situated in the south of the palace, with one range running west from the cathedral's north-west tower, and the second extending to the north (Tatton-Brown 1991, 5–6).

It is likely that service buildings would have bounded the Outer Court on its western and northern sides during the later medieval period. Fourteenth-century surveys refer to the 'the Great Kitchen and the Great Gate with Stables' which occupied the western boundary fronting Palace Street, traces of which still survive in part at nos 41–47 Palace Street (Bennett and Sparks 2000). Following a serious fire in the Archbishop's Palace in AD 1543, these buildings were rebuilt, and a century later, were recorded in



Carlyon House location plan (scale 1:2000).



Carlyon House trench plans, phase 1 and phase 2.

a Parliamentary survey of the palace in AD 1647 shortly after the execution of Archbishop Laud in 1645 (Tatton-Brown 1991, 15). The survey recorded a stable range located north of the Gate House and Porters Lodge, with six bays 'floored over and boarded', while to the east of the stables along the palace's northern boundary was a slaughter house with two bays, two tenements containing five bays and a barn and bakehouse. In the same survey, the open ground of the Outer Court is recorded as being used as a bowling green (Tatton-Brown 1991, appendix 1). Following the survey, these buildings were let to local tenants, and are recorded in a list of rents made following the restoration of the Archbishopric in AD 1660 (Tatton-Brown 1991, 15–16).

The stable range was replaced in the nineteenth century by the present properties fronting Palace

Street, including Carlyon House. Church reforms during the nineteenth century enabled the enfranchisement of ecclesiastical estates, which allowed tenants to purchase the freehold of their rented property, and the northern part of the Outer Court, comprising the properties fronting Palace Street and the Grange, which had been the Archbishop's barn, were obtained by George Austin, the Cathedral Surveyor (Bennett and Sparks 2000). By 1812 the area between Palace Street and the Grange was occupied by the shops and tenements fronting Palace Street, with a carpenter's yard with workshops behind (Bennett and Sparks 2000). Both the wall and the properties fronting Palace Street, including the demolished outbuildings to the rear of Carlyon House, are represented on a plan of the northern part of the Outer Court by H G Austin,



Excavation in progress, looking north-east.

parallel to, and below the later eastern boundary wall, and a later rectangular cellar, which had a return to the east corresponding with a blocked in doorway through the existing eastern boundary wall. The cellar had internal dimensions of 2.53m by 1.04m and was constructed using a roughly coursed mix of unfrogged Kentish red stock brick, and re-used chalk, Caen stone and ragstone blocks likely sourced from the former palace, bonded with a light greyish yellow sandy mortar. The cellar walls were excavated to a depth of 0.62m but were not bottomed. Two originally connecting brick-lined drainage channels, aligned perpendicular to each other, were also identified, one extending from below the later eastern boundary wall, to the west, and the other extending north–south beyond the excavation limits.

By the nineteenth century (Phase 4), the existing eastern boundary wall had been erected (Pratt and Austin 2003), utilising a shallow foundation trench up to 0.25m deep. A blocked-in access through the boundary wall corresponded with a return in the cellar wall. This was presumably blocked in shortly before the backfilling of the cellar, dated sometime between 1840 and 1910, and the construction of a range of washroom and toilet outbuildings built over the backfilled cellar and brick-lined drains, against the face of the eastern boundary wall. The brick outbuildings formed separate washroom and toilet closets. Before demolition, the surviving outbuildings had been photographically recorded. After demolition, the excavation recorded ground plans including surviving brick footings, brick floors and bedding deposits. Each washroom had a hearth base and chimney breast for water heating, along with associated drainage and service connections. The surviving elements corresponded to the rear yards of the nineteenth-century shops and tenements of nos 33–36 Palace Street. Finds from these outbuildings included late post-medieval pottery and clay tobacco pipe fragments, a late nineteenth-century Spanish coin, slate styli and slate writing tablet fragments, a copper pin, window and bottle glass, a glass candle stick holder and a bone spoon. In addition two fragments of medieval architectural stone, one a semicircular column fragment, the other part of a window frame decorated with a relief carving including a bestial face, were recovered.

While the excavation was limited in scope and depth, the works have provided useful new data on the post-medieval activity within the former Outer Court, and have likewise indicated that the potential for well preserved archaeology surviving below post-medieval deposits is extremely high (Pratt 2005).

Thanks are extended to Gavin Merryweather, Estates Bursar, The Kings School and Joanne Merry of Purcell Miller Tritton LLP for commissioning the archaeological works; and to Ansley Builders for collaboration during the project. Initial evaluation was carried out by Adrian Gollop and a photographic record of the former outbuildings and north-east boundary wall was made by Andrew Savage. The excavation was undertaken by Jonathon Dodd, Richard Hoskins, Jacob Morris, Suzanne Kemsley and Adrian Murphy under the direction of Richard Helm.

No 35 St Margaret's Street, Canterbury

Phil Mayne and Paul Tasker

Excavations were undertaken at 35 St Margaret's Street (TR 614868 157707) in three separate episodes between September 2008 and May 2010. Refurbishment of the building required the further lowering of the cellar floor. The Trust was involved in a similar episode of work at the property in May 1979 (Blockley 1995, 73–83); the formation level for the new works required a further 0.50m depth to be excavated down to the level of natural brickearth.

The excavation was challenging as safety considerations meant that only small areas could be

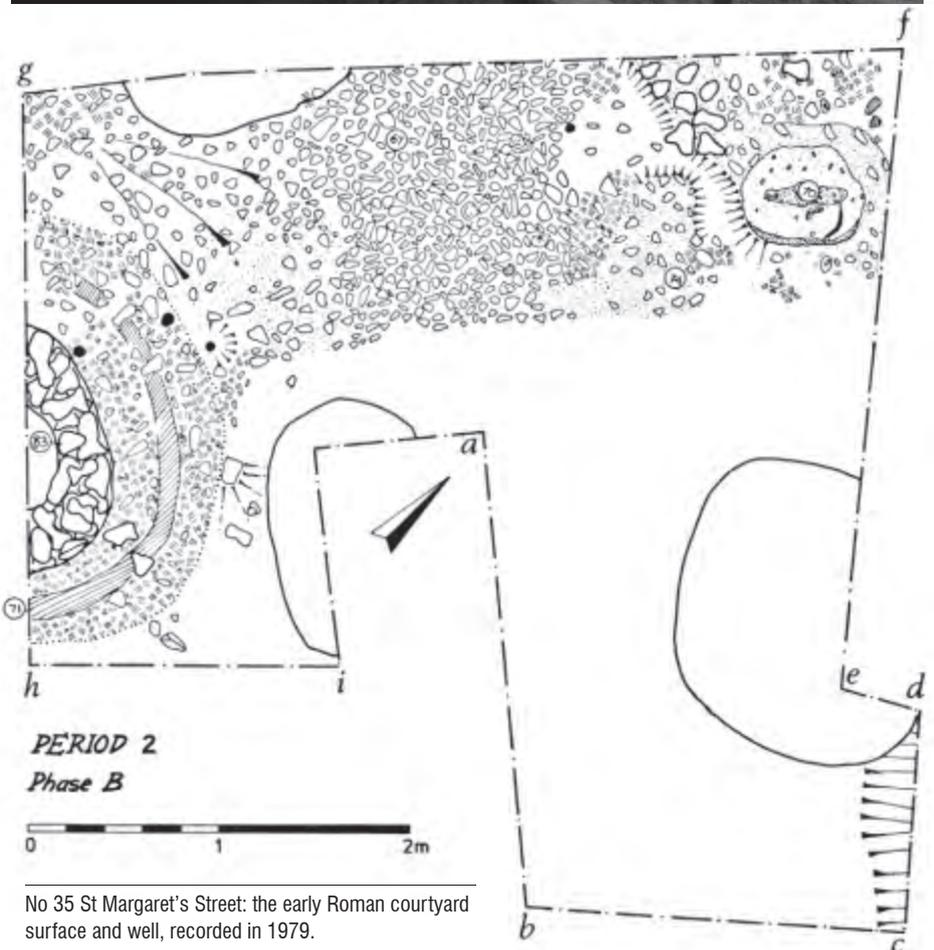
excavated at any one time. The area to be excavated was therefore subdivided into fourteen areas, ranging in size between 0.80m x 1.30m and 3.10 x 2.20m.

The 1979 excavations had identified four phases of Roman occupation on the site with a date range of AD 70–110 (Blockley 1995, 73). The preliminary results of this latest work corroborate the stratigraphic sequence observed then and has enabled us to reveal more of the earliest occupation phase (around AD 70–80) and extend beyond this to an earlier phase of features cutting into the natural brickearth.

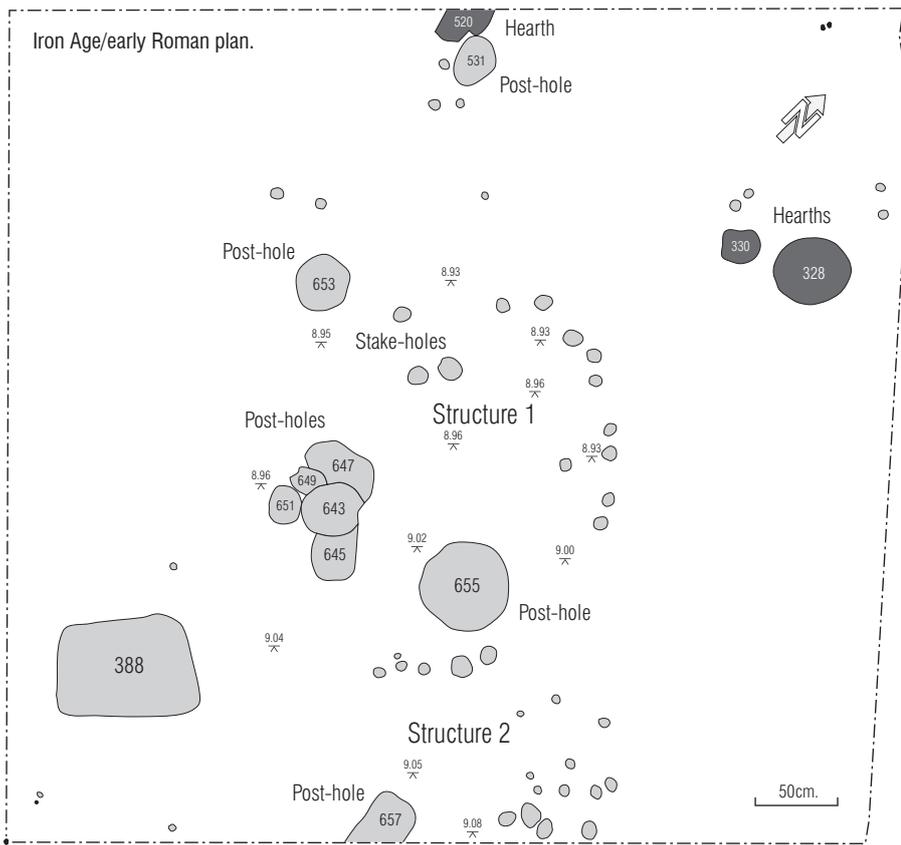
These earlier features appear to be of late Iron Age/early Roman date. A subcircular stake-hole structure, (Structure 1), 2.8m in diameter, with larger post-holes (655 and 653) either side of a central post was recorded. The central post had been positioned five



Pre-excavation shot of cellar, looking east. Scale 1m.



No 35 St Margaret's Street: the early Roman courtyard surface and well, recorded in 1979.



consisted of a burnt clay horizon (74), possibly a floor, and a feature (288) backfilled with compacted redeposited hearth material with stake-holes and post-holes cutting into it. These features clearly formed part of a structure, although no clear pattern could be determined in plan. They suggest some form of industrial activity on site or close by. Samples were taken and the results are pending.

A later linear ditch 0.60m wide, 5.05m long ditch (81) and 0.40m depth (not bottomed, due to reaching formation level) aligned north-west to south-east then cut through the area. It is possible that this represents a boundary ditch and if so would represent a change in use of the area.

A thick levelling layer composed of grey brown orangey compact silty clay covered all the features described above. Above this lay the remains of a metallised surface first recorded during the 1979 excavation. It formed part of a courtyard and was concentrated in the north-western and south-western areas of the site.

Set into the courtyard on the south-western side was a well. This was lined with large flint nodules that had been laid concentrically. The flints were not mortared but held in place by compacted

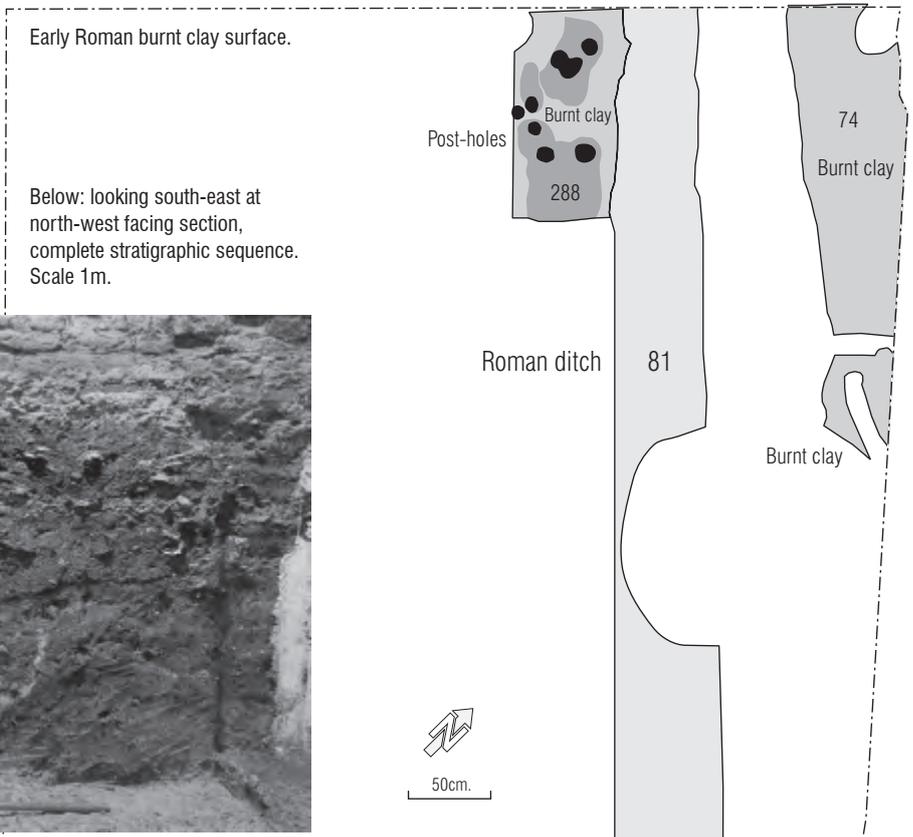
times (645, 643, 649, 651 and 647). The southern area of excavation revealed a possible second subcircular late Iron Age/early Roman structure, (Structure 2), with an arcing spread of stake-holes and a larger post-hole (657). However, due to later features cutting the brickearth we were unable to ascertain the full extent of the structure.

Two hearths were located to the north-east of the site (330 and 328) and one to the north-west (520) indicating areas of domesticity or a minor industrial process. Samples were taken and the results are pending. This early horizon also contained a number of stake-holes and one refuse pit (388).

A 0.08m thick layer of occupation tread containing clods of burnt clay (641) had built up sealing the stake-holes along the north-western edge of Structure 1 indicating that the structure had gone out of use.

A large potential sub oval-shaped post-hole (640) cut this layer.

A thick levelling layer between 0.11m and 0.26m thick consisting of mottled grey compact loamy clay containing frequent charcoal flecks was then laid down prior to the next phase of occupation which





brickearth. The structure was constructed within a large cut (98), which was 2.50m wide and extended down into natural brickearth. Blockley has dated this phase to the third quarter of the first century (Blockley 1995, 82). When the well went out of use the area was covered by a thick layer of material and above this was a sequence of timber buildings and floor surfaces recorded during the 1979 excavations (Blockley 1995, 77–9).

Three deep medieval pits were observed during the excavation. Two of the pits (147 and 393)

located on the north-western and north-eastern sides respectively, cut the entire Roman sequence extending into the brickearth and beyond the limit of the excavation. They were excavated in 1979 and late medieval material recovered from them.

Narrow, 0.10m wide, linear construction trenches, running parallel to the cellar walls also cut into the top of the Roman sequence. These were sealed beneath a sequence of layers of yellow lime mortars which may have been former cellar floors or formed bedding for a brick floor.

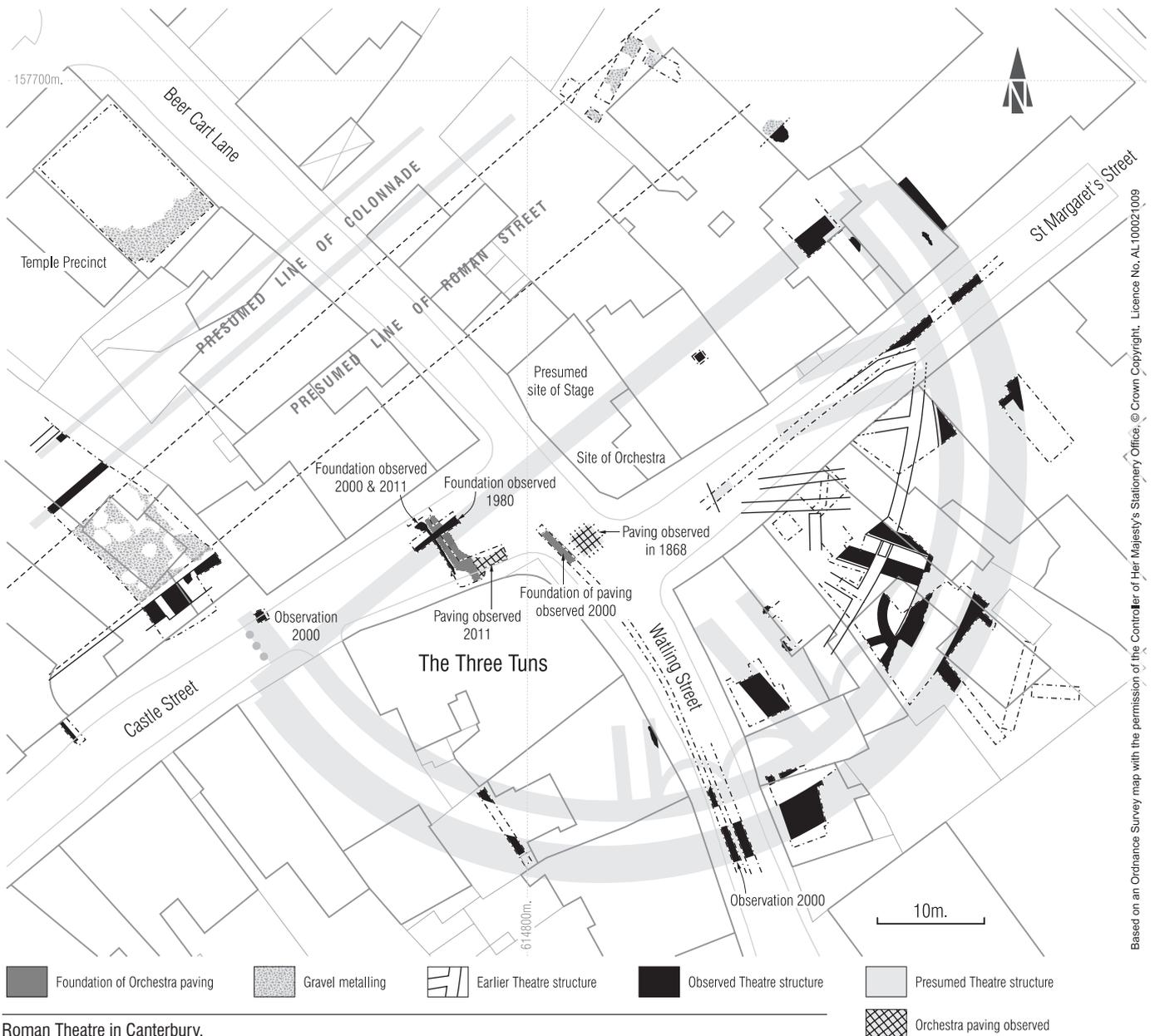
The excavation not only allowed us to complete the sequence recorded in 1979, but also gave the opportunity to sample more extensively some of the layers sampled 30 years ago. This report is a summary account of our findings as post-excitation work and analysis continues. The writers would like to thank Malcolm Crate and his staff for their assistance during the project and Ross Lane and Kit Stevens of the Trust who assisted in the excavations under challenging conditions.

Castle Street, Canterbury

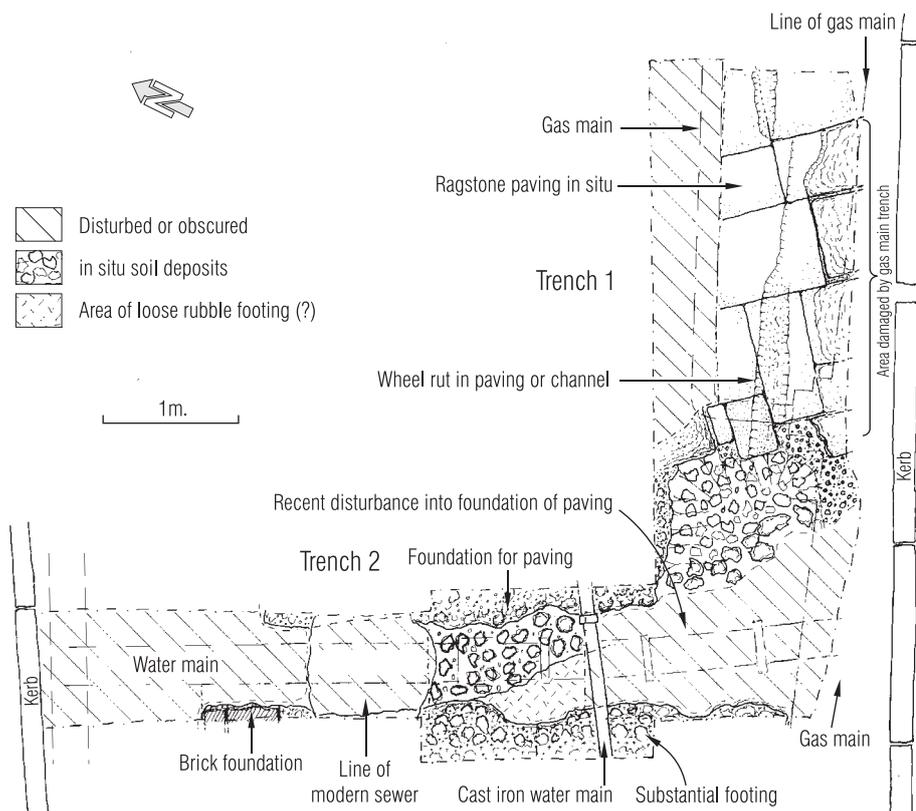
Christopher Sparey-Green

From 28 February to 14 March 2011 and intermittently until 18 May, a watching brief was carried out at the north end of Castle Street, on a trench dug to install a fire hydrant on an existing water main crossing the street (centred at TR1479 5765). This work, commenced by Dale Robertson and Jessica Twyman and completed by the writer, revealed significant elements of the substantial Roman theatre known to exist at the junction of Castle Street, Watling Street, Beer Cart Lane and St Margaret's Street.

This building was first identified as a Roman theatre by Professor Frere during his post-war campaign of excavations and watching briefs in the bomb-damaged areas of the city but substantial foundations had first been recorded in this area during trenching of these streets for the main drainage installed in 1868 (Pilbrow 1871, sites 42–48). At the time the remains were interpreted as part of a Roman defensive circuit



Roman Theatre in Canterbury.



but the later discoveries made between 1950 and 1956 showed the structures to belong to two phases of a Roman theatre (Frere 1970). Observations since then have confirmed further details of the structure while excavations to the north-west have identified a major road and a temple enclosure at the rear of the theatre (Bennett 1984; Bennett 1989, 121–2).

In the latest work an L-shaped trench was dug at the north-eastern end of Castle Street outside the Three Tuns public house. Trench 1 lay parallel to the eastern kerb close to the public house, while trench 2 was set at right angles and crossed the road to the opposite kerb. This was effectively the re-excavation of a trench which had been the subject of a watching brief during the initial laying of a water main in 2000 (Hicks and Houliston 2003, 5–6). The earliest deposits were noted in the south side of trench 2 and consisted of a deposit of clay silt and occupation material devoid of datable finds. This lay beneath a substantial foundation of hard cream mortar and flints which extended the whole length of the section but which, at about the centre line of the present street, dropped to below the base of the trench at a depth of 1.7m. No original edges to this structure survived and the excavation of the original trench had destroyed any northern face and any stratigraphy extending up to the northern section. At the western end of the surviving structure three courses of Roman brick surmounted the footing for a distance of approximately 0.5m but this foundation had been cut away on the east and west. Observations in 2000 had shown this structure to extend southwards for approximately 0.3m. At the east end, towards the Three Tuns, the footing was cut by a gas main approximately at the kerb-line; complex stratigraphy at the same level beneath the pavement suggested the structure did not continue beyond this point.

Extending the full length of the northern side of trench 2 was a shallow and poorly-laid yellow mortar and flint foundation overlying loose rubble and mortar to the trench base. This had been truncated at either end of the section and was distinct in its construction from that in the south section. No made edge was visible in the small area of the trench floor exposed; an area of loose flint rubble suggested that an ancient disturbance, coinciding with the modern trench, had cut both structures at this lower level.

The footing in the northern section extended into trench 1 to the north-east where it underlay *in situ* Ragstone paving. This comprised at least nine neatly-cut blocks, the largest at least 0.9 by 0.65m square. The axis of the slabs was 52°–58° to grid north which approximates to the 51° for the presumed alignment of the theatre stage. On the southern edge of the surviving paving where the trenches joined, the surviving blocks were noticeably smaller and more irregular in layout and one of these blocks was of a finer, darker stone. The variation in size and layout suggests they may have been infilling on the margin of the paving. No datable material was recovered from any of the deposits or structures described.

The structures in trench 2 coincide with a foundation recorded in 1980, the north-west face of which was aligned with the centre line of the street (Bennett 1984, 52–3, fig 3). This cannot be exactly reconciled with the present observation and may either be slightly displaced on plan or require a revision of its outline. On the basis, however, of present knowledge of the layout of the second phase theatre these structures would lie in the area of the south-western end of the stage structure close to the corner of the *orchestra*, or open area in front of the stage. The substantial foundation on the south of trench 1 might belong to the southern end of the stage

building. If the Canterbury theatre is fully classical in its design this would form part of the southern *parascenium* or *basilica*, the slighter footing to the north forming the substructure of the stage front (*pulpitum*) and the paving in the south-western corner of the *orchestra*, just inside the presumed side entrance (the southern *aditus*). The well finished darker block could have been the lowest step giving access to the theatre stage on the left side, as viewed from the seating area (*cavea*).

A pronounced groove worn into the paving and following an angle of approximately 75° is unexplained but, if paired by another beyond the excavation limits, may be the result of wheeled traffic on the paved area. This would imply a thoroughfare when the building was no longer in use for its original purpose but, significantly, at a time before the accumulation of any stratigraphy within the building.

The structural remains and paving had been truncated to a common level of approximately 0.8m below present street level although the brickwork survived to a level 0.15m higher. The surviving structure was sealed by compacted gravel surfaces and, over the paving, by an interleaved layer of chalk rubble, as foundation to the upper metalling. The uppermost surface contained ash and cinder; the stratigraphy over the Roman brickwork contained a significant amount of clay. These deposits were sealed by later metalling, in turn cut by recent services.

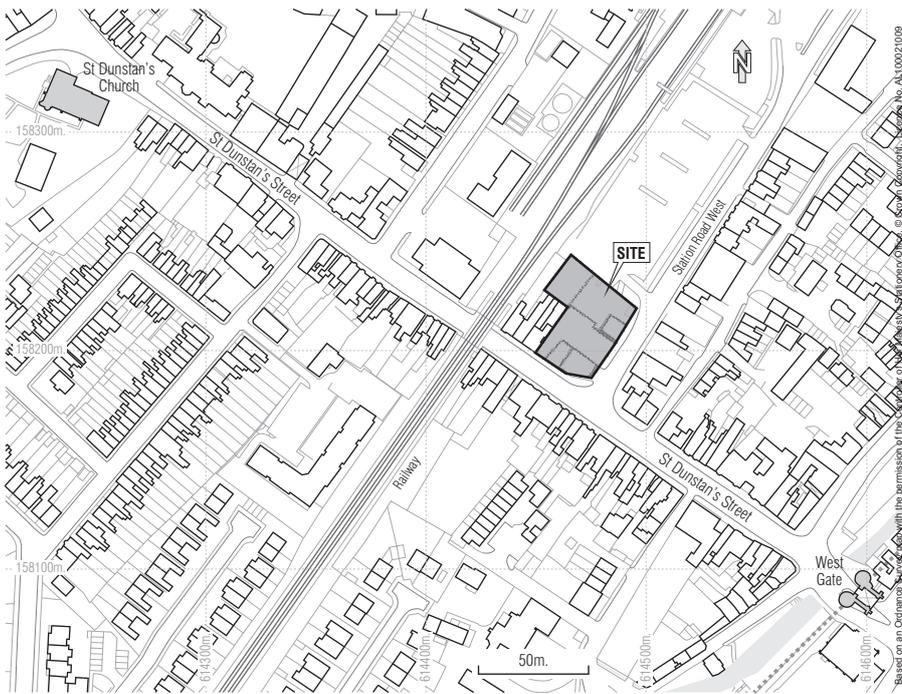
The primary metallings over the structure are presumably the earliest Castle Street following the clearance of at least the standing ruins at this point. No datable objects were recovered from this stratigraphy, but a large iron object was possibly a horse shoe. The clay soil over the remnants of the brick foundation could, however, suggest that post-Roman occupation or clay and timber buildings had occupied that spot, and that the roadway, in its earlier stages, was confined to the more southerly carriage-way adjacent to the ancient frontage line and aligned towards the south-western end of St Margaret's Street.

Hallet's Garage, Nos 25–27 St Dunstan's Street, Canterbury

Adrian Gollop

At the end of March 2011 an intensive three-month long excavation came to a close on the site of the former Hallet's Garage on the corner of St Dunstan's Street and Station Road West (NGR 61477 15822). Part of a Roman cemetery with over 130 burials was investigated, the largest yet to be excavated in Canterbury.

Post-excavation work is in its early stages, so this report can only be an interim summary of the discoveries. The full chronological sequence for activity on the site is not yet fully understood and many of the features are therefore only provisionally dated at the time of writing (August 2011).



This last phase of excavation was the culmination of several investigations on the site. Evaluation in 2009 had uncovered two Roman inhumation burials and other features relating to a cemetery (Gollop 2009). Other features provided evidence for the use of the site during the medieval and early post-medieval periods the most notable of which were structural remains relating to an eighteenth-century synagogue. Open area excavation was then undertaken in two phases, the first between February and April 2010 and the second from January to March 2011. A narrow service trench excavated across part of St Dunstan's Street was also monitored.

The site lies some 100m outside the town walls against the street leading north-west from Westgate. This street probably originated as one of the main thoroughfares (a *decumanus*) of the Roman town following the route from Richborough through the town and beyond to join the Roman road to London near today's St Dunstan's Church. St Dunstan's Street is therefore ancient, following the line of a road probably in existence by the mid first century AD. The development of the extra-mural suburbs north and south of St Dunstan's Street in the Roman period has recently been described by Jon Rady (2010a, 43–6). The findings at the present site add to the picture described therein, one of industrial activity (in the form of quarrying) and extra-mural burial.

Geology

The underlying geology comprised Head Brickearth which was exposed at depths as shallow as 0.35m below the present ground levels at the front of the site, dropping to 1.20m at the site's rear north-eastern boundary. Terracing had taken place on the medieval period onwards; during the Roman period the ground levels along St Dunstan's Street would be considerably higher than they are today.

A drop in the level of the exposed brickearth towards the rear of the site, although attenuated by

post-medieval activity, appears to be due to erosion, possibly by a watercourse running from the higher ground to the north towards the River Stour. Similar features have been identified nearby at Kirby's Lane (Jon Rady, pers comm), and more recently at 28 St Dunstan's Street where it seems that a sequence of colluvial or waterlain deposits was laid down through the Roman and Anglo-Saxon periods and possibly into the late medieval period (Gollop 2010).

In the sides of deep features dug into the brickearth the underlying Second River Terrace Gravels were exposed, and from these at a depth of c 3.2m a fragment of fossilized elephant tusk was retrieved. Dating to the middle Pleistocene era, this animal would have lived around 420,000–380,000 years ago during the warm Hoxnian Interglacial period. It is likely to have died elsewhere and its remains later washed down into what would have then been the basin of the River Stour valley. Such creatures were hunted by our earlier ancestors.



Partly excavated early Roman feature thought to represent a sunken-floored structure; six later Roman burials were identified cutting through its upper surface. Scale 1 m.

Early Roman: pre-cemetery activity

The earliest activity identified on the site was represented by a narrow ditch or gully which traversed the site from east to west. Provisionally dated to the early Roman period (mid to late first century AD) its alignment suggests evidence for land use pre-dating the establishment of the Roman road, perhaps even dating to the late Iron Age/Roman transitional period. Grog-tempered pottery dating to between c 100 BC and AD 43 was retrieved from this ditch.

In the service trench cut across St Dunstan's Street, two features, a ditch and a pit, were present beneath metallings interpreted as Roman street surfaces. The metallings were at a depth of c 1.10m beneath the present road surface and whilst neither the underlying features nor the metallings could be securely dated, the depth of the metallings suggests that, if belonging to a road, the route may have been an earlier feature, such as a hollow way. Alternatively, heavy use of the road eroded the natural brickearth so that it was frequently re-metalled.

By the mid first to late second century a second ditch had been cut, running north-west to south-east across the site. This may have been a drainage ditch associated with the Roman road. A large quantity of tile and brick retrieved from close to the road hints at the presence of a building nearby. This feature appeared to have been recut later and re-used as a boundary within the cemetery. Immediately to the north-east of the ditch were two large subrectangular pits. Aligned perpendicular to the ditch and seemingly respecting it, both were of the same mid first- to late second-century AD date. Measuring between 4.5 and 6m long, between 2.5 and 3.5m wide and 0.50–0.75m deep, these pits were filled with large quantities of domestic refuse such as pottery, animal bone, charcoal and marine shellfish. There was evidence for internal post-holes in one, whilst the other contained the remnants of a gravel metalled surface at its base. Both of these features are thought to represent sunken-floored structures, indicating early occupation outside the early Roman urban area of Canterbury.

A third similar feature was exposed in the north-western corner of the site and is also a pre-cemetery



Sequence of unexcavated medieval pits. Scales 1m and 0.5m.

feature. Though apparently smaller, it produced a large quantity of domestic material such as pottery and animal bone and its base had been levelled and compacted suggesting occupation or at least a function beyond clay extraction.

Further small-scale pitting was identified along the southern side of the site, potentially dating to the later second or third centuries; these features were heavily truncated and not readily identified. All were filled with domestic refuse.

Late Roman – the cemetery

One hundred and thirty-seven graves were excavated during the course of the investigations, with skeletal remains present in 125. The cemetery occupied the complete area of the site and would certainly have extended south-east and north-west beyond the limits of the excavation area. It is likely to have been bounded to the south-west by the Roman road, and to the north-east by the possible watercourse. It is estimated that at least 40–50 per cent of the site area was disturbed or truncated by medieval, post-medieval and modern activities, suggesting that the area excavated might have once held double the number of burials identified during the excavation.

Distribution of burials across the site was sporadic. However there were several groups and rows indicating some degree of organization, especially towards the southern half of the site. The majority of the graves, approximately 80 per cent, were aligned roughly parallel or perpendicular to St Dunstan's Street. Phasing of burial within the cemetery awaits analysis, but from observation on site at least three phases of cemetery use have been identified.

The depth to which the graves were excavated varied considerably across the site, but the apparently later burials seem to be cut deeper and predominate in



A Roman burial that has collapsed into a later medieval pit; *in situ* medieval deposits are present beneath the burial. Scale 1m.

the southern half. These deeper burials tended to be larger with a higher occurrence of evidence for coffins. It is suggested that if these do represent a later phase then this might indicate that the cemetery was under more formal municipal control by this time.

Forty-two of the skeletons excavated during the first phase works have undergone initial assessment. Early results suggest that there is a high percentage (almost 30 per cent) of sub adults (children and adolescents under 18 years of age; Amanda Bailey, pers comm). Comparisons with other Roman inhumation sites suggest this is above average; for example at London Road, Gloucester, less than 15 per cent of the skeletons were sub adults (Simmonds *et al* 2008, 32). At the eastern cemetery of Roman London sub adults account for just under 22 per cent of the buried population, a percentage that is seen as low (Barber and Bowsher 2000, 279). No children under the age of one have so far been recorded. This age group is grossly under-represented in the burial record from Roman Britain, particularly in formal cemeteries (Esmonde-Cleary 2000, 135).

Observations made during the excavation suggested that most (there was at least one exception) of the juveniles (children under 12 years of age) were placed to the north of the earlier mid first- to second-century drainage ditch. This suggests that the ditch marked an internal division within the cemetery, and perhaps that an area may have been reserved for children. Sadly this area appears to have been severely truncated, and as some of the juvenile burials were found to be very shallow, it is suspected that evidence for many other burials has been lost. Initial aspects of the palaeopathology assessment indicate that low incidences of spinal disease and osteoarthritis could be due to the relative young age of the population (Amanda Bailey, pers comm). Only one of the skeletons could be termed as an older adult over the age of 45 years.

It is still uncertain exactly when the cemetery became established at the site. Organized extra-mural inhumation cemeteries are traditionally seen as belonging to the later Roman period, and it is suggested that burials here began late in the third century after the construction of the town's defences (c AD 270–90) and continued into the late fourth century (Paul Bennett, pers comm). There were no datable grave goods, any pottery retrieved from the burials is likely to be residual. Several graves contained fragments of flat stone or Roman tile as 'furniture', possibly forming ledges or serving as a packing around the occupant. Most of this material appears to be chronologically undiagnostic, but awaits specialist assessment. There was evidence for coffins in the form of soil stains and iron nails, but again no diagnostic datable coffin 'furniture'. One artefact of great interest was a small bronze figurine, a representation of Jupiter holding his *fulmen* (thunderbolt) in his right hand (see p 85). Dated to the second or third century, it was recovered from the fill of one of the possible sunken-floored structures, but is suspected of being associated with a later child burial placed in this feature.

In 1951, two inhumation burials of Roman date were recorded by Frank Jenkins on land adjacent to Hallet's Garage, with further burials reportedly later being disturbed by workmen constructing the workshops (Jenkins 1951). During the course of the current excavation human skeletal remains were found in later features. Amongst this material was a complete skull recovered from inside a modern drainage pipe. This might suggest that more burials



A Roman skeleton that has slipped into the side of a later medieval pit. Scale 0.5m.



Section through a series of mid Anglo-Saxon/early medieval pits, similar to the ones that produced the loom weights and the skeleton of the cat. Scale 1m.



Detail of a late seventeenth- or eighteenth-century cellar on St Dunstan's Street. Scale 1m.

than those reported by Jenkins were disturbed during work at the garage in 1951.

Anglo-Saxon

There was no other later Roman activity identified on the site, and it seems to have been abandoned from the late fourth or fifth century perhaps until the eighth or ninth century. Anglo-Saxon activity is marked by a series of pits along the front of the site. One of these pits contained a number of loom weights of eighth- or ninth-century date, along with large quantities of burnt daub, slag and Roman tile. Others contained large quantities of Roman pottery with occasional sherds of ninth- or tenth-century Anglo-Saxon pottery.

The primary function of these features, before they were used for the disposal of refuse, remains unclear. The artefactual evidence can be associated with domestic settlement and industrial activity in the vicinity of the site; the burnt daub in particular hints at ephemeral timber structures associated with the early establishment of properties along St Dunstan's Street frontage. The near complete skeleton of a cat, carrying a disability, was recovered from one of these pits. Seemingly kept as a pet, its last meal of chicken wings was identified in an environmental sample (see p 73).



Apsidal wall of the postulated synagogue. Scale 0.5m.

Early medieval

Moving away from the street frontage, more extensive pitting was evident across the rear and southern limits of the site. Although containing residual Roman and Anglo-Saxon material, the bulk of the pottery from these pits is eleventh-, twelfth- or thirteenth-century in date. Again large quantities of burnt daub and slag were retrieved, suggesting the disposal of refuse associated with both domestic and industrial activities. However the primary function of these features was almost certainly the quarrying of brickearth. Their size suggests that the quarrying was on a small scale, possibly excavated by individuals on a 'supply on demand' basis. It was noted that very rarely did these pits intercut, suggesting that each pit was excavated individually and backfilled with refuse before another one was cut. Similarly most of them were undercut, and where possible the pit-diggers had avoided the earlier Roman burials. In many cases where human remains had been encountered they tunnelled underneath, leading to skeletons subsiding into the later features and in one case the base of a grave, with complete skeleton, collapsed onto lower medieval deposits within the pit. There, the disturbance of a shallow burial appears to have led to the replacement of bones in anatomically wrong positions.

Medieval

There was no evidence for structures dating to the Anglo-Saxon or early medieval periods, though the lower number of pits in the northern site frontage might suggest that potential dwellings were possibly located there. A more coherent attempt to build on the site appears to begin in the thirteenth or fourteenth century. It is suggested that this starts with at least two shallow terraces being cut perpendicular to the street frontage. Similar terraces going down the line of the street have been identified at 28 St Dunstan's Street (Jon Rady, pers comm). The exposed upper surfaces of the earlier pits in the lower southerly terrace were consolidated with gravel and fragments of burnt daub, prior to the construction of a large building extending at least 32m from the street frontage. Probably timber-framed, the chalk wall footings, an internal stone 'H' shaped fireplace and associated clay and mortar floors, survived. At the rear, a chalk- and stone-lined cess tank was recorded.

On the slightly higher northern terrace, the only surviving evidence for a building is a peg-tile hearth with associated clay floors which had slumped into an earlier pit. Here the presence of several large pits, possibly of industrial use, and masonry-lined wells suggest that this may have been an external courtyard area. At the rear of the site, in what was probably open ground, further large pits were dug for the disposal of domestic refuse. Truncating the earlier quarry pits, dating evidence suggests this activity continued through to the sixteenth century.

Along the north-eastern edge of the site a large ditch, over 2m in depth, appears to mark the boundary of the medieval properties. Parallel with St Dunstan's Street and positioned c 45m from its frontage, this ditch appears to follow the edge of the postulated old watercourse and may demark the edge of habitable land.

Early post-medieval

Elements of the medieval building including the fireplace and cess tank were modified and repaired using Tudor bricks during this period, suggesting the building continued in use through the sixteenth century. A brick and tile surface was added, butting up against the fireplace. Several small refuse pits, containing exclusively late sixteenth-century



Section through an earlier medieval pit, in which a later medieval peg-tile hearth and associated clay floors have subsided. Scale 1m.



The child burial which may have originally contained the figurine. Scale 0.10m.

material, mainly bellarmine stoneware jugs, were also present; none within the internal area of the earlier building which also suggests it remained in use at this time.

Later post-medieval

The development of the site during the sixteenth and seventeenth centuries is unclear and currently poorly understood. The early maps from the seventeenth century appear to show dwellings along the route of St Dunstan's Street, but the area of the site cannot be clearly identified until the W and H Doige map of 1752 which shows houses on the street frontage with gardens behind and hopfields beyond these. Archaeological activity suggests that the northern end of the St Dunstan's Street frontage is terraced again to create an area on which buildings can be erected. However, the only evidence of these buildings to survive was a cellar against the street frontage of late seventeenth- or early eighteenth-century date. At the rear of the site several refuse pits were present and presumably relate to the properties fronting St Dunstan's Street.

During the later part of the eighteenth century the large ditch that follows the north-eastern boundary of the site was rapidly backfilled with brick rubble and the back wall of a substantial brick building was constructed over part of it. Although heavily truncated by later activity, the surviving wall foundations indicated a south-west to north-east aligned building to the rear of site. Elements of the north-eastern, south-eastern and north-western walls survived, along with associated external metalised surfaces



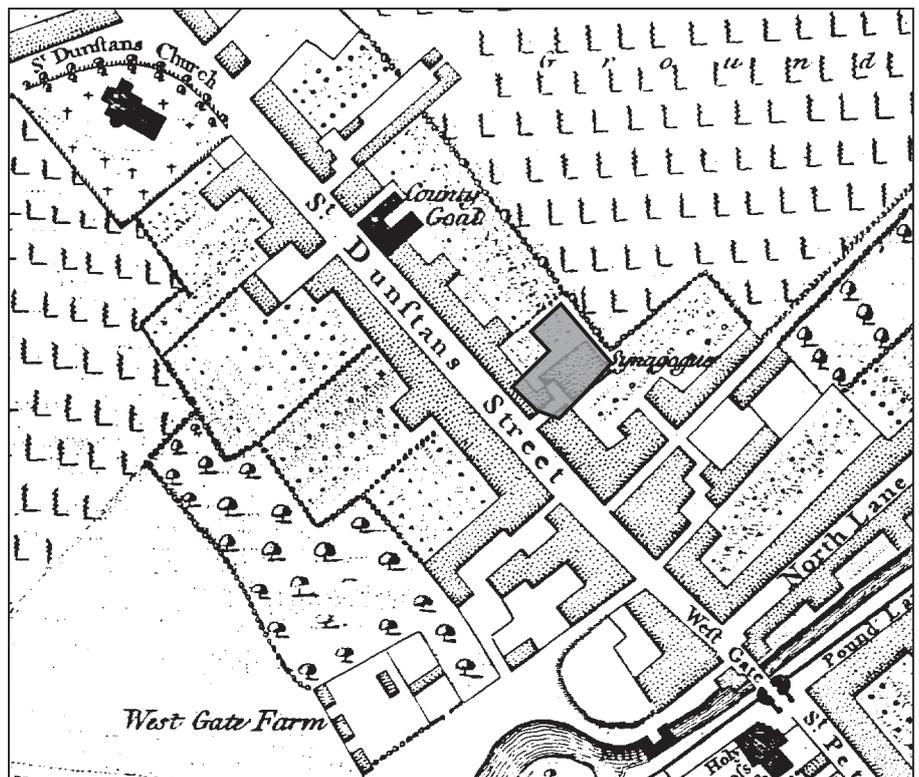
Large rectangular early Roman feature, later used as a latrine. The child burial (left) was inserted into its upper fill. Scale 1m.

with brick and tile drains. The western end of the south-eastern wall was apsidal, and it is postulated that these represent the remains of a synagogue constructed in 1763. The Andrews and Wren map of 1768 shows the rear of the site apparently occupied by a building labelled 'Jewish Synagogue'. Interestingly later maps such as Bayly's of 1795 and Barlow's of 1800 do not show this building, but mark a building on St Dunstan's Street further north-west as the synagogue (beyond the line of the later railway). The date of the wall foundations and their location appear to correlate with the position of the synagogue on the Andrews and Wren map and

apsidal walls were a common feature at the western end of a synagogue building.

Victorian (nineteenth century onwards)

During the later part of the nineteenth century a terrace of five Victorian houses was erected partly along Station Road West, which had been created to approach Canterbury West Station in 1846. The synagogue had been expropriated in order to make the approach to the new station (Roth 1950). The First Edition Ordnance Survey of 1873, does not show the terrace, but instead shows the rear of the site occupied



Position of the site superimposed over the Andrews and Wren map of 1768 showing the Synagogue.

by walled gardens which include the apsidal wall of the postulated synagogue. The area adjoining the rear of 25–27 St Dunstan's Street is now shown to be occupied by buildings. Heavily burnt brick floors uncovered during the excavation suggest industrial use and it has been suggested they were connected with the construction of the Ashford to Margate railway line.

Acknowledgements

The works were directed by the writer, who wishes to thank all the dedicated Trust staff who participated in the investigations working long hours during difficult and challenging conditions, namely Paul-Samuel Armour, Damien Boden, Kirsty Bone, Lauren Figg, Jasmine Hall, Simon Holmes, Andrew Macintosh, Laura O'Shea and Dale Robertson. Also those volunteers who gave up their own time, and without whom the excavation could not have been completed, particularly Joanna Bath, Emily Brown, Liss Burrows, Roger Green, Malinda Henderson, Suzanne Kemsley and Don Rudd, and to Paul Bennett who gave up many of his weekends. Thanks are also extended to all at Abbotts Construction especially Bob, Dave, Mick and the two Tonys.

The work was commissioned by Abbott Construction, on behalf of their clients Pavilion Homes, as part of preparations for construction of commercial retail units and residential properties on the site.

St Lawrence Ground, Kent County Cricket Club, Old Dover Road, Canterbury

James Holman and Russell Henshaw

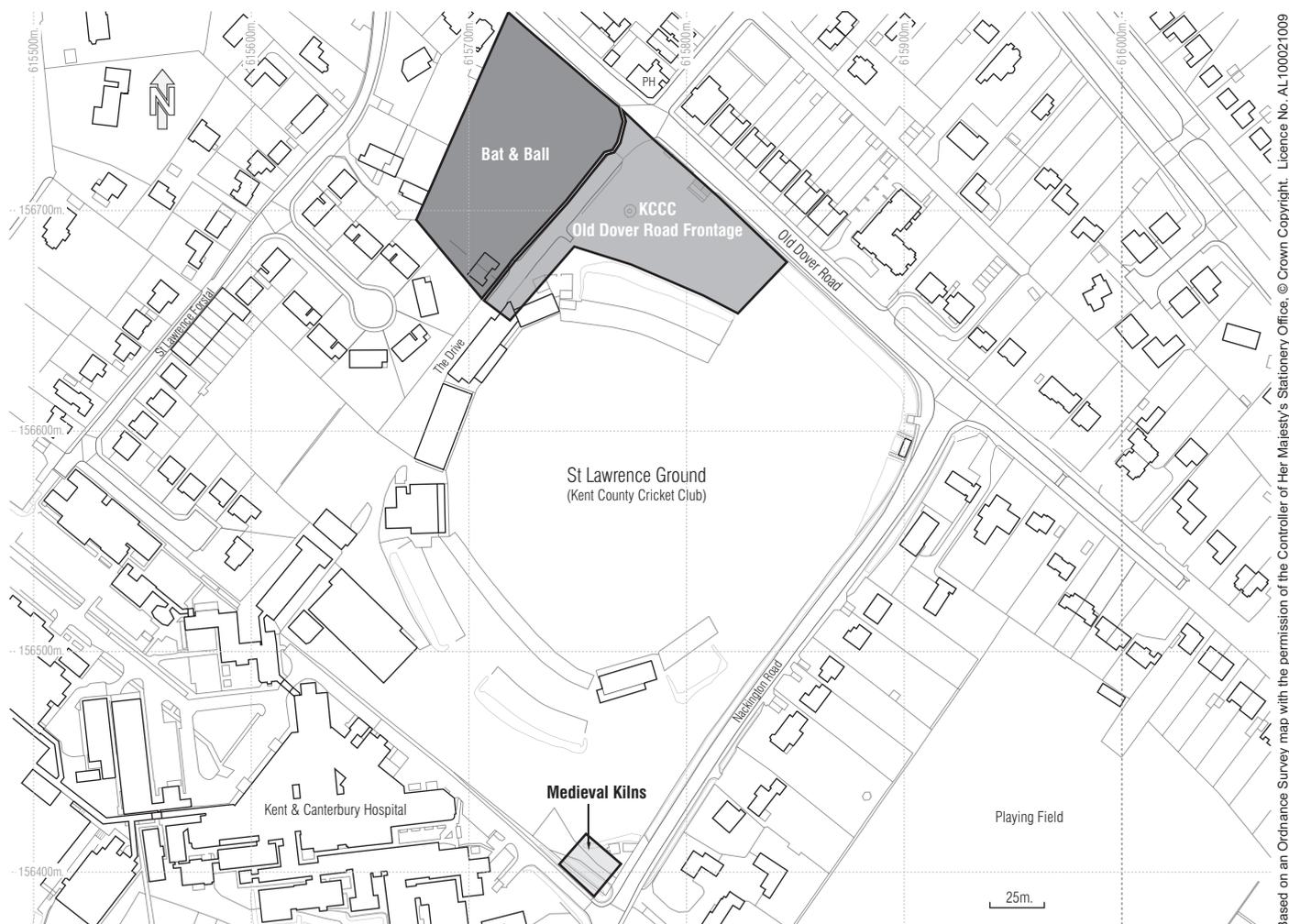
Excavation started in November 2010 at the St Lawrence Cricket Ground (NGR 615727 156595 centred) as part of an extensive refurbishment and development scheme. The site is situated immediately adjacent to the Old Dover Road which follows the line of the Roman road from Dover to Canterbury.

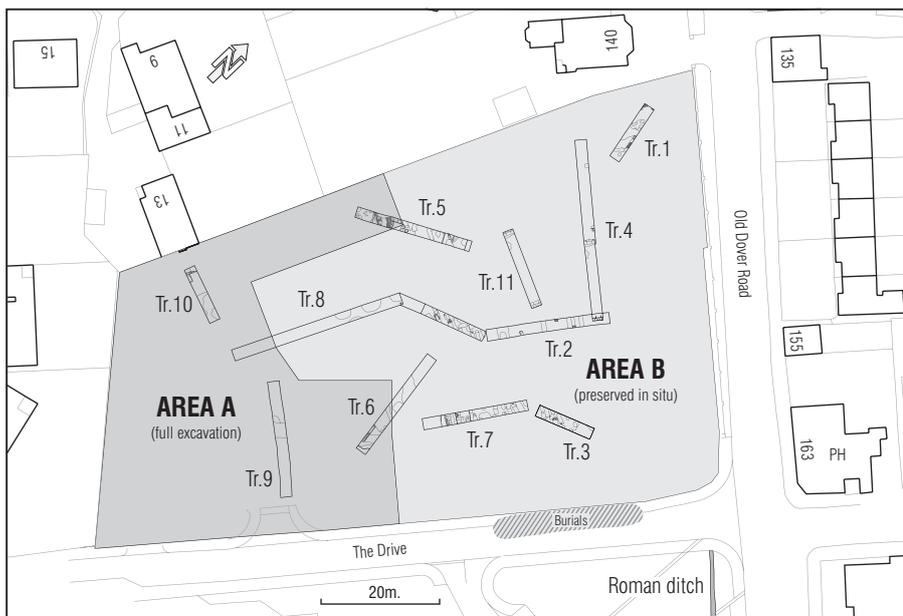
Two separate projects were undertaken with the first focused on the Bat and Ball car park, where houses were to be built. The Trust had previously cut eleven evaluation trenches across the area in 2006 (Newhook and Holman 2008, 8–9), with relatively complex remains relating to the medieval Hospital of St Augustine, including both structures and burials, identified. The hospital, founded in AD 1137, formed the principal landmark in the area during the medieval period. It functioned as a hospital for monks of St Augustine's Abbey suffering from contagious diseases (particularly leprosy) as well as acting as an almshouse for destitute close relatives of monks. In keeping with other medieval hospitals it seems likely that the walled precinct would have contained a dormitory/infirmary, a chapter house, latrine blocks, kitchens, a refectory and chapel.

The hospital survived the Dissolution but was suppressed some twenty years later around 1557. The chapel was still standing in 1575 though the remaining buildings of the old hospital had been converted into a private dwelling. This remained standing, albeit with major alterations during the late eighteenth century until demolition early in the nineteenth century. The cricket ground was first established on the site in 1847.

The structural remains clearly focused along the north-west boundary of the site. Excavations by the Reverend Woodruff in the garden of 140 Old Dover Road, immediately adjacent, had previously revealed a structure relating to the hospital (Woodruff 1937, 34). A cemetery lay to the west of the buildings and had been relatively well defined during the evaluation though the eastern boundary and its relationship with the present entrance drive to the club remained unclear. The southern part of the site had tentatively been identified as forming part of the hospital's grange or home farm.

Due to the complex nature of the remains identified at the Bat and Ball site during the evaluation the decision was made during the planning process to preserve the majority of the site *in situ*. This meant that the entire area of the cemetery and the majority of the area containing buildings was not excavated. The methodology used required the area to be split into two zones, A and B. Of these, Area B was stripped of topsoil with exposed archaeological





Trench location plan for the Bat & Ball, Areas A and B, showing location of burials and the Roman ditch identified as part of the second project.

features and deposits cleaned and planned. A marker layer consisting of 50mm of brightly coloured sand sandwiched between layers of water permeable membrane was then laid over the entire area to mark the level of the archaeological horizon. A full, open area excavation was undertaken in Area A.

The second project consisted of the redevelopment of the cricket ground itself. Archaeological works within this part of the scheme were primarily focused along the Old Dover Road frontage and the main driveway into the ground. Evaluation had been undertaken here in 2008 (Holman 2008), and the results had suggested that this part of the site was relatively sterile archaeologically though a small prehistoric pit and a single, probably Roman, cremation was identified.

Prehistoric and Roman

Only a small number of features relating to these periods were identified. Two prehistoric pits were uncovered and excavated in the south-east corner of the 'Bat and Ball'. Several flint scrapers, probably late Neolithic in date, were recovered from the first of these with the second containing large quantities of burnt material, including charred hazelnut shell, and flint-tempered pottery. A relatively large assemblage of worked flint was recovered from colluvial (hillwash) material identified in several areas of the ground.

Only a single Roman feature was identified in the form of a ditch; this lay immediately to the east of the Bat and Ball close to the main entrance to the ground. It contained several sherds of pottery suggesting a late first- or second-century AD date and ran parallel to the Old Dover Road probably forming the roadside ditch.

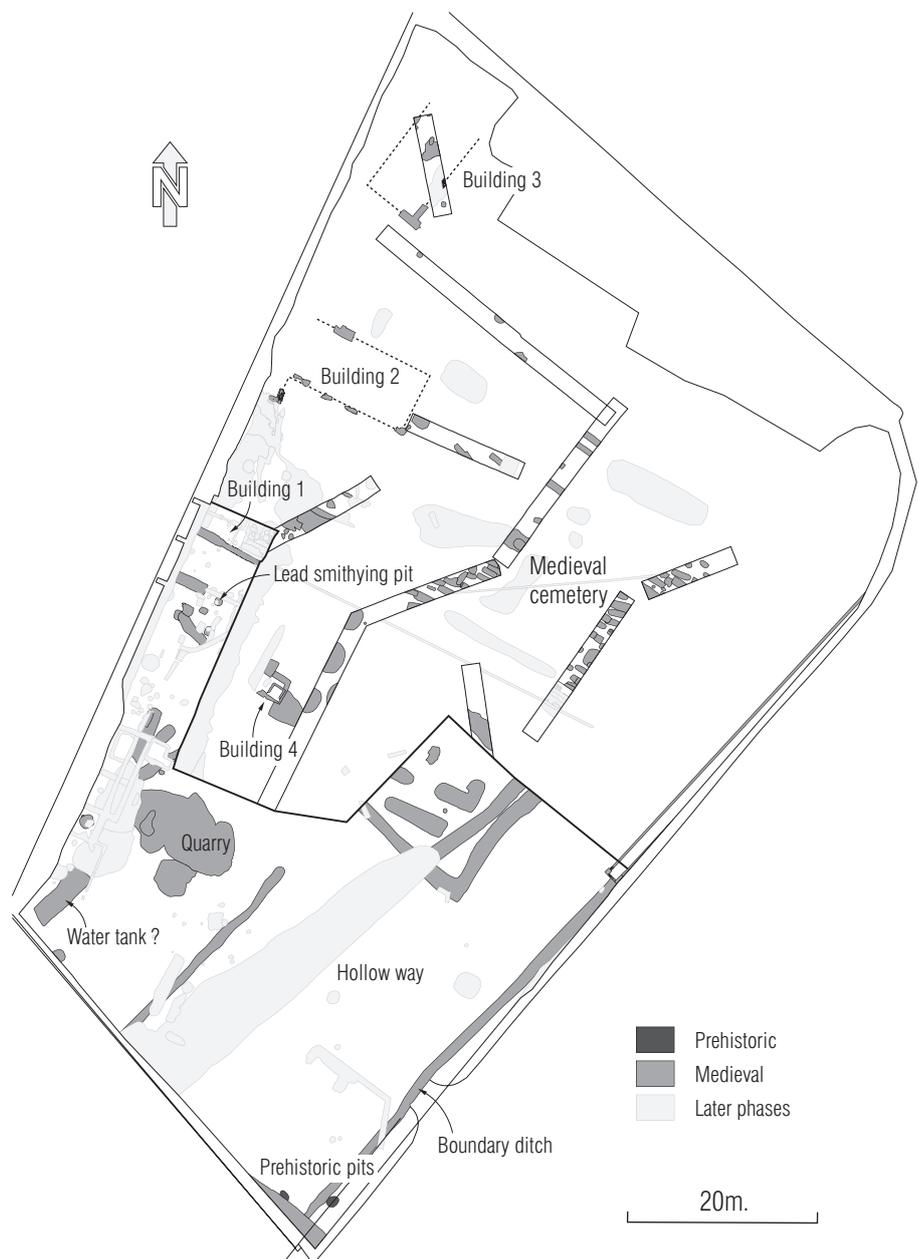
Medieval

In addition to the previously identified cemetery, four medieval structures were identified during the strip

and map (buildings 1–4). Unfortunately, following the decision that the majority of the site would be preserved *in situ* only a relatively small proportion of the medieval archaeology identified in both the strip and map and the evaluation was subsequently excavated.

A substantial north-west to south-east aligned chalk and flint wall, constructed on a crushed chalk foundation and previously identified within evaluation trench 5, formed part of Building 1. The outline of this building remains somewhat unclear as the majority of the structure extended to the north-east, beyond the limits of the excavated area into Area B sealed beneath *in situ* post-medieval soils. The small area that could be excavated demonstrated that all floor or occupation deposits of this date had been removed by later post-medieval activity. Immediately adjacent to this structure was a shallow, scorched pit, the fill of which suggested it had been used for lead smithing.

While not excavated, two additional buildings were identified to the north-east. The first of these, Building 2, was represented by six sections of flint built wall forming a structure some 16.2m long by 6.6m wide





Working shot showing the wall forming Building 1.



Burials under excavation. Scale 0.20m.

with a small annex, some 3m wide, positioned on the south wall. A crushed chalk footing, previously identified within evaluation trench 11, formed part of this building and suggested that only the lowermost course of masonry survived.

Building 3 lay some 10m to the north-east represented by a large section of flint-faced masonry that formed the junction of at least two walls. This formed part of what was a clearly a substantial

structure, the east wall of which had been previously identified within evaluation trench 1. Lying close to the boundary between Areas A and B, an unexcavated structure (Building 4) of probable medieval date almost certainly formed part of a latrine.

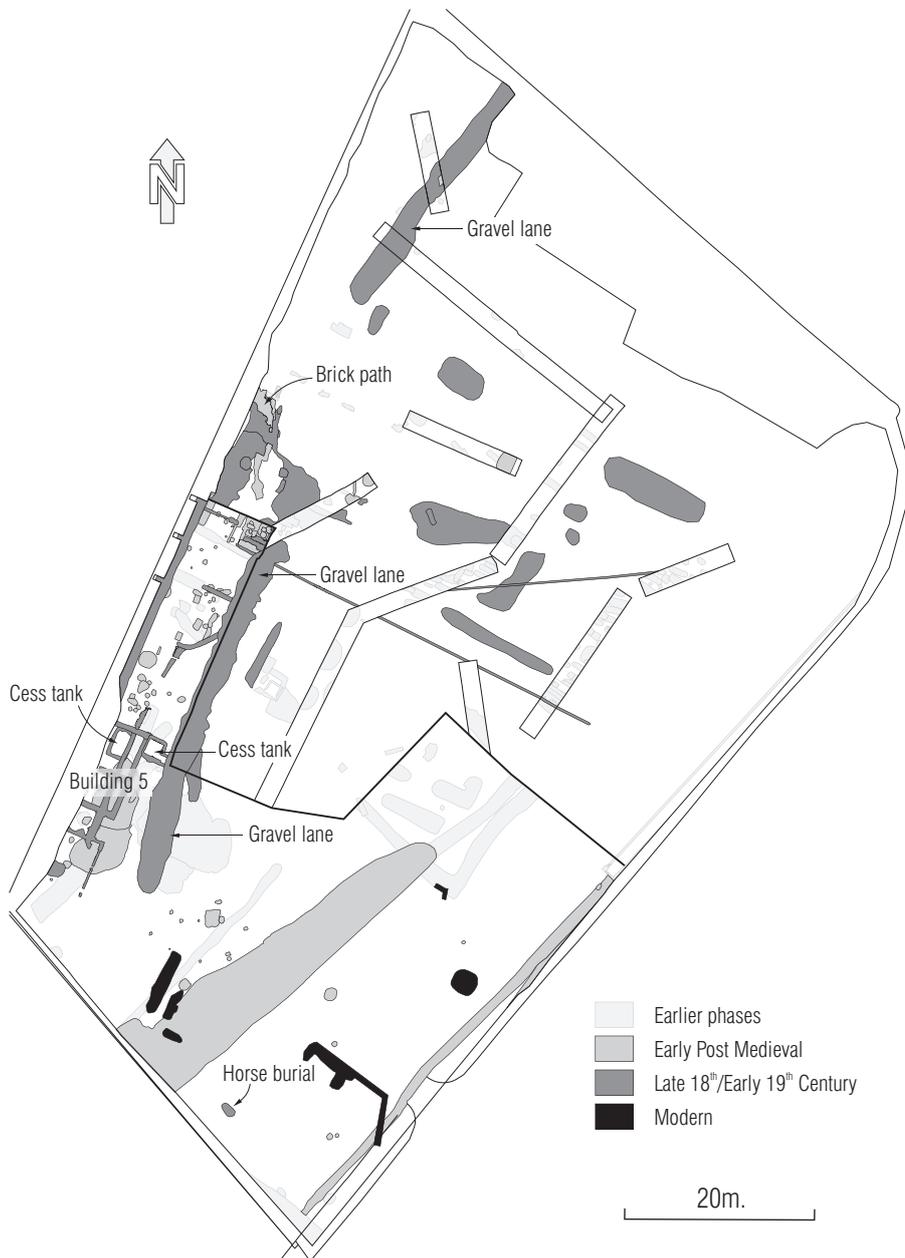
A scatter of medieval features were identified across the majority of Area A, though a series of large quarries had removed many of the earlier features and deposits. Only one of the quarries appears to have

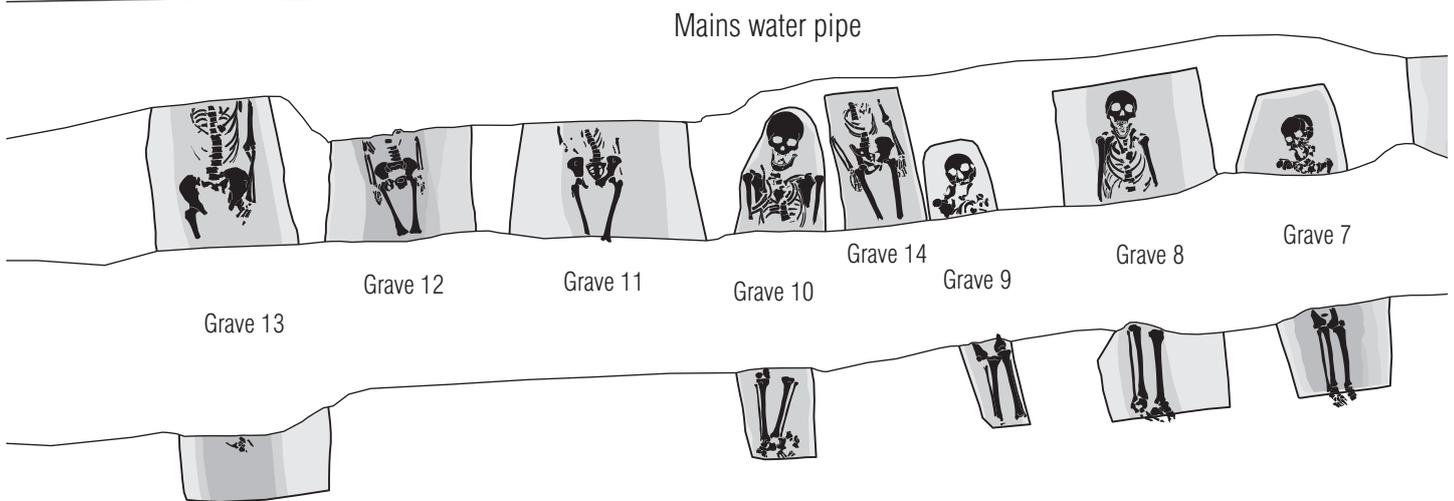
been medieval in date with the upper fill formed by a cessy deposit containing pottery and fragments of glass vessel. Two large pits were however identified in this area, the fills of each suggest that they were cess pits with relatively large quantities of fishbone, mineralized faeces and plant remains recovered from the fills following the processing of environmental samples. Two complete pots, together with a large amount of broken pottery, were also retrieved with spot-dating suggesting that they were backfilled in the thirteenth century.

One of the more interesting features identified within Area A lay in the south-west corner of the site immediately to the south of the medieval quarry. This consisted of a rectangular tank probably originally used to store water. Following disuse it appears to have filled with deposits of cess. Remaining features of medieval date included ditches, probably land divisions within the larger area of the grange and a scattering of post-holes. One of these ditches was interesting as it appears later to have formed the line of a post-medieval hollow-way and clearly demarcated a change in the nature of the underlying subsoil. That to the west, where virtually all of the medieval domestic features were located, consisted of relatively clean brickearth. In comparison the area to the east was very much more disturbed, perhaps indicative of medieval or early post-medieval agricultural activity.

Immediately to the east of the 'Bat and Ball' and forming part of the second project, the replacement of old services and subsequent re-laying of the main drive to the cricket club revealed fourteen burials. These indicated that the hospital's cemetery, previously assumed to be confined to the 'Bat and Ball', extended slightly further to the east. Only one row of graves was identified, with no additional burials noted beyond this line. No physical marker, such as a wall or ditch, was identified and while this may have meant that such a marker did not exist, it remains possible that such a feature had been removed during the construction of the present road. Alternatively, it might also suggest that the line of the driveway represents the formalization of a more ancient boundary.

After some debate it was decided that the burials would be excavated and not preserved *in situ* as they had been seriously truncated by services that ran along the length of the driveway. Despite this, preliminary analysis of the skeletal remains suggests that three of the individuals were male and five female; the remainder were too heavily truncated to





be sexed. Similarly four burials could not be aged; of the remaining inhumations eight were aged between 20 and 30 years, one was a juvenile of 14–15 and one adult was aged between 35 and 40 years.

The skeletal assemblage has proved to be very interesting pathologically with all of the skeletons showing evidence of infection. Generally this has been identified in the legs, feet and lower arms. Some of this had clearly healed during the lifetime of the individual and in other cases it was clearly more long term. There was similarly much evidence for dental disease and heavy tooth wear, the latter perhaps related to the nature of the medieval diet.

In the southern corner of the ground, the redevelopment of the Nackington Road entrance revealed the presence of two large circular pits. The sides of both were heavily scorched and cut down into the natural brickearth. Excavation revealed that two rectangular features lying adjacent to each were large flues leading to the base of the pits. Comparison with features identified in Old Errington, Sussex; North Elmham, Norfolk and in Southampton (Smith

2011, 3) suggest that these formed the remains of two medieval 'flare' kilns, used to produce lime that may then have been used during the construction of the hospital complex.

Post-medieval

Within Area A of the Bat and Ball the majority of the excavated remains were of post-medieval date, forming parts of the manor house that replaced the medieval hospital and its associated gardens. It was clear that relatively soon after the conversion of the hospital into a private dwelling a substantial peg-tile hearth, probably forming part of a large fireplace had been inserted into Building 1. At the same time a series of post-holes or narrow robber trenches positioned across the interior of the building appear to represent the division of the internal space into two separate areas. This building appears to have remained standing until the late eighteenth century at which point it was pulled down. The area then became part of a formal garden with part of the wall apparently

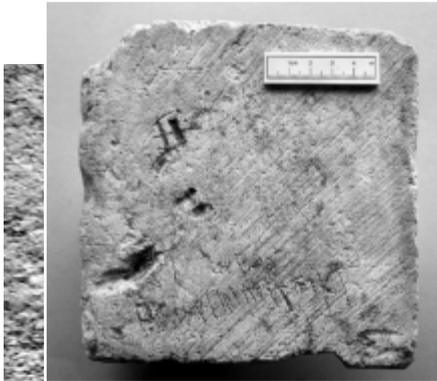
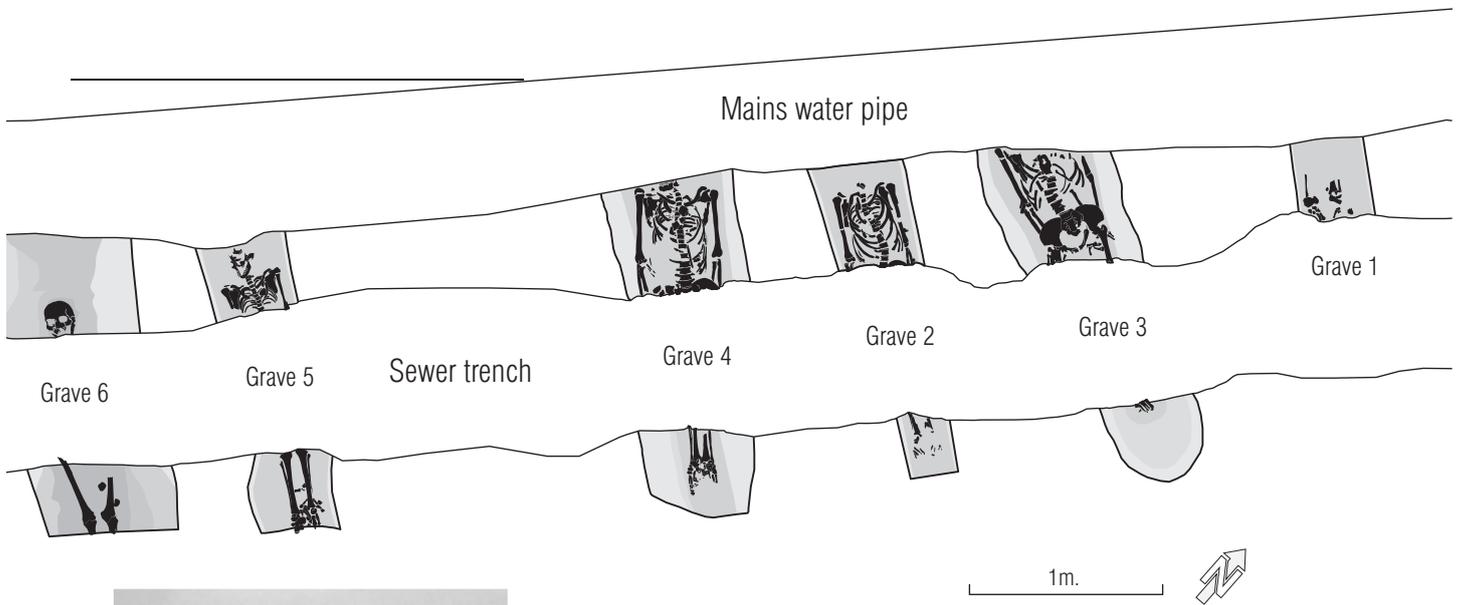
left standing as an ornamental feature.

The southern part of Area A appears to have largely been used as gardens during the early post-medieval period or for quarrying brickearth with the previously mentioned hollow-way developing along the line of one of the medieval ditches.

Following the demolition of Building 1 a new structure, Building 5, was constructed to the south-west over the area of the backfilled quarries. This appears to have formed outbuildings relating to the main house which eighteenth- and nineteenth-century maps show lying further to the south-east. At least three phases of walling were identified indicating that the building was modified several times. Two substantial cess-tanks were identified within this structure with a bone syringe recovered from one. This may have been used as an ear syringe though instruments of this type were also used to inject mercury, seen at this time as a treatment for syphilis, a disease rife in the early nineteenth century.

Several brick and flint-built paths together with





The worked stone, found amongst rubble, bearing an incised inscription.



a large number of ‘planting pits’ were excavated; these appear to represent the remains of the formal garden. The chalk sub-base of further paths were identified during the mapping of Area B; several of these features are visible on historic maps. As yet it is unclear to which phase of manor house these features relate; it is likely to be a combination of both. The majority of the ‘planting pits’ contained large quantities of brick and stone rubble in the base, presumably to aid drainage. A piece of worked stone, probably from one of the medieval buildings, was recovered from one of these and bore both a mason’s mark and some form of incised inscription. We are eagerly awaiting identification of this script.

A substantial gravel lane was identified and can be traced on eighteenth- and nineteenth-century maps leading from Old Dover Road up to the manor

house. A small number of post-medieval pits, one of which was found to contain a horse that had been buried upside down, were also recorded. Much of the manor is known to have been pulled down by 1839 and demolition rubble sealed the building sequence.

The archaeological work at St Lawrence’s was carried out by Ian Anderson, Kirsty Bone, Jonathan Dodd, Russell Henshaw, Simon Holmes, Alexis Mosley, Hazel Mosley, Adrian Murphy, Amy Radford, Paul Renn, Paul Tasker and Jessica Twyman, all throughout a truly appalling winter. The finds were processed by the Trust’s finds team with environmental sieving and preliminary analysis undertaken by Alex Vokes and Enid Allison.

Thanks are extended to Kent County Cricket Club and Bellway Homes for funding the archaeological works and to O’Halloran-O’Brien and Cardy Group

who acted as the main contractors on site. Particular thanks should be extended to Steve Mount and the groundworkers of O’Halloran-O’Brien who all provided a great deal of help on the ‘Bat and Ball’ site.

Chaucer Fields Canterbury



Simon Pratt, Peter Seary
and Jake Weekes

During late 2010 and early 2011 the Trust was commissioned by Land Use Consultants, on behalf of the University of Kent, to contribute to an Environmental Impact Statement, in view of the proposed 'Chaucer Fields' development on the university campus. This major project would transform a large part of the grassy and lightly wooded southern slopes adjacent to Chaucer College, remodelling the hillside to create a series of plateaux. The plateaux would form the basis for a building complex integrating student accommodation and facilities as well as a hotel and car parking within a new designed landscape, including large water attenuation ponds in the south-eastern part of the site, at the foot of the slope.



View from the tree line within the site: city and Cathedral with parkland, looking south-east.

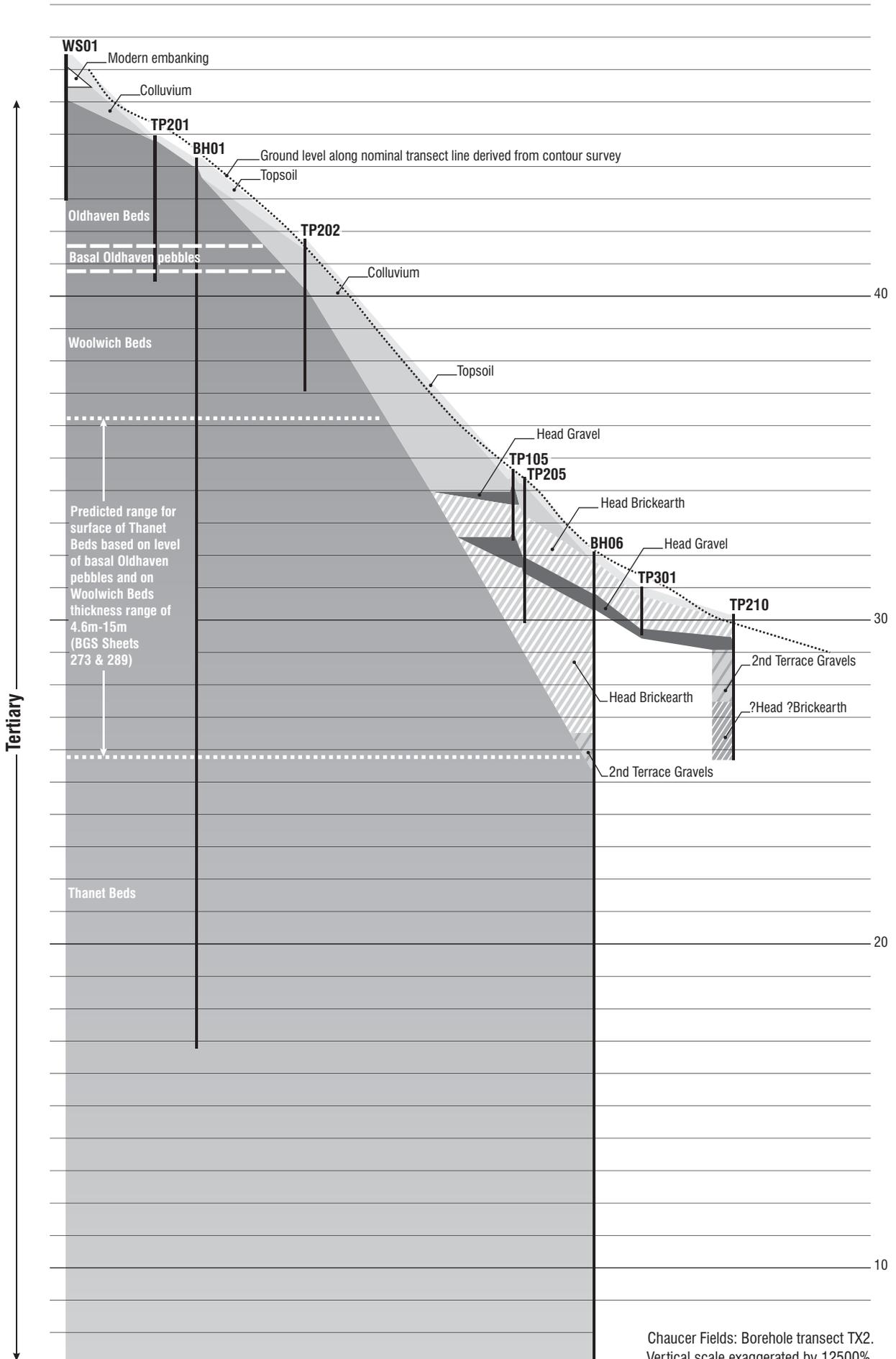
A scoping exercise, including a provisional desk-based assessment and initial site walkover carried out autumn 2010, suggested that later prehistoric, Roman and early medieval archaeology were unlikely to be encountered through any groundworks on the site. However, geological mapping of Second Terrace Stour Gravels in the southern area of the

proposed development suggested that nationally or internationally important Palaeolithic remains could be disturbed. Also, the site walkover combined with preliminary map study quickly established that the area formed part of an historic landscape associated with the medieval Beverley Farmhouse, to the north of University Road. Historic landscape

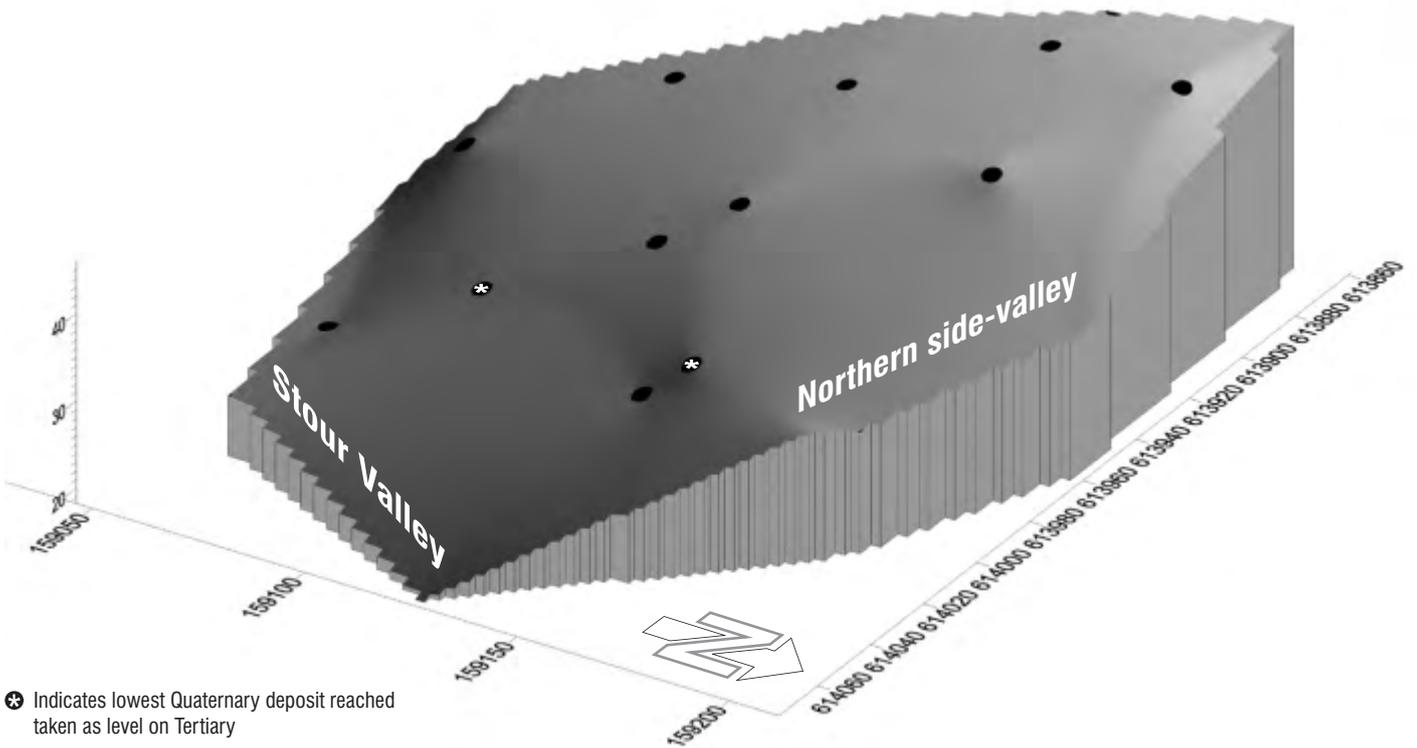


The 1705/6 estate map with the site boundary marked as a white outline. CCA Map/194, reproduced by permission of Canterbury Cathedral Archives.

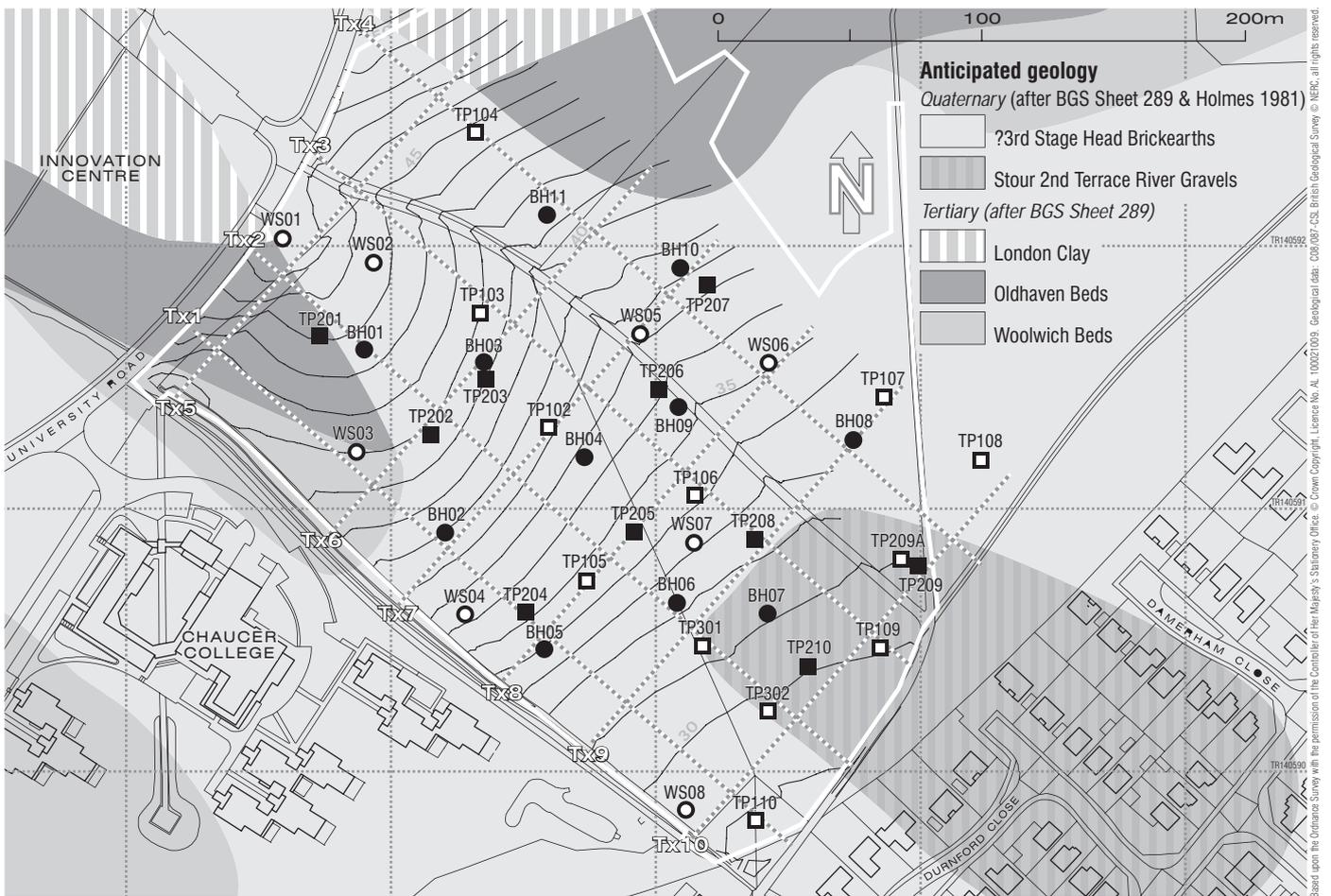
approximately 200m



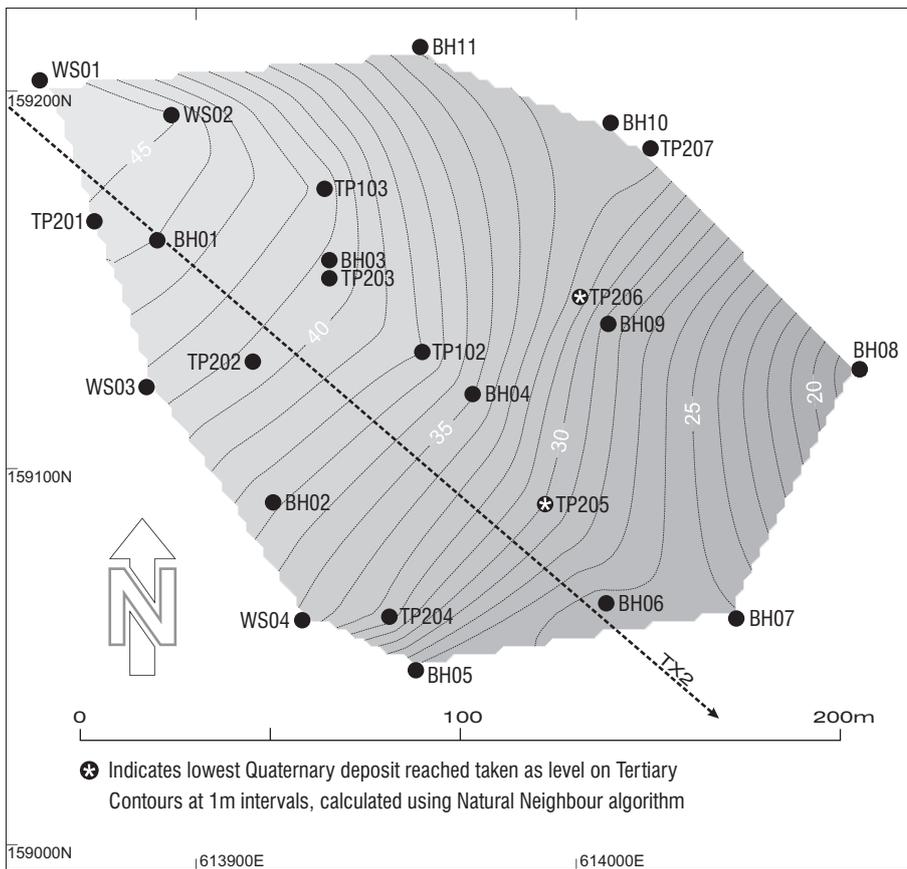
Chaucer Fields: Borehole transect TX2. Vertical scale exaggerated by 12500%.



3D model of interpolated surface of Tertiary deposits, looking south-west. Vertical scale exaggerated by 200%.



General site plan.



Contour plan of interpolated surface of Tertiary deposits.

features within the site included a south-east/north-west aligned double hedged trackway, still the main approach to the university on foot from this direction but undoubtedly marking a route of some antiquity, and a hitherto unrecorded bank and ditch feature, capped with mature oaks, at the northern end of the site adjacent to University Road. At a meeting with the consultants in London in January 2011 it emerged that the architects' plans would entail removal of the double hedged trackway and cutting of an entrance way through the bank and ditch feature. At this early stage, however, it was the potential for highly significant Palaeolithic material on the site which was giving the most cause for concern.

Palaeolithic or Palaeogeographic?

In January and February a watching brief was maintained during geotechnical test-pitting and augering across the site. This was undertaken in collaboration with Dr Matt Pope (geoarchaeologist and Palaeolithic specialist, University College London).

In terms of the Palaeolithic, the findings demonstrated that while Stour Second Terrace gravels were apparently present they were unlikely, given the local palaeogeography, to be impinged upon by the planned works. The Tertiary Thanet, Woolwich and Oldhaven Beds which formed the high ground in the north-western part of the site were cut away by a currently dry side-valley to the north-east and, more steeply, by the Stour Valley to the south-east. Fluvial gravels, believed to belong to the Stour

Second Terrace, were indeed found overlying Tertiary deposits towards the base of this slope and over what may have been Head Brickearth a little farther on. These fluvial gravels were, however, blanketed by Head Gravels and Head Brickearths spilling out from the northern and southern side-valleys. These deposits and the higher valley slopes were partially covered by colluvial clays.

Stour Second Terrace Gravels have yielded Palaeolithic flints elsewhere, but none were found in them at Chaucer Fields (though the relative sample size was miniscule) and only one certainly and three possibly worked flints were recovered from later deposits. Of the latter, two small and abraded examples came from a clayey Head Gravel deposit at the mouth of the northern side-valley. A struck flint

from the topsoil near the eastern corner of the site might represent knapping debris, but probably from the construction of a medieval or later flush-knapped flint wall rather than prehistoric tool making. A small possibly worked flint was recovered from the topsoil on the brow of the hill, but it was found alongside modern pottery and almost certainly derived from an underlying twentieth-century trackway of (probably imported) gravel.

Though it is possible that natural erosion had removed traces of early activity on the higher parts of the site, occupation debris (peg-tile, oyster shell etc) was so sparse as to suggest that, with the possible exceptions of the relatively unexamined north-western area and northernmost corner, the site had remained largely or entirely unoccupied throughout history.

No evidence was found anywhere for tile or pottery production on the site, nor for quarrying. On examination of the original archive it was realised that medieval pottery reported from beside University Road had been found in imported topsoil. However, the presence of isolated features or small groups of features cannot yet be ruled out and this phase of work investigated neither the trackway (of probable medieval origin) corresponding to the hedge-lined path running down the centre of the site, nor the remnant bank and ditch visible in the woodland just south-east of the road, all features that seem to be associated with the wider landscape setting of Beverley Farm.

The historic landscape

The antiquity of Beverley Farm is hard to establish, except that it is doubtless medieval in origin and at least as old as the extant fabric of the farmhouse (late fifteenth century). It is not yet clear whether earlier instances of the name locally, from the early thirteenth century onwards, necessarily relate to this site. During the early modern period, the farm is thought to have been held by the Roper family of St Dunstan's, but little more is known as yet. In 1705/6, Frances Hill produced a survey of this part of Beverley Farm to help solve a dispute over this part of the boundary between the parishes of Hackington (St Stephen's) and St Dunstan's (CCA: Map/194). At this time, Beverley Farm was owned by Lady Sackfield, who probably belonged to a local



Bank and ditch feature at the north-west boundary of the site, looking north-west.



The upper reaches of the existing double-hedged field boundary and trackway within the site with parkland views of Canterbury Cathedral, looking south.

family owning a sizeable (but part empty) house in St Dunstan's, attested in the hearth tax returns for 1664. The farm was in the tenure of Thomas Court, members of whose family would continue there, under successive property owners, down to 1801. The proposed development site was shown divided between four distinct fields: 'Seven Acres', 'Four Acres', 'Dover Downe Field' and another whose name went unrecorded. The footpath from Blean church down to Canterbury passed down the south-west edge of Dover Down Field; another, from the farmhouse at the northern corner of the field, curved down to meet it half way. A small pond mid way along the north-western edge of the field was one of several shown in the vicinity of the farmhouse; the names of nearby fields such as 'Sand Pett Field' and 'Gravel Pett Field' attest small-scale quarrying locally.

The matter of the bounds was settled by Justices of the Peace in 1706. Hill then produced a second plan recording the finalised boundary, sometimes following one, sometimes the other, of the old contested 'bounds'. St Stephen's gained part of the proposed development site; the boundary ran from a notable tree-stump in the hedge-line at the bottom edge of the field, up to the Beverley farmhouse. Interestingly, it then bisected the farmhouse, through the cross-passage, before turning diagonally across the farmyard to the north.

On 19 May 1737, and on several subsequent occasions the 'upper bounds' of Hackington (St Stephens) parish were perambulated, or 'beaten', to prevent them from falling out of memory. The stretch

in the vicinity of the proposed development was described as running from 'an elder in the Gravel Pit Field ... to a mark at the upper end of Bramble Tye', and on 'to an elm tree at the corner of Mr Court's orchard'. From thence, it continued northwards to a mark 'on Mr Court's door-case, and through [the] house cross the yard to the ashen tree'.

In 1788 Sir Edward Dering and Sir Roland Wynne acquired Beverley Farm. Together, during the late eighteenth century, they owned several farms nearby, perhaps as property speculators. In 1801 they sold the farm, which was still occupied by a 'Mr Court', at auction. It was purchased by John Baker, who took possession of it at Michelmas for his own use. By this time, the present metalled track across the site had come into existence. By the middle of the century the tithe map shows that Dover Down Field had been enlarged, annexing a small field to the south, whilst 'Seven Acres' and 'Four Acres' had been thrown together to create what was now known as 'the Bushy Field'. By the late nineteenth century, the footpath from Blean Church to Canterbury had been diverted out of Dover Down Field, along the side of the watercourse just beyond south-western boundary of the present site.

Around the start of the twentieth century, Dover Down Field and most of the Bushy Field, along with the old Saw Pett Field to the south-west, and other adjoining fields, became part of a large nursery on Forty Acres Road. Around 1882, a blacksmith, George Mount had rented three acres in St Dunstan's to grow roses. According to his obituary (cited in Mount *et al* 2000)

'the three acres grew in the course of a few years to forty', probably signifying the purchase of the old 'Forty Acres Field' which lay to the south of the old 'Bramble Tye'. The landscape was soon thoroughly adapted to horticulture: Dover Down Field became a nursery, most probably growing roses; tanks were installed at the watercourse, at the southern corner of the field, perhaps to collect water for irrigation. Saw Pett Field and the Bushy Field were planted as orchards. By the start of the Second World War, Dover Down Field had been planted as an orchard like its neighbours, and cart tracks laid for ease of picking. Dover Down Field and the Bushy Field may have been converted for war agriculture, but returned to orchard use soon afterwards, and would remain in such use down into the late twentieth century. In the early 1960s, the fields were compulsorily purchased to establish the university campus, and at some point, probably in the last quarter of the century, the orchards were grubbed out. Subsequently, a small patch of woodland developed at the top of Dover Down Field, and various unofficial footpaths became established, including one well-used path from corner to corner.

Conclusion

The Trust's contribution to the Environmental Impact Statement at 'Chaucer Fields' recommended a full palaeogeographical and historic landscape study, preserving the current setting at least by some record if it could not be preserved *in situ*. Much further evaluation work is required, including

investigation of the bank and ditch feature and the trackway (as well as a metal detector survey of the periphery of the latter which might shed further light on the antiquity of its use). While the potential for Palaeolithic remains appears to have been reduced, there is still much that a palaeoenvironmental watching brief on any works could tell us about the significant palaeogeography of this part of the Stour valley. The historic landscape associated with Beverley Farm, if lost, should at least be subjected to a full topographic and photographic survey, all of which might provide content for a series of information boards within the new development.

Bigbury Camp, Harbledown, Canterbury

Christopher Sparey-Green

Following the survey of woodland within the Kent Wildlife Trust reserve at Bigbury Camp and the South Blean in 2008 (Sparey-Green 2010a), a watching brief was carried out during fencing work within the scheduled area of the hillfort. The earthworks forming Bigbury Camp hillfort are a Scheduled Ancient Monument (SAM Kent K51), the reserve effectively occupying the northern half of the monument and the adjacent land to the west. The work was covered by scheduled monument consent from English Heritage. As with the original survey we are grateful to the Kent Wildlife Trust for commissioning and funding the work.

Observation was limited to those phases of work where ground disturbance was likely to take place during the erection of gate posts and strainer posts for a new animal-proof fence enclosing the woodland on the north and south. The line of the fence started at the western end of the scheduled monument and followed the north side of the Bigbury Road as far as the outer works at the eastern end of the hillfort, effectively a traverse through the centre of the enclosure along the axis of the ridge (TR 1141 5746–1189 5773). The fence line then dropped down the north-eastern slope before doubling back to enclose the northern edge of the wood below the camp, this length lying outside the scheduled monument (TR 1189 5773–1148 5776). A further length of fence continued uphill, skirting the camp on the north-west to complete the enclosure.

During the course of the watching brief, but unrelated to it, a LiDAR survey was carried out covering a much larger area of the South Blean, Harbledown and the woods north of the village. This revealed an extensive earthwork enclosure in Homestall Wood. Though presently undated, this may be related in some way to Bigbury Camp and the more extensive earthworks in the South Blean (Sparey-Green 2010b).

The woodland owned by the Kent Wildlife Trust forms the north-eastern part of Howfield Wood and is bounded on the south by the Pilgrims Way, or Bigbury Road, and its newer extension crossing the defences to link with Faulkners Lane on the north-east. South of the Bigbury Road the scheduled site remains in private hands. The fencing operations have been prompted by the introduction of pasture animals

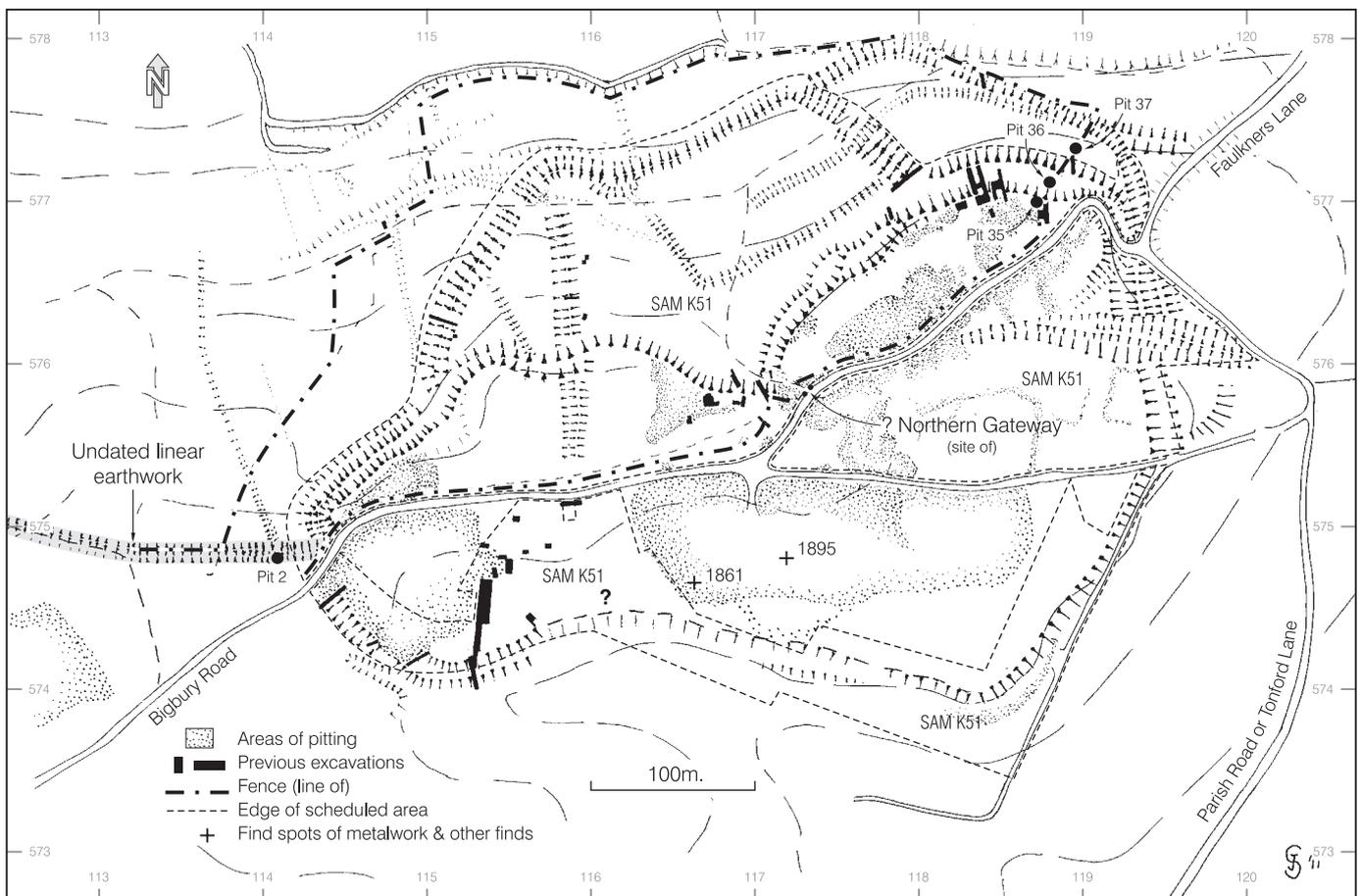
in areas cleared of coppice trees; the reduction in undergrowth and tree cover has revealed the hillfort earthworks for the first time in generations. The highland cattle, horses and goats within the new fence line will maintain a more natural plant cover, promoting a native flora and fauna and improving access to the scheduled monument of Bigbury Camp and halting damage from tree roots.

The first stage of work was carried out on 28 August 2009 during remedial work on a trackway into the wood covering the hillfort and during the erection of a gateway to the present road running through the site (TR 1171 5759). The second period of work covered the digging of post-pits between 18 and 20 October 2010 with further limited observations on 7 December 2010 and 16 February 2011.

The underlying geology is complex, with areas of River Terrace Gravels and Woolwich Beds on the high ground overlying Thanet Beds.

The initial work in 2009 consisted of the reinstatement of two holes blocking the access track to the new gateway on the Bigbury Road and revealed no significant features underlying the metalling (TR 1172 5760). Irregular and well-defined pitting either side of the track just within the new gateway was probably the result of recent quarrying but, beyond this, earthworks survived from the main inner rampart. Since at this point these formed a re-entrant within the natural gully followed by the track, it is possible that this was an original gateway giving access from the outer northern annex to the hillfort at an easily defended point.

The erection of the fence in 2010–11 involved the cutting of thirty-six post pits along the northern edge



of Bigbury Road, within the area of the Scheduled Ancient Monument. A further thirty-four were observed along the north-eastern and northern edges of the woodland, on the line of slight earthworks of unknown date. The final length of fence, north-west of the camp, was not observed, the posts here being driven and not set in dug holes. Each of the holes was dug to 1.2m depth from ground surface, providing a sample of the upper stratigraphy across the interior at intervals of between 10 and 50m.

Work commenced on the west, just outside the scheduled area and the western limits of the hillfort. In this area is an undated linear earthwork starting immediately north of the presumed site of the hillfort's west gate and continuing westward for at least 250m (TQ 1143 5747–1125 5748). This consists of a substantial bank with traces of a ditch on the south side following the ridge running west. Pit 2 cut into the ditch on the south side of the earthwork bank, showing the fill of brown sandy silt to be at least 0.8m deep (TR 1142 5747). Although not strictly part of the project, it is noteworthy that a recent cutting of this bank for a drainage ditch, some 120m to the west (TR 1127 5747), revealed that it was at least 3m wide and approximately 1m high, the bank consisting of pebbly silt sealing a very de-humified old ground surface over the natural silty sand and pebble subsoil. The nature of the bank did not suggest a recent date for its erection and it may form part of the wider pattern of woodbanks or be an earlier defensive work associated with the hillfort.

Within the western defences pits 3–6 were cut in an area of well-defined pits extending for 50m, these of probable recent origin, but over the following 80m pits 7–10 were cut in relatively level ground and revealed the sand and gravel subsoil beneath a thin humic layer. Pit 11 (TR 1148 5752) was cut into deeper stratigraphy: dark flinty gravel, possibly the fill of a continuation of the cross-ridge dyke identified to the north but here levelled as an earthwork. The upper fill here and the very compact sand and gravel in Pits 10–13 to east and west of this point coincided with surface indications of a slight linear hollow, probably an earlier roadway diverging from the present road and continuing an alignment to the north of it but rejoining it near the gateway referred to above (TR 1172 5758). Pits 14–17 immediately south-west of the latter point revealed only a humic layer over the natural but 18 identified a deeper level of silty sand and gravel, possibly the rampart on the south side of the re-entrant referred to above (TR 1171 5759). In the area of the new gateway onto Bigbury Road and thence eastward for approximately 30m, pits 19–23 were cut into disturbed ground but 24 and 25 encountered an undisturbed profile, the old ground surface here producing a possible water-worn flint pounder. Of Pits 26–34 over the following 120m several encountered well-defined hollows of probable recent origin while others revealed humus over a sand and gravel natural.

Pits 35 to 37 were cut into the defences and produced significant results. Pit 35 coincided approximately with the site of the inner rampart and revealed 0.55m of clean sandy silt and gravel, probably at the rear of the bank, sealing 0.5m of dark sandy silt over the natural sand (TR 1187 5771).

This dark soil contained charcoal, burnt flint, pottery and a substantial copper alloy ring. The pottery has yet to be examined but the ring was robust and of symmetrical form, 55mm in external diameter, suggesting a use in horse harness. The charcoal yielded a calibrated radiocarbon date of 390–348 BC or 315–208 BC (2245 ± 26; UBA 18135). This single determination is somewhat earlier than those previously obtained from the northern annex and from the later destruction levels on the south-western defences in the early 1980s, these dates falling between the second century BC and the early first century AD but derived from stratigraphically later contexts (Blockley and Blockley 1989; Thompson 1983; Clark and Thompson 1989).

Pit 36, approximately 13m down a steep slope to the north-east, revealed over a metre of sandy clay silt, pebble and flint nodules containing charcoal, calcined flint and sherds of pottery. From its position on a slight terrace, this is likely to be the upper fill of the inner ditch. Pit 37, approximately 17m to the north-east also coincided with a slight terrace and again encountered over a metre of sandy clay silt and pebbles, probably the upper fill of the outer ditch.

Beyond this point the posts lay outside the scheduled area. Pits 40–42 crossed the line of an outer earthwork, 41 revealing a metre of sandy silt and pebbles which may have been ditch silt. Pits 43–52 followed the outer edge of this earthwork to the north-west without revealing any significant features.

The final series of Pits 53–70 was set along a slight bank above the existing drain on the northern edge of the woodland, beyond the northern annex and terminated at the new gate on the existing Centenary Walk, north-west of the defences. No features were revealed along the woodland edge, the soils here partly colluvial deposits or waterlogged soils derived from the cleaning of the drain.

Finally I am grateful to Colin Flight for drawing my attention to what may be the earliest record of Bigbury Camp. Although a plan of the earthworks was first published in *Archaeologia Cantiana* (Hussey 1874), the camp may have been noted in the late seventeenth century by Dr Robert Plot, Keeper of the Ashmolean Museum, who observed, 'a double Intrenchment in a Wood, within three miles of the antient City of Canterbury the inward Trench contains an Acre and half, the outward one about four Times as much: It is very probable that this was the Place where Caesar met with the Britains in his second Expedition ...' (Rawlinson 1714, 44).

St Mary's Church, Chartham

Jake Weekes

Between October 2010 and March 2011, over a particularly harsh winter, monitoring of repairs and refurbishment to the rainwater drainage system and other minor works at St Mary's Church, Chartham (centred at NGR 610695 155073) provided the opportunity for a community project. The work was part funded by St Mary's Parochial Church Council (PCC) with the help of a financial legacy,



and part voluntary.

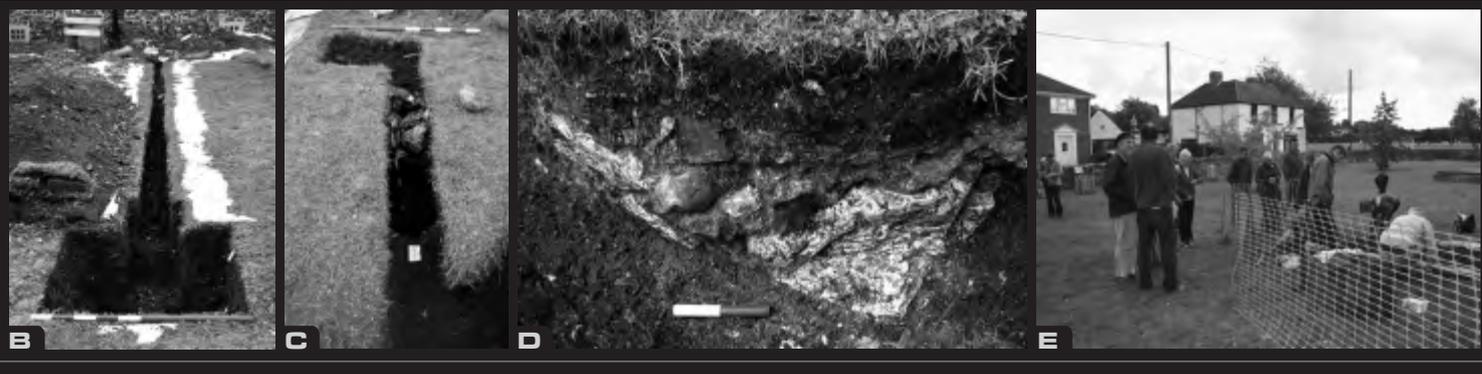
St Mary's Church is situated in the centre of Chartham village, in the Stour valley approximately 5km to the west of Canterbury. The existing turfed cemetery surface has some moderate undulations, at a general height of just under 17m above the Ordnance Datum. Geology in the area is recorded as Alluvium, overlying Seaford Chalk (British Geological Survey 1:50,000 DiGMapGB-50 dataset, accessed 07 June 2011). Stour 2nd Terrace gravels are marked in the general vicinity.

Background

Sporadic finds of prehistoric, Romano-British and early Anglo-Saxon archaeology are well known in the Stour valley generally, but there are not many reports of evidence of these periods close to Chartham church. The nearest are stray finds to the south-east: a Palaeolithic axe (HER TR15SW19) approximately 200m from the church and a late Bronze Age leaf-shaped, looped and socketed spearhead (HER TR15NW14), found in 1861, approximately 100m away at Chartham Paper Mill.

Earlier phases of the church itself, the earliest being of at least Anglo-Norman date and probably late Anglo-Saxon, were partially investigated during installation of new toilet facilities on the north-west corner of the nave in 2001 (Linklater and Willson 2002). Most of the present church was built in stages between the end of the thirteenth and the early fourteenth century (c 1294–1315) with some royal patronage, on the site of and replacing the earlier late Saxon church. A new tower was added to the west end in the late fifteenth century.

The church underwent various post-medieval refurbishments, the most drastic being its 'restoration' in 1875. The latter also had implications for the churchyard. The nineteenth-century specifications for 'general repairs, alteration, restoration and refitting...' (1874; CCA-U3-154/6/23) indicate that the existing rainwater drainage system was first laid out at this time, with 'four inch socket jointed drain pipes ... laid round the church ... with 1½ [inches] fall to every 10 feet and ... all necessary bends and junctions...'. The same document calls for a general clearance of up to '1/6' (?1ft 6ins) of soil from around the external faces of church walls for a space of 10 feet all around in order to bring the external surface in keeping with new floors within. There is also a stipulation for ground and graves around the south side of the



chancel to be reduced so as to be not more than '1/6' above the level of the churchyard path (*ibid*). Clearly considerable landscaping was at least supposed to have taken place. The specification ordered that all surplus soil produced should be removed to the extremities of the churchyard.

There have been several refurbishments to the rainwater drainage system since its installation in 1875, with specifications for general works in 1932 calling for a new down pipe on the south side of the chancel, a concrete gully at the foot of the pipe and a new four inch drain, twenty feet long, to run to a new soakaway four feet in diameter, filled with large stones and turfed over (CCA-U3-154/6/10). Specifications for works in 1960 also called for an overhaul of the rainwater drainage system 'as necessary' (CCA DCb E/F Chartham St Mary 16), which may have included refurbishment or replacement of pipes or other facilities.

The churchyard was closed to burial in 1900, except in certain cases: in vaults or wholly walled burials, or in earthen burials if widows, widowers, brothers or sisters of those already interred were to be buried, or in earthen burials if children of those already interred were to be buried, but only if new burials could be made at a minimum four feet deep with no disturbance of existing remains (CCA-PC4/C/1/4). The last burial at St Mary's was carried out in 1943, although the yard had been officially signed over to the Parish Council by churchwardens in 1934 in accordance with the Local Government Act. The Parochial Church Council obtained a faculty for removing tomb stones and levelling the church yard in 1954 and the work was carried out later that year and during the next (*ibid*).

Findings

The recent project first called for accurate location of previous drainage runs. These were traced from the position of down pipes on the church building. With the old pipe trench identified, we could then proceed with excavation and removal of drainage trench backfills and old pipes and installation of new pipes; some partial re-routing in order to rationalise the system proved necessary. In addition, two new soakaway pits (to north and south of the church) and an associated drainage run on the north side, a gully for a pea-shingle drainage gully adjacent to the south transept and a pit to house re-used stone as hardstanding for the west porch were excavated.

On completion of the project the considerable quantity of disturbed human bone recovered during the works was reinterred in the churchyard. Collection, curation and reburial of the remains was conducted throughout in accordance with Church of England and English Heritage guidelines (2005).

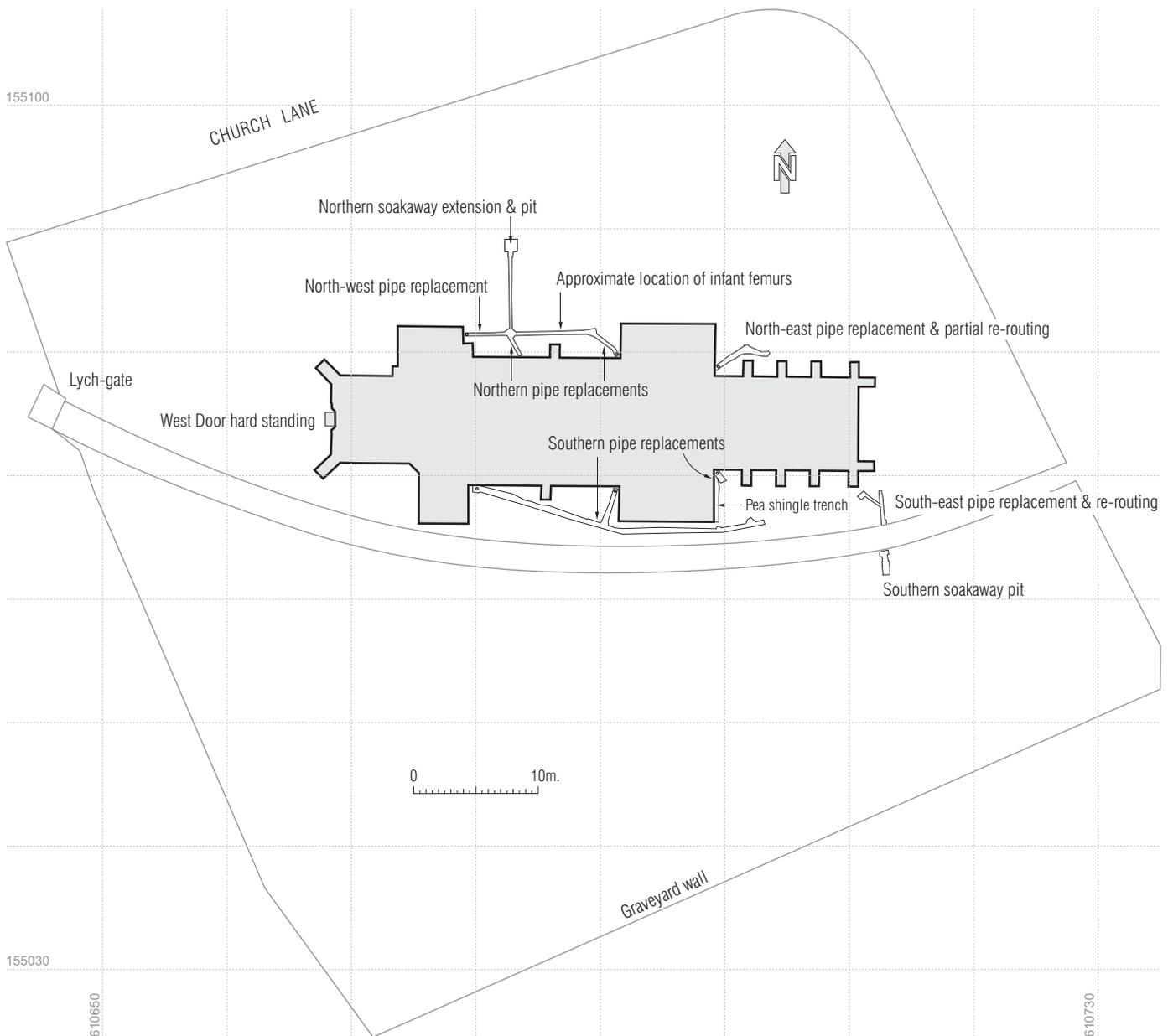
The superficial geology was not encountered during the works. Occasional (probable) prehistoric, Romano-British and Anglo-Saxon material was recovered from cemetery soils and burial backfills in the form, respectively, of fragments of burnt flint (one of which had been mortared for inclusion in a later structure, probably an earlier phase of the church), sporadic fragments of Roman tile (also probably re-used in earlier phases of the church) and two infant femurs recovered from the old pipe trench backfill. Significantly these little bones were found in an area crossed by the projected alignment of the probable late Saxon church seen in 2001 (Linklater and Willson 2002), so may have originally derived from an 'eavesdrip' child burial, several of which were recorded in association with the late Saxon foundation noted in the earlier excavation.

The backfilling of a probable burial next to the southern wall of the chancel with what was clearly medieval foundation material is interesting in that this material presumably derives from either the current or a previous incarnation of the church building. A large void was encountered within an adjacent burial that suggested a particular taphonomic process, perhaps due to several coffins having been interred either at once or in quick succession, which then disintegrated en masse following burial (Andrew Linklater, pers comm).

Variation in cemetery soils generally encountered during the work is noteworthy. Certainly those within the line of the transept and toilet block on the north side of the church appeared on surface inspection to contain no finds later than medieval, a rim sherd of early fourteenth-century date being recovered from one area. Beyond this area on the north side the ground was far more intensively disturbed by post-medieval burial, with individual graves very difficult to discern amid a mass of backfilled and loamy material containing much and diverse redeposited human remains.

The cemetery soils revealed on the south side of the church presented a different picture, with those close to the church building seeming slightly more disturbed than soils in similar proximity on the north side. Soils in this area (seen during southern and south-east pipe replacement and rerouting) were notable for producing moderate quantities of medieval/early post-medieval scraps of pottery, perhaps representing alternative uses of the north and south sides of the church respectively. Further away from the church, the cemetery soil exposed in the southern soakaway trench was clearly less disturbed, with denser and less mixed clayey deposits and fewer inclusions. A largely intact concentration of disarticulated bones seen in





this deposit within the southern soakaway pit could easily have derived from a single disturbed grave. That the latter could also have been of some antiquity was perhaps suggested by a small number of large iron coffin nails also recovered from this pit via metal detector survey of the spoil heap.

The nineteenth-century drainage system was found to have some noteworthy quirks, such as the cavalier way

in which it had impinged upon medieval foundations; in the case of the pipe trench near the north side of the chancel, avoidance of the buttress foundation would have meant only a minor detour. On the other hand, apparently arbitrary 'minor detours' characterised the pipeline on the south side of the nave near the porch, its meandering course requiring rectification during the current works. Pipe work removed on the south-side of

the chancel was of later manufacture than the Victorian pipes seen elsewhere. It connected to a concrete inspection point and was probably installed either in the 1930s or perhaps the early 1960s.

Finally, it is of note that the cut and backfill of a 1991 excavation at the south-west corner of the south transept was not seen during the current works, suggesting that the trench for that excavation was not



quite as extensive as marked on contemporary plans; indeed, a section drawing (reproduced by Linklater and Willson 2002) would seem to confirm that the 1991 intervention was more closely focussed on the wall foundation it sought to investigate.

Several residual medieval and post-medieval finds were retained for display in the church at a later date, including medieval potsherds and fragments of painted floor tile, a musket ball and a clay pipe stem celebrating Queen Victoria's Golden Jubilee.

The community project

While the archaeological findings of the excavations associated with St Mary's new rainwater drainage system were admittedly of little research significance, the project provided ample opportunity for community outreach and involvement. Indeed the project was partly designed as a community venture and educational opportunity. Representatives of the Trust were greatly assisted in the work by members of the PCC and St Mary's congregation as well as helpers from the wider parish and other volunteer archaeologists. The project included a scheduled open day which took advantage of the outlying position of the northern soakaway pit to allow visitors to watch the digging and learn about excavation and recording practices, including proper treatment of human bones. A copy of Church of England and English Heritage guidelines (2005) was made available within the church as part of the display of finds and archaeological information.

This was a project conducted by the church community and parishioners, but Nikko Hicks (Churchwarden), who promoted, designed and drove the St Mary's Chartham rainwater drains project, leading from the front in all weathers, demonstrated his particular dedication to a very fine building and deserves special mention. Part of the funding for the project was derived from a legacy left by a former PCC member, Paul Hill, whose dual contribution to the maintenance of the church building and its value as a heritage asset is gratefully acknowledged. Churchwarden Gerard O'Sullivan who helped to articulate the various aspects of the project as well as being a core member of the team from a practical point of view. Other helpers from the church included Gordon Steadwood, Andrew Goddard, Tony Frost and members of St Mary's junior church (thank you Alex, Greg, Matthew, Isobel, Alexa, William and Tom).

Diocesan Archaeologist Paul Bennett and Ian Dodd of the Diocesan Advisory Committee provided useful advice and support throughout and Emily Weekes assisted with archaeological supervision of volunteers, conducted finds processing and organised the open day display. The Trust supplied information boards for the open day. Thanks are also extended to Richard White of Horton for his archaeological assistance throughout and to Stephen Rawling for his contribution. Hayley Jedrejewski, now of the Trust, kindly volunteered osteoarchaeological expertise, and Gordon Steadwood and Val Goddard carried out the spoil heap metal detecting which produced some interesting finds (such as the musket ball). Tamsyn Steadwood ably photographed the public events for us, and Gill Hicks is thanked for making sure that hot

drinks and biscuits arrived with perfect timing (even catering for the gluten free!). St Mary's Priest-in-Charge, the Rev Phil Brown provided moral support and brought the project to a close by conducting a short service for the reinterment of the bones. This final act of the project was as important as any other, and greatly appreciated by parishioners.

Photographs

- A** Works underway at Chartham Church, Winter 2010–11
- B** Northern soakaway pit and pipe trench extension
- C** Southern extension with med backfill and void
- D** Chancel foundation truncated by Victorian pipe trench
- E** Open day visitors watch the excavation
- F** Excavation in progress on the Open Day
- G** Visitors view finds and information in the church
- H** CAT's information boards in the church
- I** Volunteer help was the key to the project's success
- J** Metal detecting spoil heaps
- K** Bones reinterment service

Fordwich Garage, Sturry

Ross Lane

An archaeological excavation was undertaken in late 2010 on land formerly occupied by Fordwich Garage in Sturry (NGR 61778 16006, centered). The excavation and earlier evaluation/strip and map were commissioned by CgMs on behalf of Carlton Homes (Southern) Ltd prior to the redevelopment of the site for housing.

The village of Sturry sits on the edge of the flood-plain of the Great Stour. The early place name *Sturigo*, signifies 'land about the Great Stour' and is likely to have originated from late Anglo-Saxon settlement in the area (Cross 1996, 23). By the seventh century AD Sturry was almost certainly a *villa regalis* or royal estate, one of a group of important

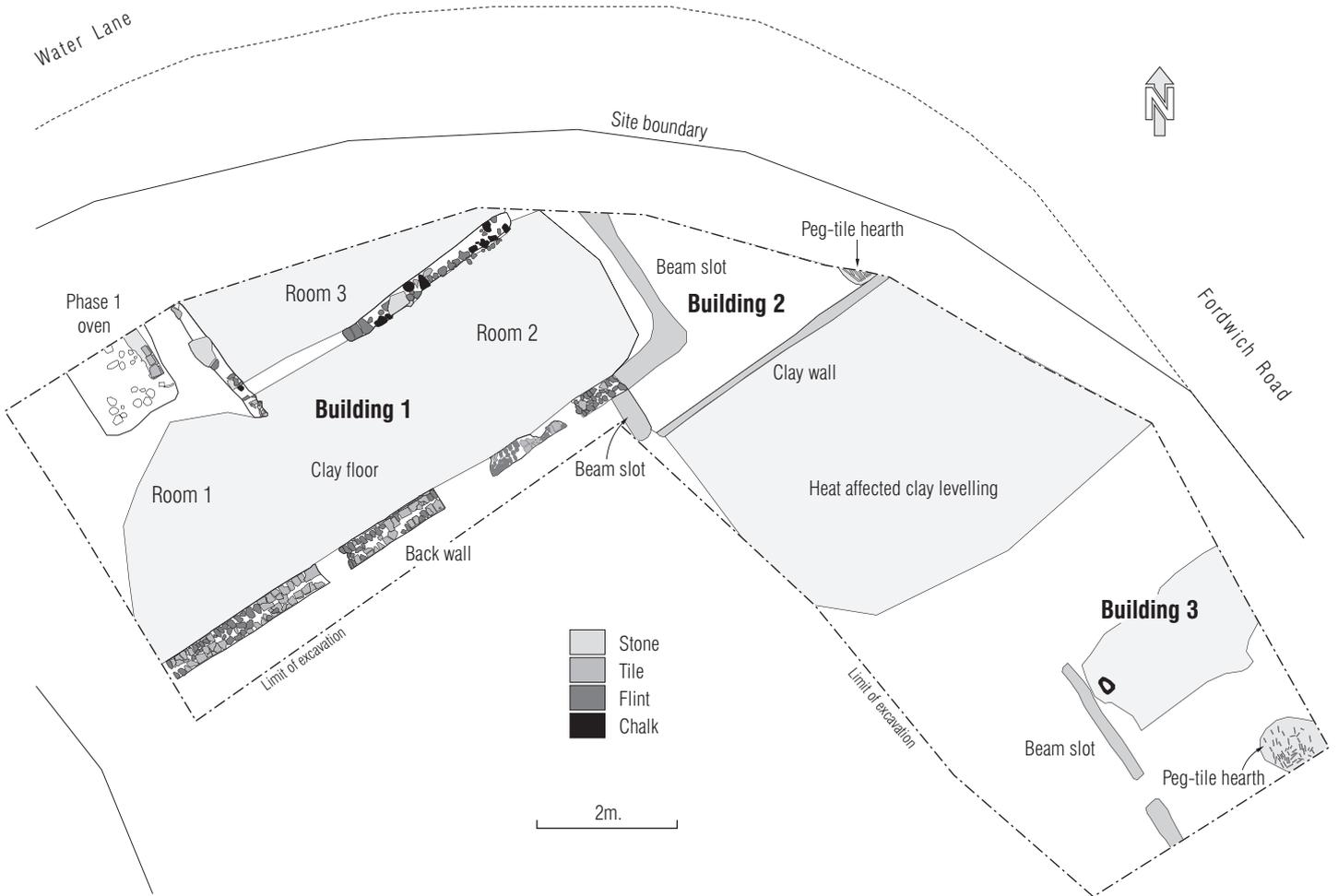


royal centres, the others being at Eastry and Lyminge. These appear to date back to the reign of Aethelberht, King of Kent (c 560–616), during his period of supremacy as Bretwalda over the English kingdoms south of the Humber (Cross 1996, 18–23).

After the Norman invasion the Domesday Book of 1086 records that much of Sturry and Fordwich had been granted to St Augustine's Abbey (Jenkins 1972). The port at Fordwich rapidly developed during the thirteenth and fourteenth century as it was the designated port for Canterbury where much of the stone for the construction of Canterbury cathedral was landed.

The excavation comprised a relatively small L-shaped area on the junction of Water Lane and Fordwich Road and revealed a complex urban stratigraphic sequence, virtually all related to ranges of domestic and industrial/retail buildings, primarily along the Water Lane frontage with probably subsidiary buildings extending a short way southwards along Fordwich Road. The site appears





to have been a focus of activity since the thirteenth century and formed part of the ribbon development of Sturry along a major road.

The earliest occupation on the site consisted of a number of small structures, represented by stake-holes that cut the natural alluvium at 2.77m OD approximately 1.05m beneath the present ground level. This primary occupation of boggy, often water logged ground dated to the thirteenth century and was sealed by a levelling horizon composed of dumped layers of heat affected clay.

Above this levelling, the most impressive structure on the site was Building 1 which fronted onto Water

Lane and dated to the early fourteenth century. It was composed of an 8m long back wall constructed from flint and stone with an associated clay floor.

Within this a further two flint, stone and peg-tile walls formed an L-shaped internal partition creating three subrectangular rooms. Room 1, located to the west of the building contained the first phase of a large oven structure located to the north and in the centre of the room. Room 2 was located running parallel to the back wall and appeared to have been used primarily as a storage area. During its use occupation material was often trampled into this room from Room 1, a silver farthing of Edward II (1307–27) was discovered

amongst the earliest of these deposits. The majority of Room 3 lay outside of the excavation area to the north, it contained a compacted clay and chalk floor and probably formed an entrance onto Water Lane.

Constructed alongside Building 1 was a ceramic drain, not illustrated, that linked the building with Fordwich Road. The fill of the drain contained the *in situ* crushed remains of 230 conjoining pieces of ceramic pipe (1350–1475). The pipes are of the collared type with diameters of their narrower (collared) end typically measuring 120mm. These fitted one inside the other and were probably produced by the Tyler Hill potteries (Barber 2011).

Seventeenth-century main building fronting Water Lane (scale 1m) and the token from Deal depicting a candle maker issued to Peter Underwood.





The bone comb.

There were at least four phases of use and repair to the oven structures within Room 1. This intensive activity within a timber framed building led to speculation as to the function of the structure. The quantity of occupational material that included the remains of partridge suggests that the ovens were

producing food on a large scale. This may signify that the building was used in part as an inn serving passing trade travelling from the ports at Fordwich and Herne Bay to Canterbury.

Further small timber-framed but flimsier dwellings along Fordwich Road may have originally formed part of a larger complex that complemented the main building. Both buildings 2 and 3 had a pitched peg-tile hearth and as with the larger property fronting Water Lane were subject to frequent alteration with several phases of rebuilding.

During the late medieval period much of the site was completely levelled to make way for a series of post-holed structures surrounding a gravel yard. These most likely formed small workshops or shelters for livestock and represent a significant change of land use. Within the backfill of one of these post-holes was a fragment of bone comb of a type dated to the seventeenth century (Grep 1990, 190–1, fig 68, 107).

After this hiatus phase the land was redeveloped, probably by a single landowner in the seventeenth century. Two new buildings were erected in an 'L' shape along similar lines to the previous structures with foundations of brick and stone and a probable timber-frame. The new building fronting onto Water Lane had an associated clay floor and brick hearth that sealed the previous sequence of industrial ovens. The simplistic nature of the buildings suggests a domestic use and they may have served as tenanted buildings. Located within the occupation deposit in

one of these structures was a farthing or token dating between 1642 and 1675. It was issued by Peter Underwood from Deal and depicts a candle maker.

The buildings survived until the mid nineteenth century. They appear on the 1841 tithe map of Sturry, but are gone by the time of the first edition Ordnance Survey of 1861.

Though small in extent, the investigation revealed a complex building sequence and it is hoped that further analysis and work in the area will give a valuable insight into the continuous occupation of this area of medieval Sturry.

The author would like to extend thanks to Susan Gailey (CgMs), Richard Cross (Canterbury City Council) and the excavation team of Ian Anderson, Russell Henshaw, Hazel Mosley, Dale Robertson and Paul Tasker.

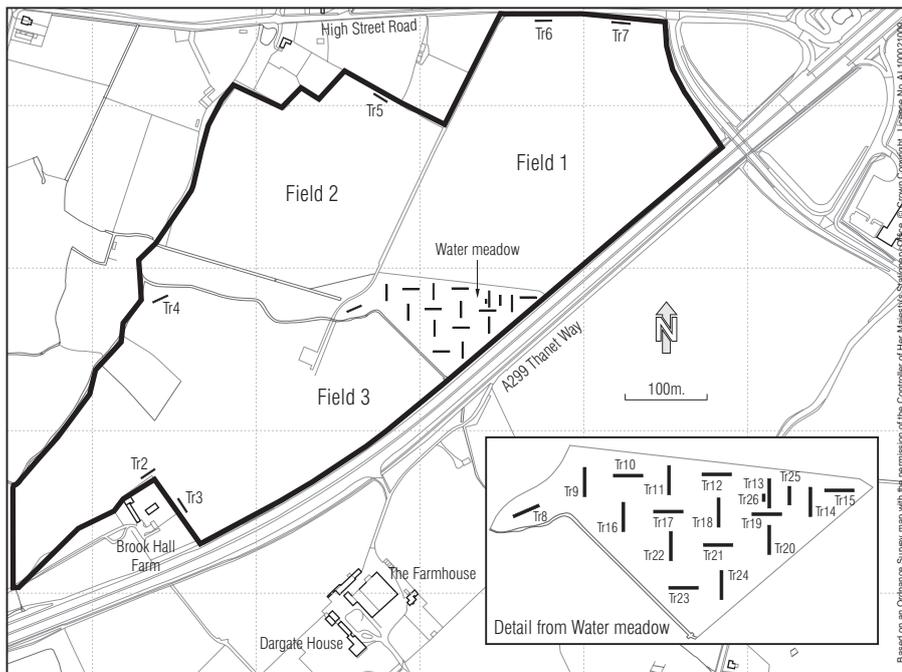
High Street Road, Waterham

Adrian Gollop

During October and November 2010 an evaluation took place on land to the north-west of the Thanet Way at High Street Road, Waterham (NGR 6075 1624). The work was commissioned by Angela Hirst Chartered Surveyors, on behalf of Hernehill Nursery, as part of preparations for a development over three large fields and an area of water meadow. Twenty-



Location plan for the site at High Street Road, Waterham.



Trench locations.

seven archaeological evaluation trenches were investigated, the majority located within the water meadow where a new reservoir and pumping station were proposed; the rest were sparsely positioned along the proposed route of a haul road.

The evaluation identified intensive Roman activity towards the eastern end of the water meadow. Here a number of ditches were identified which may have formed part of a rectangular enclosure. A stream or watercourse seems to have formed the northern boundary of this enclosure.

Evidence for this former watercourse was identified in four adjacent trenches. Its southern edge appeared

to have been modified and recut at least twice and the retrieval of part of a wooden stake suggested it may also have been revetted. A series of waterlogged silt-clay deposits and layers of sand might indicate that flowing water ran through the feature at some stage.

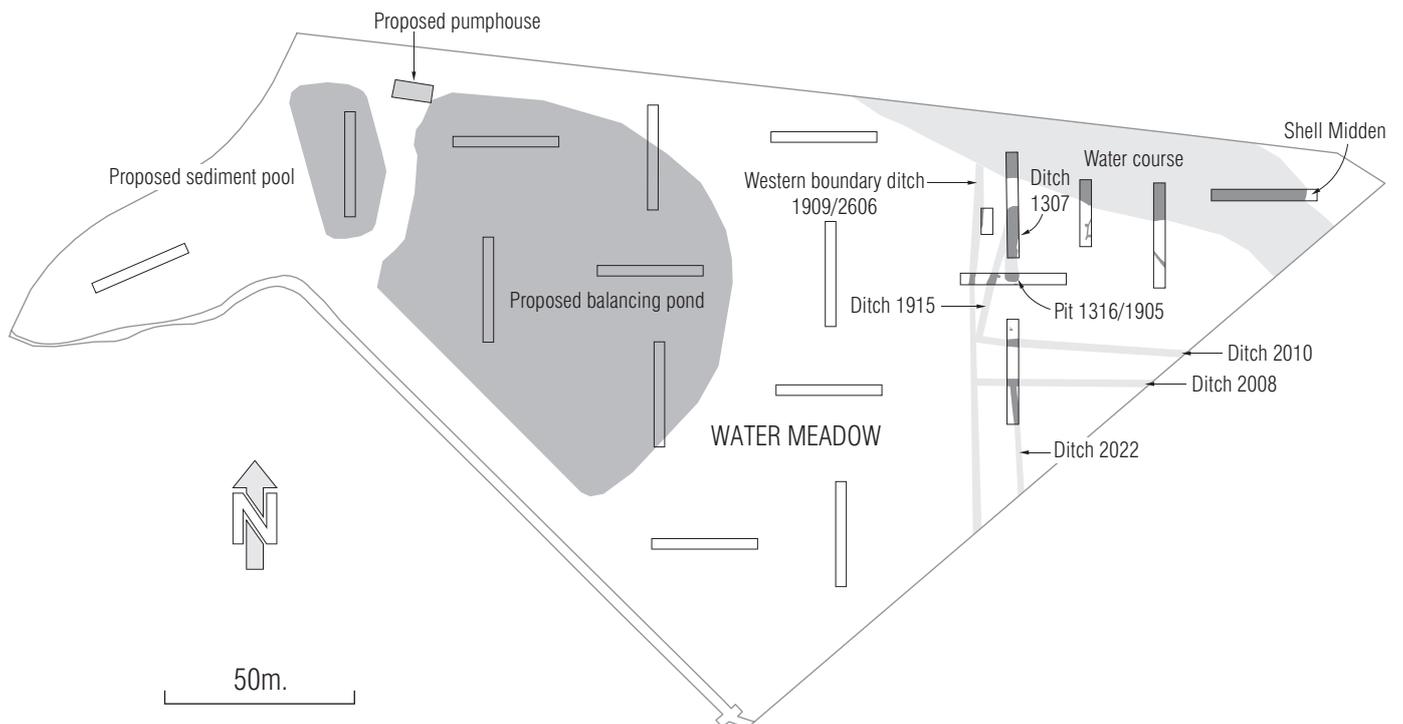
The western boundary of the enclosure was marked by a north-south ditch (1909/2606) 1.25m wide and 0.50m deep. There was no evidence for any activity west of this ditch; this area, just as it is today, was possibly too wet. Ditches recorded east of 1909/2606, potentially within the enclosure, may represent spatial divisions, drainage or perhaps

evidence that the enclosure expanded or contracted over time. Although no internal buildings could be identified, structural elements were present in the form of post-holes and short lengths of gullies.

The local topography and underlying geology clearly have an important bearing on the discoveries at Waterham. The features described above were concentrated on slightly higher ground at the eastern end of the water meadow at the head of a shallow dry valley. Alluvium is shown in the base of this valley (British Geological Survey 1990, sheet 273, Faversham) filling a creek system extending across the Graveney marshes to the Swale coast (Single 2008a, 1). Indications are that the Roman coastline was considerably closer to the site than the coastline is today and it is thought likely that the water course and parts of the creek system were navigable during the Roman period. This creekside position would undoubtedly have had a bearing on the function of the enclosure.

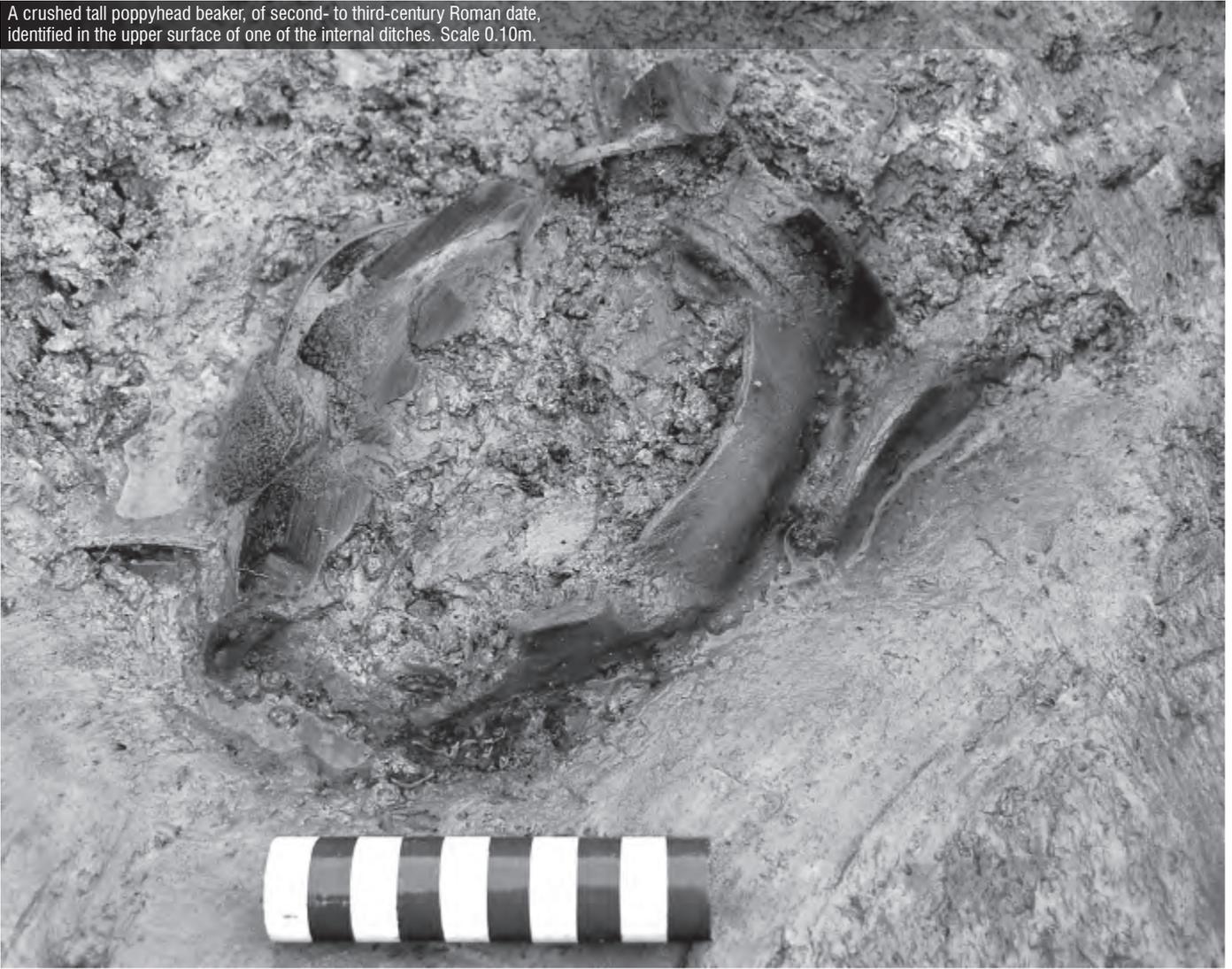
There was evidence for the processing of foodstuffs. Charred plant remains were recovered from a large rectangular pit and suggested the processing of cereals, primarily spelt wheat. These charred remains may have derived from a number of activities (see pp 74-5). The processing of shellfish, harvested from coastal habitats, was evident from a crushed shell layer/midden identified on the partially exposed northern side of the water course.

In 1989 another Romano-British site was excavated c 200m to the south-west at Lavender Farm (Rady 1990). There, on the southern edge of the same postulated creek system, industrial residues suggested the presence of an ironworking site of broadly second- (or possibly late first-) to third-century date. Roman roof tile and box flue tiles were taken to indicate a 'building of some sophistication, perhaps a villa' might be present on higher ground



Plan showing projected main archaeological features in the water meadow area and position of proposed new reservoir (scale 1:2000).

A crushed tall poppyhead beaker, of second- to third-century Roman date, identified in the upper surface of one of the internal ditches. Scale 0.10m.



The watercourse/ditch as exposed in the northern end of trench 14 after initial machine reduction. Scale 2m.



Detail of the west facing section through the southern edge of the watercourse/ditch. Scale 1m.

to the south. At the present site brick, tile, pottery (including imported finewares) and animal bone in the fills of the ditches and the watercourse, were suggestive of domestic refuse, perhaps from the same source.

The bulk of the datable cultural material suggests the main period of activity at the enclosure was between the mid or late second to fourth centuries AD. However sherds of late Iron Age ('Belgic') pottery and worked flint flakes suggest that the

enclosure may have been established in the late Iron Age. Activity appears to cease during or after the fourth century. This may be due to climatic factors making the watercourse and postulated creek system non-navigable or the site may have been abandoned for other social or economic reasons. The formation of a substantial accumulation of ploughsoil across the site, and the general paucity of cultural artefacts from later periods suggests that the site has been used for agricultural purposes

alone since Roman times.

The evaluation was supervised by the writer and excavated with the assistance of Kirsty Bone, Jonathon Dodds, Crispin Jarman, Simon Holmes, Andrew Macintosh and Paul Renn. Thanks are extended to Angela Hirst Chartered Surveyors and all at Hernehill Nurseries.

Thanet Earth wastewater

pumping main

Jon Rady and James Holman

An archaeological strip, map and sample excavation was undertaken during July and August 2010 along the route of a proposed 2.57km long wastewater rising main linking the newly constructed Thanet Earth complex at Seamark Road (excavated by the Trust in 2007–8; Rady 2009; 2010b), to existing infrastructure located at Minnis Road, Birchington (NGR 62963 16930 to NGR 62908 16723). The works were commissioned by Volker-Fitzpatrick (the main contractor) on behalf of Thanet Earth Ltd and in consultation with RPS Planning & Development, the archaeological consultant.

The route of the pipeline is situated almost entirely within agricultural land under arable cultivation on flat to gently rolling downland landscape and commences in the Plateau 8 area of the Thanet Earth site, crossing Seamark Road and trending north to cross Crispe Road and the A28 Canterbury Road to the east of Little Brooksend Farm. The route then ascends the valley side, again mostly on a northerly alignment to a terminus just east of Gore End Farm, Birchington.

Due to the relatively small diameter of the proposed pipe and the methodology employed in its laying (using a trench cutting/pipelaying machine) no topsoil stripped easement was required. The archaeological mitigation involved only a narrow width of intervention (designated as 600mm) down the precise course of the proposed pipeline although at a number of points along the route a slightly wider excavation was necessary. Further mitigation was built in at the design stage of the project and the pipeline route had been designed to avoid the majority of known cropmarks (including two areas designated Scheduled Ancient Monuments, Kent 259 and 270).

The mitigation strategy to avoid known concentrations of cropmarks was largely successful, and although some significant remains were encountered these were virtually all concentrated in small areas and apart from a few instances relatively uncomplicated. Unlike the main Thanet Earth site (Rady 2010b, 1–2) no Neolithic or early Bronze Age features were found.



A scattering of features was identified over much of the northern half of the pipeline route and although many did not provide any dating evidence from the relatively small samples excavated, they are probably of prehistoric date. The majority consisted of lengths of ditch (some paired) and isolated pits or post-holes. The generally shallow nature of the ditches and their narrow widths suggest that they form parts of a field system similar to that located at Thanet Earth, which would indicate that they are probably of mid or mid to late Bronze Age date. The paired ditches are almost certain to represent drove roads.

Notable exceptions to the general scarcity of prehistoric features were a barrow identified about 290m south of Minnis Road (Site 1; NGR 629430 169055) and a concentration of late Bronze/Iron Age activity situated approximately 400m north of the A28 (Site 3).

The barrow was identified as a curvilinear ditch approximately 0.6m wide by 0.3m deep. Once extrapolated to its full circumference the diameter of the barrow ditch would have been some 16m. The shallow nature of the ditch suggests that it was a relatively late example perhaps similar to Barrows 7

and 8 excavated on Plateau 2 within the main Thanet Earth excavation (Rady 2009, 18). Only a few worked flints and some burnt flint were recovered from the uniform fill.

Late Bronze/Iron Age activity was identified in the form of a ditch and several pits identified on the north slope of the chalk ridge lying between Brooksend and Birchington (Site 3). The earliest features consisted of three pits, possibly used for storage, all of which contained small quantities of domestic rubbish. These were cut by a roughly north–south aligned ditch, that contained large quantities of burnt flint and pottery. A single pit truncated the ditch and contained a single relatively sterile fill.

Features of Roman date were concentrated at the south end of the pipeline in the vicinity of Monkton Road Farm (Site 5). A complex of cropmarks located in this area was partially examined during the Thanet Earth excavations which suggested they represented, at least in part, the site of a Roman settlement, probably a farmstead (Rady 2010b, 8–9). Whilst the route of the pipeline had largely been designed to avoid the more obvious cropmarks, several in this area could not be avoided. In keeping with the features



One of the sunken-floored structures at Site 4, showing the large circular oven. Scale 1m.



Cow or horse skeleton buried in a sunken-floored structure at Site 4. The head, neck and hoofs have been removed. Scale 1m.

previously excavated, those within this section of the pipeline had been subject to a high level of horizontal truncation through later ploughing. The majority of the features consisted of ditches, generally running north–south, probably forming field/settlement enclosure boundaries.

There was a high potential for medieval settlement enclosures and associated sunken-featured buildings adjacent to Seamark Road (which appears to have been a track or road from at least the eleventh or twelfth century), hence a realignment of the route design to move it away from the road where possible. However, the route was necessarily closer to Seamark Road at the crossing point with Crispe Road and here medieval settlement activity was exposed in the form of buildings and refuse pits (Site 4, just north of Crispe Road; NGR 629390 167910 centred). The corner of a substantial enclosure was also identified in the northern section of the pipeline lying to the south of Minnis Road (Site 2; NGR 629475 169000), and another large, c 4.5m wide ditch-like feature of medieval date was found east of Seamark Road just north of Monkton Road Farm; the latter aligns with a known cropmark. Site 5 to the west also provided evidence that some of the ditches here related to medieval enclosures, but this was based on relatively minimal artefactual evidence.

The medieval sites at Thanet Earth (Rady 2009, 24–5) were characterised by compound enclosures, containing a range of sunken-floored structures, usually strung along the line of north–south ditch lines or routeways. Some of the enclosures were clearly settlement related whilst others may have been predominantly used for possible ‘agri-industrial’ activities. The enclosures all appear to date from between the eleventh and early fourteenth century. The associated buildings were mostly sunken-floored, often with ‘clunch’ (a mix of clay and chalk) built partitions and characteristic double hearth settings. The Thanet Earth plan shows a well organised landscape in the medieval period with east–west and north–south landscape divisions. There were at least seventy medieval buildings across the Thanet Earth site. These were either related

to ribbon style developments for example along Seamark Road or were associated with more isolated enclosures. The great variety of forms and internal layouts or facilities suggests a range of uses, some of which are probably domestic whilst others may have been used for agri-industrial purposes such as storage, baking, threshing, corn-drying, smoking or lime production or had multi-purpose uses.

The principal discovery at Site 4 was that of a building lying immediately adjacent to Crispe Road within a larger stripped reception pit area opened up to enable directional drilling. The structure, only partially exposed, was apparently sunken, and contained an oven at one end, features highly reminiscent to those encountered on the main Thanet Earth excavations. Two phases of oven were identified the earliest of which was represented by the fragmentary remains of a ‘clunch’ built superstructure and part of a flint covered base. This had been largely cut away by the construction of a second oven of similar build. Floor surfaces within the building were mostly identified through the high concentrations of ashy rake-out present. A beam-slot positioned to the immediate north of the oven was a somewhat anomalous feature in relation to those structures on the main Thanet Earth site and appears to represent an even later structural phase after the oven had gone out of use.

The probable remnants of a second building lay 7m to the north, represented by layers of clay, probably forming floors. Excavation in this area was however limited to the area visible within the pipe trench. A third building, again apparently sunken was also identified approximately 46m to the north, and consisted of a subrectangular cut, with a possible entrance way located in the south-west corner. Upon excavation an animal burial, that of a cow or horse, was discovered at the base of the feature. Interestingly the skull and feet of the animal had been removed giving the suggestion of a ritual connotation, perhaps similar to a bisected canine burial at Thanet Earth, also in a building (Rady 2010b, 14).

A further possible sunken-featured structure was

very partially exposed in a further ‘directional drilling’ pit adjacent to the A28. This was aligned with a shallow wide linear feature showing evidence for rutting on its base, probably a hollow way. Although near parallel with the main road at this point, its alignment and position strongly suggests that it was a continuation of an earlier alignment of Seamark Road. This presumably joined the main road from Sarre to Birchington (probably underlying the main road here) slightly to the east.

Other features included pits, possibly for rubbish disposal and a deep cess pit. The concentration of these in the area strongly suggests that a settlement site is represented, probably similar to some of the medieval settlements located at Thanet Earth to the south (Rady 2010b, 11–15).

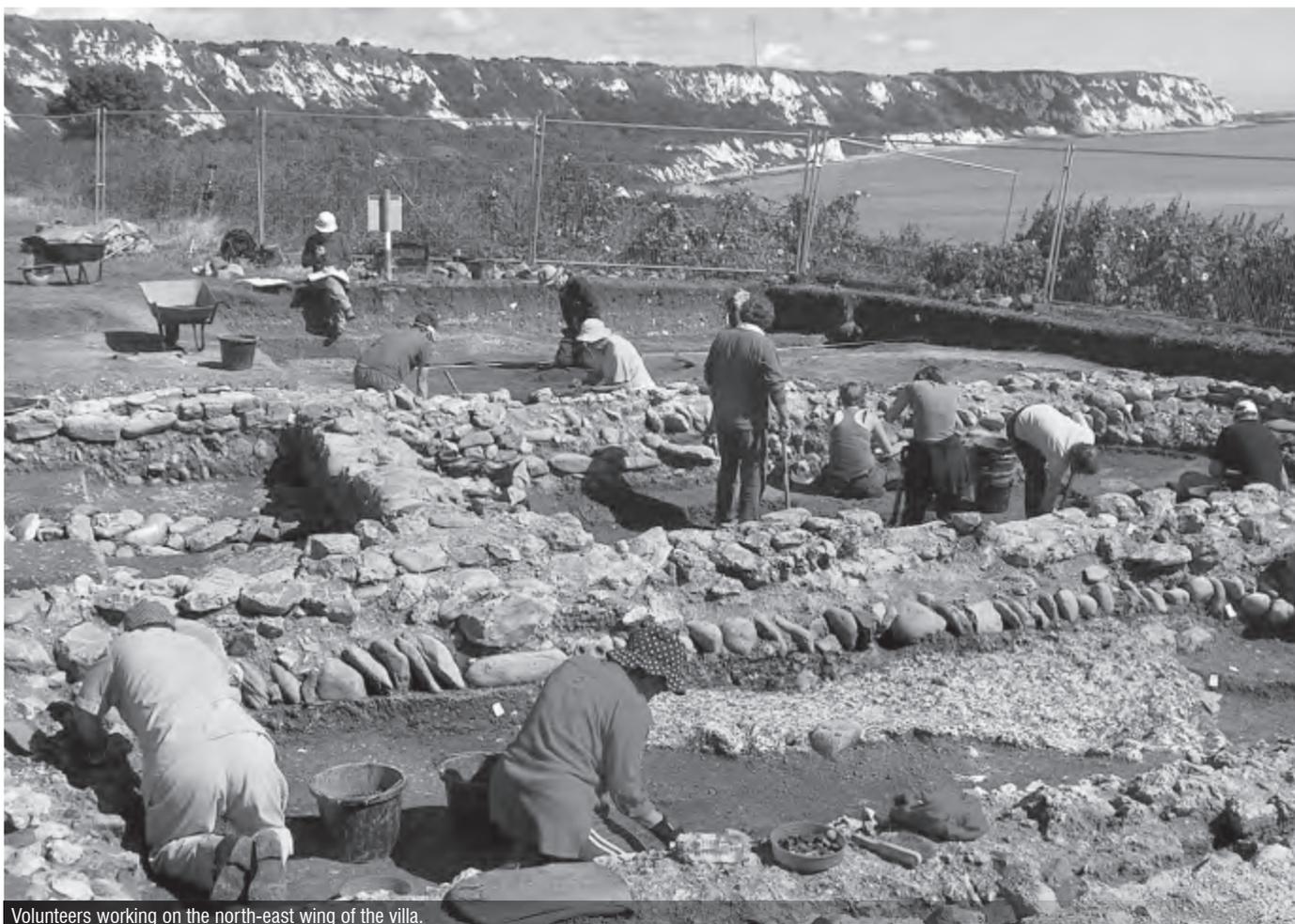
Folkestone Roman villa

Keith Parfitt and Andrew Richardson

The Scheduled Roman villa site above East Wear Bay at Folkestone (NGR 62407 13700) overlooks the English Channel with clear views across to the French coast, some 36km distant. The villa here was first discovered and excavated by Samuel Winbolt in 1923–4 (Winbolt 1925) and remained open until 1957, when it was backfilled due to its poor state and declining visitor numbers.

The complex comprised a large winged-corridor house (Block A) with an adjacent corridor house (Block B) set at a right angle to it. A bath-suite (Block C) lay immediately beyond Block B. Traces of Iron Age activity were located below the villa remains. The only excavations undertaken since Winbolt’s time were those conducted by the Kent Archaeological Rescue Unit in 1989, when the remains of Block C on the cliff-edge, together with the south-eastern end of Block B, were re-examined, with some useful results (Philp 1990).

In 1924 about 30 metres of land lay between the



Volunteers working on the north-east wing of the villa.

north-east wing of Block A and the cliff edge. By 2010 coastal erosion had reduced this figure to just 2.25m. The work in 1989 established that part of Block C was already destroyed. The entire villa complex is thus at risk of loss in the short to medium term. Finds previously made on the foreshore below the site have included quantities of Iron Age and Roman coins and pottery (Holman 2005; Weston 2005), together with numerous examples of quernstones, many unfinished (Keller 1988, 59–68; 1989, 193–200). Taken together, the evidence demonstrates the existence of a highly significant archaeological site on the adjacent cliff-top, which is being steadily eroded by the sea. The Roman villa forms just one element of this site, which clearly has pre-Conquest origins.

In December 2009 the Heritage Lottery Fund awarded grant funding of £298,000 to conduct a three year community archaeological and historical project entitled 'A Town Unearthed: Folkestone Before 1500' (see also pp 85–6 and 90–1). Investigation of the East Wear Bay site was planned as a major component of this project during 2010 and 2011. The fieldwork is being led by the Trust, working in association with Canterbury Christ Church University and the Folkestone People's History Centre. Additional funding for the project has come from the Kent Archaeological Society and the Roger De Haan Charitable Trust.

Fieldwork for 2010 began with a geophysical survey, undertaken in June. Excavations started in August and lasted until the end of October. More than 200 volunteers participated and over 2,000

members of the public visited the site, together with around 350 schoolchildren. Work focussed on the north-east wing of Block A, nearest the cliff-edge, together with a previously undug area immediately to the north-east. Five test-trenches were also cut to the north of the villa. These revealed significant stratified deposits and features, mostly dating to the late Iron Age and Roman periods.

The re-exposed villa foundations were found to be reasonably well preserved. They were confirmed as relating to two successive buildings (Villa I and Villa II) occupying the same site, as previously reported by

Winbolt. Below these remains were found important pre-Roman deposits and structures, mostly dating to the late Iron Age and largely untouched by the earlier digging. The primary clays over the natural Gault produced quantities of early prehistoric pottery and flintwork. A late Iron Age curving gully dug into these clays seemingly represented part of the drainage ditch enclosing a timber round-house. It was overlain by a rough chalk floor, probably relating to a subsequent building, cut through by the earliest villa foundations.

Substantial quantities of finds were recovered,



The 2010 excavations looking over East Wear Bay towards Dover.



Snargate Street, Dover: Examining a post-medieval chalk block wall

Nos 149 to 156 Snargate Street, Dover

Keith Parfitt

In connection with plans for the construction of new buildings across the site of Nos 149 to 156 Snargate Street at Dover (NGR 631811 141110, centred), the Trust was engaged in June 2010 to undertake evaluation trenching ahead of the redevelopment. Two separate trenches were cut and recorded. The site is located at the foot of the chalk cliffs, below the Western Heights, about 100 metres outside the supposed site of the old Snar Gate, defending the western approaches to the medieval walled town.

The trenching revealed a series of early post-medieval chalk dump layers, floors and chalk block walls, over natural beach shingle. These deposits related to the consolidation and occupation of the beach below the cliffs, as the town of Dover expanded south-westward towards the newly founded Pier District, from the sixteenth century onwards. Dating evidence from the excavations was limited but the bulk of the remains recorded are likely to be of seventeenth- or eighteenth-century date. Other parts of the site had been destroyed by nineteenth-century cellars.

No 9 Strand Street, Sandwich

Keith Parfitt

As part of the works associated with the renovation of the Grade II listed former Three Kings public house located on the southern side of Strand Street, within the medieval walled town of Sandwich (NGR 633134 158227), a new orangery was to be constructed on the building's eastern side. The Trust was engaged by the owners, Lord and Lady Hayward, to maintain a watching brief during the excavations required.

including some important pottery and flint assemblages. Twenty-three coins were recovered, of which thirteen are Iron Age. Many fragments of quernstone were also collected, all but one made from the local greensand. Previous research by Keller (1988; 1989) has established that such querns were being manufactured at the site and this was fully borne out in 2010, when two working floors were located in one of the outlying trenches.

The archaeological deposits present on the site are considerably more extensive and complex than previously realised. The finds suggest that habitation in the area occurred at various times throughout prehistory, beginning in the Mesolithic. The main period of occupation, however, was during the late Iron Age, perhaps c 150 BC–AD 50. The first of the two Roman villa buildings was probably erected sometime before the end of the first century AD. Whether there was a gap between the final occupation of the Iron Age site and the construction of this villa presently remains unclear.

The pre-Roman settlement clearly covered an area considerably larger than the villa complex; an unknown amount must already have been lost to the sea. The quantity of Iron Age coins and imported pottery now known, most notably imported Italian wine amphorae of Dressel 1 type, implies that this site was of rather higher status than a simple farmstead. Located virtually at the shortest sea crossing to the Continent, it seems highly likely that this site on the

south-east Kent coast was acting as a port of trade with the Roman world during the first century BC.

The next season of excavation is being awaited with great anticipation.



Strand Street, Sandwich.

This revealed a series of stratified medieval deposits and features, including clay floors buried at only a shallow depth. Pottery associated with these deposits ranged in date from the late eleventh to the mid fourteenth century. The clay floors appear to relate to a thirteenth-century timber building that predated the extant sixteenth-/early seventeenth-century structure. The full depth of the stratified sequence was not ascertained and the natural subsoil was not reached. There was no direct evidence for any Anglo-Saxon activity on the site.

Mote Park, Maidstone

Crispin Jarman

Mote Park, one of the largest public parks in the south-east, is located 1.5km south-east of Maidstone town centre (NGR 577800 154750). In 1929 Maidstone Corporation purchased the park with Mote House from the 2nd Viscount Bearsted and hence 2009 marked the 80th anniversary of public ownership. An improvement project, funded by the national lottery's 'Parks for People Scheme' was initiated and in January 2011 the Trust was commissioned to carry out a small archaeological

investigation to assist with this regeneration scheme.

The scheme comprises several aspects, ranging from planting through to renovation of structures and hard landscaping, including the creation of a number of new paths. It was to the latter element that the archaeological work was addressed. The programme of works comprised an initial walk-over survey of the areas of impact, followed by an earthworks survey (targeted level 2, as defined by the Royal Commission on the Historic Monuments of England), and the subsequent excavation of six test pits. The level 2 survey and test pitting were concentrated in an area of high sensitivity highlighted in a Conservation Management Plan prepared by the landscape consultancy, ACTA (ACTA 2008).

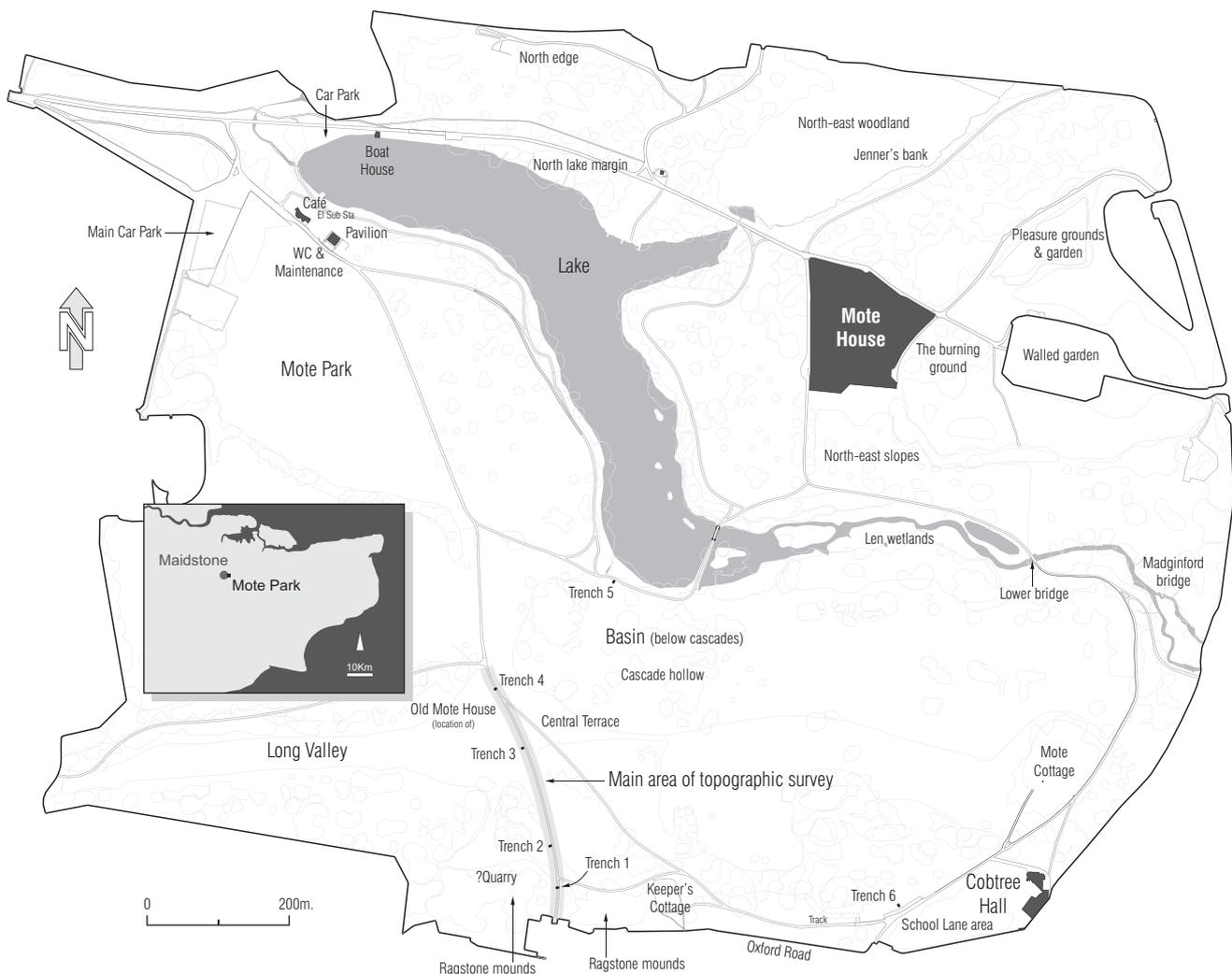
The park has the scale and character of a country park, being formed from the grounds of Mote House, a substantial Georgian mansion built in 1793. The house, recently the subject of an historic building survey by the Trust (Seary 2011), is situated in the north-east corner of the park overlooking a series of ornamental lakes formed by flooding the Len Valley. The parkland is generally open with scattered stands of trees and areas of scrub; wooded ground lies to the north and east of the house, surrounding a walled garden. The River Len cuts across the park, via the lakes, exiting to the north-west. Two side valleys

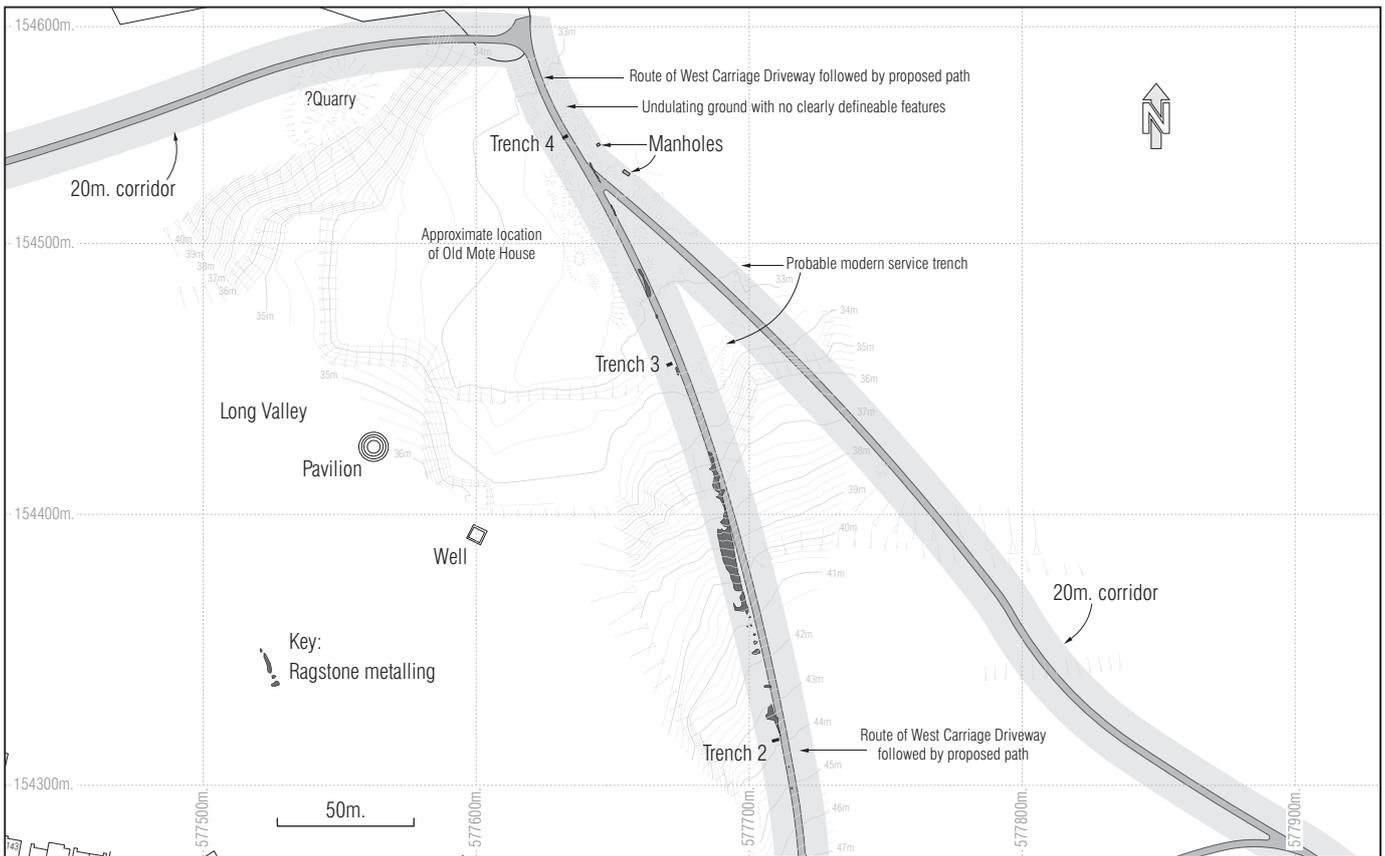
feed into the Len in the park: Jenner's Bank Stream from the north-east and the Long Valley, carrying a culverted stream, from the west. Springs within the park feed these streams.

Documentary evidence indicates the presence of a manor at the site prior to the Domesday Survey (ACTA 2008, 30). The earliest evidence for the presence and position of a manor building dates to 1518 (*ibid*, 32). This evidence and the Symondson map of 1576 indicate the manor to have been located on the south side of the Len, at the base of the Long Valley (*ibid*, 32). In 1680 the manor was acquired by Sir John Masham and a new house, referred to as Old Mote House, was constructed (*ibid*, 33). Engravings and paintings show this at the base of the Long Valley, just above the site of the existing lakes, to the west of the suspected site of the earlier manor (*ibid*, 34).

Construction of the existing Mote House, designed by the architect Daniel Alexander, began on a new site to the north of the Len before 1793, at the instigation of Lord Romney (Seary 2011, 28). The full extent of the land encompassed by the park was acquired during the first half of the nineteenth century and the landscape as it is now was largely formed in that period, mainly under the direction of Alexander.

The ACTA report identifies several topographic features possibly related to the development of the landscape (*ibid*, fig 3). Of principal concern to the





Topographic survey showing carriage driveway and Old Mote House area.

current programme of works are those located between the end of the Long Valley and the lakes. Here artificial embanking and extensive undulation of the ground may relate to Old Mote House and its gardens. A hollow or basin beside the lake may relate to a series of cascades shown in an engraving, dated 1718, by Kip and Knyff (*ibid*, fig 10) and the original manor may also have occupied this area. A ragstone metalling, observed on the slope from the Claygate entrance to the Long Valley, is thought to belong to the West Carriage Drive (*ibid*, 8), and may have led to a former bridge crossing the lake to approach the present day house.

Additional alteration to the landscape has resulted from the cutting of ragstone quarries, principally located along the southern edge of the park. Close to the Claygate entrance, the spoil heaps of this industry are clearly visible, along with a partially backfilled open quarry. Local residents report the existence of tunnels cut into the ragstone in this area.

Observations made during the walk-over and topographic surveys show the park landscape to be complex, with man-made features and natural topography often difficult to distinguish. The area between the lakes and the base of the Long Valley, formerly occupied by Old Mote House and its gardens, is visibly disturbed and, although some trends can be seen on the ground, no clear earthworks can be identified other than the carriage driveway and the main set of banks and platforms referred to above.

The results of the topographic survey were limited by the scope of works set out in the specification (Kent County Council 2010) which dictated that the detailed survey be restricted to a 20m width along the line of proposed paths and only where earthwork

features were apparent. The undulation of the land around the site of the Old Mote House and its gardens appears random on the ground and within the area of detailed survey no real patterns emerged. The cause(s) of the unevenness is not evident from the surface or from the limited trenching, but may at least in part, relate to the robbing out of the walls and foundations of Old Mote House.

Four evaluation trenches cut on the line of the West Carriage Drive exposed a well preserved metalling of ragstone beneath a thin layer of turf and soil. The width of the metalling was estimated to be c 5m, but could not be confirmed. It was bedded on a deep layer of ragstone rubble in Trenches 1 and 2, but not in Trenches 3 and 4, where it sat on hill-washed clay. The ragstone was not a natural geological deposit and seems too substantial to have been the bedding for the driveway. It is speculated that it might be up-cast from quarrying, or the result of a major landscaping programme. Exposure and re-use of the path is unfortunately not viable as the surface is formed by uneven cobbling which would not accommodate wheelchairs or prams.

Trench 5, located by the lake edge at the base of the basin below the Long Valley, close to the site of the former cascades, indicated a significant depth of made ground, up to 0.5m. Neither the trench nor the walk-over survey detected any earthworks of significance along the route of the path in this region. Trench 6, located in the south-east corner of the park, by the School Lane car park, exposed a depth of over 0.5m of made ground with no early deposits or landscaping evident in this area.

The scale and complexity of the landscape of Mote Park is such that a wider survey combining different techniques (geophysical survey, excavation, more extensive topographic survey and perhaps the use of LiDAR) would undoubtedly produce more informative results. This could prove particularly rewarding in the area of Old Mote House. The on-going regeneration scheme at Mote Park might provide the opportunity for an interesting community-based project in the future.

No 290 Warren Road, Chatham

James Holman

In June 2010, an archaeological watching brief followed by strip, map and sample excavation was undertaken on a site located adjacent to 290 Warren Road, Chatham (NGR 574880 160986) during the cutting of a new access route from Warren Road. The proposed access ran through an area of woodland, designated as a site of special scientific interest. Kits Coty House, one of the Medway megaliths, is situated just 500m to the south-west beyond the A259, itself an ancient route which follows the line of the Roman road between Maidstone and Rochester (Millet 2007, 149).

The Medway megaliths have been the subject of investigation and speculation since antiquarian times (Stukeley 1776) and discussed most recently by Tim Champion (2007, 76–81). There are similarly a large number of antiquarian references to Roman remains close by.



The trackway. Scale 1m.

or second century AD with occupation continuing through into the later Roman period. On this evidence activity on the site appears to have ceased by the end of the fourth century AD.

The southernmost portion of the investigated area appeared to have been terraced away at a relatively recent date. This had removed virtually all of the archaeological sequence.

The Trust would like to extend thanks to the property owner, Mr Peter Harlow, for funding the archaeological works and to Wendy Rogers (KCC) for her help and advice on site. At the Trust assistance with the excavation was provided by Alex Vokes with finds processing undertaken by Jacqui Matthews

The first of these was initially described in the 1830s as a watch tower with later discoveries below the summit of the hill (perhaps in a small coombe behind and to the east of the Lower Bell Inn) interpreted as the site of a villa. An account in the Victoria County History concludes that the site was likely to have included a temple (Taylor 1932, 104) and more recently the site is recorded as having both religious and secular functions with buildings perhaps forming part of a villa lying close to the assumed temple site (Kent HER TQ76 SW31). The site of the temple is believed to lie within the woodland through which the new access road was to be constructed. This lay a short distance to the south of a Roman burial ground within which a small mound was identified (Smith 1844, 136).

Large quantities of building materials have been recorded over the years including worked stone, flue tiles, nails, roof tiles and iron clamps. An equally large number of other finds have been recovered including a hoard of over one hundred copper alloy coins 'discovered by a labourer digging upon the hill above Kit's Coty House' in the nineteenth century. These included twenty-two of Constantine, twenty of Valentinian, forty-one of Valens and fifteen of Gratian. It was assumed at the time that they were most probably deposited by a soldier of the army of Magnus Maximus when he 'passed over from Britain

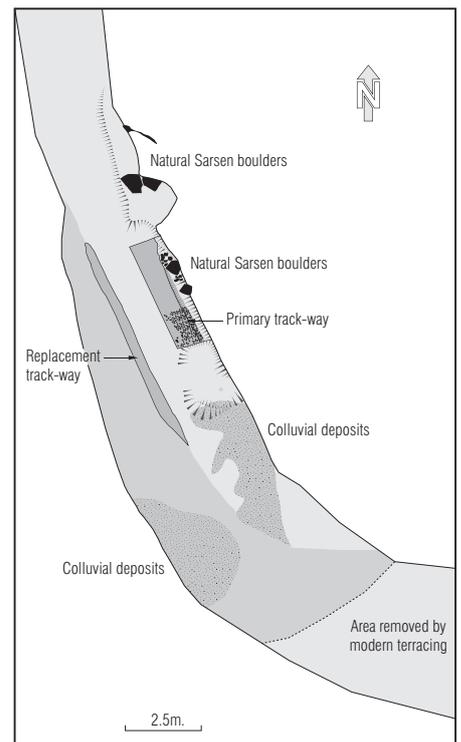
into Gaul and defeated Gratian' (Smith 1852, 59). A further 200 coins have been found scattered over the surrounding area. Roman pottery (including samian ware), a glass vessel and metal artefacts such as jewellery and tweezers have also been recovered from the immediate vicinity (Kent HER TQ76 SW31).

The recent archaeological works undertaken by the Trust indicated that the present site lies on the periphery of these remains, with the majority of activity taking place upslope to the east.

Initial activity within the area was formed by the deposition of a patchy metallated trackway, probably leading from the Roman road (now Warren Road) to the east. The finds within the metallating suggest that this had been laid down during the third to mid fourth century AD.

This was sealed by a series of colluvial deposits containing large quantities of ceramic building material, probably from buildings lying to the east towards the Roman road. Following the first phase of colluviation a second metallated surface appears to have been laid down as a replacement for the trackway. Further colluvial deposits, again containing large quantities of ceramic building material appear to have then built up over the area.

While no structural remains were identified, the date range of the brick and tile assemblage suggests that the building(s) were initially constructed in the first





BUILDING RECORDING



1 Exterior south elevation of south-west transept, in 2009, looking north from an aerial platform. Note abutting chapels of St Michael's and All Saints'.

Canterbury Cathedral: the medieval south-west transept

Rupert Austin *

Introduction

A fall of masonry from the south window of the south-west transept of Canterbury Cathedral in 2010 drew attention to structural problems within the fabric. An architectural appraisal of the transept was commissioned by the Dean and Chapter along with other work including a structural survey and archaeological investigation of the transept's footings in a small excavation against the transept's west elevation. The results of this excavation were reported last year (Hicks 2011). The intention of these investigations was to inform remedial actions that might be taken to prevent further deterioration.

To understand the development of the present transept (1 and 2), and the nature of the fabric upon which it is founded, it is necessary not only to understand what precedes the structure, but also the changes that have occurred around it. The south-west transept is located at a critical point in the cathedral, slightly west of its midpoint dimensionally, but architecturally at its heart, projecting south from the crossing and the great central tower. The choir and nave extend eastwards and westwards respectively. It is here, at the cathedral's architectural centre that many periods of construction meet. The following account summarises the medieval sections of the report submitted to the Dean and Chapter (Austin 2010).

The south-west transept and Lanfranc's cathedral

Lanfranc, England's first Norman archbishop, arrived at Canterbury in late August 1070. The city's Anglo-Saxon cathedral had been gutted by fire in 1067, and he quickly started work on a new cathedral, perhaps in the spring of 1071, based on his former monastic church of St Étienne in Caen. It is recorded that his cathedral took only seven years to build. Lanfranc removed all trace of the Anglo-Saxon cathedral above ground; no fabric of this period survives today within the standing building.



Only fragments of Lanfranc's Norman cathedral now survive, but through the work of archaeologists and scholars, much is now known about the building. Richard Gem (1982) was one of the first to study the evidence for the arrangement and form of Lanfranc's cathedral, after the brilliant pioneering work of Robert Willis in 1844. They and others, notably Francis Woodman and Tim Tatton-Brown, have all made use of Gervase the monk's description of Lanfranc's cathedral. The section most relevant to the present report is as follows:

I will first describe the work of Lanfranc; beginning from the great tower, not because the whole of this church has been destroyed, but because part of it has been altered. The tower, raised upon great pillars, is placed in the midst of the church, like the centre in the middle of a circle. It had on its apex a gilt cherub. On the west of the tower is the nave or aula of the church, supported on either side upon eight pillars. Two lofty towers with gilded pinnacles terminate this nave or aula. ... The aforesaid great tower had a cross from each side, to wit, a south cross and a north cross, each of which had in the midst a strong pillar; this [pillar] sustained a vault which proceeded from the walls on three of its sides; the plan of the one cross is exactly the same as that of the other. The south cross was employed to carry the organ upon the vault. Above and beneath the vault was an apse, extended towards the east. In the lower part was the altar of St. Michael, in the upper part the altar of All Saints. ... Between this apse and the choir the space is divided into two, that is, for the few steps by which the crypt is gained, and for the many steps by which the upper parts of the church are reached (trans Willis 1845: 37–40).

Thus Lanfranc's transepts were each divided into two storeys by tribune galleries. Since the vaults supporting these galleries extended to all three walls, Gem (1982, 4) interprets this to mean floors in the whole of the transepts' outer bays. The floor in the south cross (transept) carried the cathedral organ. Apsidal-ended chapels opened to the east of each transept, at each storey. The tower at the centre of the church was far smaller than the Bell Harry which stands above the crossing today. The eastern arm of Lanfranc's cathedral, which probably terminated in apses, was demolished before Gervase's time, but is now accepted to have been much shorter than the present choir. A small crypt lay beneath the presbytery, fragments of which still survive in the west wall of the present crypt.

Lanfranc fabric surviving below ground

The Trust's 1993 excavations in the cathedral showed that Lanfranc had placed the foundations of his Norman cathedral carefully so as to avoid, where possible, those of the Anglo-Saxon cathedral, thereby reducing the need to remove earlier footings. The Norman cathedral lay on the same alignment as its predecessor, but its principal axis was located a little over 4m to the south. Inspection of the Norman footings demonstrated that Lanfranc's cathedral had been built in two phases, starting with the east end,

as a clear construction break was found halfway along the nave. This two-phase construction was already known from the account of Eadmer, an English monk who was a child in Canterbury at this time (Willis 1845, 14). Interestingly, however, the first phase of work did not include those of the south-west transept, as one might have assumed. The foundations for the central column of the south-west transept's tribune gallery were also exposed during the 1993 excavation.

Much of the mortar bedding for the floor of Lanfranc's cathedral was found to survive beneath a late eighteenth-century floor (see below). These beddings retained the impression of the paving slabs of Lanfranc's cathedral, of which a few fragments survived. The Norman floor had not been removed by the later Perpendicular rebuilding of the cathedral, and seemed to have remained until the south-west transept was re-floored in 1787.

Lanfranc fabric surviving in the standing building

Subsequent rebuilding of the cathedral throughout the medieval period and beyond has removed all but a few fragments of Lanfranc's building, and one has to look closely to find what remains. Very little survives in the south-west transept, as this was largely demolished and rebuilt in the early fifteenth century.

The south-east pilaster buttress of the south-west transept

Externally the only visible Lanfranc fabric is that at ground level at the south-east corner of the transept. The three angle-orders of a shallow pilaster buttress survive here, below a string course (3 and 4). Ground levels were raised here in the later Middle Ages and the chamfered plinth block that must underpin this buttress is presently buried below ground level. The angle-orders are a small survival, but they are important for they locate precisely the south-east corner of Lanfranc's transept. The preservation of this fabric must be attributed to the retention of Lanfranc's apsidal chapel, against the east wall of the transept, for a few years after the completion of the transept.

Crossing tower fragments

Lanfranc masonry survives, at a higher level, in the angles of the central crossing tower. Some of this can be seen in the roof of the south-west transept, above the vault (Strik 1982, 20), most notably at the south-east corner of the tower, where the angle-orders and two angle shafts of the Norman tower survive.

Lanfranc masonry also survives below these corner buttresses within the cores of the crossing piers – the Norman piers were re-faced in the fifteenth century (Willis 1845, 67 and see below). All that can be seen today, however, is a large chamfered plinth stone at the base of the south-east crossing pier (5), and some angle-orders behind the pulpitum screen.

The north-west transept

The most significant Lanfranc fabric in the cathedral is that surviving in the walls of the north-west transept. Unlike the south-west transept, the north-west transept was not entirely demolished ahead of its later fifteenth-century remodelling, but saw a greater degree of re-facing. Any attempt to reconstruct the form of the Norman south-west transept must therefore begin with a study of the north-west transept. To consider the transepts as mirror images of one another may, however, be too simplistic, as there are often subtle differences between the two sides of the cathedral, not least because the north side abuts monastic buildings.

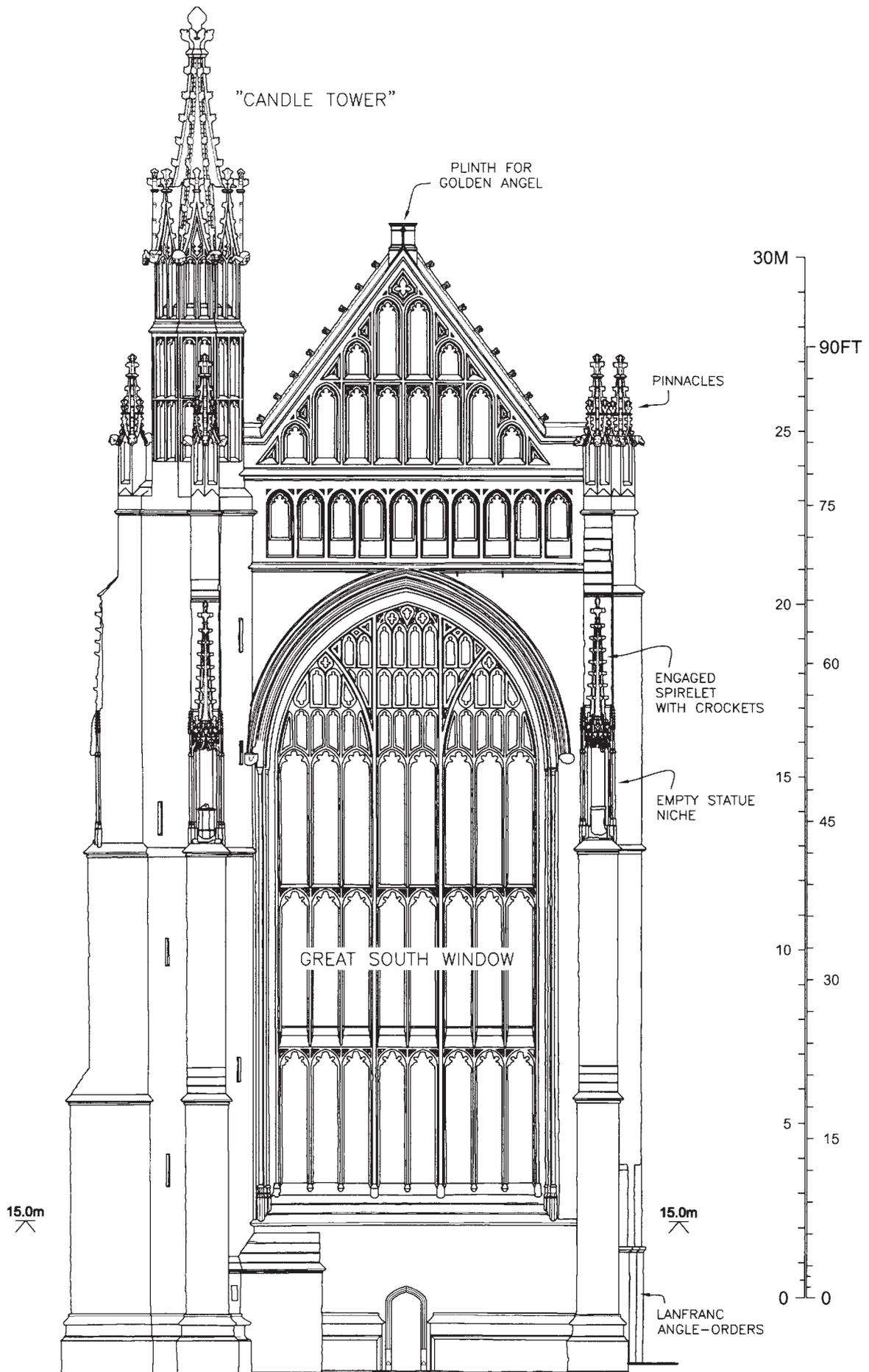
The north-west vice

The best Lanfranc fabric in the north-west transept is in the staircase or vice accommodated within the north-west pilaster buttress. Its base comprises 1.3m high blocks of Marquise, with prominent chamfers, and is visible from within the cloister (6). The vice survives to a height of around 19m above cloister pavement level, just short of the original height of the Norman transept. This is thought to have been at around 20.5m (Blockley 1997, 117, fig 49). The Norman transepts, although substantial, and of broadly the same footprint as the present transepts, were not therefore as tall as the present transepts. The difference equates, roughly, to the height of the present clerestories. Various doors and windows, some original, some later, open out of the vice, giving clues about the levels of Lanfranc's building. One of the most important is the first encountered, as this is an original door (now blocked) that opened onto the Norman transept tribune gallery. Gem notes that this fixes the height of the tribune to around 8.2m above internal pavement level (Gem 1982: 4). The south-west transept must have had a similar vice, and tentative evidence for its footings was exposed during the 1993 excavations.

Eastern transept chapels

That Lanfranc's transepts had two-storey eastern chapels is known from Gervase, but their form has been the cause of debate. A better understanding of them was reached in 1978–79, following the discovery by Henk Strik of fragments of the northern chapels above the vault of the present Lady Chapel. His analysis of these remains, which include the springing of two barrel-vaulted bays, showed that the northern chapels were two bays in length and terminated in apses. This was longer than many had previously thought. Willis (1845, fig 3) suggested only single-bay chapels. Longer chapels were confirmed by Strik's observation of the westernmost window of the choir, which is narrower than those to the east, filling only one half of the bay (Strik 1982). The other half must have been obstructed by the adjacent Norman chapel, and comprises only blank walling. The chamfered Norman plinths of the north and south responds of the arch that spanned the

2 Opposite: Interior of south-west transept, looking north towards the crossing from the level of the vault.



3 South-west transept, south elevation (Base survey Downland Partnership).

entrance to the chapel survives in part in the floor of the present Lady Chapel. A segment of the engaged shaft which lay between the east and west bays of the lower chapel was revealed in the south wall during restorations in 1975 and was left exposed. Gervase tells us that the lower of the northern chapels was dedicated to St Benedict, the upper to St Blaise.

Similar chapels projecting from the south-west transept remained standing until c 1435, but were demolished to make way for the present Holland Chapel. The lower of these was dedicated to St Michael, the upper to All Saints. The present Holland Chapel is clearly shorter than the Norman chapel, for the tomb of Archbishop Stephen Langton now curiously protrudes through its east wall; it must originally have been contained wholly within the Norman chapel's apse.

A segment of an arch survives in the east wall of the transept, visible from All Saints' Chapel (8). This does not respect the position or width of the present chapel, but is centred on the transept's outer bay, suggesting it predates the chapel. The arch comprises chalk voussoirs laid in a coarse mortar and would appear to be Lanfranc work. The east wall of the transept must have been reduced in width in the early fifteenth century, when the transept and chapel were remodelled, for the feature is actually a relieving arch originally buried in the core of the wall. Its outer skin of dressed stone was presumably removed when the wall was reduced in width. Two small openings were perhaps located beneath the relieving arch. The arch precisely locates the east wall of the transept, and suggests that it may have been possible to walk directly into All Saints' Chapel, from the transept's tribune gallery.

Lanfranc fabric may also survive in the wall that lies between St Michael's Chapel and the steps to the crypt (5), and might include a string course located at the level of the choir floor, and possibly some small areas of ashlar above and below it, notably at the base of the crypt steps.

Anselm's 'Glorious' Choir

The short eastern arm of Lanfranc's cathedral did not last long. It was pulled down in 1096 and replaced by a far larger crypt and choir that had its own transepts, presbytery, apse, and a small chapel projecting at its east end, the precursor to the present Trinity Chapel. This new work was begun by Anselm's prior, Ernulf. The date of its completion remains subject to debate, but the main construction work is thought to have been finished under Ernulf, that is to say before 1107. In the mid twelfth century the crossing tower was greatly heightened (as shown on the Waterworks plan). This necessitated buttressing the eastern piers from the east (in the new crypt). New north and south entrances to the crypt were formed as a result. Anselm's choir was damaged by a serious fire in 1174, and largely rebuilt, but significant parts have survived.

Little of the surviving early or mid twelfth-century fabric directly affects the south-west transept, and is not considered in detail here, but where it meets the transept's eastern chapel it should be considered. Behind a small door, at the west end of the choir,

steps ascend to the upper transept chapel of All Saints. It seems likely that these steps were formed at the time of the construction of Anselm's Choir, or just after, in the early to mid twelfth century. Until this point it is likely the upper chapel could only have been reached by climbing the vice located at the south-west corner of the transept and crossing the tribune gallery. The steps may have been introduced to provide more direct and independent access to the chapel, or they could have been necessitated by the removal of the tribune gallery. It is not yet known when the gallery was removed, but it must have gone by 1332–3, when an organ loft was formed over the entrance to St Michael's Chapel.

Observation suggests the staircase was originally open on the choir side. The ends of the steps can clearly be discerned in the south wall of the choir. Only later, after the 1174 fire, would the stairs be enclosed – the later fabric being built directly onto the treads of the steps.

The Gothic choir of the late twelfth century

The choir was rebuilt after the fire of 1174 in the new Gothic style, mostly on the footprint of its predecessor. This was the first major use of French Gothic architecture in England, the work undertaken first under the direction of William of Sens, and later under William the Englishman. The rebuilding is uniquely well documented and brilliantly analysed by Willis (1845). Like its predecessor little of the Gothic choir directly affects our discussion of the south-west transept, except where stairs give access to All Saints' Chapel.

It has already been suggested that these stairs were not fully enclosed until after the 1174 fire. An engaged column, with spurred base, immediately to the east of the entrance door is clearly a wholly Gothic feature. The column segments course with the entrance door, the masonry of which continues west to include the wall enclosing the stairwell, and the three tall, narrow windows that illuminate it. Mason's marks in the stairwell appear to confirm the suggestion as different groups of marks seem to be present on the inner and outer walls. A door appears to have been formed at the top of the stairs when the stairwell was enclosed. The threshold of this door is now some 2m below the floor of the extant upper chapel, revealing that the floor was raised when the chapel was rebuilt in the fifteenth century (see below).

The south-west transept and the Perpendicular rebuilding of the Cathedral

The western arm of Canterbury Cathedral must have looked outdated by the later fourteenth century, when compared with its Gothic choir, and certainly by the time of the elaborate funeral of Edward the Black Prince on 29 September 1376. The nave, transepts and western towers had probably remained largely untouched since Lanfranc's time, although there may have been some remodelling in the mid twelfth century, as at Rochester, once Anselm's 'glorious' choir had been completed (Tim Tatton-Brown, pers comm).



4 Lanfranc angle-orders in south-east corner of transept.

The nave (c 1376–1403)

Plans to rebuild the nave of Canterbury Cathedral were perhaps first considered in 1369–70. Prior Hathbrand (1338–70) opened a subscription during the last year of his life, but insufficient funds were raised at this time, and it was not until the winter of 1376–7, after the funeral of the Black Prince, that the old nave, by then 'in a notorious and evident state of ruin' (Woodman 1981, 151), was demolished. Rebuilding did not, however, stop with the nave. Its demolition was to trigger an extensive campaign of remodelling that lasted for over a century, one that started with the nave and ended with the cathedral's great centrepiece, the Bell Harry tower, taking in both transepts and the south-west tower along the way. Whilst some of the detail and the precise dating of this ambitious undertaking remain a matter of debate, there is reasonable consensus amongst scholars regarding the general chronology.

Demolition of the old Norman nave was carried out at the expense of Archbishop Simon of Sudbury, leaving the western towers, crossing and part of the north aisle wall (where it abutted the old cloister) standing. Work on rebuilding probably started by the end of 1377 (a gift of 6s 8d was also made 'to the masons of the new work of the nave' in the Priory accounts of 1376–7; Lambeth Palace Library MS 243, folio 171v). A design for the new nave in the Perpendicular style, a form of Gothic that first appears in the second quarter of the fourteenth century, must

have been prepared quickly, perhaps by Henry Yevele. At this time the Perpendicular style tended to be more reliant on architectural lines and form, than decoration, with an emphasis on verticality, slender columns, thin walls and large windows.

Inspection of the fabric, in particular the stone used, but also the heraldry on the vaults, suggests work on the outer wall of the south aisle was ahead of that of the north aisle and that construction proceeded, in general, from east to west. This is important because it shows that work on the nave moved away from, and not towards the south-west transept, and that some time therefore elapsed before work on rebuilding the transept began.

From the 1993 excavations, and also the remaining Lanfranc fabric within the building, we know that the Perpendicular rebuilding was, for the most part, built directly over the footings of the Norman cathedral. Large blocks of Caen and Reigate stone were used in the nave's exterior walls, and large blocks of the much harder Kentish ragstone in the lower parts of the stepped external buttresses. Smaller blocks of Caen stone are also present at the lower levels of the aisle walls, presumably re-used from the earlier nave. Tim Tatton-Brown notes that marble shaft rings, popular

since the beginning of Gothic, but now out of fashion, were still used within the nave at Canterbury.

Work on the new nave was halted by two unfortunate events: the murder of Archbishop Sudbury in 1381 and an earthquake on 2 May 1382. A number of priory buildings and the north-west transept were damaged and it was not until 1391, after repairs had been made, that building recommenced, this time under the supervision of Prior Chillenden. By 1397 the upper nave walls (clerestory) were being raised, as well as the great west window and gable. The new high roof must have been finished after that. In 1398 the treasurer's accounts mention 'the paying of a glazier £9 2s ... for his work', suggesting that provisional glazing work in the clerestory and great west window was completed in that year. The final task was the construction of the 80ft high lierne vaults, and probably the external flying buttresses and pinnacles. The westernmost vault was perhaps the last to be built, by 1403 at the latest.

Re-use of the Norman foundations placed major restraints on the design of the new nave and transepts. Changes in plan were necessarily restricted. The heights of walls and vaults could be increased, although as Tim Tatton-Brown notes, there were

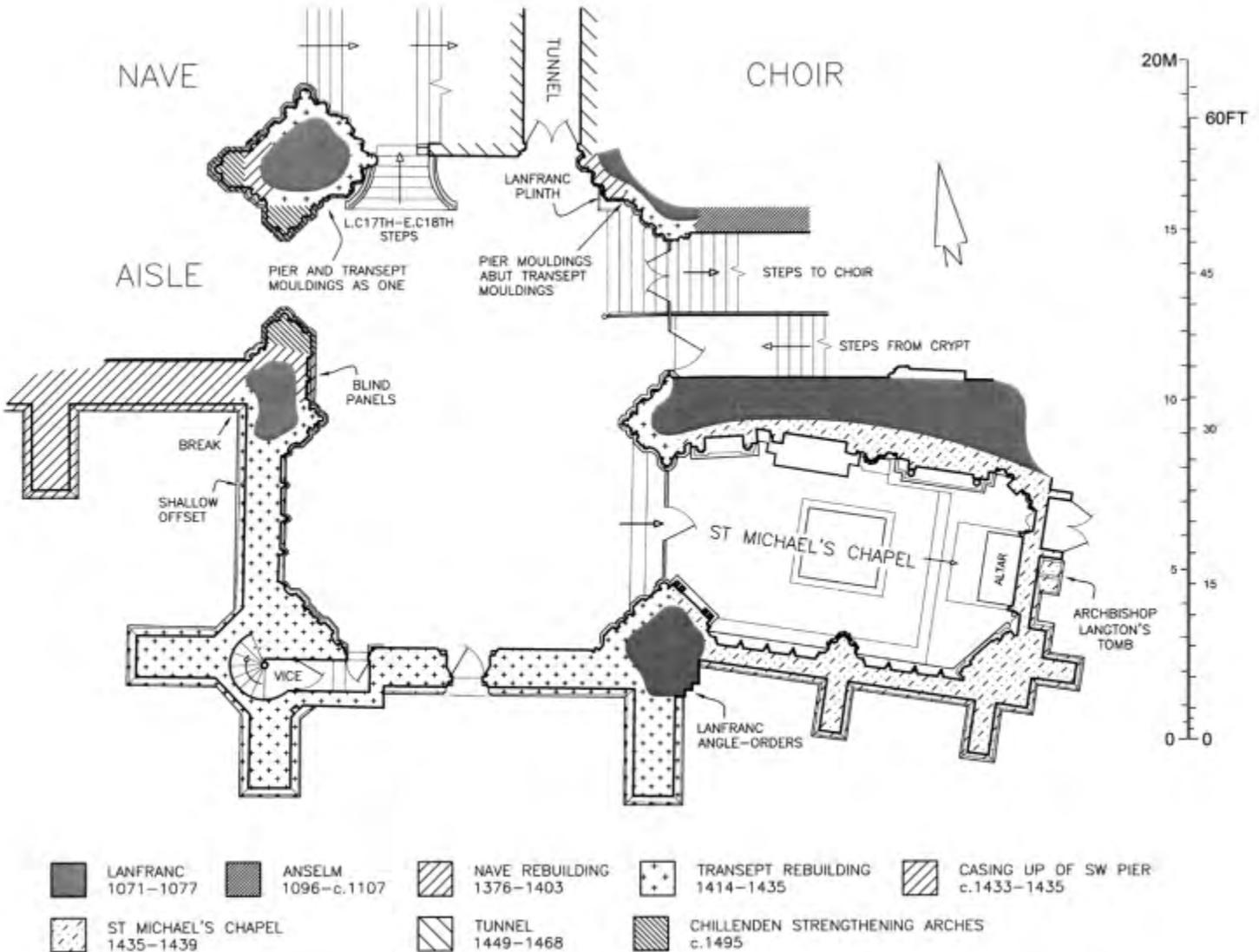
limits, if the ridge of the nave roof was to line up with that of the choir to the east. Gem suggests 'the present tall nave aisles represent the joining together of the height of the original aisles and their surmounting galleries' (Gem 1982, 6).

South-west transept (c 1414–35)

Rebuilding of the transepts and western towers most likely did not form part of the original scheme, and their remodelling is not therefore as one with that of the nave, and it is unsurprising to find inconsistencies, such as irregularities in the bonding, between the fabric of the nave and transepts. One such irregularity, a straight joint, can for example be seen externally, where the south nave-aisle meets the south-west transept.

Suggested sequence of reconstruction

A number of previous interpretations concerning the sequence of Perpendicular reconstruction were brought into question as a result of the recent work and an alternative sequence of events is proposed. Woodman's assertion (Woodman 1981, 170) that



5 South-west transept, ground plan showing suggested phasing (Base survey Downland Partnership).

the entrance arch from the nave-aisle into the transept was rebuilt as part of the nave campaign is accepted. The insertion of a later strengthening arch has interfered with much of this, but many of the blind cinquefoil headed panels to the south of the arch that are associated with this earlier rebuilding have survived (9). It is worth noting the first few courses of the wall beneath these panels comprise small blocks of stone similar to those used at the base of the nave-aisle walls. A near vertical break in the bonding can be seen further to the south where the blind panels give way to engaged shafts associated with the later rebuilding of the transept. A second vertical break is present to the north where the fabric gives way to the later strengthening arch (see below).

The fabric above the arch, which includes a blind clerestory window, must be later (the transept was not this high originally). The window seems, however, to have been rebuilt in later years when the fabric was strengthened for the new crossing tower (see below). Only the internal batter below the window is, perhaps, contemporaneous with the rebuilding of the transept.

It is suggested here that the inner and outer bays of the transept were rebuilt as one, the east, south and west elevations of the transept, and vice, all being raised to their present heights at the same time. The only complication here is the inner bay of the west wall (considered below). It is suggested that the transept was roofed once its walls had been raised to the required height, and the temporary wooden scaffold dismantled. Once the scaffold was down, work commenced on the construction of the vault, with both inner and outer bays erected as one. It is also proposed that the casing-up of the crossing piers occurred towards the end of the rebuilding of the transept, not before, as previously suggested (Woodman 1981, 154).

Some of the evidence that supports the proposed order of events can be seen in the transept's roof space, where the walls stand proud of the vaults. The east wall is perhaps the best place to start. This comprises almost entirely re-used Norman ashlar, no doubt quarried from Lanfranc's demolished transept. The masonry appears of one build throughout its length, confirming the suggestion that the inner and outer bays were built together. Of interest here is a line of putlog holes for scaffolding during the building of the transept walls. This line of holes passes through both bays, as we would expect if they were built together, but interestingly it disappears below the upper surface of the vault, indicating that the scaffolding must have been removed, and the walls therefore finished, before the vault was turned. The south wall and the outer bay of the west wall are of identical construction to the east wall, the masonry passing contiguously from one to the other, therefore suggesting that they are contemporary. Inspection of the interior of the transept below the vault seems to confirm this. Again the east, south and outer bay of the west wall appear to be of one build: no bonding breaks can be seen.

As we pass from the west wall's outer bay to its inner, however, a change in fabric occurs above the vault. The Norman ashlar gives way to larger blocks of Reigate and Caen stone (9). It seems implausible that

this short length of wall could pre-date the rebuilding of the rest of the transept, because Lanfranc's transept was lower and would have stood proud of everything else. It is surely later work, perhaps a strengthening of the fabric in advance of the construction of the new crossing tower.

Inspection of the transept confirms that the south and west elevations of the outer bay were entirely demolished, ahead of the rebuilding, and new masonry built in their place. Woodman's assertion that the east wall was not fully demolished, like the south and west walls, but remained, abutted, at this time, by Lanfranc's projecting two-storey eastern chapel (Woodman 1981, 170), is also confirmed. In fact the organ loft of 1332–3 was retained over the entrance to St Michael's Chapel:

we find that the monastic architects, with due reverence, preserved whatever was deemed memorable in the interior of the building during the alteration. This is particularly evinced by ... an ancient projection for supporting an organ over the entrance of St. Michael's Chapel, adorned with the effigies of Pope Gregory, and Augustine (Woolnoth 1816, 74).

Lanfranc's clerestory must, however, have been removed from the top of this wall, the elevation reduced down to the next stringcourse, before rebuilding began at the level of the wall passage. Much of the Lanfranc masonry below was removed a few years later, when the eastern chapel was rebuilt. We have already seen that the completed elevation stood higher than its Norman predecessor by roughly the height of the extant clerestory.

Casing-up of the crossing piers (c 1433–5)

Stone's Chronicle tells us that on 4 August 1433 the first stone of the new work of the 'Angel bell-tower' was placed (Searle 1897, 21). Tatton-Brown suggests this refers to the work of casing-up the four central crossing piers to strengthen and enlarge them to take the weight of a larger crossing tower. It is not known if the extant tower was demolished at this time, or left *in situ* until later (a mid twelfth-century tower stood here at this time, over Lanfranc's crossing – see the Waterworks plan). Woodman (1981, 154) suggests that the piers were re-cased without the destruction of the tower above, but places an earlier date on this work, associating it with the rebuilding of the nave. This, as we shall see, seems unlikely. The presence of a plinth atop the gable of the new Perpendicular transept indicates that the crossing tower had been, or was about to be demolished, the plinth set in place to take the golden angel from the tower.

The phasing of the fabric in the crossing area is complex, particularly that of the piers, and the south-east pier especially so. The first masonry pier of Anselm's choir runs east from this, while to the north is the base of Prior Henry Eastry's fine screen of c1300, now hidden behind the 1682 choir return stalls and pulpitum screen (Scott 1875). Tatton-Brown (1997, 139) suggests the complex mouldings associated with the rebuilding of the south-west transept, on the south side of the pier, can be shown, by a vertical break, to be earlier than

6 Plinth beneath Lanfranc vice in north-west corner of north-west transept, viewed from cloister.



the equally complex, but different mouldings added to the north and west sides of the pier when it was cased-up. This is clearly correct as the mouldings of the casing-up override and supersede those associated with the transept, but what is not noted is that within the opposite south-west crossing pier the mouldings associated with the rebuilding of the transept are coursed with, and therefore contemporary with, the casing-up.

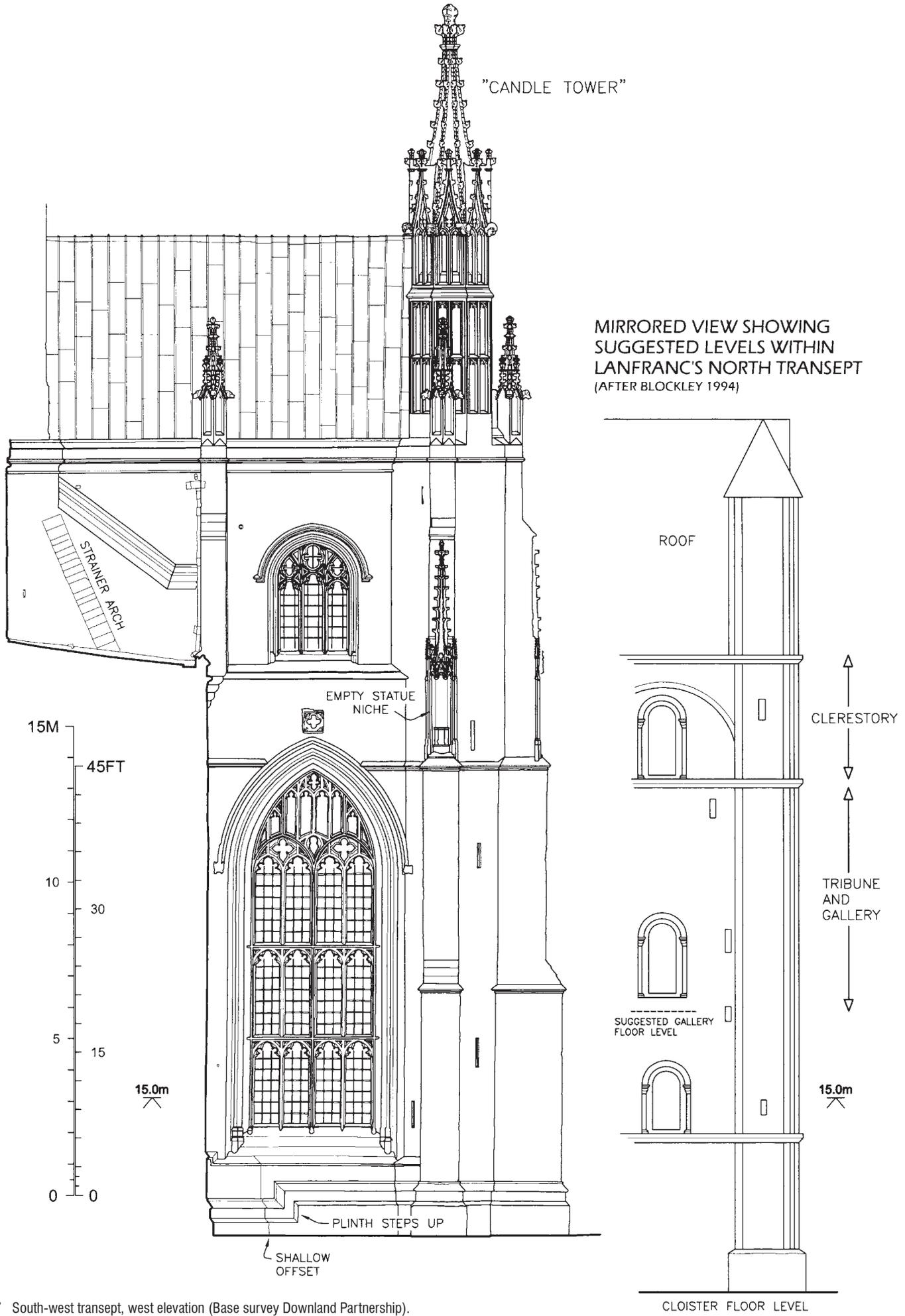
It is suggested, from this observation, that the decision to case-up the crossing piers was made after work on rebuilding the transept had started, but before its completion, perhaps sometime towards the latter stages of its construction. The south-west and south-east crossing piers were probably cased-up at the same time, for the present crossing arch is dependent on, and appears contemporary with their fabric. This evidence again contradicts Woodman's theory that the crossing piers were re-cased at the end of the nave campaign.

Tatton-Brown's interpretation of the documentary evidence and our recent interpretation of the fabric would suggest that work on the south-west transept was nearing completion in 1433, a little later perhaps than has previously been suggested. In 1435 a new master mason, Richard Beke, was appointed to supervise works at the cathedral priory, and it is proposed that he may have been responsible for completing the transept and re-casing the crossing-piers.

The transept walls

The rebuilt south and west walls of the transept, like those of the nave, were raised on Norman footings, but they are thinner than their Norman predecessors. The large stepped buttresses of the new transept (see below) projected well beyond the footprint of the Norman building, and were raised on new foundations. The east wall, as we have seen, was built atop standing Lanfranc masonry.

Woodman observes that the 'elevational design of the south-west arm [transept] continues the major



7 South-west transept, west elevation (Base survey Downland Partnership).

themes of the nave, though with some modifications' (Woodman 1981, 171). When we inspect the new elevations we see that they rise, externally, from a 1.67m high plinth, the moulding of which matches those of the remodelled nave. The account roll of 1426–27 (CCA: DCc-Fabric/18) published in Woodruff (1933, 45–6) records the purchase of large quantities of Reigate and Caen stone, and also tells us that Master Thomas Mapilton was master of the work (Woodman 1981, 172). Woodman states that Stephen Lote was probably the designer of the transept, with Thomas Mapilton continuing the work after his death.

Inspection of the transept's masonry shows that it was executed to a good standard, comprising almost exclusively Caen stone externally. The Reigate recorded in the accounts was reserved for internal use (see below) as by now it was known that this stone was too soft for external use. The ashlar is generally tightly jointed and laid in a fine lime mortar, in contrast with the coarser mortars present in earlier parts of the cathedral. Oyster shells are occasionally present in the joints. The block size is mostly small, the courses typically 0.2m high. The almost complete absence of any visible tooling externally suggests the masonry was finished with a fine drag, the marks of which have weathered away.

The high vault

The transept's vault, like those of the nave and its aisles, is of lierne form springing from capitals located approximately 17.5m above pavement level (9). Above these capitals the first few courses of the

vault comprise large *tas-de-charge* stones, those midway along the walls accommodating ribs that radiate into both the inner and outer bays of the vault. This confirms that a two-bay vault was intended from the outset. After these first few courses the vault ribs disengage into separate voussoirs. The vault's upper surface abuts the transept's walls, the vault and walls structurally distinct.

Stepped buttresses

Large, stepped buttresses project from the transept's corners, those to the south-west attached to the vice (see below). They stand as high as the elevations, are divided into three stages by sloped weathering courses and terminate in short decorated pinnacles. Niches for statues, surmounted by engaged spirelets decorated with crockets, are present on the outer faces of the upper stages of the buttresses. The niches have vaulted micro-canopies, but any statues within them have been lost. It is perhaps only within the micro-vaults that original medieval fabric survives.

The great south window

A spectacular new Perpendicular window with panel tracery was included in the south elevation (3). At 16.80m (55ft) in height and 7.56m (24ft 9in) in width this is the cathedral's largest window.

The window comprises three tiers of tall rectangular lights, up to the springing of the window arch with cinquefoil tracery in their heads. The tall slender mullions are ogee and cavetto moulded. Horizontal iron saddle-bars now pass through the mullions,

immediately below the aforementioned window heads, but evidence suggests these were introduced during the eighteenth century when the window was rebuilt (see Austin 2010). Two transoms divide the main body of the window into its three tiers. The lowest of these is plain externally, but crenellated internally above blind quatrefoil panels.

The window divides into three tiers of smaller, narrower, trefoil-headed lights at the springing of the arch, the major mullions dividing here to form secondary arches over the east and west thirds of the window.

The window once contained medieval glass, but this was destroyed in the winter of 1643–4 (see below) and only a few panels survive today in the window heads. The window was rebuilt in 1792.

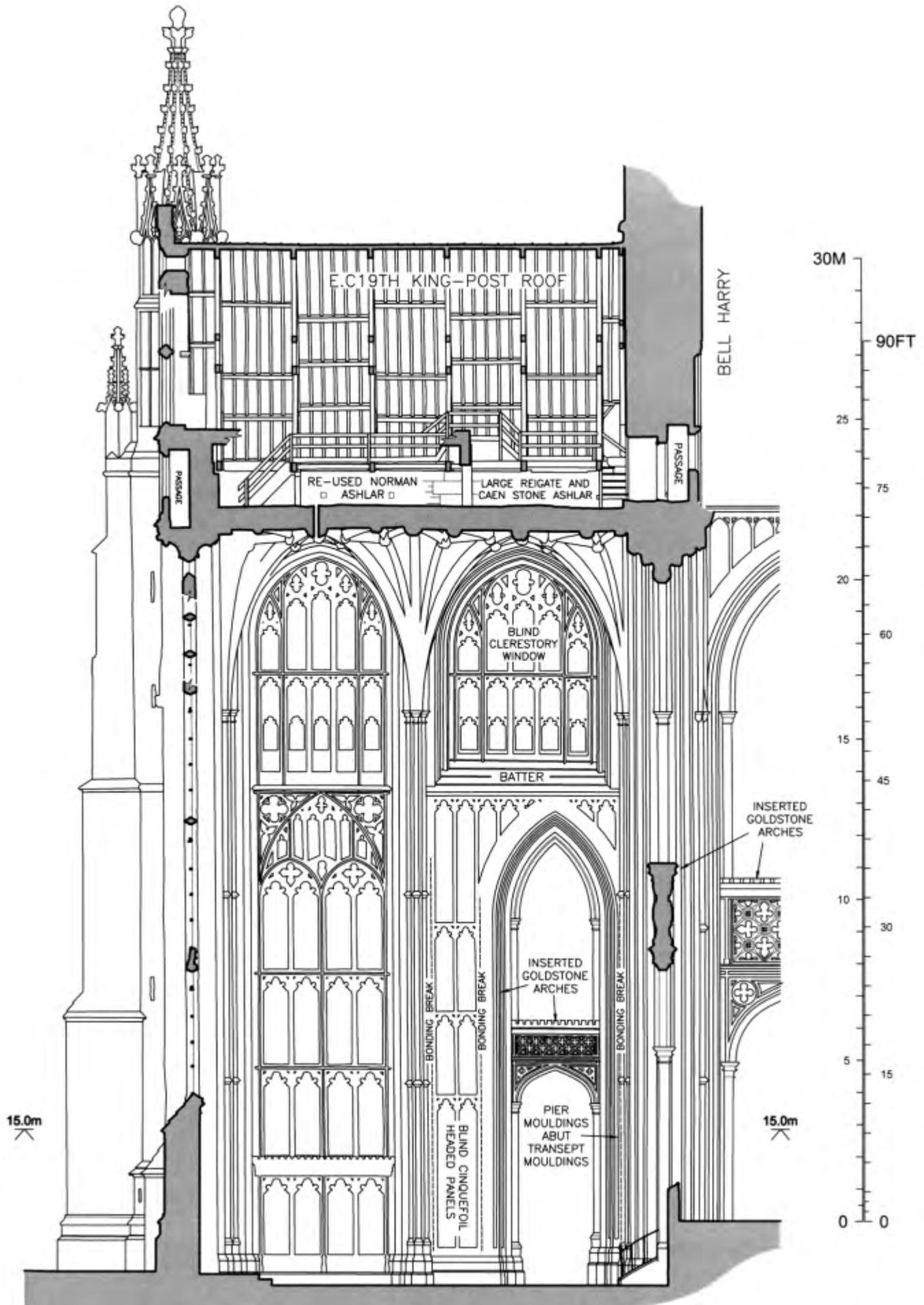
A narrow wall passage, entered from the vice, passes over the window, a door part-way along it leading into the roof space – this matches the vice's other doors, and is certainly an original feature.

South gable

The gable's fenestration was altered in the mid nineteenth century. Originally there were fewer, and perhaps smaller, windows. Johnson and Hollar's south prospect of Canterbury Cathedral, of 1655 shows only two windows, placed centrally in the second rank of panels, and even these do not appear, like the present windows, to have filled their respective panels. The present windows in the first rank, lighting the aforementioned wall passage, are also not depicted, although they may perhaps have existed in some form.



8 View to east of All Saints chapel (note Lanfranc relieving arch beneath the vault in the far wall).



9 South-west transept, sectional elevation to west (Base survey Downland Partnership).

South-west corner vice

A new spiral stair, or vice, was formed in the south-west corner of the transept (10). A vice was perhaps present in this corner of the Norman transept, but would have been wholly confined to the width of the wall. The present vice is more spacious, its footprint projecting beyond the transept's walls. Externally it is polygonal in shape, but the interior, as one would expect, is circular. The masonry is of a good standard, has been finished with a drag, and is covered with numerous mason's marks and much graffiti.

The vice is constructed in a late medieval manner, the newel-stones or steps monolithic and keyhole shaped with their inner swellings forming the central newel, their outer ends socketed into the walls. The first twenty-two newels are of Caen stone, but after this they are of Ragstone to the level of the gable. Interestingly the Ragstone newels have punched faces with draughted margins, a feature of later medieval Ragstone masonry, whereas the Caen steps are better finished, with claw tooling present. It was common practice by now for stone to be supplied ready worked from the quarry, in standard sizes or with standard mouldings, and different masons, with different tools and techniques would therefore have worked the aforementioned Caen and Ragstone newels in their respective quarries.

The first exit from the vice, which leads to the west triforium wall passage, is clearly an original feature. Its door has a low, four-centred arch with cavetto moulded jambs and broach stops. The second exit leads into the south wall passage, that beneath the gable. This is also an original feature, its door is identical to the first, but with a square head. The third exit leads onto the west parapet and must too be an original feature.

'Candle Tower'

A distinct change occurs in the fabric of the vice as we climb into its uppermost feature, the decorated spirelet. This is approximately 14m high, and in recent years has been referred to as the 'Candle Tower'. The interior masonry of the vice changes from Ragstone to Caen, the fabric here in far better condition, the drag tooling, for example, more pronounced. Most significant, however, is the complete absence of mason's marks or graffiti, something that indicates the fabric is not medieval, but more recent. In his 1861 survey (see below), Ewan Christian stated that the pinnacle of the south-west corner staircase 'had been repaired a few years ago'. It seems the 'Candle Tower' was rebuilt during the second quarter of the nineteenth century (see below), the presence of later fabric internally suggesting a complete rebuild rather than a re-facing.

It is suggested the 'Candle Tower' was originally hollow, the Caen steps introduced during the rebuild. It is worth comparing it with the spirelet that surmounts the vice of the north-west transept. This is similar, although slightly later in date, but still a useful comparison. Inspection suggests it too was entirely rebuilt in the nineteenth century: fragments of the original structure, comprising a mixture of brick and flint, can be seen internally. The spirelet,

however, remains hollow, the vice stopping at the transept's parapet.

East and west wall passages

Narrow passages are present within the east and west walls of the transept, at the level of the triforium roofs (11). That in the west wall links the aforementioned vice to the nave-aisle triforium roof and from there the upper chambers of the cathedral's south-west bell tower. There is no vice within the bell tower and therefore no access to the upper levels of the building from the cathedral's west end. This passage is therefore the only point of access. The passage once extended further north, towards the crossing, perhaps for most of the length of the transept's inner bay, but has been blocked by a large strainer arch inserted ahead of the rebuilding of the crossing tower (see below).

The east wall passage is entered from the choir triforium roof space, but it leads nowhere and is not therefore a route through the building, like the west passage. A small door, with a four-centred head, has been inserted midway along the passage to give access onto the roof of the later All Saints' Chapel.

Both east and west wall passages were lit from the cathedral's interior by rows of small traceried windows, but those within the inner bay of the west passage have necessarily been blocked. Small quatrefoil windows are present in the exterior walls of each passage.

Roof

The 1426–27 account roll says a carpenter was paid 'for making the roof of the above said new work', indicating that the roof was being erected over the transept at this time. This perhaps survived until 1812 when the present roof was formed, and may have been of scissor-braced form. Britton's drawn evidence for the medieval nave roof apparently suggests a scissor-braced arrangement here (Britton 1821).

St Michael's and All Saints' Chapels (c 1435–9)

Major works seem to have stalled after the completion of the south-west transept. This was due to insufficient funds (as evidenced by letter from John Elham, the monk chamberlain to Prior William Molashe: see Brigstocke-Sheppard 1877, 8). Other smaller, privately funded projects such as the rebuilding of St Michael's Chapel were undertaken. Instead, this work was financed by Lady Margaret Holland in c 1435 to provide a funerary chapel for herself and her two husbands (Woodman 1976, 23–8). The chapel lies directly against the east wall of the south-west transept (5). Lanfranc's two storey apsed chapels (see above) must still have stood here at this time, and would have been demolished ahead of the rebuilding.

The lower chapel was consecrated in 1439 and Margaret's magnificent Purbeck marble tomb installed in 1440. Woodman suggests the chapel is one of the earliest works of master mason Richard Beke. The new chapel reproduces the two storey arrangement of its predecessor, albeit with slightly



10 Interior of south-west transept's vice, showing Ragstone newels.

different levels, and was built at a slight angle to the main axis of the cathedral, so as to avoid the widened Gothic choir (Woodman 1981, 176).

The plainer upper All Saints' Chapel (8) must also have been rebuilt at this time, perhaps with money from Margaret, or just the priors. Its floor is higher than that of the Lanfranc chapel it replaced, as Lady Margaret's new chapel had an elaborate vault that required greater headroom. The steps leading up to the chapel were therefore extended and a new entrance door, with a pointed, two-centred door head, formed.

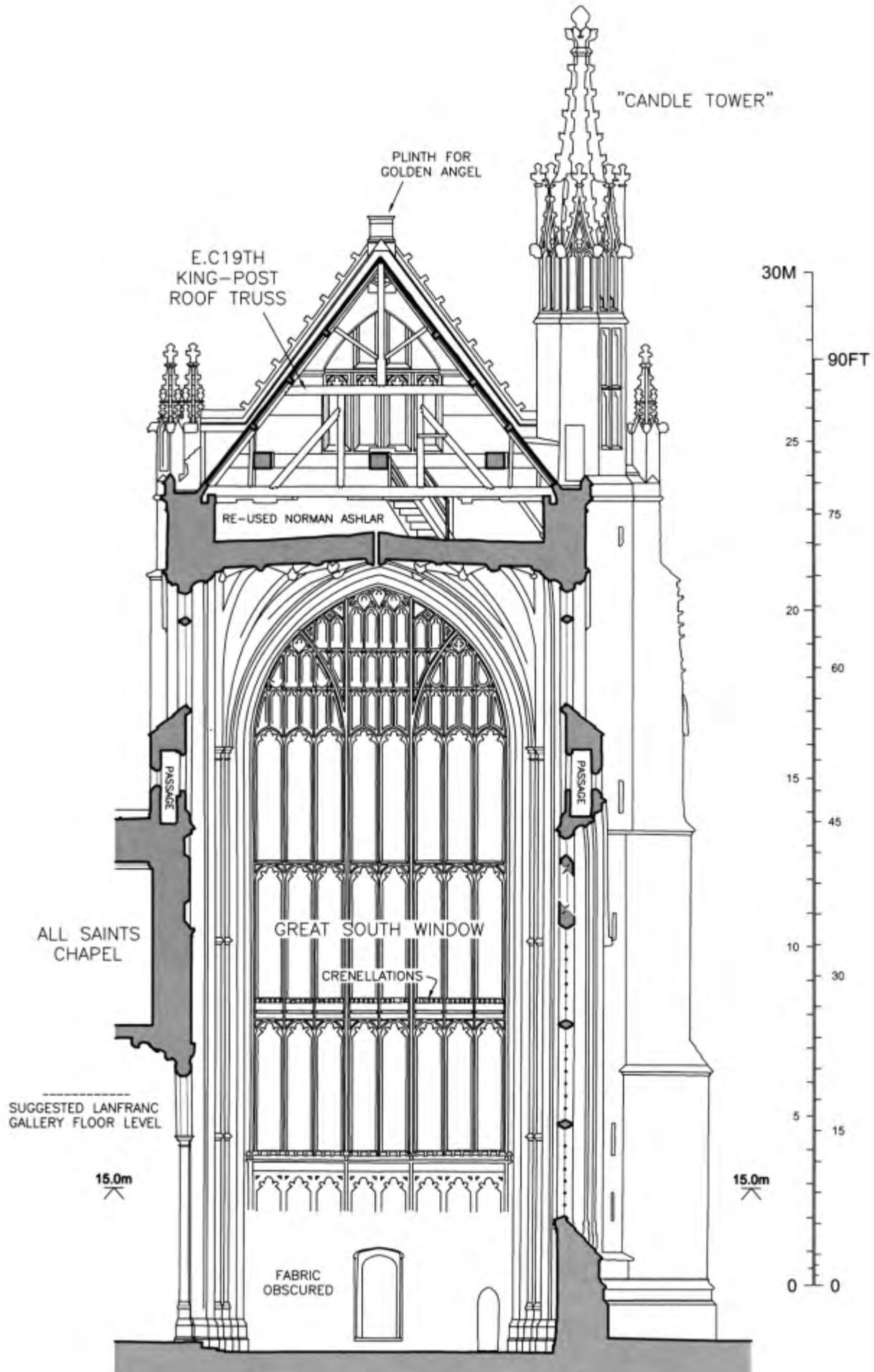
Windows with odd triangular shaped heads illuminate its interior (1). It has a simple lierne vault with three carved heads (those of the priors involved in the rebuilding) in its bosses. These are William Molassch, Discipulus (1428–38), John Wodensberg (1411–27) and Tho [Chillenden] (1391–1411) recorded by Gostling (1777, 215–16). Two narrow openings in the west wall of the chapel perhaps led into the 1332–3 organ loft that projected from the transept's east wall.

North-west transept and alterations in the crossing area (c 1448–87)

The remodelling of the cathedral recommenced c 1448 with the rebuilding of the north-west transept, or 'Martyrdom'. Alterations to the crossing area were also made around this time, these changes largely intended to segregate the movements of the Priory's monks from those of the many visiting pilgrims. A raised platform, reached by steps, was created beneath the crossing, under which a north-south aligned tunnel was formed to link the north-west and south-west transepts.

The great crossing tower (c 1490–1495)

Once the nave, transepts and south-west tower were complete, all that remained was the rebuilding of the central crossing tower. The re-casing of its piers had already been undertaken, but work seems to have stopped at this time. The initial intention seems to



11 South-west transept, sectional elevation to south (Base survey Downland Partnership).

have been to build a single stage lantern tower, but documentary and archaeological evidence reveals a last minute change of plan that resulted in the addition of a large upper stage (Hewett and Tatton-Brown 1976, 129). This doubled the height of the tower, once known as the Angel Steeple but today as the 'Bell Harry', to a remarkable 235ft (71.63m), thereby creating one of the finest and largest towers in England. It was designed by East Anglian master-mason John Wastell, and funded by the great wealth of Archbishop John Morton. Accounts from 1494 to 1497 for the building of its upper stage survive, and detail the nearly half million bricks used in its construction – the tower's Caen-stone exterior is a facing applied to a brick core.

Strengthening of the Cathedral's fabric to support a new crossing tower

Other parts of the cathedral's fabric, in addition to the main crossing piers, were strengthened, to help support the new tower. We have seen above that the transept's east and west wall passages were both partly blocked. Substantial strainer arches were also built into the fabric to help buttress the new tower. Two of these can be seen within the easternmost bay of the nave, above and below the aisle roof, the uppermost blocking a clerestory window; the outline of its arch can still be seen externally.

The introduction of these strainer arches perhaps explains the change in fabric that can be seen internally, above the vault, along the west wall of the transept (9). The wall here, behind the upper of the two strainer arches, comprises large, up to 0.44m high and 1m long, blocks of Caen and possibly Reigate. This contrasts with the smaller re-used blocks of Norman ashlar used elsewhere. Close inspection of the boundary between the two fabrics suggests the inner bay is later work, its masonry slightly overlying that of the outer bay. It cannot be that some of Lanfranc's transept remained here to be replaced by this fabric, for his transept was lower and there would not have been Norman masonry at this height. Furthermore, it seems unlikely that a large gap would have been left in the wall, so this length must have been rebuilt after the transept had been completed. The most likely reason for such an alteration is to strengthen the fabric in advance of the construction of the new crossing tower.

It seems the alterations may have extended into the fabric below the vault, where there is a blind clerestory window. Tatton-Brown suggests that this was blocked by the strengthening works, but inspection shows the window was actually rebuilt, as a blind feature.

An observation was made that may cast light on the date of the alterations. A 0.31m high course of Caen stone surmounts the west elevation internally, but red bricks can be seen behind this course, beneath the present gutter. These are of early appearance, typically measuring 9 inches long by 2 inches thick. They are smaller than those used in the upper stage of the crossing tower, but are slightly larger than those used in the lower stage. They most closely resemble those used in the gable of the north-west transept, suggesting a 1470s date.

Goldstone's strengthening arches (c 1495)

The decision to add a second stage to the tower prompted further strengthening of the fabric, notably to the west entrance arches into the transepts (9). The original arches were reinforced by inserting smaller arches beneath them, thereby reducing their span and height. Each was additionally stiffened, mid height, by four centred flying arches, with lattices of quatrefoil tracery, and embattled tops. They are certainly the most visible of the strengthening works undertaken in relation to the tower. The obituary of Goldstone II, who became prior in 1495, informs us that he was responsible for inserting these arches, before completing the tower itself (trans Willis 1845, 126).

* Adapted by Jake Weekes from the original report.

Reculver Towers

Peter Seary

In 2010 the Canterbury Archaeological Trust investigated the surviving west end of St Mary's church, Reculver, for English Heritage, ahead of proposed consolidation and repair. The west end and its towers form a celebrated and widely visible remnant of the medieval church, which was largely demolished in the early nineteenth century.

A detailed record was made of the west front, including petrological analysis of around 16,500 stones. Fieldwork conditions were challenging, working from a scaffold tower, in winds of up to gale force and often driving horizontal rain. The northern, southern and eastern sides and the interior of the building was also analysed and photographed. Brief documentary research was undertaken – seeking documents, topographical descriptions, and especially historic photographs and engravings which might cast



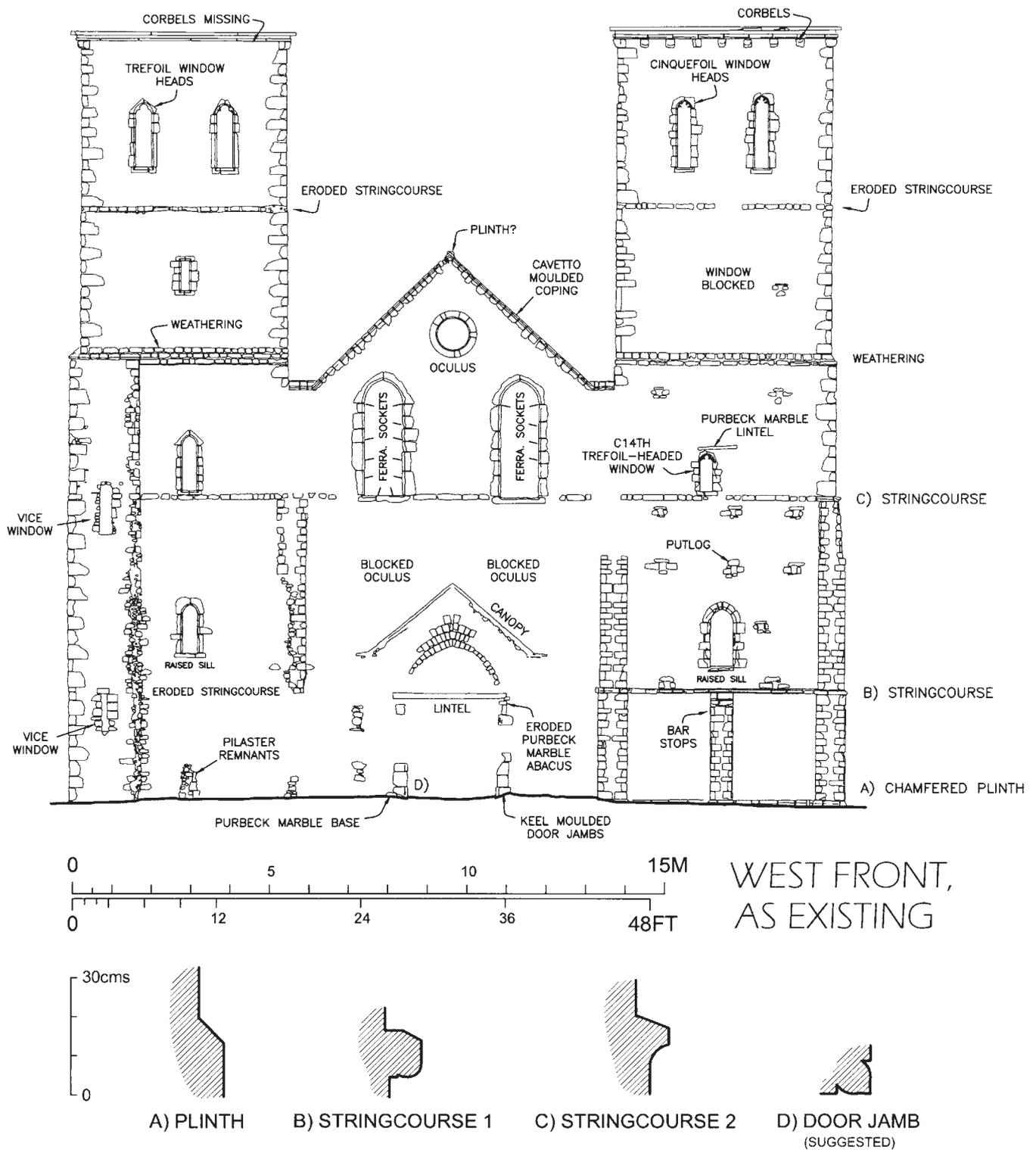
Reculver: south elevation of south tower.

light on lost details of the fabric. Tim Tatton-Brown, the first director of Canterbury Archaeological Trust, visited the site and provided invaluable historical notes and advice; Bernard Worssam assisted greatly in the petrological analysis. Numerous new and interesting observations were made, and a great deal was learned about the form and historical development of the west end. We are grateful to English Heritage South East, and to Gabriella Smith, for the opportunity to study this remarkable structure.

The core of the church at Reculver was erected, c 670, within the remains of a Roman fort. Additional porticus and a western porch were added, probably, during the eighth century, encompassing the original nave and west end; fragments of the western buttresses of the enlarged church can be found incorporated into the fabric of the later towers. The church, and its huge



Reculver: west elevation.



estates (comprising the later parishes of Reculver, Hoath, Herne and St Nicholas-at-Wade with All Saints, Shuart) were given to Canterbury Cathedral by King Eadred in 949. By the time of the Conquest, chapels of ease had been established to serve outlying parts of this territory, which would eventually break off to form smaller parishes.

Oddly, there does not seem to have been any significant Norman rebuilding of Reculver Church. The arcade arches, cut through the early medieval nave walls, are known to have been pointed, and were probably of late twelfth-century date, inserted shortly before the construction of the present west end.

The responds in western towers differed, in detail, from the earlier arcade piers as attested by sketches and by fragments built into the modern church at Hillborough. Just possibly a new west entrance may have been built around this time – perhaps the source of the keel-moulded Marquise-stone used in the present doorway.

At some point in the very late twelfth or early thirteenth century it was decided to provide Reculver Church with a new west end including two large towers and a richly decorated west door in the high gable-end. This was an exceptional decision, as twin towers are almost always only put on large

monastic churches or very large secular buildings like cathedrals or collegiate churches. The work is unlikely to have started during the political turmoil of Baldwin's archiepiscopate (1184–90), so it must have begun under his successor, Hubert Walter (1194–1205). It is likely to have been interrupted by civil war, soon after Walter's death, recommencing only in the 1220s, after the death of King John and the cessation of hostilities, to be completed by the mid thirteenth century.

The two towers were broadly symmetrical, apart from the inclusion of a vice within the north tower, but the south tower was about a foot broader at its base,

than the north. They rose from shallow, chamfered plinths, and were divided into stages, by string- or weathering-courses, continuing across the west wall. Originally, there were probably only four stages to each tower, rather than the present five; the vice, in the north tower, rose only to the third. The lower two stages of each tower were provided with clasping corner buttresses, with bar-stopped chamfers, weathering-in under the second stringcourse. The lowest stage was provided with additional pilaster buttresses, midway along each face, ending under the first stringcourse; the upper two stages lacked buttresses. Above first-floor level, the interiors of the towers were originally open to the roof, with only ladders and platforms intervening. The fenestration of the towers has seen many alterations since their construction. Originally, their second and third stages had central lancets in each face, resting on their respective stringcourses. The fourth stage had small, narrow, rectangular windows. Similar openings lit the vice. Two large lancets opened atop the second stringcourse, under the gable between the towers and above these, in the gable, was an *oculus*. Two other *oculi* can be seen to have existed below the lancets either side of the door-head. These may, however, already have been blocked by the time the west end was completed (see below).

Today, the richly carved Reigate stone of the west door has eroded almost to nothing, but topographical sources record much of its detail. It projected slightly from the elevation, protected by an ashlar canopy with a moulded coping. The two-centred arch comprised four orders: the innermost was embellished with nail-head or dogtooth ornament above a shallow



Internal face of west wall of nave showing (from top) gable with single central oculus, lancets, blocked oculi and blocked west door.



Interior face of blocked west door. Note plaque commemorating the purchase of the Reculver towers by Trinity House.

moulding; the second comprised a roll and chevron ornament; the third and fourth bore only mouldings. Three blind, trefoil-headed panels, with moulded mullions and splayed sills, occupied the tympanum – the heads of the outer panels being skewed to fit. The bressumer, comprising two stones, rested on a *trumeau* or mullion bisecting the doorway, with a moulded capital and square abacus. An original timber lintel, behind the stone bressumer, survives. The door was flanked by pairs of columns, rising

from Purbeck-marble bases to stiff-leafed capitals and square abaci, also of Purbeck marble. The door jambs, rebated internally, were embellished with a keel moulding, which probably terminated in a bar stop at the base. This fabric, composed in part of Marquise stone, may, as we have seen, have been re-used from an earlier door, perhaps in the previous west front. Internally, the single order of Reigate voussoirs was moulded with a double chevron.

The interrupted construction of the west end, across



W B Cooke's engraving after a drawing by S Owen; an early nineteenth-century view, published 1816.

the first half of the thirteenth century, may account for some of the inconsistencies evident in its fabric. Judging by differences in the concentration of Thanet Beds sandstone, there may have been a break in the construction of the west front at about the level of the second stringcourse, possibly accompanied by a change of design, or even the remodelling of an earlier, completed gable. The two blocked *oculi* evident internally may have belonged to the original design and the two supervening windows, to a redesign. Alternatively, the west end may formerly have terminated in a rather lower gable over the two *oculi*, and this entire gable may have been rebuilt at some later date. The fourth stages of the towers may, likewise, only have been completed after the interruption, and may not have been envisaged at the outset. Also after the early thirteenth-century interruption, the chancel seems to have been rebuilt to a rectangular plan, perhaps alongside, or shortly after, the completion of the west end.

Between 1278 and c 1310, the church and parish

of Reculver were involved, almost without let-up, in political and financial disputes. The great size and wealth of the parish led to fierce conflict over patronage and tithes, and, as the population increased, there was pressure to devolve power and resources and provide improved ministry to the outlying chapels of ease. These chapels now became separate parishes, but were still expected to contribute funds to their mother church. Little building work is likely to have taken place during this turbulent period, and the fabric of the west end seems to bear this out. From the late fourteenth century onwards, however, a number of repairs and alterations can be identified, perhaps extending into the fifteenth, and possibly even the early sixteenth century. Much of the original dressed work had been of Reigate stone, a soft material unsuited to exterior use. This seems to have failed at an early date, requiring repairs in Kentish ragstone. As they decayed, many of the windows were blocked, or reduced in size by raising their sills; others were replaced with smaller

windows, including a trefoil-headed window in the west face of the south tower. The roofs to the nave, aisles, and chancel were rebuilt at a much shallower pitch, and the aisle walls raised and provided with crenellated parapets. Two of the east-facing tower windows were adapted to provide doors onto the rebuilt aisle roofs. The late nave roof cut across the former gable, stranding the *oculus* above the ridge, and passing across the gable windows. The upper parts of these windows were blocked to conceal the new roof-line.

The uppermost stages of the towers seem to have been added in the late fourteenth or early fifteenth century, with pairs of windows in each face, under trefoil and cinquefoil heads. Reculver's steep broach spires were probably added at the same date, carried on projecting corbel tables. The addition of the spires is interesting, perhaps, in connection with the principal legend of Reculver church, the story of the 'two sisters', which suggests, erroneously, that the towers themselves were built as a seamark in



Exterior face of blocked west door. Note original timber lintel and the remains of its Marquise door jambs.



Severely eroded Reigate stone voussoirs of west door.



Engraving by W Deeble (after Gastineau) presumably of 1813. Note the exposed brickwork in the post-medieval(?) repairs to the jambs.



Engraving by WDeeble (after Gastineau) 1813. Note that considerable remains of the chancel and its arch were still standing.

the late fifteenth or very early sixteenth century. We have not investigated the details or provenance of this legend; Reculver had doubtless, however, been of use to sailors even before this time, and it is perhaps not inconceivable the spires may have been intended, in part, to improve its visibility. Camden, in 1586, noted the importance of the spires in avoiding the shoals and sands in the mouth of the Thames.

Like many former monastic churches, Reculver was rather too grand for its parish and it would have been a heavy charge to keep it in repair. From an early date, Reculver's daughter parishes had occasionally resisted their obligations. In the early sixteenth century, Herne's and St Nicholas' contributions were reduced to token payments. Also, the sea was encroaching on Reculver's remaining lands, impoverishing the parish and evicting its parishioners. Much of the post-medieval repair at Reculver Church seems to have been carried out in brickwork, and perhaps to a poor standard. This included encasing and rendering the heavily eroded jambs of the west door; a number of windows, including those of the fourth stages of the towers, may also have been blocked around this time.

During the late eighteenth and early nineteenth centuries the story of Reculver Church evolved, with a kind of grim inevitability, toward its partial demolition in 1809. By 1711 the encroaching sea was exposing Roman antiquities from the vicinity of the fort; by the

middle of the century, it must, at least, have been threatening the walls, and was casting serious doubt on the future of the church. If fabric repairs were a heavy burden on the parish, the provision of adequate sea defences must have been almost unthinkable. The help of Trinity House was sought, in view of the church's role as a seamark, but by this time St Nicholas' Church and Monkton Mill were apparently considered more valuable. In the mid 1780s, a new vicar, the Rev Richard Morgan (1782 to 1804) arranged for new sea defences, replacing some piles and planks which had been installed by the Sewers Commissioners. The new defences were designed by the recently knighted military engineer, Sir Thomas Hyde Page, and included fascines planted near the cliff edge a little below high water mark. The brief optimism, engendered by the new sea defences was sufficient for the parish to replace their old box pews.

By the early nineteenth century the church wore 'a look of decay, the materials having greatly mouldered away, from its being so much exposed to the weather, and the corrosive quality of the sea air' (Hasted 1800). Some of the battlements were down; lead had blown off the spires, onto the roof. Toward the end of September 1804 strong winds and high tides damaged and destroyed several Reculver houses (including a reputed ancient monastic building) and washed away part of the churchyard. In 1807 local farmers allegedly removed stones, and timbers from the sea defences, for

sale and for their own use. In March that year, the Sewer Commissioners wrote to Trinity House concerning the 'ruinous state of Reculver Church, an ancient seamark' and noting that 'the inhabitants [had] no intention to rebuild it.' Some of the elder brethren were sent to investigate, finding the cliff had come within 82 feet of the church. The engineer John Rennie (1761–1821) was working locally and was asked for advice. He devised sea defences at an estimated cost of £8,277, predicting considerable further expense in repairing the church – more, of course, than Trinity House could justify spending. Arguably, Rennie's scheme may have been excessively grand, and his assessment of the church fabric unduly pessimistic; it may, in fact, have sealed the church's fate.

In 1808 a parish meeting voted to demolish the church and re-use its materials on a safer site. Faculty was granted early the following year. The bells were taken down at the start of August 1809, three being sold and one retained. Much of the roofing lead had been stripped by the end of that month. Brasses were soon reported lifted from the chancel; and the new pews quarried for timber. Despite predictions that the wall fabric would not repay the expense of demolition, the parishioners began to dismantle the stonework, supposedly, and not implausibly, resorting to gunpowder. Considerable portions survived, however, to moulder away gradually over the course of the century; the wall dividing the nave from the



Interior of vice contained within north tower.



Inserted, late fourteenth-century, west facing trefoil-headed window, south tower.



Original, west facing lancet, south tower. Note later, raised sill atop large block of glauconitic Ragstone.

chancel survived, at least until 1813, with one of its famous columns still standing. Brasses and remains of tombs could, apparently, still be found in 1819, when there were still fragments of painted glass in several of the windows; some of the ironwork survived well into the century. Part of the fabric, including some carved work, found its way into the new parish church of St Mary at Hillborough (a rather poor castellated gothic replacement, designed by Jesse White) which was consecrated in 1813. This was demolished after only sixty years, and the present structure built in its place, reusing some of the *spolia* for a second time.

Belatedly, by the end of August 1809, Trinity House experienced a change of heart with regard to Reculver. The sea was judged to have relented, and the brethren could now cautiously admit that, although the towers were not 'a necessary seamark,' they nevertheless remained 'a very conspicuous and useful land mark for the coast'. They bought the towers for £100, and appointed the architect and engineer Daniel Asher Alexander, designer of Mote House, Maidstone (Seary 2011, 28–33) and other important works in Kent – to design affordable defences and repairs. Early in their ownership, Trinity House made good the stubs of the aisle walls and nave arcades in brickwork to resemble buttresses with offsets. The windows in the fifth stage of the northern tower were probably also blocked at an early date. Alexander's proposed sea defences, comprised 'groins to be run out upon the beach in certain directions', such as were employed successfully elsewhere on the coast. Works were under way by the end of November 1809. Somewhat over budget, and with results initially disappointing, the scheme was briefly dropped, but the situation was reviewed early in 1812, and repairs and additional works commissioned.

In February 1813 the south spire of the church, which had long since been stripped of lead, blew down in a heavy gale. The northern spire was damaged and would fall in mid November. By late September 1816 two masts had apparently been erected in place of the fallen spires, but work on the structures seems to have continued well into

the second half of November. They were finished by mid December, except for the northernmost, which was then ordered to be painted black, presumably so that sailors could tell whether they were seeing the towers from the east side or the west. The masts bore 'marks of discrimination' in the form of large timber wind vanes. In October, 'more conspicuous marks' were ordered, and skeletal octagonal pyramidal timber frames were set up around each mast. These were often, subsequently, referred to as 'spires'; they required frequent repairs. In 1819 Trinity House fixed an inscription over the west door, commemorating their role in the towers' preservation.

There seems to have been a fairly major programme of repairs carried out to the towers in the mid 1830s. Much of the exterior may have been rendered and the towers also seem to have been roofed-in, or their existing roofs renewed. The west door may have been blocked with brickwork around this time, and the *ferramenta* removed from the windows of the west front.

By the mid nineteenth century the Reculver Towers were visited with some frequency by tourists, drawn by the romantic appearance and situation by now widely celebrated in literature. They were also, no doubt, drawn by the spectacle of human bones occasionally tumbling from the cliff edge in the churchyard. Tourist interest may explain why Trinity House's later repairs include clumsy cement reproductions of architectural details such as missing stretches of stringcourse. At some point, probably in the 1880s, the masts atop the towers were reduced in height, so the vanes turned just above the spires. This probably reduced the need for repair; and may also have reflected the Towers' decreased importance to navigation. Improved sea-defences, in ragstone, were provided in 1866.

Reculver was garrisoned, with barbed-wire defences, during the First World War. In October 1923 the south tower was struck by lightning, dislodging the vane from its mast. By this time Trinity House were negotiating the possible surrender of 'the Reculvers' to the Ministry of



J & F Harwood's engraving of 1842; this may, possibly, be based on a drawing of c 1816, when the masts had just been placed on top of the towers.

Works. The following year, they dropped the stipulation that the towers be maintained as seamarks, and the Ministry accepted guardianship toward the end of June. In 1924 and 1925, Gordon Home raised funds to purchase other portions of the Roman fort which were threatened by plans to build bungalows. Repairs to the church ruins and sea-defences had begun by 1926, and nearly £2,300 had been spent by the end of the following year. The Ministry may well have stripped the remaining fragments of mid nineteenth-century render from the walls. They removed the brickwork from the stubs of the nave arcade and aisle walls, whilst the brick blocking in the west door was taken out and replaced with the present rubble. The Ministry re-opened the upper windows in the north tower, repairing the embrasures in yellow brick. Late nineteenth-century iron bands were removed from the upper stages of the south tower.

During the Second World War, the fort at Reculver was again a hive of activity, shared, at any given time, by a number of different military units and other bodies. At most of the monuments in their care (including Richborough) the Ministry of Works seem to have experienced reasonable cooperation from occupying units in protecting the archaeological remains. At Reculver, however, their 'guests' moved in unannounced and were less well-behaved; the Ministry was misled, and intrusive works were carried out without consultation or warning. In 1940 much of the surviving portion of the Roman fort was garrisoned by infantry, who re-fortified what was left of its perimeter with slit trenches and machine-gun pits. An extensive stretch of Roman wall was reported undermined by a 'firing trench'; other trenches were dug in the narrow strip of ground overlooking the sea defences, around the northern half of the church ruins. One (3 feet deep and roofed with pit-props, corrugated iron, and sand-bags) fell immediately in front of the north and west walls of the northern tower, threatening its stability. Another trench, on the site of the north porch, exposed and appeared to have removed part of the foundations. Here, the site's custodian tried to intervene and a compromise was reached. The commanding officer, however, insisted that the trench be excavated to its regulation depth, asserting, perhaps understandably, that 'the war and defence [was] of more importance than footings and ruins'. Almost certainly, the towers themselves would have been used as a lookout. Judging by wartime graffiti, they also seem to have been a popular resort for troops, including Royal Army Service Corps personnel who were, at one point, concentrated in great numbers around Herne Bay.

Bilting Court, Godmersham, Ashford

Rupert Austin

Bilting Court is located in a rural setting along the north-west side of the A28 Ashford road, approximately 13kms from Canterbury (NGR 05427 49440). The property is Grade II listed and contains the remains of a fifteenth-century timber-framed hall



Front elevation of medieval element of Bilting Court, showing later brick rebuilding of the timber-framed elevations.

house. At the end of the nineteenth century this lay at the centre of a working farm, but the farm buildings that once surrounded it have now gone.

The house is large and rambling and has been rebuilt and extended on many occasions, most recently in the 1930s when a new wing was built. All of the elevations have now been rebuilt in brick, disguising the early origins of the building, but the older part retains its historic shape and the suggestion of something ancient inside.

The property recently changed hands, and the new owners, interested in learning more about the history of the house they were about to restore, commissioned an archaeological appraisal which was undertaken in October 2010.

The historic part of the property is aligned north-east to south-west and comprises six elements: a central open-hall, flanked by cross-wings to the north-east and south-west, two lean-tos to the rear, and a small extension to the south-west.

Period 1: the medieval north-east cross-wing

The oldest part of the house appears to be the north-east cross-wing. Two jowled posts in the property's rear wall, where the present hall and wing abut, indicate that originally two timber-frames stood side-by-side. The wing and hall have since been combined by removing the wall that once lay between them. No evidence for the framing of the north-east wall of the hall can be seen on the hall's northern corner post, and this must therefore have been provided by the cross-wing, showing the wing to be the earlier structure. The wing, which is probably of early to mid fifteenth-century date, perhaps belonged to an earlier hall on the site.

The two bay cross-wing measures approximately 6.5m in length by 4.8m in width. It was once of two storeys, standing approximately 0.6m higher than the extant hall, but its first floor was removed in modern times (see below), and it is now open from ground level into the roof. Unfortunately it has

been mostly rebuilt and the roof is now the only significant original part. This is of crown-post form with a single central post with an octagonal shaft and simple moulded capital and base. The timber-framed elevations have all now been replaced with brick, but it is possible it was jettied to the front or side, or perhaps both.

The function of this wing is unclear from the few features that remain, but cross-wings were generally found at the high-end of houses and contained the better rooms (the parlour on the ground floor and solar (master bedroom) on the first floor) and it seems reasonable to suggest such a purpose here. It seems, though, that the better rooms of the house were moved to the opposite end of the building when the hall was rebuilt and a new cross-wing was formed to the south-west (see below). The status of this wing was probably reduced to service use at this time.

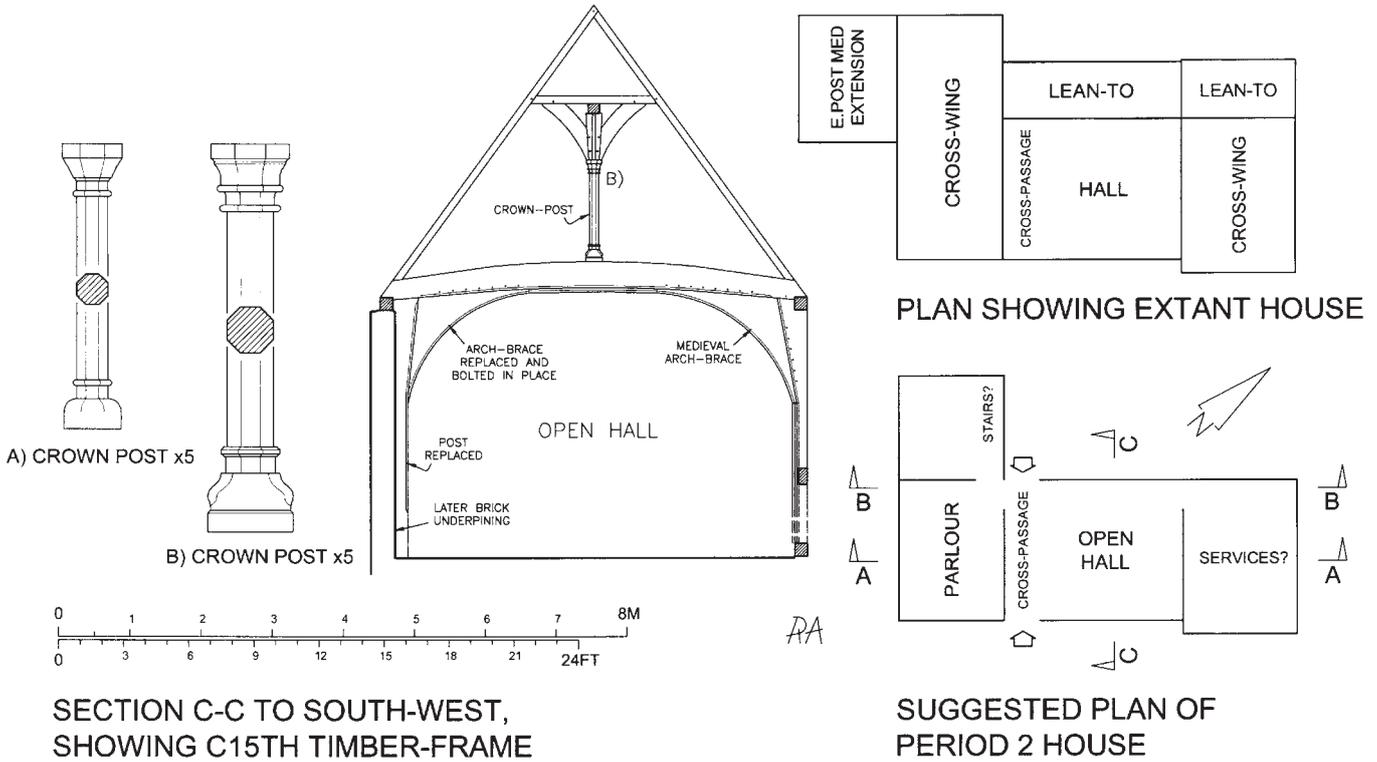
Ground and first floor rooms

A single two-bay chamber occupied the wing's first floor, this open to the roof, the decorated crown-post exposed to view. No evidence for the ground floor arrangement remains, but if this were a high-end wing, one would have expected a single ground floor room (parlour?). There is presently no evidence to suggest that the wing's rooms were ever heated. We can now only guess what sort of structure the wing was once attached to, but an earlier and perhaps smaller hall seems likely. Whether the wing was contemporary with this, or a later addition, is unknown.

Period 2: the medieval hall and south-west cross-wing

High and low ends

A new open-hall, of two-bays, accompanied by a new south-west cross-wing, replaced the original putative hall in perhaps the second half of the fifteenth century. Surprisingly the conventional high and low arrangement that can be seen within most medieval



houses, whereby the better rooms are placed at one end of the building and the lesser rooms at the other, was not followed when the new hall and its wing were built. The new hall's low bay, that containing the cross passage, lay to the south-west. One would have expected the new wing, therefore, to have contained service rooms, but this is not so. Its arrangement is clearly that of a high-end wing, one which contained a parlour and solar. Such deviation from normal practice is unusual but not unknown.

The open-hall

The new hall was large, measuring approximately 7.67m long by 6.16m wide, its eaves approximately 3.3m above its ground plate. It was aligned north-

east by south-west. Much of its fabric has survived. Surprisingly it never appears to have been floored, remaining open to the roof to the present day. The vast majority of Kent's medieval halls have been floored over, and it is rare to see one which has not.

A crown-post roof

The hall's impressive roof has survived virtually unaltered. It is of crown-post form with timbers soot-blackened from the fire that once burned below. A handsome crown-post is present within the centre of the roof, with octagonal shaft and a moulded base and capital. Crown-posts are also present at each end of the hall roof, but these are plain and square, that at

the south-west end of the roof still within a smoke blackened wattle and daub partition.

The central open-frame

The hall's open central-frame, upon which the aforementioned crown-post sits, also survives, albeit now partially restored. The jowled rear post of this frame and its substantial arch-brace, and the tie-beam they support are medieval, but the front post and its arch-brace have been replaced (see below). The tie-beam is gently cambered, its soffit embellished with cyma and cavetto mouldings, the cavettos running contiguously onto the arch-braces and then onto the posts.

High-bay



Fifteenth-century open-hall, looking south-west.



Hall crown-post.



Detail of capital of the hall crown-post.

The rear wall of the hall was internalised in later years by a lean-to, and as a result was not rebuilt in brick. A large four-light window, complete with diamond section mullions, is located here, within the high-bay, albeit now blocked with daub. The mullions are a rare survival. Shutters were used to close this window at night or against inclement weather. The upper shutters were hinged and small holes for the pintels upon which they hung can be seen on the surrounding timbers. The lower shutters slid in a groove. This groove survives on the soffit of

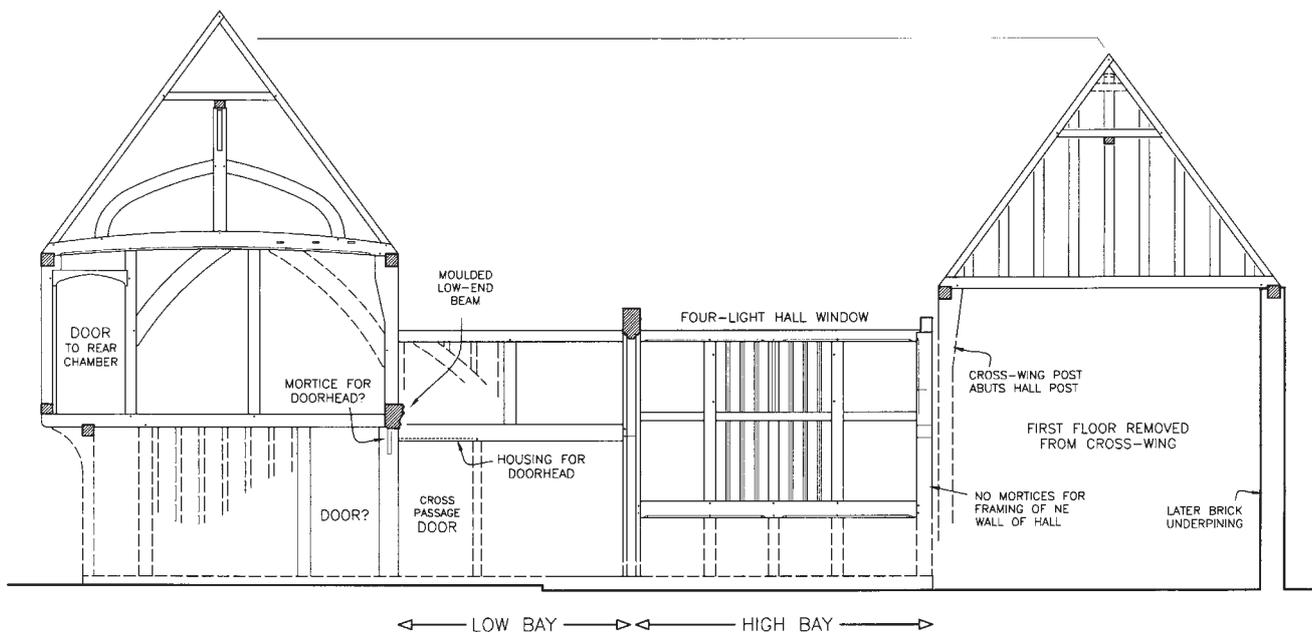
the window's transom. The hall's front wall has been rebuilt in brick and the front window lost, but it must have been similar.

Low-bay

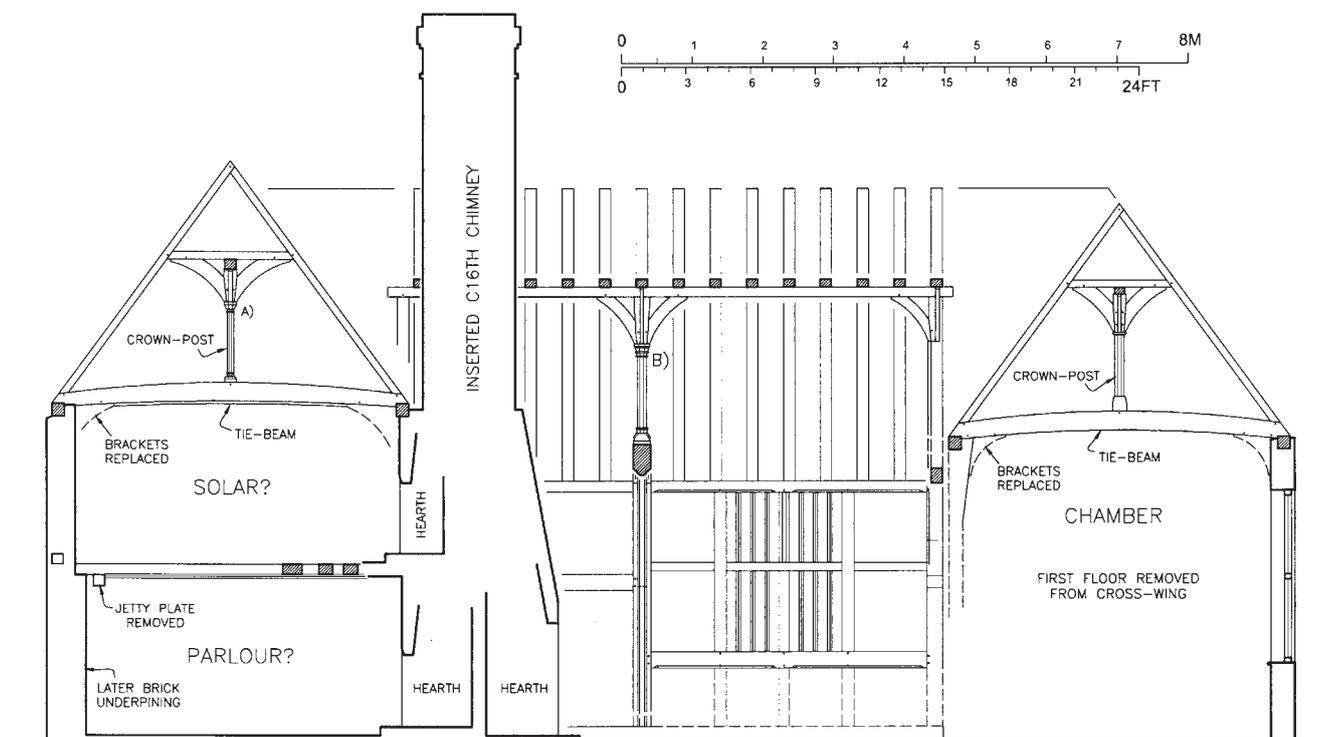
Cross passages always passed through the low bays of medieval halls, between the front and rear door and Bilting Court is no exception. The cross passage here was blocked in later years by a chimney (see below), but evidence for the rear door survives. A

shallow housing for a shaped door head can be seen on the soffit of the wall-plate. The modern front door is located in the position of the original medieval front entrance.

The hall's low-end wall is integral with the contemporary south-west cross-wing, but is mostly now obscured by the aforementioned chimney and modern partitioning. A moulded low-end beam and some heavily soot-blackened timbers and wattle and daub can, however, be seen. Moulded beams were usually only present at the high-end of halls above



SECTIONAL ELEVATION B-B, SHOWING C15TH TIMBER-FRAME PARTIALLY RESTORED



SECTION A-A, SHOWING C15TH TIMBER-FRAME PARTIALLY RESTORED

RA



Inserted ground floor hearth, north-east wall of south-west cross-wing.

their dais benches, but occasionally, as here, they were present at the low-ends. A mortice for a door post on the soffit of the beam shows that the door to the cross-wing was located at the rear. A mortice in the adjacent post of the rear wall suggests this was fitted with a shaped door head.

South-west cross-wing

The south-west cross-wing is contemporary with the extant open-hall, its arrangement and features suggesting it to be a high-end wing. The wing measures approximately 11.03m long by 5.02m wide and is three bays long. It is of two storeys, originally double jettied (see below) and is covered by a crown-post roof.

The cross-wing originally accommodated two ground floor rooms, but alterations have been made. The wattle and daub partition that lay between the two rooms has been removed and new partitions inserted to the north-west and south-east, one to contain the present staircase, the other to form a passageway. Evidence for the original partition survives on the soffit of the first floor wall-plate, including evidence for a door that provided access between the two rooms.

The front room comprised two bays, and must have been the parlour. This room would have been unheated at first, but a fireplace was inserted into its north-east wall in later years (see below). The joists and a cyma and cavetto moulded beam are exposed over this room, but more interesting is a dragon-beam over the south corner of the room, showing that the wing was originally jettied to the south-west and south-east. A long mortice is present beneath the end of this beam for the blade of the now missing dragon-post.

The rear room comprised only a single bay and must have contained the wing's stairs. It still does, but the handsome winding oak staircase present today is later work. The medieval stairs would have been considerably simpler, comprising little more than a steep flight of solid oak steps.

Two rooms or chambers were also present on the first floor, the front again of two bays, the rear of one. This arrangement remains, the timber-framed, wattle and daub partition between the two chambers surviving mostly intact. A door in the south-west end of this partition gave access between the two rooms; this has a simple four-centred door head with a plain cavetto moulding.

The front chamber must have been the solar. A decorated crown-post with slender octagonal shaft and a simple base and capital is present above the centre of this room, sitting atop a gently cambered tie-beam with cyma and cavetto mouldings on its soffit. Arch-braces were present beneath the ends of the beam; the extant braces are later replacements. The chamber would have been open to the roof, as it is today, and the crown-post exposed to view. It was probably unheated at first, but a fireplace was inserted into the north-east wall in perhaps the sixteenth century (see below). Interestingly a blocked door can be seen in the once external south-west wall of the rear chamber where formerly a small garderobe was located: the waste from this small timber-framed projection probably fell into a cess pit below.

Period 3: early post-medieval

Chimney

The hall here, unlike most, seems never to have been floored. A substantial chimney was inserted into its low bay in perhaps the mid to late sixteenth century, in place of its open hearth. This was built against the low-end wall, thereby blocking the medieval cross-passage. Despite this the front and rear doors of the house seem to have remained in use, entering into small lobbies.

Only one hearth is present on the hall side of the chimney. This is 2.78m wide, its opening supported by a plainly chamfered cambered oak lintel with lambs tongue stops. This is necessarily the dwelling's principal hearth. There never seems to have been a hearth above, but this would not be



First floor chamber (solar) of south-west cross-wing, looking north-west.

expected if the hall was never floored.

Two handsome stone fireplaces are present on the south-west side of the chimney, both with moulded, four-centred lintels and splayed brick reveals. The first heats the ground floor parlour, the second the first floor solar. The chimney appears to have been placed so as to allow room for the ground floor fireplace, suggesting this to be an original feature. The first floor hearth could be a slightly later addition, its flue stitched into an existing stack.

South-west extension

A small two-storey timber-framed structure was built against the south-west wall of the south-west cross-wing in perhaps the late sixteenth or early seventeenth century. This has a footprint of approximately 4.1 by 5.5m and was once entirely timber-framed, but its elevations have mostly been rebuilt in brick. It accommodates single ground and first floor rooms, and is covered by a clasped side-purlin roof. A chimney has been inserted into the north corner of this extension, its first floor hearth now fitted with a cast-iron Victorian horseshoe grate.

A single-storey lean-to

Lean-tos are now present to the rear of both the hall and north-east cross-wing. That to the rear of the hall is the earlier. It is of brick construction, the rafters of its roof of hand sawn oak, laid on edge and typically measuring 3½ by 5 inches.

Period 4: eighteenth and nineteenth centuries

Brick underpinning and windows

The elevations of the house were mostly underpinned in brick in later years with the notable exception of the rear elevation of the hall, which, as we have seen, was internalised by a lean-to. This underpinning appears to have been undertaken in stages, perhaps

towards the end of the eighteenth century, but within a relatively short space of time, for the brickwork is all of similar appearance. Regularly formed 2½ inch thick red bricks were used, laid in Flemish bond in lime mortar with penny struck pointing. A plain stepped plinth is present beneath the front and sides of the property, but no first floor stringcourse.

Lean-to

A second lean-to was built to the rear of the north-east cross-wing, sometime after the elevations of the cross-wing had been underpinned with brick.

Period 5: modern alterations and additions

A new south-west wing was added in the 1930s almost doubling the size of the house. Its construction may have triggered some refurbishment and modernisation of the older part of the building. Towards the second half of the twentieth century the floor of the north-east wing and the wall that lay between the wing and hall were removed to create an artist's studio. The open-frame at the high-end of the hall, with its substantial arch-braces and tie-beam, was probably inserted at this time in place of the removed wall and a large, two-storey window was introduced into the wing's north-east wall to improve the light.

Old Cloth Hall, Coursehorn Lane, Cranbrook

Rupert Austin

The Old Cloth Hall is located approximately 1.5km east-south-east of Cranbrook (NGR TQ 7910 3573). Alterations to this Grade II* listed house being considered during the early part of 2011, required an understanding of the historic fabric and the Trust was commissioned by the present owners to undertake an appraisal of the property.

The property's name suggests a connection with the cloth trade, and certainly by the middle of the fourteenth century Cranbrook was the principal cloth market in the Weald. The town's prosperity in this respect started during the reign of Edward III (1327–1377) after continental clothiers, particularly Flemings, settled in the Weald, bringing their clothmaking skills with them. An abundance of the natural resources necessary for this industry, and the town's position at the centre of communications further contributed to its success. Master clothiers built cloth-halls, which typically served a two-fold purpose, as both dwelling and as office and warehouse. At least nine cloth-halls from the fifteenth and sixteenth centuries survive in Cranbrook. Cloth manufacture declined in the late sixteenth century, but production continued for another century or so. The last Cranbrook clothier making broadcloth died in 1740. Some of the features of the house revealed during this appraisal suggested, albeit tentatively, that the building may indeed have had a connection with this trade.

The Old Cloth Hall now comprises three ranges arranged to form a rough U shape in plan. Its development is complex, and four major periods of work can be found in these ranges along with other more minor alterations. For the purpose of this report we will call these the east, west and south ranges – in reality they are aligned slightly away from true compass points. The earliest fabric is to be found in the east range, and is medieval in origin, dating perhaps to the fifteenth century. It is most likely the remnants of a timber-framed open-hall house. Only two bays of this structure remain, but there must once have been more. They are located at the south end of the east range, but have been much altered. A long, five bay, timber-framed structure forms the remainder of the east range, dating perhaps to the early sixteenth century. A two-bay, timber-framed south range was added to the west of the medieval bays in perhaps the middle of the sixteenth century. The last significant change occurred in the 1930s, when the house was restored and a west range added in a half-timbered, arts and crafts style.

The remnants of a medieval open-hall house

The footprint of the surviving bays of the medieval structure are easily identified in plan, for the bays are wider than the adjacent early sixteenth-century range and an offset is therefore present along the east side of the house. Unfortunately much of their fabric has been lost and we can only gain a partial understanding of them. It is suggested that the southern bay is one of the floored, in-line wings of the medieval house. This bay is jettied only on the south side, suggesting an end-jetty house rather than a Wealden.

Most of the bay's joists have survived, these being substantial and laid flat in the medieval manner. A plain bracket survives beneath the west corner of the jetty. A trimmed opening, now blocked, is present within the floor, where stairs to the upper chamber once passed through. No evidence could be seen to suggest the ground floor here was divided into two rooms, and it is perhaps most likely to have

been the high-end wing. The only other medieval timbers presently visible within this bay are three jowled posts, a tie-beam and parts of the original eaves-plates. It is of note that the eaves-plates of the medieval bays are lower, by approximately 12 inches (30cm), than those of the adjoining early sixteenth-century bays.

It is suggested that the northern bay formed part of the open-hall and was therefore once unfloored and open to the roof, but little fabric survives here, and this is difficult to prove. It is notable, however, that no substantial medieval joists are present; instead there are later thinner joists arranged around an inserted chimney. Unfortunately the medieval bays have lost their original roof, and no evidence of its form is visible, but it is likely to have been a crown-post roof.

Most open-halls were two bays long, and this one was probably no exception. If so we have lost the northernmost bay of the hall. Furthermore, most hall houses had floored wings at each end of the hall, so we might also have lost a floored northern wing, also perhaps end-jettied. If the missing bays existed they would have been demolished when the early sixteenth-century range was built.

The early sixteenth-century east range

The north end of the medieval house was demolished in perhaps the early sixteenth century and replaced with a longer, two-storey, five bay timber-framed range terminating in an end-jetty. For the purpose of this report we will number its bays from the north. The range measures 15.12m in length, and is far better preserved than the medieval bays. A brick- and stone-lined cellar lies beneath its first two bays. A garret occupied part of its roof from the outset. Interestingly a small contemporary stair tower projects from the west wall of bays 3 and 4.

Large-panel framing, with long curved down-braces, a style very much in the medieval tradition, is present in the west wall of the range at first floor level in the first two bays. Within the north end-wall of the range close-studding is present, a more extravagant form of framing that was often reserved for the more



West elevation of the East Range, showing large panel framing with down-braces. Note projecting stair tower.



East Range, east elevation, showing medieval bays (left) and sixteenth-century bays with chimney (right), both now tile hung and with brick underpinning.

prominent elevations of a house. The present ground floor bay window belongs to the 1930s restoration, but evidence for the original window survives. Redundant mortices for the sill and transoms of a large mullioned and transomed bay or oriel window can be seen along with a shallow groove for the leaded glass of its east side light. The bay or oriel was flanked by clerestory lights. That to the east survives but is blocked, that to the west probably survives behind tile-hanging.

A large window is also present on the second floor, but the seventeenth-century oak frame with its slender ovolo moulded mullions, has been imported from elsewhere and adapted to fit the opening. A shutter groove for the original window can be seen, but whether this was an oriel or flush window is unknown. Another window was present within the gable, but this too has been renewed.

A substantial and contemporary brick chimney, with sandstone quoins and plainly chamfered plinth, rises up against the first bay of the east wall of the range, its two hearths heating the northernmost ground and first floor rooms. Both hearths have four-centred stone lintels. The ground floor hearth is the most elaborate, its jambs ogee and cavetto moulded, its left spandrel carved with foliage and a fleur-de-lis, its right spandrel with foliage and a Tudor rose.

We are fortunate that the joists and beams that make up the first and attic floors are exposed throughout the range, because inspection of these and other timbers allows us to understand the internal arrangement of the range. The ground and first floors were divided into three rooms. The northernmost ground floor room occupied bays 1 and 2 (now part of the drawing room) and was clearly the best room, for it was illuminated by the aforementioned oriel/bay window and heated

by the aforementioned hearth. This room was perhaps the parlour. The joists above it are quite substantial, and were clearly intended to be exposed as they are stop chamfered. The partition between this and the next room has been removed, but empty mortices on a beam reveal where it was located. A door giving access between the two rooms was positioned at the west end of this partition.

The smaller second room occupied the third and central bay (also now part of the drawing room). Interestingly the joists above this room are unchamfered, and of rather poor quality compared

with those above the first room. It must have been present from the outset, for an original door leads into this bay on the first floor. A trimmed opening, presumably for a staircase, is present within the middle of the floor. The small size of this room, and the floor's crude appearance, suggest it was of lower status than the northern room.

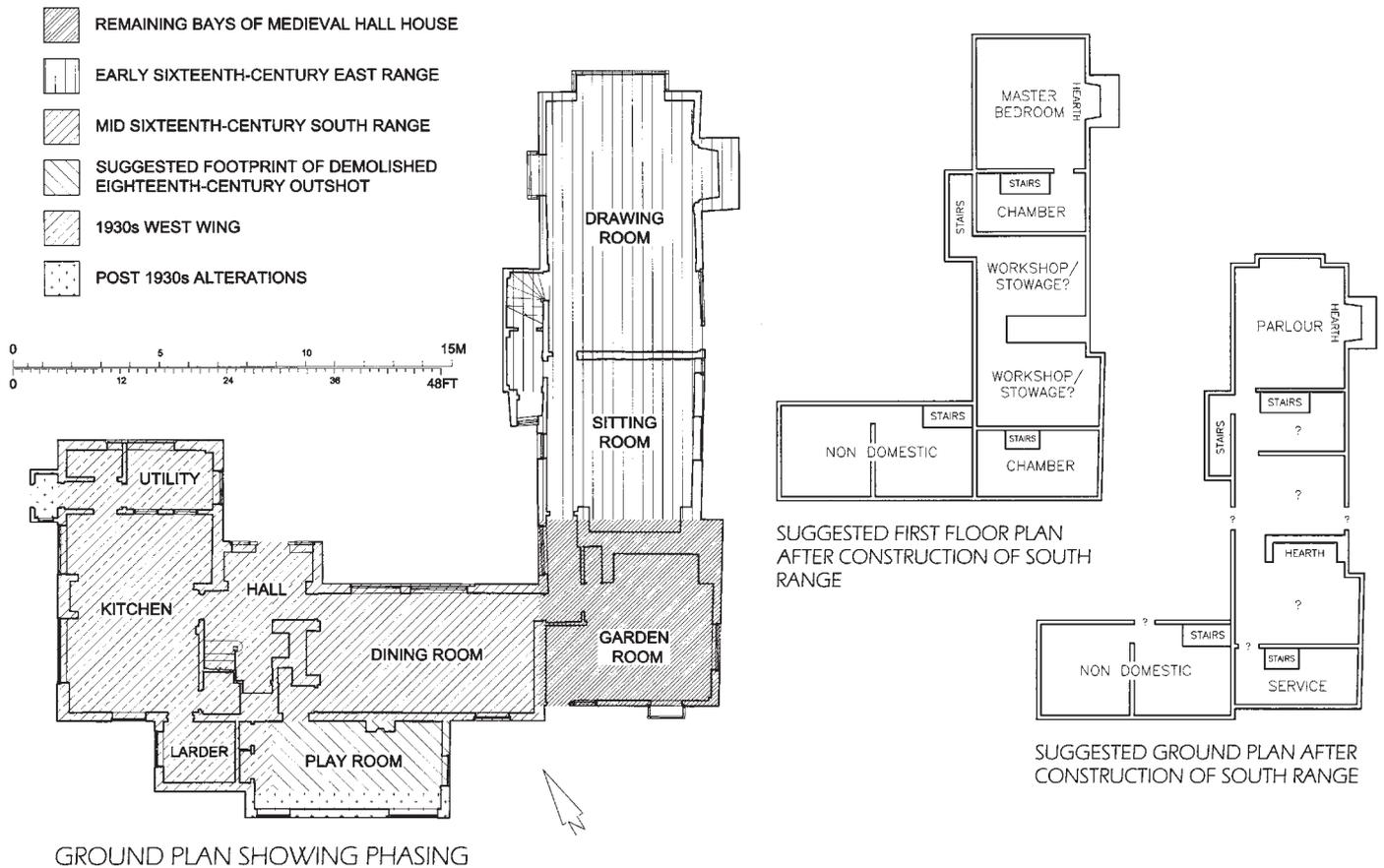
An opening in the room's east wall, clearly an original feature, leads into the projecting stair tower (it is now fitted with a secret, sliding panel). The partition between this room and that to the south survives, albeit now clad with reproduction oak panelling. A



Jettied and close studded north elevation of East Range.



Detail of sixteenth-century chimney of East Range.



GROUND PLAN SHOWING PHASING

door is present at the west end of this partition.

The third and southernmost room, now the sitting room, occupied bays 4 and 5. The joists here are again substantial, and of plain appearance, but of better quality than those above the second room. Interestingly, however, only two are present in bay 5, the remainder of the floor here comprising slender, later joists. Inspection shows a large opening was once present in the floor here. Evidence suggests this once accommodated a chimney. A large chimney is, however, located directly to the south of this bay, its northern hearth heating this room, and some explanation is required.

To understand this arrangement we must remember that the sixteenth-century bays here stand roughly where the putative northern bays of the medieval hall house stood, bay 5 approximately in the position of the north bay of the open-hall. It is suggested that when the open-hall of the medieval house was floored over, the chimney that necessarily accompanied this change was inserted into its northern bay. When the later Period 2 range was built, it swallowed up the hall's northern bay, but the inserted chimney remained, the floor of the later range simply built around it. At some point, however, perhaps because this chimney had insufficient hearths, or was no longer in a suitable position, it was demolished, and a new one built immediately to the south. The features of the new chimney (see below) suggest this occurred during the early part of the eighteenth century.

The first floor of the early sixteenth-century range repeats the arrangement of its ground floor, being divided into three similarly dimensioned rooms or chambers. We previously determined that there were

two stairs within the range giving access to these chambers, and it is these that reveal the more unusual arrangement of the range. The first has been removed, but was located within bay 3, giving access to the central chamber and from there the two-bay north chamber. Surprisingly, however, there was originally no communication between these rooms and that to the south. The south chamber, and probably also the upper floors of the adjacent medieval bays, were reached by the stairs in the projecting stair tower. This was the tower's original purpose, but in later years it came to serve the northern chambers as well.

The two-bay north chamber, now the master bedroom, was clearly the best first floor room, for we have seen that it was illuminated by a large window in its north wall and heated by a hearth in its east wall. Evidence for another window was observed in the east wall. This was small and unglazed, with diamond mullions and sliding wooden shutter. It seems at odds with the large and more up-to-date glazed windows in the north elevation of the range, but such combinations are not unknown in transitional buildings, the more old fashioned unglazed windows usually placed within less prominent elevations. An attic or garret was present above this room from the outset, its joists and beams exposed and similar to those of the floor below.

An original partition still survives between this room and the single-bay central chamber to the south. Doors are now present at both ends of this partition, but only the east is original, the west is inserted. There is no evidence for how this chamber, now a bathroom, was lit, but a window can only have been present in its east wall, for the west was abutted

by the stair tower. The attic floor joists are again exposed above this room, and are of better quality than those below.

The partition between this room and the two bay southernmost chamber, now the dressing room, has been much altered and partly removed, but evidence suggests there were originally no doors in it, the south chamber, interestingly, independent of the north chambers. This suggests the south chamber, and maybe those of the medieval bays to which it was perhaps connected, had a different and perhaps non domestic use. Evidence for small original unglazed windows (shutter grooves and, below the west window, a shutter rail) can be seen in the east and west walls. Interestingly the floor above this chamber has been inserted, the chamber open to the roof at first.

We have seen that the attic floors within bays 1 to 3 are contemporary with the range, and garret rooms, illuminated by a window within the north gable, were therefore present within the roof space from the outset. Unfortunately the roof has been rebuilt and is now rather disappointing, comprising only rafter couples. One might have expected to see a clasped side-purlin roof. Many of the rafters, particularly those within the south end of the roof, are clearly re-used, salvaged perhaps from the demolished parts of the medieval house. Soot blackening can be seen on some, suggesting they were once located above the open-hall.

A timber-framed partition was inserted along the west side of the south chamber in perhaps the late sixteenth century to form a passage, allowing one to walk from the stair tower into the medieval bays of



General view of the drawing room, looking north-east.

the house without disturbing the occupants of the south chamber. Such features became increasingly common during the sixteenth century, as the desire for greater privacy increased. In medieval times it was considered perfectly acceptable to walk thorough one or more rooms, possibly disturbing their occupants, in order to reach another.

The mid sixteenth-century south range

A two-bay, two-storey timber-framed south range was built to the west of the medieval bays in perhaps the mid sixteenth century. There have been many alterations here, but the north elevation remains partly timber-framed. No close-studding appears to have been present, but there are a mid-rails, suggesting it to be later than the east range, which lacks such timbers. A clasped side-purlin roof, with wind-braces and raking queen-struts, covers the range. This once terminated in a hip to the west, but was removed in the 1930s when the property was extended (see below). The first and attic floors are of similar appearance, the spine-beams with stop chamfers, the common joists slender (approximately 4 inches wide) and un-chamfered. Trimmed openings, presumably for stairs, can be seen in their north-eastern corners, but are now blocked.

Partitions divided the ground and first floors of the range into two equal sized rooms, but the ground floor partition has been removed, to create one large room, now the dining room. Doors were present in the north ends of these partitions. It seems, interestingly, that the range was originally independent from the rest of the house, as the extant ground and first floor doors from the east range are later features.

Sixteenth-century changes to the medieval bays

The two medieval bays will not have remained untouched while new and more up-to-date structures were built around them, but little later work survives within them. Some will certainly have been removed by modern alterations, particularly those of the

1930s. It is likely that the remaining bay of the hall was floored over at some point in the sixteenth century, but the fabric of this bay was altered in the eighteenth century, when a new chimney was built (see below). The roof over the medieval bays was rebuilt when the south range was formed, and is now of clasped side-purlin form.

The eighteenth and nineteenth centuries

The house, like many of its contemporaries, appears to have declined in status in later years. Buildings such as this were typically subdivided during the eighteenth century into two or more dwellings. By the time of the First Edition Ordnance Survey three or four dwellings appear to have been present within the Old Cloth Hall, perhaps occupied by agricultural labourers. Historic photographs reveal the considerable change in the building's appearance that had occurred by that time. Most of its elevations had lost their timber-framed appearance. Brick had replaced much of the timber-frame at ground level, the first floors mostly covered with tile-hanging.

Weatherboards had been applied to the east wall of the south range. All the windows appear to have been replaced with timber casements with hinged sashes, narrow glazing bars and small panes of glass. Such changes are typical of most buildings such as this. A single-storey outshot, with a catslide roof, was built against the south elevation of the south range perhaps in the eighteenth century.

It was suggested above that a chimney was inserted into the north bay of the putative medieval open-hall, and that this survived the destruction of this bay to be incorporated into its successor, the early sixteenth-century range. It was, however, replaced in perhaps the early eighteenth century by the present chimney. This was not built on the same spot, but in the south bay of the former medieval hall. The construction of the new chimney necessitated reforming the floor in this bay. The void left by the old chimney was infilled: the new joists are slender, typically only 4 inches wide and some are clearly re-used. The chimney now incorporates two large back-to-back ground floor hearths, and two small south facing first floor hearths, but the north facing first floor hearth is a later addition.

Twentieth-century restoration and extension

In the 1930s the Old Cloth Hall underwent an extensive campaign of restoration that saw the property gentrified, and turned from what had become labourers' cottages into a desirable country residence. A substantial new west wing and two-storey entrance hall were added in the Arts and Crafts style, their style mimicking the vernacular of the older parts of the property, with half-timbered, brick, and tile-hung elevations. The single-storey south outshot was probably also rebuilt and extended at this time, and a substantial dormer window built atop its roof. The entrance hall encroached upon the footprint of the south range and changes were made to the older structure here. A new staircase and chimney were formed next to the new entrance hall, the chimney's ground floor hearth formed in rough-faced Ragstone in the Arts and Crafts manner.



Detail of right spandrel of drawing room fireplace, showing Tudor rose and leaf.

The property's interior was thoroughly refurbished at this time and like many restorations of the period, it attempted to restore the building back to times past. New fixtures and fittings were introduced in what was deemed a suitable historic style, but frequently perhaps without historic precedence or correctness.

Conclusion

The Old Cloth Hall is an interesting building with a number of unusual features, but its development proved complex and a challenge to understand. Its two surviving medieval bays are poorly preserved and it is the less altered early sixteenth-century bays that are perhaps the most interesting. Sufficient evidence survives within these to allow their arrangement to be suggested with some confidence.

The first three bays appear to have been domestic in nature. The northernmost ground and first floor rooms here were each of two bays, heated by handsome stone fireplaces and illuminated by large glazed windows, that on the ground floor an oriel. The southern bays appear to have been rather more primitive, the southernmost upper chamber once open to the roof, but now ceiled by an inserted attic floor. This room and perhaps the upper floors within the adjoining medieval bays were reached independent of the domestic rooms by their own staircase located in a projecting stair tower. The arrangement raises the possibility that the rooms were not for domestic use. Had the property therefore become a clothier's house by this time, with the east range serving a two-fold purpose, as both dwelling and warehouse?

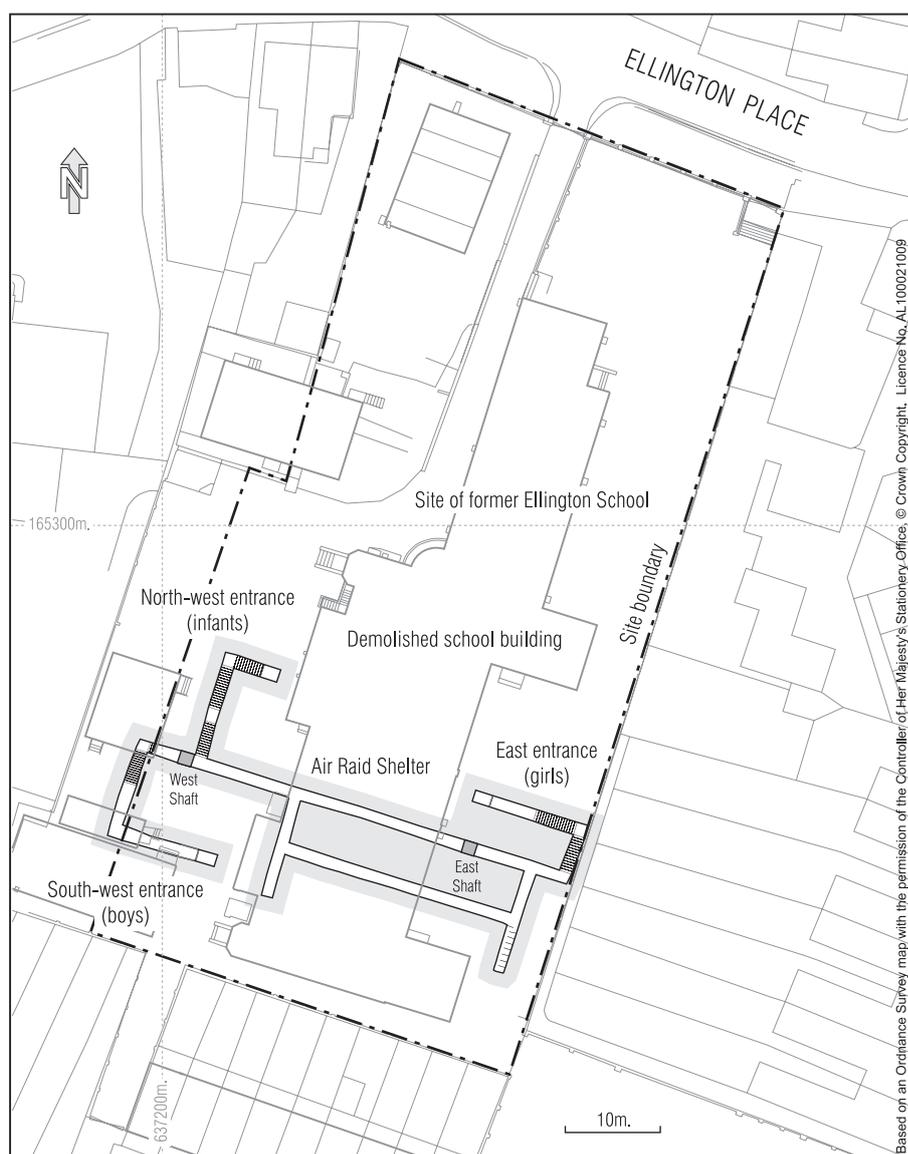
A southern range was added in perhaps the middle of the sixteenth century. It is difficult to determine the use to which this range was put, but it appears to have been independent of the rest of the house. An early photograph shows its north elevation with only two small windows, one shuttered. These features suggest its function was not a domestic one, and it may therefore have been built for agricultural use, but a connection with the cloth trade cannot be ruled out. The small windows suggest it was used for stowage and not as a workshop.

Ellington School, Ramsgate

Crispin Jarman and Peter Seary

On 29 April 2010 groundworks at the site of the former Ellington School, Ramsgate, breached the roof of a stair tunnel leading into a chalk cut air raid shelter, believed to date to the First World War. Initial inspection indicated that the tunnels were well preserved with only minor collapse, except in the upper extents of the entrance stairs, probably resulting from the current groundworks. A number of fittings and much graffiti were preserved within the tunnels.

The Ellington School recently moved to new premises and the old site, located at Ellington Place, St Lawrence (NGR 637230 165290), is now the subject of redevelopment. The school buildings



Ellington School location plan.

were demolished in early 2010 and affordable housing erected on the site. The Trust had previously been commissioned to conduct an evaluation and a (then ongoing) watching brief at the site during these works.

On discovery of the shelter, a programme of survey was agreed with the KCC archaeological officer. Photographic survey was undertaken by Andrew Savage, assisted by Adrian Murphy, and documentary research and a graffiti survey by Peter Seary. Mapping of the tunnel was conducted by Crispin Jarman assisted by Russell Henshaw.

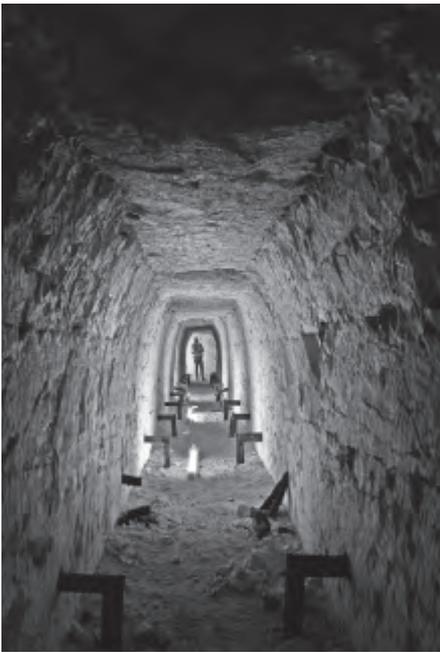
Thanks are due to ISG Jackson, their site manager, Paul Wallis, and the sub-contractors, Cliffe, for their assistance during these works. Thanks are extended to Rod LeGear and the Kent Underground Research Group for their assistance and comments.

Historical background

The Ellington (Council) School was completed shortly before 5 March 1914, to provide for 350 boys, 350 girls and 150 infants. The Girls' and Boys' departments occupied the ground and first

floors respectively, of the main building, whilst the Infants' occupied the ground floor of the north wing. The Girls' and Boys' had separate playgrounds, to the east and west of the school, reached by separate gates. The Infants' may have had their playground at the northern end of the Girls'. In 1939 the Infants were moved to the neighbouring newly built Ellington Infants School.

At the outset of the First World War the risk of invasion or bombardment of the east coast of England was not considered high. However, Ramsgate came under heavy bombardment both by Zeppelin and naval raids during the middle months of 1917, culminating in appalling civilian losses sustained during an aerial attack on 27 August. In the wake of these attacks there seems to have been an acceleration in the provision of shelters or 'dug-outs' and by the end of the war Ramsgate had some twenty-five public shelters.¹ Rod LeGear (pers comm) has suggested that the air raid shelter at the Ellington School is of this date, citing 'a note in a contemporary newspaper report by the chief constable of Ramsgate that all schools had been provided with a shelter and all were equipped with lighting and seating.' The Ellington School, as



a council school, would certainly have had such a shelter, and this almost certainly represents the origin of the present tunnels.

During the Second World War, at the start of June 1940, the majority of Ramsgate's children were evacuated to Staffordshire and the schools, including Ellington were closed up. However many children had started to return by March of 1941 and, by the end of the year, sufficient children were resident to require the provision of formal schooling facilities (Humphreys 1991, 171). Ellington School had been requisitioned for public welfare and morale, becoming a 'British Restaurant' – an inexpensive canteen-style eatery – opening in August 1941,² and it seems likely that the Ellington schools remained closed at this time, and perhaps for more than a year. When teaching returned to Ellington it seems, initially, to have been confined to the new Infants' School, presumably because the elementary school was still in use as a British Restaurant.

Exactly when the air raid shelter was reopened, and when schooling began again at the elementary school, is unclear. Evidence from the graffiti indicates it to have been reopened in 1943 (see below) and at least some of the graffiti indicates that it was occupied by pupils of the school. However, several graffiti are attributed to individuals above school leaving age suggesting some public use of the facility. Similarly the date of re-sealing of the shelter is unknown, but a date in late 1946, suggested by the graffiti, is highly plausible.

Tunnel plan

The air raid shelter is located to the rear of the site; its main axis aligned east-south-east to west-north-west, simplified to east-west in this report. The shelter extends almost the full width of the plot, perpendicular to the axis of the former main school building, under which it extended. The overall footprint of the complex measures c 48m east-west by 24m north-south. The tunnel floor sits c 12m below the ground surface at between 32.75 and

33.21m OD sloping slightly from east to west.

The air raid shelter is of simple plan. A single 47.6m long tunnel extends the full length of the complex with, towards its east end, a shorter, 24.5m long parallel tunnel 6m to its south. Linking these tunnels are two 10.5–11m long cross passages meeting either end of the southern tunnel at their mid point and extending 4.5–5m further south. The cross passages are parallel and perpendicular to the northern tunnel.

Three L-shaped stair tunnels give access to the northern tunnel, meeting it at right angles; one at its east end, heading north, one at its west end, heading south, and the third a short distance east of the latter, heading north. All three stair tunnels are blocked by brick walls at a depth of around 5–6m below ground level (38.8–39.9m OD). None

are visible at the surface, the sealing of the tunnels and the subsequent demolition of the school presumably having obliterated their upper extents. Notably the three tunnels appear to accord with the different departments, Boys', Girls' and 'Infants', of the school.

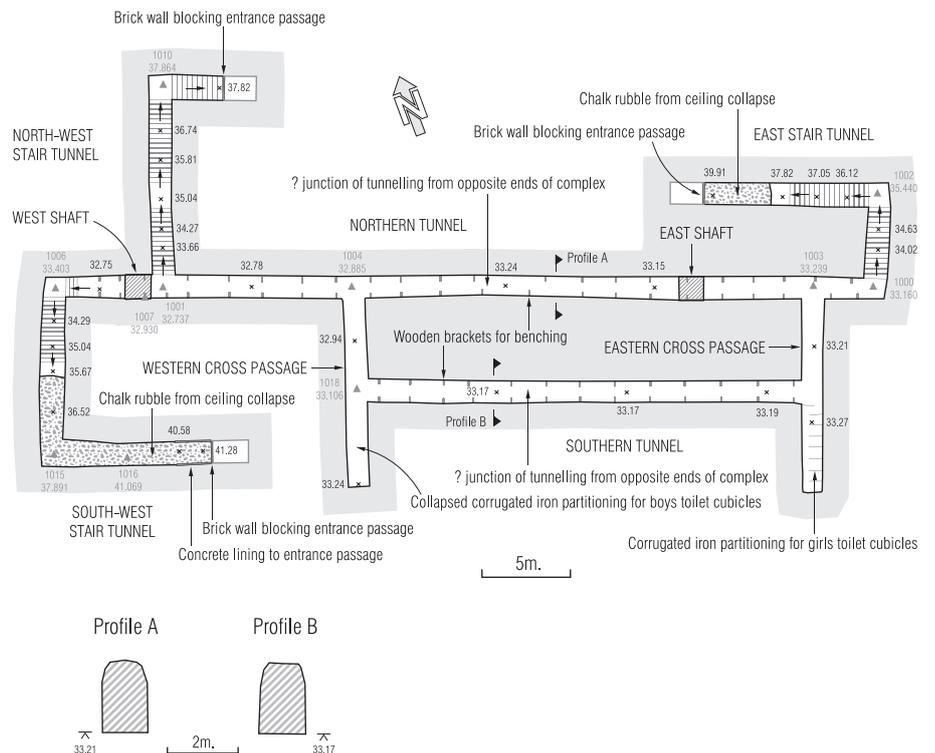
The tunnels are chalk cut with no lining, shoring or supporting arches, except at the south-west entrance where a concrete lining was present. The tunnels average 1.3m wide by 2m high and are slightly irregular, following the seams in the chalk. In places the walls are vertical, elsewhere they bow out slightly, before sloping in to meet a generally flat roof, 1m wide. The surfaces of both the roof and walls of the tunnel are uneven with tool marks, from trenching shovels, evident along most of their length.

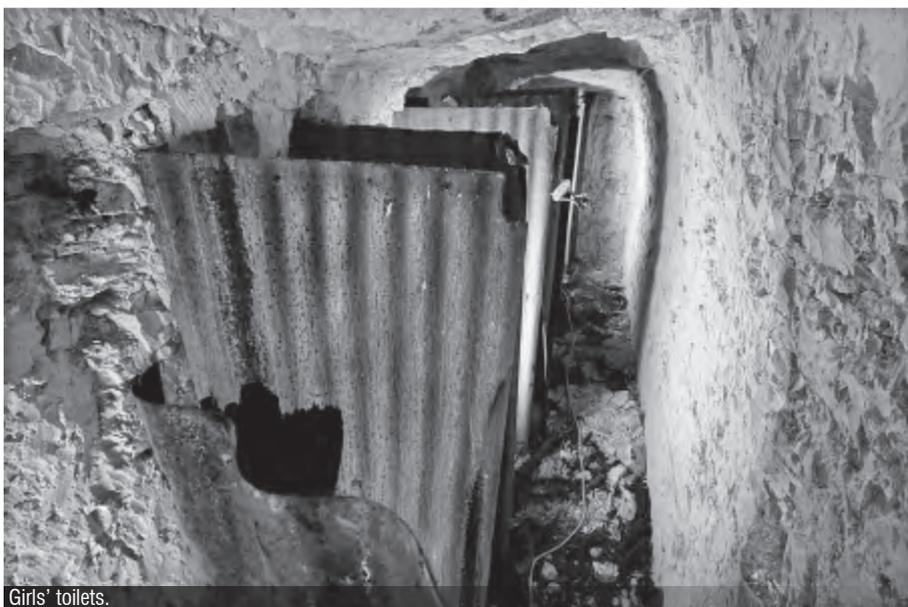
Two rectangular vertical shafts rise from the northern tunnel to the surface; one 11m from its east end and the other 4.7m from the west end. The east shaft measures 1.35m square and the west 1.5m by 1.35m. Both shafts have been capped with concrete close to the surface, 10–11m above the floor of the tunnel.

The shafts are suggested to be construction shafts (Rod LeGear, pers comm), being excavated to depth and the tunnels cut from their bases, with spoil removed via the shafts. This method of construction is apparently typical of First World War chalk-cut tunnels observed elsewhere. The method follows the mining methods employed by colliers and it is suggested that men from the Kent collieries were drafted in to carry out the tunnel construction.

Tunnel fittings etc.

Traces of various tunnel fittings survive within the complex. These comprise stair risers, bench support brackets, toilet cubicles, electrical (light) fittings and candle ledges. These were generally in poor condition as a result of decay of organic materials





Girls' toilets.

and corrosion of metals. Some elements of the fittings, particularly the electrical equipment and wiring, were probably salvaged prior to the sealing of the tunnels.

The stairs are formed from crudely cut chalk steps with wooden risers packed with clay and chalk to form level treads. In all three stairways the centre of the steps is badly worn, suggesting extensive usage. Given that the tunnels were probably blocked in late 1946 it is likely that this wear is associated with use during the Second World War.

L-shaped wooden brackets socketed into the floors and walls of the main tunnels presumably supported benches. These survive best in the southern tunnel, where most of the brackets are still *in situ*. There was no trace of the bench boards and these may have been salvaged. The brackets stand c 0.4m high by 0.35m deep and are present along the full length of both main tunnels. Spacing between the brackets is variable, ranging from 1.2–2.4m, with spacing more



Electrical fitting.

irregular in the northern tunnel, where one gap of 4m exists. Generally the brackets on either side of the tunnel are opposed, but there is some irregularity, mainly in the northern tunnel.

Toilet cubicles were located in the southern terminal ends of the two cross passages. These were constructed using corrugated iron screens. The cubicles in the western cross passage are entirely collapsed, whereas those in the eastern cross passage remain standing. A stencil on the entrance to the latter set indicates this to have been the girls' toilet and a sheet of corrugated iron on the floor of the western passage bore the word 'boys'. The girls' toilet is divided into seven cubicles against the east wall, screened by a baffle on the west wall at the junction of the southern passage and the cross passage. The cubicles were around 0.6m wide and 0.75m deep. The corrugated iron sheets are supported by a simple wooden frame, socketed into the wall and floor. The chemical toilet buckets which must have occupied the cubicles are not present.

Electrical wiring was run through the tunnel, supported on $\frac{3}{4}$ inch iron pins driven into the walls at head height (1.7–2m). The pins are present along the entire length of the tunnel complex, spaced 2–3m apart. No wiring is attached to the pins but ceramic insulators connected to the ends of several indicate their function. In the girls' toilets a detached length of wiring survived with a bracket or clip and a light socket indicating that the tunnel was illuminated by festoon lighting.

At the base of the shafts, at most of the junctions of tunnels and at occasional points along their length, crude ledges were cut for candles. In several places sooting is evident and remnants of candle and dripped wax are present. These may variously have been cut and used by the tunnel building team and those taking shelter within them, providing a back up for the electric lighting, which undoubtedly could not be relied on.

Scattered across the floor of the tunnel, mostly around the base of the north-west stair tunnel, in small quantities, are sections of electrical wiring, barbed wire, wiring and staves from chestnut paling,

corroded tin cans, and twigs and sticks, all probably introduced a short time prior to the sealing of the tunnels, perhaps as casual disposal by visitors exploring or playing in the tunnels.

Graffiti

The tunnels contain many graffiti, mainly dating from between late 1943 and late 1946, a few of which are described below. Almost all the graffiti are convincingly of Second World War, or early post-war, date. However, at least six individuals have contributed new graffiti since the rediscovery of the shelter in April 2010.

The majority of the graffiti are in the southern tunnel, with some in the cross-passages and relatively few in the northern tunnel. There are very few graffiti in the stair tunnels and almost none in the toilets at the end of the cross passages. Most of the graffiti were incised with a pointed instrument, or executed in pencil. Incised graffiti were often made in the patches of soot over the light-fixings. A few graffiti were made with fingers daubed in candle-soot; including at least one attempted hand-print.

Predictably, many of the graffiti comprise names, or more usually initials, sometimes accompanied by other details including age, form (ie class at school), and year, or precise date, of the inscription. Swastikas are, understandably, present in abundance, together with a number of crude union jacks. Numerous games of noughts-and-crosses were played-out on the walls. In several places, tallies were incised, probably, in most cases, recording scores in games. Various elementary sums were also executed on the walls. In several places, collections of strange sigils are evident. These may represent a phonographical shorthand. Girls at the school may have studied





stenography in preparation for secretarial careers – especially, perhaps, considering Ramsgate’s historical links with that science.

The dates noted among the graffiti range between 1943 (including one for October that year) and 1946 (including two elaborate examples for 22 November). The majority, however, are of 1944, with only two for 1945. This evidence supports a suggestion that the shelter was re-opened late in 1943, and sealed late in 1946, perhaps around 22 or 23 November. During 1944, there were specific graffiti for 1 and 9 January; 12 April; 4, 5, 7 (two examples), and 17 June; 6 August; 11 (four examples), 13 (three examples), 14 and 19 September. It would be interesting to compare these dates with details of known raids on Ramsgate. Several graffiti commemorate D-Day on 6 June 1944. Three of these comprise the word ‘D-Day’ followed by the date and another takes the form: ‘S_cd Front opened 1944’.

The shelter graffiti are rich in pictures and patterns. Human faces, of varying sophistication and style, are common, often occurring in groups of similar examples. A crude relief carving of a face has been made at the foot of the north-west stairs, at the angle with the northern tunnel.

Perhaps the most striking of the pictorial graffiti in the shelter are two depictions of the American cartoon character ‘Popeye,’ at the junction of the southern tunnel and western cross passage. The depictions are similar, except in size, probably copied directly from a comic strip or other publication. To the larger depiction, someone has added Popeye’s signature

tobacco pipe, albeit disproportionately small.

An interesting group of pencil graffiti expresses antipathy towards the pupils of the nearby St George’s School, Ramsgate. One inscription asserts: ‘St Georges are stacked painted chads’; another simply denounces ‘St Georges chads;’ whilst a third provides what was presumably intended as a generalized portrait of a St George’s pupil, with an identifying label. The latter has a crazed expression, a curiously formed upper lip, and sports thin, untidy, shoulder-length hair.

The origin and meaning of the word ‘chads in this context’ is unknown to the authors. There is a well-known cartoon/graffiti figure ‘Mr Chad’, defined as: ‘a human head appearing above a wall, etc, with the caption ‘Wot, no —?’’, as a protest against a shortage or the like’ (OED online). This figure apparently emerged during the Second World War as a reaction to rationing. The use of the term here, and the depiction of the head, does not conform to this motif and so a different etymology should be considered. The name ‘Chad’ may have been taken out-of-context and have been adopted as a term of abuse. Alternatively the term may have been a pre-existing piece of playground slang.⁴ The adjectives ‘stacked,’ and ‘painted’ possess definite negative implications, relating to femininity (or effeminacy?), vanity, and wantonness. By 1942 the term ‘stacked’ was well-established, within American slang, meaning ‘shapely,’ or perhaps ‘large-breasted,’ with regard to the female figure. The term ‘painted,’ often referred to the use of cosmetics;

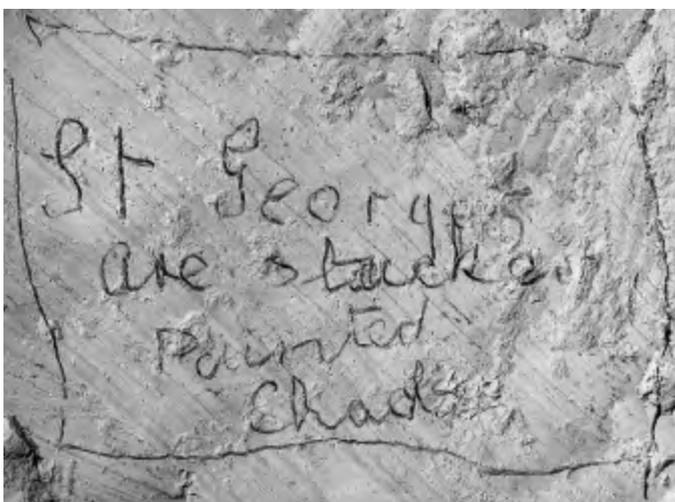
frequently with disreputable implications.

Amongst other objects depicted, maritime and military themes seem to predominate. These include an anchor; a small steamship and two field cannon, one unfinished. The steamship may form part of a group of graffiti, associated with the ‘S_cd Front’ inscription, along with letters, arrows, a swastika, and irregular lines which could, conceivably, be intended as a path or coastline, perhaps depicting the D-Day landing. Another pencil drawing shows a house which appears to be in flames, perhaps the result of bombing, although the lines forming the flames may merely have been scribbling out. Other symbols and patterns included stars, polygons, hearts (often pierced by arrows), and various simple curvilinear designs

The tunnels have been resealed and should remain in a stable environment, preserving the graffiti and fixtures

Endnotes

- 1 EKA: R/U39/Z1.
- 2 EKA: Ra (uncat), Communal Feeding Committee Minutes 1940-45.
- 3 The online Dictionary of Playground Slang suggests ‘Chad’ originated in south-east England, but this is of uncertain provenance





PALAEOENVIRONMENTAL STUDIES

Enid Allison

Introduction

Bulk soil samples processed during the year were mainly from sites excavated in Canterbury with the largest numbers coming from the excavations at Hallet's Garage and St Lawrence Cricket Ground/Bat and Ball. All of the bulk sample processing was carried out by Alex Vokes using standard techniques of wet-sieving with flotation. Assessment and analysis of plant and animal remains from various sites excavated in previous years was ongoing. A summary of post-excavation work on shellfish from the Whitefriars site in Canterbury is included below, together with details of work by Wendy Carruthers on Neolithic charred plant assemblages from excavations at Ellington School, Ramsgate in 2005. Other palaeoenvironmental work included the analysis of insect remains from sites excavated by other archaeological units in London, Bath, Buckinghamshire, and Yorkshire.

Hallet's Garage

A majority of the samples were from medieval deposits, although earlier and later material was also represented. Definite dating information was not available at time of writing and assessment has not yet been carried out. A wide range of animal and plant remains were recovered in addition to considerable amounts of iron slag, hammerscale and other cultural material. Plant remains preserved by charring were common or abundant in many of the samples, and their analysis will provide details on domestic activities occurring on site, local land use, crops grown, and diet. Charred pulses were well represented in some deposits. Mineralised seeds, fruit pips and other plant material, which were common in a number of pits where cess had been present, will provide more direct evidence of plants consumed.

Bones of fish, birds and mammals were recovered from many samples and were generally well preserved. Preservation of fish bone appears to have been enhanced by mineralisation in many cases. Animal remains from a post-medieval rectangular cess pit included partial skeletons of a neonatal pig and a juvenile domestic fowl, both suggesting that

pigs and chickens were kept on one of the properties during that period.

An almost complete skeleton of a cat was a notable find from a silting deposit at the base of a late Anglo-Saxon or early medieval pit. The pit did not appear to have been filled with other refuse at this stage. The cat was unusual in that it had clearly become disabled at an early stage in its life. The left femur was much shorter than the right and had a significantly thicker shaft, and the distal end showed pathological features associated with displacement of the knee joint. There was a slight distortion of the distal part of the shaft which may indicate a very well-healed break early in the animal's life. X-rays are required to confirm whether this might be the case or not, and it is possible that there may be some other cause of the shortened femur. The right hip socket in the pelvis where the head of the unaffected femur fitted appeared to be thinned, probably by extra wear on the animal's good leg. There may have been compensatory changes in the lower parts of one or both limbs but

The cat's femurs showing the massive discrepancy in length and thickness.



Bird.



Fish.



Mammal.



Remains thought to represent the cat's food.

Unfortunately the rest of both back legs were not recovered. The cranial bones were not fused, but all the epiphyses in the post-cranial skeleton were, indicating that the cat had achieved a reasonable age before it died. This in itself is an indication that the cat had received care and attention, since any badly injured animal left to fend for itself would be at an immediate disadvantage. It is also thought that most of the few other bones present in the deposit were from the cat's gut, and they suggest that the cat was not only well-fed, but fed on specially selected tit-bits. The cat bones, and also remains of a frog or toad (probably an individual that entered the pit and failed to escape), were excellently preserved, but the other

bones were largely in an eroded condition typical of the effects of stomach acid. They were all from the sort of scraps that a cat would eat – phalanges from several chicken wing tips, vertebrae from a chicken's tail (the parson's nose), bones from the gill and throat region of several fish heads, and terminal phalanges from a small cloven-hoofed animal. The chicken bones in particular showed signs of having been eaten: several bones from the wing tips were punctured in the way seen in bones that have been eaten by a small carnivore, and a vertebra from the parson's nose was crushed in a way typical of the effects of chewing.

St Lawrence/Bat and Ball

The majority of the samples were from the Bat and Ball site, mostly from medieval and post-medieval features. A few samples were taken from earlier deposits, including some thought to be of Neolithic date. No close dating was available at time of writing, and assessment of remains recovered has not yet been carried out.



Alex Vokes in the drying room.

Since soils on the site were 'dry', plant remains were preserved mainly by charring, with mineralised material in deposits that had contained cess. Charred cereal remains, and to a lesser extent pulses, were recovered from a number of samples, often in quantity. Charred hazelnut shell was common in the backfill of a possible Neolithic pit. This could be used for dating the feature if required.

Most shellfish assemblages were dominated by oyster (*Ostrea edulis*). Fish remains were common in a number of samples, particularly where cess was also present, and it is likely that mineralisation has enhanced its survival. In contrast, fish bones from features which did not obviously contain faecal material were rather poorly preserved. Other categories of bone also showed signs of erosion due to the nature of the sediments in the area. Cultural

material recovered from samples included waste and lead fragments from deposits associated with a lead smelting furnace.

Fordwich Garage, Sturry

Fragmentary building materials, small artefacts and biological remains derived from occupation of medieval buildings and the use of a hearth and oven, were recovered from a small number of bulk sediment samples (Allison 2010a). Much of the material recovered was highly fragmented as is often the case in deposits from within buildings. Charcoal was abundant in some samples, particularly from deposits associated with the hearth and a flue, but other charred plant material, such as grain and seeds, was only sparsely represented. Fragments of fish, bird and mammal bone, and also eggshell, are likely to be waste from food preparation and/or consumption. A partridge bone from a deposit within the hearth was worthy of note since the bird was generally regarded as a 'luxury' food in medieval England and occurs most frequently on high status archaeological sites (Sykes 2004). It was often raised in parks and warrens by the aristocracy specifically for the table (Wilson 2003, 119; Lasdun 1991, 6).

Highly fragmented shell of a variety of marine molluscs was quite common, particularly in samples from an occupation deposit over a clay floor and within a clay-lined flue. Mussel (*Mytilus edulis*) fragments were most numerous in both samples, and there were smaller amounts of cockle (*Cerastoderma edule*), oyster, variegated scallop (*Chlamys varia*), queen scallop (*Aequipecten opercularis*), nut shell (*Nucula*), a top shell (Trochidae), and acorn barnacle carapace plates (Cirropedia: Thoracica). The relative abundance of mussel shell suggests that it could have been food waste, but the presence of traces of mortar on fragments of some of the other species indicated an origin in marine sand used for making mortar. Very small mortar fragments were common in the samples and examination of some of these under a microscope revealed that they contained coarse sand particles and fragments of some of the shells noted above (including mussel). Other species represented within the mortar were baltic tellin (*Macoma balthica*), indeterminate bivalve and gastropod shell, a complete test of a tiny species of sea urchin (*Echinocyamus pusillus*), and test and spine fragments of a much larger urchin.

Bigbury hillfort

The watching brief carried out during the cutting of three post-pits for the erection of a modern fence at Bigbury Camp provided an opportunity to assess the potential of the soils on the site to produce environmental and economic data (Allison 2011a).

Burnt flint was recovered from all of the samples in varying quantities, and was particularly common in one of the post-pits. Pot was common in two pits, and traces of possible slag and hammerscale were noted in several samples. Finds of bone were restricted to a single indeterminate calcined fragment. It is possible

that soils at Bigbury are generally unfavourable for the preservation of bone as they are in other parts of the Blean uplands (eg Carruthers and Allison 2010). Charcoal was common in the flots of all the samples with other charred plant material much less common. A small assemblage of charred seeds was recovered from one sample and a single charred cereal grain was noted in another sample from the same pit. There were also occasional uncharred seeds. The latter are likely to be either of relatively recent origin, or represent the survival of particularly robust seeds that were incorporated into the deposits as they formed. Such remains are not necessarily representative of the full range of taxa originally present.

The work demonstrated the potential of the deposits at Bigbury to produce charred plant remains if archaeological features and stratified deposits are encountered during any further groundworks in the area.

High Street Road, Waterham

A small number of bulk samples were taken from four of the trenches cut during the archaeological evaluation at High Street Road, Waterham, Kent. All were from deposits thought to be associated with the Roman enclosure occupied from the mid/late second century to the fourth century, and plant and animal remains representing waste from human occupation or activity were recovered (Allison 2011b).

Charred plant remains, particularly chaff of spelt wheat, were abundant in a large rectangular pit exposed in one of the trenches. Analysis by Lisa Gray indicated that they were probably primarily waste from a variety of activities associated with the processing of cereals (Gray 2011). A number of activities involved in cereal processing would have required the use of heat. Spelt is a hulled wheat and drying would have been carried out to facilitate removal of the husks. Drying or parching would also have been carried out prior to storage and milling, and during malting. Difficulties in controlling the temperature of drying ovens would often have resulted in the burning of at least some grain and chaff in any of these processes. Chaff and associated weed seeds from grain cleaning may have been disposed of by burning, but also had a use as kindling for domestic fires and is likely to have been used as fuel in drying ovens (Hillman 1982). The amounts of cereal waste present suggested that agricultural or domestic structures and features associated with these activities were present nearby, but outside the trenched areas. Other domestic refuse, including animal bone, also pointed to the presence of settlement in the immediate vicinity.

A shell midden was exposed in another of the trenches. Cockle shells dominated the assemblage, and there were smaller amounts of oyster, mussel, common whelk (*Buccinum undatum*), winkles (*Littorina littorea*), baltic tellin, and traces of peppery furrow shell (*Scobicularia plana*), banded wedge shell (*Donax vittatus*), and acorn barnacles. Laver spire shells (*Hydrobia ulvae*), a small gastropod found in estuarine muds and sands, and saltings, were also recovered. The composition of the assemblage indicated that shellfish were harvested

from several coastal habitats, with some small species (particularly tellins) and barnacles collected incidentally along with targeted species.

Some deposits on the site appeared to be waterlogged and were therefore potentially of great interest since waterlogged Roman deposits other than wells are relatively rare. Wood fragments and small seed assemblages preserved by waterlogging were recovered from deposits within a linear feature. The seeds were poorly preserved and predominantly elderberry and blackberry/raspberry, both of which are relatively resistant to decay often surviving in deposits where other less robust seeds and organic material has decayed. Very poorly preserved fragments of insect cuticle were noted in one deposit, none of which were of interpretative value. The poor state of plant macrofossils and insect remains may be due to fluctuations in waterlogging at some time since formation of the deposits, which has led to oxidation and decay of organic material originally present. It is likely that if other relatively deep features exist outside the evaluated area they may contain waterlogged deposits, particularly if they lie below or close to the water table.

Stonelees Golf Centre, Ebbsfleet Lane, Ramsgate

Waterlogged deposits were encountered during an evaluation carried out at Stonelees Golf Centre, Ramsgate (Lane 2010). General biological analysis was carried out on two samples (Allison 2010b).

Cockles, water snails, ostracods and small seeds were common in a sample from an alluvial deposit. Almost all of the snails were spire snails (*Hydrobia ventrosa*) indicating that the deposit had formed in brackish water conditions. Salinity could have been relatively low – spire snails are tolerant of very low salinities and are usually found in slight or moderate brackish water on fine silty or sandy muds in brackish lagoons and ditches (Davies 2008, 167; Hayward *et al* 1996, 190). The occurrence of cockle shells raises the possibility that some occupation waste had been incorporated into the deposit, but the absence of any other typical remains from human occupation, even trace amounts, suggested that this was unlikely. Cockles are tolerant of low salinities, but would not occur naturally if the salt concentration was below 10 parts per thousand (Hayward *et al* 1996, 244). Salinity in the open sea is in the region of 35 parts per thousand. The only terrestrial snail present was *Pupilla muscorum*, a common species in dry exposed locations such as very short-turfed grassland and grassy sand dunes.

The second sample from the fill of a Bronze Age ditch produced small amounts of material associated with human activity. Cultural material consisted of a waste flint flake and traces of burnt flint and heat-affected clay. Charred and uncharred plant remains, and occasional beetle fragments were also present. The charred material included a small assemblage of moderately well-preserved cereal chaff, smaller amounts of grain and weed seeds. The abundance of chaff and weed seeds relative to grain suggested that crop processing waste was represented.

Although no further archaeological work was to be carried out, the samples examined during the evaluation demonstrated the existence of waterlogged deposits with a potential to produce environmental and economic data.

Thanet Earth pipeline

The majority of the samples were taken from the area of medieval settlement adjacent to Crispe Road, with a smaller number from prehistoric features in the northern section of the pipeline and from a single Roman feature. Remains recovered are to be analysed with material of similar dates from the main Thanet Earth site.

Charred plant remains, mainly consisting of cereal grains with smaller quantities of chaff, pulses and crop weeds, were common or abundant in about half of the samples from the medieval settlement, including some from the fills of medieval sunken-floored buildings. The Thanet Earth project as a whole presents an exceptional opportunity to study changes in the landscape and economy through time and the continued use of sunken-floored buildings into the medieval period in Kent is of particular interest. Work on the plant assemblages will contribute towards an investigation into whether attitudes towards crop plants followed a similar 'conservative' pattern.

Mineralised plant remains which appeared to have originated in human faeces, including fruit pips and other seeds, were present in a number of samples from pits associated with the settlement. Mineralised material was generally uncommon and poorly preserved on the main Thanet Earth excavation where most features appeared to have been too well-drained for midden and faecal material to become mineralised in any quantity (Allison *et al* 2010a). The somewhat better preserved mineralised material from the pipeline excavation has a potential to provide direct information on the human diet which is usually lacking from the study of charred assemblages.

Fish and bird bone were both poorly represented at Thanet Earth, and the small amounts recovered were in a moderate to poor state of preservation. It is highly

likely that fish bone in particular is under-represented in deposits in the area generally because of the dry and unfavourable soil conditions. Fish remains were present in six medieval samples from the pipeline excavation, mostly from deposits that appeared to have a cess content, where mineralisation appears to have played a part in the survival of delicate bones. Survival of bird bone also appeared to have been similarly enhanced by partial mineralization. Very small quantities of poorly preserved and mostly unidentifiable large mammal bone fragments were also recorded. Small amounts of fragmentary marine mollusc shell, mainly of oyster and mussel, were recovered from Roman and medieval samples.

Overy Street, Dartford

Dartford lies on the flood plain of the River Thames, an area of considerable archaeological interest. It is now widely acknowledged that sites of prehistoric to post-medieval date should be considered within their environmental and landscape context and to this end, geo-archaeological test-pitting was carried out on the car park adjacent to the YMCA Roundhouse in Overy Street, which was undergoing development (Allison *et al* 2010b). The site is very close to the River Darent in the centre of Dartford. The aims of the work were fourfold: to establish the depth and nature of made ground at the site, to ascertain whether any original ground surfaces, archaeological features or alluvial deposits survived in the area of development, to investigate whether the underlying gravel had a potential to contain Palaeolithic remains, and lastly to recover any material with a potential to produce data for environmental reconstruction.

The sequences recorded in the three machine cut test-pits conformed to a basic pattern seen on the floodplain of the Thames and its tributaries, with Holocene alluvial deposits overlying flint-dominated gravels. The basal gravels were probably of Late Devensian age. Such gravels may contain Palaeolithic artefacts and associated palaeoenvironmental evidence but this is rare. Samples with volumes of 100 litres were sieved on site using a riddle with 10mm mesh,



Using the site riddle for recovery of finds at Overy Street.

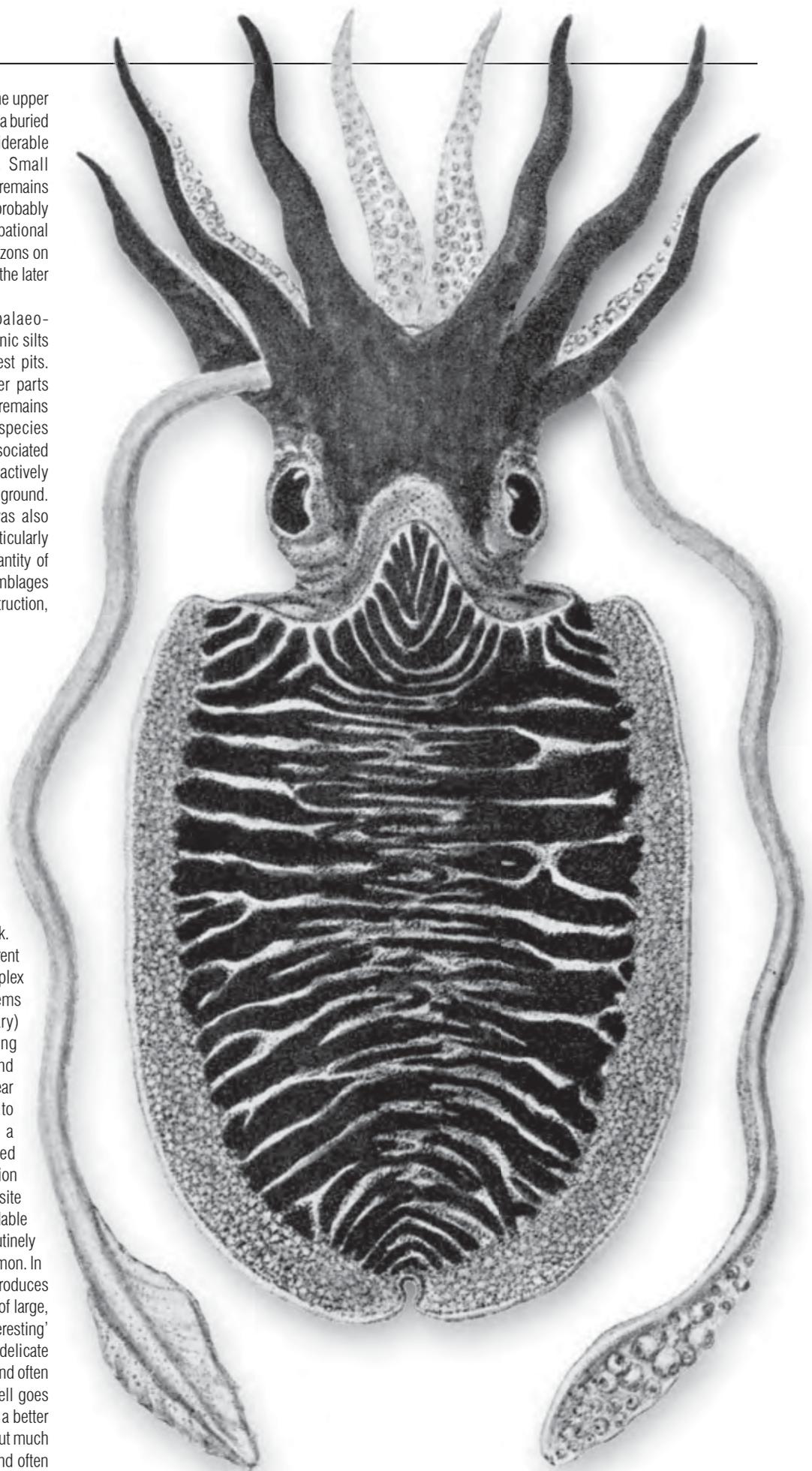
but no Palaeolithic material was recovered. The upper surface of the basal gravel probably comprised a buried surface of some kind, representing a considerable hiatus in terms of time and deposition. Small quantities of cultural material and vertebrate remains from a further set of 100 litre samples were probably indicative of reasonably undisturbed occupational material associated with the organic-rich horizons on the gravel surface and were thought to date to the later part of the Holocene period.

Smaller samples for evaluation of palaeo-environmental potential were taken from organic silts within the alluvial complex in two of the test pits. Off-site examination revealed that the lower parts of the deposits contained plant and insect remains preserved by waterlogging. The range of species present confirmed that the deposits were associated with a former water channel, laid down in actively flowing clean water and on adjacent marshy ground. Material suitable for radiocarbon dating was also recovered. The biological material was not particularly well preserved, but processing a greater quantity of the sediment collected would provide assemblages suitable for carrying out environmental reconstruction, subject to obtaining dating for the deposits.

Post-excavation work on shellfish from Whitefriars, Canterbury

Introduction

Although discarded shells of marine molluscs are often some of the more obvious remains from food preparation and consumption seen on urban archaeological excavations, shell assemblages often receive scant attention during post-excavation work. There are a number of logistical problems inherent in the collection and study of shell. Large, complex urban excavations present particular problems since it is impracticable (and unnecessary) to collect every piece of shell seen during excavation. Shell may be collected by hand from selected contexts, but it is often unclear how the quantity of shell recovered relates to the total amount of shell actually present in a particular deposit, and whether the selected contexts were representative of the distribution of shell across the site. Examination of the site records will often show that, for understandable time and budgetary reasons, shells were not routinely collected from deposits where they were common. In any case, hand-collection of shell generally produces a very biased sample, favouring entire shells of large, relatively robust species and occasional 'interesting' shells, while small species and those with delicate shells are almost always under-represented, and often absent. Bulk sampling of deposits rich in shell goes some way to address this problem, providing a better idea of the full range of species represented, but much of the shell recovered is highly fragmented and often difficult to quantify, other than by weighing, which again tends to produce a bias in favour of species with thick heavy shells.



Common cuttlefish: *Sepia Officinalis*. Engraving by J de C Sowerby after a drawing by W Bailey from Forbes' and Hanley's *History of British Mollusca*, 1853. Scanned from C M Yonge's *British Marine Life*, 1944.



Red whelk



Common whelk



Banded wedge

Until recently, little detailed work has been carried out on shell from sites in Canterbury. The Whitefriars excavation therefore presented an excellent opportunity to study the exploitation of shellfish from the Roman to post-medieval periods from a considerable area of the ancient town. Shell recovered from Whitefriars was primarily food waste, but there was evidently some opportunistic secondary use, particularly in the medieval period, for patching metallised tracks and yards, and from the friary there were occasional examples of the use of the cupped lower valves of oysters as pigment palettes. All of the main areas of excavation were comprehensively sampled and it was decided to focus mainly on material recovered from bulk samples to produce basic information on the exploitation of shellfish during the various periods of activity, augmenting this by reference to any hand-collected shell, and also in some cases by referring to the stratigraphic record. A considerable amount of data has been produced which can now be used for comparison with other assemblages from Canterbury and elsewhere in Kent (Allison 2011c-e). The shells shown here are actual size.

The Roman period

Shellfish were exploited as food from the earliest years of Roman occupation of the town, and low concentrations of shell in deposits dating to AD 40–75 reflected the largely agricultural use of the Whitefriars area at that stage. Shell became more common in deposits associated with subsequent development and occupation in the area. Oyster and mussel were represented in almost all samples that produced shell, indicating the systematic collection of shellfish from two distinct coastal habitats: oysters are found below the low tide mark on coarse muddy substrates, preferably in relatively warm estuarine locations, while mussels are typically found on rocky shores, often in dense beds which are exposed at low tide allowing them to be easily collected (Hayward *et al* 1996, 240; Wright 2009, 121–3). Oyster shell

was almost always more abundant than mussel, but occasionally mussel was predominant. It is especially difficult to gauge the importance of mussel in archaeological contexts as the shell is very susceptible to disintegration and is very likely to be under-represented relative to more robust species.

The Romans seem to have been particularly fond of oysters. Apicius, writing in the first century AD, described a number of methods of cooking and serving oysters and mussels, and for preserving oysters in vinegar (Flower and Rosenbaum 1958). From the later part of the first century oysters harvested from beds near Richborough and from other locations along the north Kent coast were transported to Rome for consumption (Philpots 1890, 38–40). The Romans are believed to have introduced the practice of oyster farming to Britain, although what form this took is unknown. Oyster farms were described by Pliny the Elder in *Historia naturalis* (Book 32: Chapter 21) and depictions of pier-like structures, with oysters apparently growing on ropes, exist on two Roman vases (Günther 1897). The regular form of oyster shells from archaeological deposits on the London waterfront suggested that some form of cultivation may have been occurring by the second century AD (Winder 1985). Shells from natural populations tend to be more varied in size and shape.



Queen scallop

Common whelk was regularly represented by small amounts of shell throughout the Roman period. Since it is a sub-littoral species, it might have been a by-catch with oysters, but equally there could have been a separate, perhaps relatively low-scale fishery specifically for whelks, using baited pots in deep cold water which is their preferred habitat (Bruce 2003, 105). Occasional red whelks (*Neptunea antiqua*) appear to have been collected, but were perhaps discarded without being eaten. A potent toxin produced in their salivary glands can cause a range of alarming symptoms within an hour of consumption, including visual disturbances, tingling and twitching of the hands and feet, prostration, nausea, vomiting, diarrhoea and paralysis. Fortunately, complete recovery occurs in 24 hours (Fleming 1971; Reid *et al* 1988).

The few cockles recorded were all from the later part of the period. A few limpets and juvenile winkles could easily have been incidental captures with mussels since their habitats overlap. Tiny fragments of some species present in samples may even have originated in the substrate on which targeted species were growing. The artificial rearing of oysters, for example, usually involves the deliberate use of shell of dead molluscs and other suitable fragmentary material as 'cultch' for receiving the oyster spat.



Cockle

Cuttlebone fragments from several samples associated with buildings in one area of the site were of particular interest. It occurs only irregularly on archaeological sites, perhaps at least partly due to lack of recognition of fragmentary material. Cuttlebone is the internal shell of the cuttlefish, and in life it is filled with gas and functions as a float. Cuttlefish are close relatives of octopus and squid and can be caught throughout the year in coastal fisheries in a mixed catch with various fish (BBC Food Website). The flesh can be eaten like squid and the chestnut-brown ink is a cookery ingredient in its own right, notably in Italian cuisine. If the cuttlebone fragments recorded here represent the remains of food it is tempting to suggest that some inhabitants of the area had a diet with continental elements. Apicius provided several recipes for cuttlefish and their ink, including stuffed cuttlefish with various sauces and cuttlefish rissoles (Flower and Rosenbaum 1958, 61, 209–20). The presence of cuttlebone need not necessarily imply consumption however, since there are a number of non-culinary uses of both cuttlefish ink and cuttlebone. The ink is a known dyestuff (sepia)



Variegated scallop

and when treated with caustic potash produces a rich brown pigment that was valued in some parts of the ancient world. It can be mixed with a red pigment to form Roman sepia (OnlineDictionary). Cuttlebones resulting from the natural die-off of local populations could have been collected among strand-line debris on local beaches. It is easily carved or impressed and resistant to heat and a well-known ancient use was as single-use moulds for casting small metal objects. Examples of the use of such moulds, and an illustration of a medieval mould, can be found on the Medieval Wares website. Ground cuttlebone could have been used as a polishing powder, as toothpaste, as pounce for preparing parchment and drying wet ink, or medicinally as an antacid (Wikipedia; Pipe 2006).



Peppery furrow

The Anglo-Saxon and early medieval periods

Mollusc shell from the Anglo-Saxon period was more poorly represented than in either the Roman or medieval periods but consumption of oysters, mussels and, less commonly, whelks appears to have continued. A group of oysters dating to the later part of the period consisted mainly of irregularly shaped shells perhaps indicating that they came from a natural population.

A somewhat greater range of shellfish species was present in early medieval deposits, and subjectively, shell generally appeared to be more common. Oyster was usually the most abundant species. From the late Saxon period onwards much of the north coast of Kent, including a number of fisheries and extensive oyster beds, had gradually come under the control of the great ecclesiastical houses of Canterbury and Faversham (Pike *et al* 1992, 13; Philpots 1890, 261). By the early medieval period a series of controlled oyster grounds extending from Whitstable through the Swale channel and into the Medway had been established (Pike *et al* 1992, 49).

Small amounts of mussel were consistently recorded from a majority of the samples and in some it was present in quantities suggesting the deliberate exploitation of local populations. Whelk

was represented in fewer samples, and by smaller numbers of shells. Edible winkle, cockle, peppery furrow (a clam-type bivalve), red whelk and netted dog whelk were recorded, along with the other more common species, from deposits associated with the occupation of two early medieval buildings. One of the buildings also produced crustacean fragments, probably of small crabs. The occurrence of peppery furrow and cockle in a number of deposits suggests that they were both available in local markets, but not to the same extent as oysters and mussels. Cockles live down to depths of about 5cm in any type of sand in the intertidal zone, often occurring in huge numbers in broad sheltered bays. Because they lie so close to the surface, they were traditionally harvested by hand-raking the wet sand at low tide. Peppery furrows are also intertidal but found in estuarine muds at depths of up to 20cm, from which they would need to be extracted by digging. They are very likely under-represented archaeologically since the shell is very thin and fragile for a mollusc of its size, being approximately the same thickness as bird eggshell.



Baltic tellin

Traces of variegated scallop were recorded from a few medieval samples. Even a large specimen would provide little meat and it is likely that these remains do not represent food. Fragmentary material has been recorded from Anglo-Saxon, medieval and post-medieval deposits on other sites in Canterbury where, along with a variety of other types of shell, it appears to have come from mortar made with marine sand.

The Friary

The most striking feature of the shell assemblage from the friary was the abundance of cockles and to a lesser extent whelks, although oysters and mussels both remained well represented. Cockles and whelks were particularly numerous in the fills of a vast pit in the eastern grounds of the friary, and in pits and other refuse deposits in the southern precinct, all of which contained dumped waste from the later years of the friary's occupation. In the southern precinct, cockles were represented by a greater weight of shell than any other species. As with previous periods there were occasional red whelks amongst the common whelks.

The presence of such large amounts of cockles in contrast to earlier periods suggests there may have been changes either in local shellfish exploitation practices or in areas of supply. It is possible that the friary specifically favoured cockles as a source of food, but they were also relatively common in deposits associated with tenement plots outside the friary (although some of those properties may have been connected with the friary in some way). There

are also indications from some other Canterbury sites, albeit with much smaller assemblages, for cockles becoming generally more common in the late medieval and post-medieval periods (personal observations). Cockles would have been commonly available in parts of the Thames estuary and on the relatively flat sandy beaches of the southern parts of the eastern coast of Kent. They can be harvested all the year round, and are available during the summer months when both oysters and mussels are out of season. This may have been a factor in their popularity at Whitefriars. Detailed records kept by the much wealthier convent of Westminster indicate that cockles were mainly eaten after the Lenten fast was over in late spring and only irregularly at other times (Harvey 1993, 46). Cockles do not survive for long after they are extracted from the sand in which they live, and nowadays they are usually cooked very soon after collection. The shells open during cooking and separate from the meat, from which they are separated by sieving. The meat can then be used immediately or preserved (Yonge 1966, 284–5). The presence of cockle shells in refuse deposits here may suggest that live cockles rather than cooked preserved ones were brought to local markets or purchased directly from their source by the friary. If so, transport from the harvesting location would need to be rapid and efficient, and to take place within a day.

The proportions of the four major shellfish species varied in different areas of the friary. Oyster was represented by a smaller proportion of shell relative to mussel and cockle in the refuse deposits in the eastern grounds and southern precinct and also in occupation deposits within the kitchen range, while it dominated the assemblages from the warming room and the latrine and cess tank associated with the dormitory. Oyster is the only species that is likely to have been consumed raw and would typically be served in its shell, whereas mussels, cockles and whelks would all have been cooked prior to eating and their shells may largely have been removed at the preparation stage. This would certainly account for the relative abundance of cockle and mussel shell in floor deposits in the kitchen range where food was being prepared, and oysters may possibly have been served in their shells as snacks in the warming room and dormitory.

Baltic tellins were commonly recorded and are likely to have been a by-catch with cockles since their habitats overlap, and being a small species they



GIRLS PICKING COCKLES

Girls picking cockles from Bate's and Westwood's *History of the British Sessile-Eyed Crustacea*, 1863. Scanned from C M Yonge's *British Marine Life*, 1944.



Medieval oyster shell with pigment.

are unlikely to have been collected in their own right. There were a few records of chequered carpet shell (a clam-type bivalve also known as the palourde) from the vast refuse pit. It is said to be especially tasty (Wright 2009, 126), but this and other species recorded in small amounts were not common enough to suggest that they formed a significant part of the friars' diet. Carapace and pincer fragments of small crabs were commonly recorded. Small crabs are unlikely to have been caught solely for their meat but whole, cooked and crushed individuals may have been used in soup with any shell fragments being sieved out at a late stage of preparation (Wright 2009, 156). As with the early medieval material, there were again indications that some fragments of shell had originated in mortar. Mortar was noted on pieces of variegated scallop, other small bivalves and unidentified shell fragments.

Post-Dissolution deposits

Relatively few post-Dissolution deposits were sampled and much of the information was from hand-collected shell, often from demolition deposits. However, it was clear that the four major species – oyster, mussel, cockle and whelk – continued to be consumed. Since no structural occupation was identified within the excavated areas, the food waste is likely to have come from households elsewhere.

Neolithic votive offerings from ritual pits at Ellington School, Ramsgate

Wendy Carruthers

Several hundred bulk samples were taken from the site during excavation mainly representing prehistoric activity, and many produced charred plant remains (Carruthers 2010). Two assemblages from Neolithic pits were of particular interest. The pits were thought to have had ritual significance, both on artefactual

evidence – the lower fill of one contained a large assemblage of worked flint, including flint axes, scrapers and some flint-tempered potsherds, and on the character of the charred plant assemblages. Wheat grains from the lower fills of both pits were submitted for accelerator dating, and dates of 3765–3722 cal BC (UBA-13517) and 3695–3651 cal BC (UBA-13518) were obtained. The range of dates overlaps those obtained from an early Neolithic grain deposit from excavations at nearby Westwood Cross (Stevens 2011).

The plant assemblages from the two pits showed a number of similarities and contained several types of economically important plants, suggesting that the material in the base of each pit had been deposited for very similar reasons, as placed burnt offerings.

The most abundant charred remains in both pits were fragments of hazelnut shell (*Corylus avellana*). Over 500 fragments were recovered from each

deposit, probably representing a few handfuls of whole nuts. It was not possible to say whether whole nuts or empty nutshells had been burnt as the oily kernels rarely survive charring, and whole nuts would have become fragmented.

Cereal remains in the base of one of the pits consisted primarily of emmer or spelt grains (*Triticum dicoccum* or *spelta*). Emmer is most likely since spelt has not been found in Britain from sites earlier than the middle Bronze Age. There were also smaller numbers of grains of compact-type wheat (*T. compactum*-type) and poorly preserved barley (*Hordeum*). No chaff was present in this feature, suggesting that processed grain had been burnt, and weeds were represented only by a single black bindweed seed (*Fallopia convolvulus*). In the base of the other pit the grain was primarily of compact-type wheat, with a few grains of bread-type wheat (*T. aestivum*-type) and emmer or spelt. A distinctive spikelet fork confirmed the presence of emmer. There were also a number of cultivated flax seeds (*Linum usitatissimum*) and a couple of flax capsule fragments, together with a few seeds of dock (*Rumex*), vetch (*Vicia/Lathyrus*), cleavers (*Galium aparine*), grass (Poaceae) and a single henbane seed (*Hyoscyamus niger*). The low numbers of weed seeds and chaff indicated that the grain in both deposits was fully processed.

Cereals and hazelnuts are likely to have been chosen as votive offerings because they were valued food crops. Seeds and capsules fragments of flax might represent its use for fibre, or as an oil-seed/food/medicinal plant. Some of the weed seeds may also represent deliberately burned offerings, particularly henbane.

The striking-looking plant is highly poisonous and has been used medicinally and for hallucinatory purposes. It therefore has a potential use during rituals, and may have been highly symbolic (Cooper and Johnson 1984). It grows on nutrient-rich disturbed soils in places such as farmyards but not so commonly, either now or in the past (judging from



Henbane: *Hyoscyamus niger*.

Charred grains of compact-type wheat, probably club wheat.



archaeobotanical assemblages), that it is likely to have been growing nearby and become incorporated into the assemblage by chance. Nutrient enrichment of soils around pyres and sacrificial sites might have provided a suitable habitat, but even if the plant was growing as a weed, it is likely that use would have been made of such a distinctive and powerful plant.

The presence of a compact form of free-threshing wheat is of interest in its own right. The grains were characteristic, being extremely small, rounded, blunt-ended and deep, with a rounded embryo depression, and were probably club wheat (*Triticum compactum*). However, grain dimensions for club wheat overlap with those for bread-type wheat (Jacomet 1987) and the identification cannot be confirmed without rachis fragments, which were absent from both deposits. It has therefore been referred to as compact-type wheat. The fact that almost all of the wheat from these early features was extremely small and blunt-ended suggests that the remains were a distinct crop, not simply the tail-grain (sieved-out, less-developed grains from the top and bottom of the ear) from bread-type wheat crops. Club wheat has been described by Percival (1921, 307) as the oldest type of wheat cultivated in Europe. It is also the earliest known form of hexaploid wheat, having been recorded from Syria c 7000 BC (Simmonds 1976). Compact-type wheats were being grown in parts of Europe that produced the earliest traces of agriculture by the end of the fourth millennium BC (Zohary and Hopf 2000). Few sites in Britain have produced positively identified pure club wheat assemblages. It has been recorded in a ritually-placed assemblage at Le Pinacle, Jersey (Carruthers 2001), and more recently from an early medieval assemblage from Pembrokeshire, West Wales (Carruthers forthcoming). Club wheat is a useful crop in exposed areas since it is resistant to wet weather, frost and drought, and will grow on poorer soils than bread wheat. It is still grown in Central Asia and China, and in the north-west United States

and Canada. It has a relatively low gluten content and is used in some breakfast cereals, and for making crackers and pastry (Davidson 2006, 847).

Insect work

Nomenclature of beetles follows Duff (2008).



Map showing location of insect sites.

Star Carr, Vale of Pickering, Yorkshire

The site of Star Carr lies on what was formerly a peninsula on the north-western shore of a large lake, now known by the name of Lake Flixtion. Human activity and occupation appears to have

taken place there during the early Mesolithic period (10,000–8500 BC). Peat formation gradually resulted in the burial of deposits associated with the period of activity and the area is now relatively dry land.

Excavations at Star Carr were first carried out between 1949 and 1951 by Grahame Clark (Clark 1954). Further excavations were carried out in the 1980s close to Clark's site, and from the 1970s the ancient lake shore was gradually surveyed and mapped, resulting in the identification of at least twenty sites of a similar date. More recently, a programme of fieldwork has been carried out over several years by a team from the universities of Manchester and York (Star Carr website). Further trenches have been excavated on the margins of the ancient lake, and also on adjacent drier land. The latter work resulted in the discovery of a house dating to around 8500BC which is currently the oldest known house in Britain (Taylor *et al* 2010).

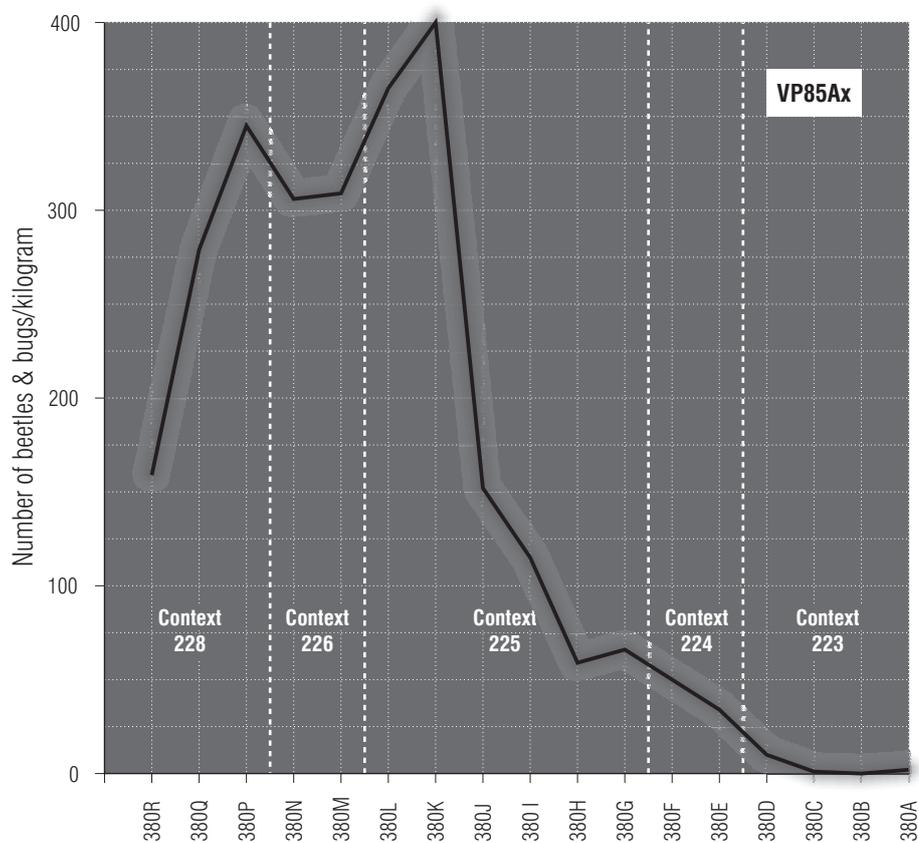
The original excavation at Star Carr was notable for the preservation of organic remains in waterlogged sediments. Degradation of the peat has been occurring progressively for some time however, and appears to be due to a number of factors which are still not completely understood (Milner 2007). Firstly, the water table has been affected by field drainage in the last decade or so, which has reduced the depth of waterlogging and also resulted in contraction of the peat. Secondly, the lower parts of the peats have become extremely acidic, probably also as a result of a general reduction in the water content. The increasing acidity may be due to the oxidation of sulphides, probably from the underlying Jurassic clays. Bone and antler are particularly badly affected by this and have disappeared from some deposits where they were previously recorded, and wood has also deteriorated considerably (Milner *et al* 2010; Payne 2010).

Over the years, plant macrofossils and pollen from a number of phases of fieldwork had been analysed, but no work was carried out on insect remains. In the most recent seasons of excavation, however, column samples were taken from deposits on the margins of the ancient lake to assess not only the survival of plant remains, but also to ascertain whether significant number of insect remains were present, their state of preservation, and whether they had any potential to provide detailed environmental data.

Work on insect samples from excavations in 2007 and 2010 was carried out as part of a programme of work to assess the current state of Star Carr (Milner *et al* 2010). The first part of the work was the assessment of insect remains from a peat sequence sampled in 2007 (Allison 2010c). It was demonstrated that insect remains survived in considerable numbers in the lower parts of the peats, but were only sparsely represented in the upper half. Remains were typically very fragile, but their condition generally was much better than expected, and in fact they had an excellent potential for environmental reconstruction. The assemblages were not analysed in detail but indicated well-vegetated swampy marginal land by open standing water. Plant-feeding beetles and bugs were common, indicating that wetland vegetation included bur-reeds (*Sparganium*) and sedges (*Carex*), and that woodland or scrub with willows (*Salix*) and/or



Bur-reed seed heads.



Concentration of beetles and bugs/kilogram of sediment in one of the trenches at Star Carr, showing the striking fall-off in numbers in the upper parts of the deposits. Sample numbers are shown on the x-axes, with depth decreasing from left to right.

poplars (*Populus*, including aspen *P tremula*), were present close to the lake. There was also a range of beetles from dead wood habitats. Adjacent drier, well-vegetated areas on light soils were suggested by a number of beetles and bugs, and there were indications of heathland in the vicinity.

The second part of the work was on material from excavations in 2010 which had involved not only the cutting of a new trench, but also the extension of one of Clark's trenches, another cut by Mellars and Lane in 1985, and the trench cut in 2007. Samples for plant and insect macrofossil analysis were taken from sections in all four trenches in order to assess the survival and state of preservation of plant and insect remains (Allison 2010d). Again, it was revealed that insect remains were common in the lower parts of the sedimentary sequences but more sparsely represented in the uppermost deposits in all four trenches (see drawing). A further important aspect of the work was to compare samples from the 2007 trench with a comparable set from the 2010 extension to the same trench, to ascertain whether there had been any deterioration in preservation in the intervening three years. The water table in the area had been particularly low between 2007 and 2010 and examination of the samples did indeed suggest that there had been some loss of insect material from the upper parts of the sequence. Insect remains still survived in relatively high concentrations in deeper deposits that had remained permanently waterlogged however. The fragility of the surviving insect remains will make them extremely vulnerable to any future adverse changes in ground conditions. It is likely that similar processes

causing degradation are occurring in other parts of the Vale of Pickering and any wetland site in the area may therefore be under similar threat.

Detailed analysis of insect remains from three of the trenches is being carried out at time of writing, and is making a significant contribution towards a better understanding of what life would have been like on the ancient lake shore.

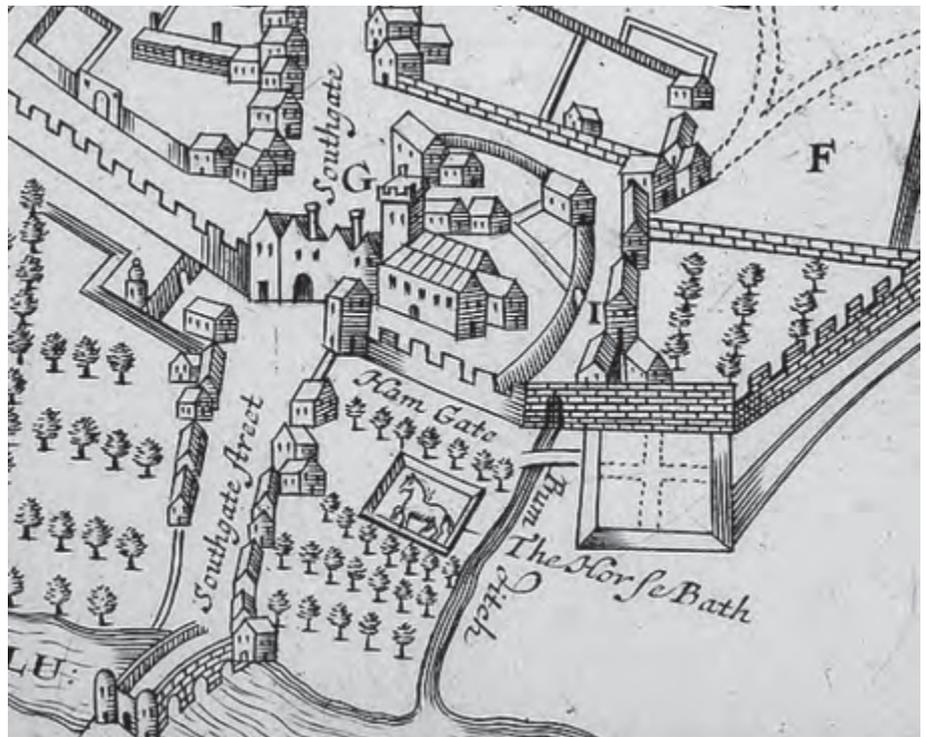
The Southgate excavation, Bath

Archaeological investigations were carried out by Museum of London Archaeology in advance of the recent redevelopment of the Southgate area of Bath. This area lies immediately south of the former walled Roman town and medieval city, on the flood plain of the River Avon. Insect remains were analysed from waterlogged ditch fills dated to the late Saxon, medieval and post medieval periods, medieval dumped deposits, and a late fifteenth- to sixteenth-century pit (Allison 2011f). The majority of the insect samples were from a ditch revetted in stone and wattle that formed the rear boundary of properties fronting onto Southgate Street, a historical road line that was in existence at least by the medieval period. The ditch acted as an overflow for water from the hot springs and flowed south into the River Avon. It may also have functioned as a mill leat and was also a convenient place for disposal of waste. It was known as Bum Ditch by 1610 when it was shown on John Speed's map of Bath. Modifications were carried out in the late sixteenth to early seventeenth century and a stone revetment with a series of privies was constructed on its western side. During this period the water is thought to have driven a small mill used to power a forge. It was replaced by an enclosed drain in the eighteenth century.



Macronychus quadrituberculatus.
From Holland (1972).

The earliest samples examined were from the fill of the burghal ditch, dated to the late Anglo-Saxon period. The insects recovered indicated that the ditch held shallow, probably well-vegetated water, with duckweed (*Lemna*) on the water surface. The



Details from Speed's Map of 1610.

banks of the ditch were probably damp and muddy with waterside vegetation including marsh marigold (*Caltha palustris*) or other waterside Ranunculaceae. Plant feeding insects also provided evidence for grasses, sedges (*Carex*) and/or rushes (*Juncus*) growing close to the ditch, and for nettles and waste or cultivated ground. A small group of synanthropic insects indicated that some waste from buildings had been dumped into the ditch, but disposal of organic waste was probably on a limited scale. Beetles typically associated with dung were quite common, possibly indicating animals grazing nearby. The situation is complicated because some waste disposal had also taken place and many species typically thought of as dung beetles also exploit other types of foul vegetable matter. If any grazing was occurring on grassland close to the burghal ditch it is likely to have been at a relatively low level.

Riffle beetles (seven species of Elmidae) were common in assemblages from the earlier sediments in the Bum Ditch probably dating to the Norman period. They indicated deposition in a high-energy water channel with a stony silt-free bottom, and that the water was clear and clean. *Macronychus quadrituberculatus* and a dryopid beetle *Pomatinus substriatus* are both closely associated with submerged wood or woody debris in running water and may indicate trees growing close to the ditch. Either of the two could have lived on submerged timber used for revetting the ditch, but there were also indications of trees from several other beetles.

Samples from twelfth- to thirteenth-century deposits suggested that conditions were still suitable for riffle beetles in the northern part of the Bum Ditch, but perhaps not in the southern parts. None were recovered from samples dating to the late fifteenth-century onwards, strongly suggesting that the water was no longer clean and clear, and that silt had accumulated

on the channel bed. Riffle beetles cannot live in silty or poorly oxygenated water whether it is flowing or not, nor if silt is present on the channel bed. This might also reflect conditions upstream, and not just apply to the Bum Ditch. The presence of *Ochthebius dilatatus* in the same period may be of significance since it is typical of muddy water. Silting could be caused by slowing of the water flow in the ditch or by various factors in the wider environment. Increasing dumping of waste into the ditch, and also upstream, is also likely to have contributed to a gradual decrease in water quality. The proportion of decomposer beetles indicated not only that waste dumping from buildings was occurring, but that its level progressively increased. It is likely that some of the waste was from human dwellings or workshops, and also from stables that housed domestic animals. There were suggestions from the insect remains for the presence of faeces in fills in the southern part of the ditch from the mid twelfth to thirteenth century onwards. Since flowing water was present in the ditch there is likely to have been movement of some material from its point of origin and interpretation of the wider environment was made with caution. However, there were consistent indications from terrestrial insects for a richly vegetated area with disturbed or cultivated ground and relatively dry grassland habitats, with trees probably growing close to the ditch.

Waste dumping had also occurred in a possible Civil War period defensive ditch. Again, some of the waste was from within buildings, but some insect remains suggested that stable waste or manure, and perhaps other types of refuse, were also represented. Plant-associated insects were indicative of open and/or waste ground with herbaceous vegetation and grassland, probably with some trees.

As well as providing evidence for waste dumping and to a lesser extent local environmental conditions,

a number of samples from late Saxon and medieval deposits in the burghal ditch, the Bum Ditch and two other dumped deposits, produced ectoparasites of sheep. Adults and puparia of keds (*Melophagus ovinus*) were recovered from six samples, and biting lice found on sheep (*Bovicola ovis*) from one of the dumped deposits. These would not naturally have come from sheep living nearby. Both ectoparasites occur most frequently in deposits associated with the cleaning or processing of fleeces or wool. Here, they were most probably deposited in litter or other waste from within buildings, indicating the cleaning (perhaps by teasing) of fleece or wool in nearby properties. It is possible that fleeces or wool were washed directly in the Bum Ditch while the water running through it was relatively clean, but keds and their puparia would be removed most effectively by teasing which would probably have taken place within buildings. No ectoparasites of sheep were recorded from the late fifteenth century onwards.



Left: saw-toothed grain beetle, 2.5–3.5mm.
Right: rusty-red grain beetle, 1.6–2.2mm.

King Street, London EC2

Samples from two waterlogged pit fills excavated at 29–33 King Street, London EC2 in 2006 by Museum of London Archaeology were submitted for analysis of insect remains. The pits were provisionally dated to the early Roman and Saxo-Norman periods and the two insect assemblages recovered were very different in character (Allison 2011g).

Grain pests and beetles associated with decomposing organic matter accounted for the majority of a distinctive beetle and bug assemblage from the early Roman pit fill. The grain pests accounted for 32 per cent of the assemblage: rusty-red grain beetles (*Cryptolestes ferrugineus*) and saw-toothed grain beetles (*Oryzaephilus surinamensis*) were particularly common, and there were also several grain weevils (*Sitophilus granarius*) and *Palorus ratzeburgi*. All four species are commonly recorded from Roman deposits in Britain from the earlier stages of occupation onwards. *O. surinamensis* is often common in very spoiled grain and *Palorus ratzeburgi* is especially indicative of foul grain and other rotting residues.

The grain pests and a range of other species represented in the assemblage, indicate that the fill of the pit included waste from a stable. Poor 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. Many grain pests seen in urban deposits are thought to have originated in stable litter or manure, and are one of the characteristic indicators for its presence (Kenward and Hall 1997). Other elements within the beetle assemblage were also characteristic of stable manure: a typical range of species from a building, decomposers associated with stored hay, and insects found in moist, open-textured, nutrient-rich decomposing material. Considerable numbers of fly puparia were present, and most that were examined were of house flies (*Musca domestica*). There were also a number of beetles that live in foul matter, particularly dung. *Cercyon ?atricapillus* found in barn manure, compost heaps and dung, mainly of cattle and horses (Hansen 1987, 155), was represented by several individuals including one that was unexpanded (newly emerged from the pupal stage) suggesting breeding within the substrate.

The second sample was from the primary fill of a Saxo-Norman pit, originally thought to have been a tanning pit. Fly puparia were very common and the beetle assemblage was dominated by bean weevils (mostly *Bruchus rufimanus* which develops in medium or large legume seeds, especially in field beans (*Vicia faba*)). It is possible that the beetles were contained within spoiled pulses that were dumped into the pit, but the most likely explanation is that they originated in faeces. On archaeological sites they are most commonly recovered from deposits that contained cess, presumably having been eaten with infested pulses and subsequently voided in faeces. A light brown cess-like mineral encrustation was present on some sclerites, and a few small fish bones (rib and fin ray fragments) and mineralised fruits stones, both typically found in cess deposits, were also recovered. *Aphodius granarius* may have invaded fresh faeces and probably bred within it since its remains included an unexpanded individual. The abundance of fly pupal fragments and puparia suggests that many flies were attracted to the contents of the pit.

There was a striking difference in the condition of the bean weevils and *Aphodius* which were well-preserved, and the rest of the assemblage which was more fragmented and considerably eroded. None of the species represented among the more poorly preserved material are likely to have been contained in faeces when it was voided from the body, although some may have arrived in the pit with dumped cess or other waste from buildings. The pit was believed to have originally been a tanning pit and since the sample was from the primary fill, some of the insect remains may represent a residue from the tanning process. A group of five species of beetle and a bug associated with wood or bark were of particular interest as bark is a typical tanning agent. Features thought to be tanning pits are frequently encountered on archaeological sites, but very few contain convincing evidence for their original contents (summarized by Hall and Kenward 2011). The interpretation is not completely straightforward as some species could have arrived

in the pit with refuse from a building, particularly powder-post beetle (*Lyctus linearis*) which infests the dry sapwood of some hardwoods and is often associated with ancient timber buildings. Structural timbers in buildings may have retained their bark, and other insects could have come from logs used as firewood. However, such a wide range of beetles associated with wood and bark in a single sample is fairly unusual, particularly since there was only limited evidence for a fauna from buildings, and some of the species represented are usually associated with oak (*Quercus*), a preferred species for tanning. Remains of a single *Trox scaber* in association with the insects from bark and wood may also be of significance. On urban archaeological sites it is especially associated with the floors of buildings, and in some cases seems to have had a connection with skin-, leather- and horn-working and the associated waste from those processes (Carrott and Kenward 2001; Hall and Kenward 2011). The *Trox* remains were thinned, very pale, and very poorly preserved. Similarly preserved but more numerous remains were present at a site at Layerthorpe Bridge in York where rare convincing evidence for tanning was obtained (Hall *et al* 2000). It was suggested that the poor condition of the remains was a result of chemical conditions within tanning baths. In the King Street samples, the bark and wood insects were in a rather better state of preservation than the *Trox* fragments but this might have been because *Trox* would have been associated with hides introduced into the tanning pit, whereas insects within bark or wood might be protected from the effects of the tanning liquor to some extent. A possible reason why there are so few examples of tanning pits with their original contents may be because spent tan bark was a commodity in its own right. It has a number of documented uses (Howes 1962; Grieve 1976; Hall and Kenward 2011), including as floor litter. It is therefore also possible that the remains in this deposit represent secondary disposal of re-used spent tan bark. A further alternative, that the insects from wood and bark came from an old rotten tree, or logs close to the pit, seems less likely since there was only very limited evidence for insects from vegetation or habitats outside the pit.

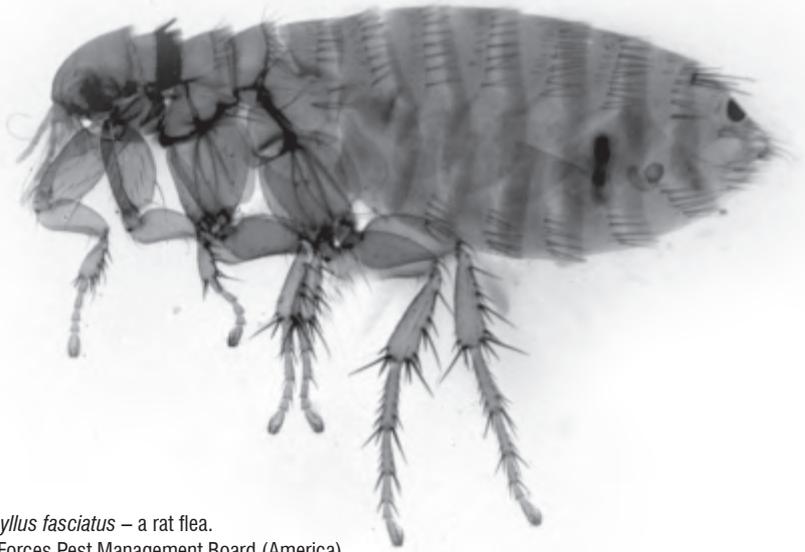
Brooklands, near Milton Keynes

Insect analysis was carried out on material from waterlogged deposits from a site at Brooklands, near Milton Keynes (Allison 2011h), where a multi-period agricultural and settlement landscape was revealed during work by Oxford Archaeology/Oxford Archaeology South. Samples selected for insect analysis were from a Bronze Age pit or waterhole, an Iron Age waterhole, and the fills of a medieval well. The insect assemblages from the prehistoric features largely reflected local habitats and provided an opportunity to characterize the local landscape in their vicinity. Recent modern studies of small water bodies have shown that most insects present in a deposit will have come from within a 100–200 metre radius of the sampling site (Smith *et al* 2010).

Aquatic beetles in both of the prehistoric features indicated that that they contained standing muddy

water and could potentially have been used as waterholes, although both may have been subject to a degree of seasonal drying. There was much evidence for exposed wet mud near to or within them. Damp bare ground around the earlier waterhole was also indicated by several species of ground beetles. Insects also provided evidence for stands of nettles (*Urtica*) and disturbed ground with weedy vegetation. There was a little more evidence for plants of damp ground, including reed sweet-grass (*Glyceria maxima*), sedges (*Carex*), rushes (*Juncus*), and probably mints (*Mentha*), around the Iron Age waterhole. Two species of bark beetles indicated that some shrubs or trees were growing close to the Bronze Age feature, but otherwise the low numbers of tree-associated insects indicated largely open landscapes with relatively dry areas of grassland in both periods. Beetles associated with herbivore dung were common throughout, suggesting that grazing animals were a common presence in the landscape.

Two insect assemblages from the medieval well contained a very large synanthropic element indicating the dumping of settlement waste, including material from within buildings, perhaps cut vegetation used either structurally or as floor litter, and rotten wood. The dumped material appears to have been relatively 'clean' and may have come predominantly from human dwellings or a building used for storage. There were hints of a small component of cess from bean weevils, a few beetles associated with very foul material and a rat-tailed maggot (larva of *Eristalis*



Nosopsyllus fasciatus – a rat flea.
Armed Forces Pest Management Board (America).

tenax) found in foul liquids. Insects from habitats outside the well were not particularly common but ground beetles from the lower fill mainly implied open, dry conditions with grassland and arable fields or waste ground, with a few species from rather damper habitats. The area was probably largely open with a suggestion of isolated trees growing close to the well and in the general vicinity of the settlement. Fleas from the lower fill of the well are likely to have

been introduced with material from within buildings. Human fleas (*Pulex irritans*) are by far the most common species found on archaeological sites. *Nosopsyllus ?fasciatus* is primarily a rat flea and is capable of transmitting human diseases especially plague and murine typhus (Mullen and Durden 2009, 117), although it is said to bite humans relatively rarely (thefreedictionary.com) 🐛

MEET THE VOLUNTEERS



Enid Allison with her volunteers.

Rob Robson

Krystyna Zaleska

Ann Chadwick

Over the years the environmental department has received invaluable help, mainly with the dry-sorting ample residues, from numerous volunteers. It is mind-blowing to think of the tonnage of material that has been painstakingly sorted over the years, which, without the volunteers, would otherwise have had to be funded at considerable cost, since the process is very time-consuming. We currently have three regular volunteers, including Bob Robson who was the first person to volunteer for environmental work and is still in active service.

Bob Robson "After National Service in the RAF and three years reading Geography at university, I spent twelve years as a hospital administrator in the North of England, ending up as a hospital planner. The first wave of university expansion took place in the early 1960s and the prospect of being involved in the development of a new university appealed to me. The University of Kent at Canterbury opened its doors to students in October 1965 and began to appoint additional staff. I applied and was appointed as an administrator, although the funding for the appointment did not begin until the following year and I arrived in Canterbury to take up my post at the end of June 1966. Government funding for universities was cut in the early 1980s and I was one of those who opted for early retirement, finally leaving the university in 1986.

Archaeology has long been one of my interests. I was a member of the Canterbury Archaeological Society for many years and attended the meeting chaired by the Archbishop of Canterbury in January 1984 which resulted in the establishment of the Friends of Canterbury Archaeological Trust. I have been a member of the Friends since the day of its inception. In 1996 I became a volunteer with the Trust, one of my first tasks being to assist in the analysis of samples from the then current excavations at Christ Church College. Fifteen years later, the flow of samples has continued unabated."

Ann Chadwick "I have been volunteering at the Trust since my retirement from the University of Kent in 1999. I worked in the University in the Safety Office for 20 years, but before that utilised my Chemistry Degrees acting as a demonstrator in the undergraduate teaching laboratories. Currently I am the Membership Secretary of the Canterbury Archaeological Society. At the Trust I initially worked as a steward for visitors throughout the various phases of the Big Dig at Whitefriars, moving on to palaeoenvironmental work after the last phase of Whitefriars was completed in 2004."

Krystyna Zaleska "I was born in Poland and arrived in England (via Germany and Italy) with my parents and sister after the Second World War. I have spent most of my life here, apart from a few longish spells in France and the States over the years. I have always considered archaeology to be one of my more 'serious' hobbies, beginning with an interest in Ancient Egypt when I was in my teens. It seems that fate favoured my archaeological leanings as I now live in Canterbury which, after all, is one big multi-layered archaeological site! Once I had settled in Canterbury some 15 years ago, I gravitated to the Trust to carry out volunteer work in environmental archaeology."

Acknowledgements

John Adams provided much help with the upkeep and renovation of the wet-sieving equipment. We are also grateful to Ian of Dilton Skips who cheerfully carts away all the sludge created by sample processing.



FINDS

Andrew Richardson

The Finds Department continued to process large quantities of finds produced by the Trust's fieldwork throughout the course of the year. The bulk of finds processing (washing, drying, marking, packing and preliminary recording) is carried out by Jacqui Matthews and Helen Swaffer, who work alongside a dedicated team of volunteers, ranging in age from 16 to 70. Packaging and cataloguing of small finds is usually carried out by Michele Johnson, who also has responsibility for liaising with and despatching finds to specialists. Whilst the Trust makes use of the services of a wide range of external finds specialists where the relevant skills are not available in-house, many artefact types can be studied by those Trust employees who possess finds-related expertise. These include:

- Metal small finds (Andrew Richardson)
- Coins, jettons and tokens (Ian Anderson)
- Roman pottery (Andrew Savage)
- Ceramic building material (Laura O'Shea)
- Lithics (Tania Wilson)
- X-radiography (Adrian Murphy)



In December 2010 the team was joined by Hayley Jedrzejewski, who had completed a Masters in osteology at Durham. This means that the Trust has an in-house osteologist for the first time since the sad death of Trevor Anderson. Since coming

into post Hayley has worked on human skeletal remains recovered from a number of the Trust's recent excavations, including the South-west transept of Canterbury Cathedral, Hallet's Garage and St Lawrence Cricket Club.

Notable finds excavated during the year included a copper alloy figurine of Jupiter from Hallet's Garage. The site also produced a number of Anglo-Saxon finds, including twelve loomweights found in one pit, many of them complete.

The excavations at St Lawrence Cricket Club also produced an interesting finds assemblage, as well as human remains possibly associated with the medieval leper cemetery. One notable find, although of much later date than the cemetery, was a large bone syringe of nineteenth-century date.

During the summer and autumn of 2010, large quantities of finds were recovered by excavations carried out in Folkestone as part of the 'A Town Unearthed' (ATU) project (see pp 37–9 and 90–1). In particular, the



Copper alloy figurine representing Jupiter holding a thunderbolt (fulmen) in his right hand. The figure's raised left hand would have originally held a spear, now lost. Roman, second to third century AD. Hallet's Garage, Canterbury. Actual size c 65mm.



Fired clay loomweights. Mid to late Anglo-Saxon. Hallet's Garage, Canterbury. These would have been used as part of a warp-weighted loom, the weights hanging from the warp threads to pull them tight.



Volunteers

prehistoric and Roman site at East Wear Bay, which included a major Roman villa complex, produced a large amount of very significant late Iron Age and Roman material. Since volunteer training and participation were key elements of this Lottery-funded project, it was decided to carry out the processing of the finds generated by ATU in Folkestone. The Creative Foundation, an arts regeneration charity based in Kent, kindly provided the use of one of its shop units, at 65 Tontine Street. Throughout the winter



Bone syringe. Nineteenth-century. St Lawrence Cricket Club, Canterbury. Though this might have been used for various medical purposes, syringes of this type are known to have been used in the treatment of syphilis and other venereal diseases, which were rife at this time.

and spring, dozens of volunteers gave up their time to help wash, mark, package and record the finds. By carrying out this work in a high street shop, visitors were able to observe a part of the archaeological process that often takes place out of the public eye. By the end of March 2011, the finds assemblage was largely processed and in good order, clearing the way for the next season of fieldwork.

As well as dealing with finds generated by fieldwork during 2010/11, the team continued to work on the assessment, analysis and archiving of material from previous years' excavations. This included finds from numerous sites within Canterbury, such as 35 St Margaret's Street, Augustine House, Barton Court Grammar School, the Beaney Institute, the Cathedral, Canterbury Christ Church University, Captain's Cabin, Wincheap, the King's School, the Marlowe Theatre, St Mildred's Tannery and Whitefriars. Work also continued on finds from a number of sites beyond the city, including Bigbury, Ellington School Ramsgate, Fordwich Garage Sturry, Holborough Quarry Snodland, New Romney, Northfleet Water Treatment Works, Ramsgate Harbour Approach Road, Shelford Quarry, Thanet Earth and Whitfield Eastry by-pass.

In Sittingbourne conservation work on the finds from The Meads continued throughout the year in another empty shop unit, in the Forum shopping centre. This project, led by Dana Goodburn-Brown of AmTec Ltd in partnership with the Trust and volunteers from Sittingbourne Heritage Museum, has seen over fifty local volunteers give up thousands of hours of their

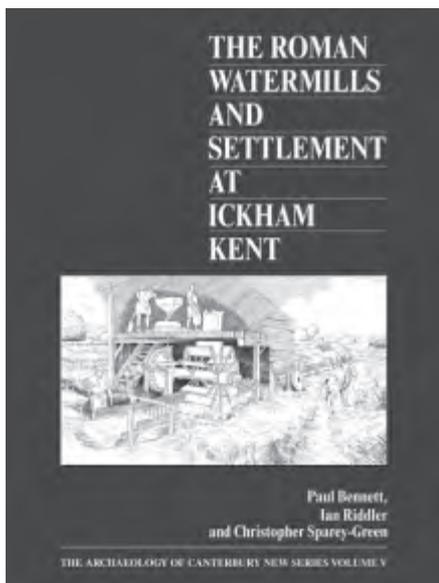
time to clean and conserve hundreds of finds from the early Anglo-Saxon cemetery excavated by the Trust in 2008 (Wilson 2010; Richardson 2011). The conservation process continues to reveal new aspects of this spectacular finds assemblage. In particular, the incidence of mineral-preserved organics on the finds has proven to be very high, with numerous examples of preserved wood, leather, textiles, and even insects having been identified. The standards of work achieved by the volunteers have been impressive, and their conscientious efforts are being rewarded by the wealth of information they are uncovering



Conserved brooch from The Meads, Sittingbourne. Actual size c 75mm.



PUBLICATIONS Jane Elder



The year 2010–2011 began with a quiet celebration when in April the first copies of *The Roman Watermills and Settlement at Ickham* arrived from the printer. The real celebration did not take place until September, when a launch party was held at Waterstones in Canterbury. There, members of the original team of volunteers and archaeologists were reunited, along with some of the many specialists and enthusiasts who had been involved in the long post-excavation and publication process. The evening proved to be a very happy reunion and I would like to thank Luke Brownlee-Blake and Martin Latham, with their cheerful assistants at Chives and Waterstones, for helping make it so.

The publication of Ickham was considered one of the Trust's 'backlog' projects, though strictly speaking the site at Ickham was not a Trust site. The work was begun before the unit was a sparkle in anyone's eye. The Trust was commissioned in 1994 to collate the existing site records and reports with a view to eventual publication. *The Roman Watermills and Settlement at Ickham, Kent* is the result.

The book gives an account of 'rescue' excavations undertaken during gravel quarrying beside the Little Stour at Ickham in Kent. Local amateur archaeologist Frank Jenkins was alerted by reports in the local press of gravel quarrying about to take place early in

1972. Having recently spent three summer seasons excavating at the nearby Roman villa at Wingham, he was well aware of the potential for more Roman finds surviving at Ickham. He arranged for a member of the Canterbury Archaeological Society to be present when the quarrying began to maintain a watching brief.

After part of a Roman road and other traces of Roman occupation were seen, Frank enlisted the help of Jim Bradshaw, another local amateur archaeologist, and together the pair mobilised volunteers from the Canterbury Archaeological Society and the Ashford Archaeological Society. A small excavation took place in the late summer of 1973 (during which a wooden structure later found to be part of a watermill was uncovered) and recording during quarrying continued through the winter and into the spring of 1974. The difficult nature of this work merits mention. The volunteers worked in front of the advancing drag-lines as the quarry advanced in strips. As each strip was cleared of topsoil, Jim Bradshaw and his volunteers recorded what they could. The pit behind quickly flooded, so sections were drawn from boats floating on the water.

The richness of the site became apparent. Numerous features were being recorded and a large assemblage of coins and metal objects was retrieved. At a time when the growing hobby of metal detecting was becoming a controversial issue in archaeology, Jim Bradshaw enlisted the help of detectorists.

Some thirty years later, their use at the site has been described as 'inspired'.

As a result of the combined discoveries, Jim lobbied the then Department of the Environment to provide funds for a formal excavation. He was successful and a short season of work was then directed by Christopher Young on a margin of land left on the south-western edge of the quarry. It was during this time that the remains of three Roman watermills were excavated.

Four watermills were ultimately identified at Ickham. These flanked a road, possibly the main Richborough to Canterbury route. The earliest mill was in use in the early third century AD, the others during the fourth and early fifth century. The timber mill buildings and channels were associated with fourth-century pottery, coins, a wooden votive figurine and many other finds. Metalworking waste, furnace debris and tools suggest that the mills formed part of an industrial settlement. Other metal objects include parts of pewter dishes, fragments of a lead tank and a group of unusual lead alloy pendants which may have been made on site in the late fourth or fifth century. Specialist reports on the many small finds, the mills and millstones and the extensive assemblages of Roman pottery, constitute a large part of the volume.

This long awaited monograph is dedicated to Jim Bradshaw, who died in 2001. His daughter, Sue, attended the launch party and was presented with a copy of the book.



Some of the volunteers from the 1975 Ickham dig with Sue Bradshaw (seated, right) at the launch party.

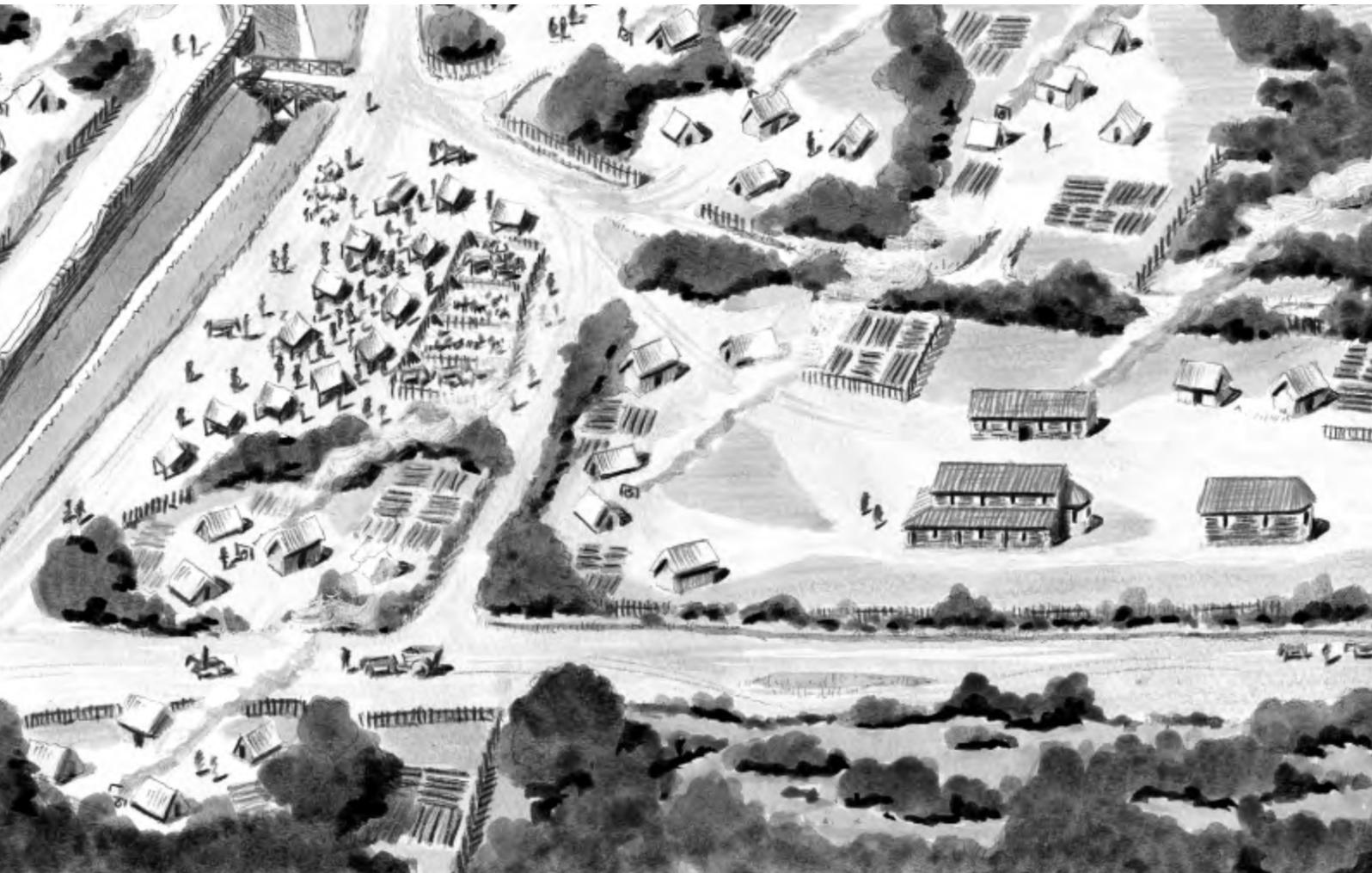


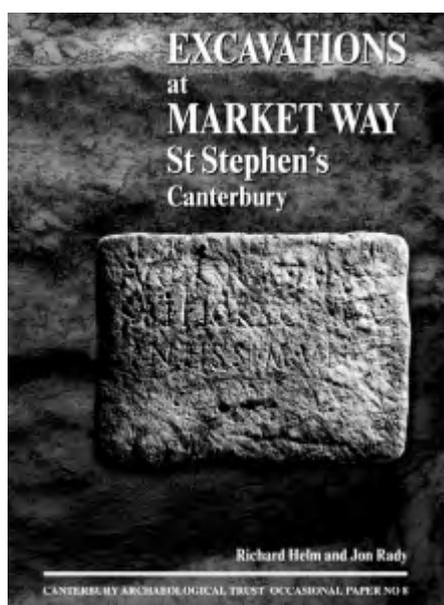
The artist's reconstruction (below) shows the area around Lady Wootton's Green in the mid seventh century with the first three buildings of St Augustine's Abbey. The churches are (from left to right) St Peter and St Paul, [built by Ethelbert and intended to be the burial place for archbishops and the royal family]. The second church was dedicated to St Mary and was built by Ethelbert's son, Eadbald. The third church, St Pancras, was also built in Eadbald's reign (616–640). Both Queen Bertha and Augustine died before the first church was finished, but were reburied there later. Ethelbert was buried there in 616. The route likely to have been taken by Queen Bertha from Queningate to St Martin's church is shown to the north, behind the buildings.

In May, on St Augustine's Day two interpretation panels were presented to the city at a special ceremony on Lady Wootton's Green. The Canterbury Commemoration Society had commissioned the Trust to assist them in the creation and installation of the panels. Most of this work took place over the winter of 2009/2010 and therefore was reported last year, but mention of them should also be made here.

The two statues of King Ethelbert and Queen Bertha were unveiled by Prince Michael of Kent four years earlier on St Augustine's Day 2006. One of the new panels was designed to accompany the statues. It describes in detail the statues, their dress and jewellery and tells the story of Ethelbert and Bertha and their part in the introduction of Christianity to England. The second panel gives a short illustrated history of Lady Wootton's Green from Roman times through to the creation of 'Queen Bertha's Walk' in 1997 as part of the celebrations to mark the 1400th anniversary of St Augustine's arrival. The reconstruction drawing (below) was made by Jill Atherton to help illustrate the history panel.

In December, *Excavations at Market Way, St Stephen's, Canterbury* by Richard Helm and Jon Rady was published as No 8 in the occasional paper series. Following on from the account of the extramural area around North Lane, this report describes further findings in Canterbury's northern suburbs, this time close to Roman pottery and tile kilns recorded during the relocation of the cattle market in the 1950s.





INCIKIK...
SBFFIORACO
...NTISSIMVIV

Most of the inscription is unclear and the names in the first two lines are unclear. It concludes '... lived most devotedly'.

In the earliest Roman period the area seems to have been primarily agricultural. The excavations recorded traces of a regular field system. By the mid first century and continuing into the second century the area became a focus for pottery and tile kilns, known from excavations conducted by Frank Jenkins in the 1950s. Two areas of quarrying (presumably to provide clay for the kilns) and traces of timber structures appeared to be related to this industry. By the early third century, the quarries were abandoned, but use of the site continued – two burials were discovered. One of these was accompanied by a funerary plaque bearing an inscription, a rare find for Canterbury. Only five others were known until now.

The story did not stop with the Romans. From around the early eighth century until the late ninth a small settlement was present. Eight sunken-featured structures (or Anglo-Saxon *grubenhauser*) were excavated. There were not a lot of finds, but amongst the small assemblage was an impressive collection of beads and an early medieval strap-end decorated with interlaced serpents.

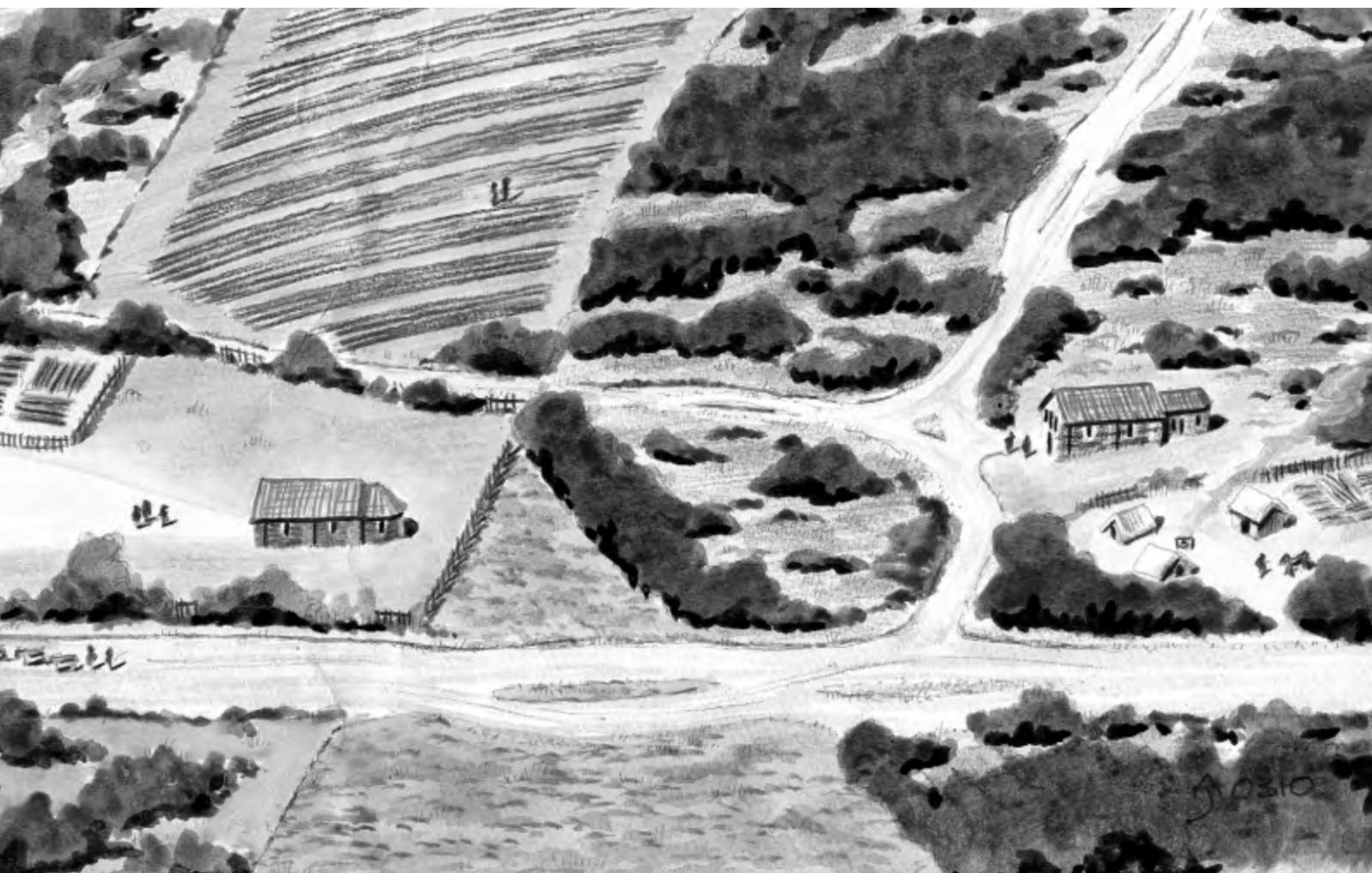
During the excavations many soil samples were taken in order to recover evidence for environmental conditions. Despite the fact that the site lay over brickearth, generally unsuitable for preservation, the sampling programme produced some interesting results which, when put with the animal remains and study of craftworking debris, tell us even more about this area outside the ancient town.

Whenever possible we promote our publications at local events or conferences. In November we took a selection of recent publications to the 'Link to the Past' event held by the Trust for Thanet Archaeology at the Powell-Cotton Museum in Birchington. The idea behind the event was for local archaeology and history groups in the area to get together and show the work they have carried out recently. Kirsty Bone enthusiastically described the Thanet Earth site to a steady stream of visitors, supported by a display of some of the finds, and we sold a good number of books.

Information for purchasing publications at:
www.canterburytrust.co.uk/publications

Personal callers are welcome at:
92A Broad Street, Canterbury, CT1 2LU
Phone: 01227 462062

Oxbow Books continue to market and distribute our publications and we are grateful to them for taking our work to a wider audience than ever before. In Canterbury, Waterstones book shop in St Margaret's Street promotes our publications amongst its local interest and archaeology titles, whilst the Roman Museum steadily sells copies of *Roman Canterbury a journey to the past* to successive groups of visiting schoolchildren and tourists ☺





EDUCATION

Marion Green



A Town Unearthed: The Vanishing Villa

Children from Capel-le-Ferne school visit the villa.



'Vanishing Villa' project. Children digging on site.

For local residents and visitors alike, one of the most engaging and evocative elements of the *A Town Unearthed: Folkestone before 1500* project is the excavation work at the Roman villa site on the town's East Cliff, where erosion is gradually destroying two phases of villa construction and important prehistoric evidence (pp 37–9).

The image of a buried building crumbling over a cliff edge has caught the imaginations of Folkestone's schoolchildren. Through a series of activities last September, 350 children and teachers from primary schools came for the 'Vanishing Villa' project and enjoyed digging, washing finds and seeing the Roman villa and Iron Age remains being uncovered. With the support of St Mary's CE Primary School,

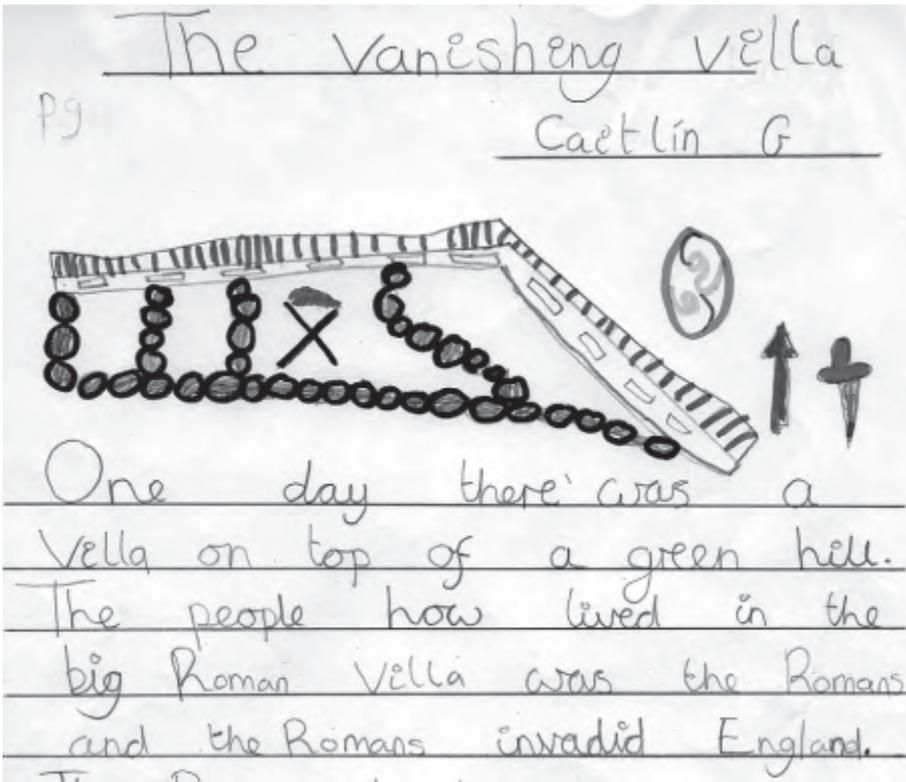
Folkestone, groups of children then followed up with video conferencing with the excavation Director, Keith Parfitt and incorporated their experiences into classroom work.

Other schools took advantage of 'villa' class visits, learning how hard it was to make flour 2,000 years ago by having a go with a replica hand quern borrowed from Canterbury Museums. Grinding wheat grains into flour was perfect for Capel le Ferne's Harvest Festival theme back in school. There is substantial evidence at the site for quern production beginning in the late Iron Age.

I would like to thank Ian Coulson, my colleagues at the Trust, and *A Town Unearthed* volunteers, Yvonne Hutchcraft and Pat Cocks for supporting the school activities last September.

Jakob, a pupil at Sandgate Primary School said, **'Thank you for making us a part of your dig of the Roman villa. I liked finding out so many facts that I didn't know and the activities were fun.'**

James Blomfield, ICT teacher at Capel le Ferne Primary School said, **'It was a brilliant experience for the children, they were enthralled and the teaching resources were of high quality.'**



Classwork from St Marys school following a visit to the villa.

Another element of the schools programme is the establishment of learning resources for the *A Town Unearthed* website. A substantial amount of material has been posted including themed background information to the East Cliff excavations, galleries of photographs, pictures and plans with teacher/pupil-friendly text and suggested activities. The materials were designed not only for use by those schools who would experience the excavations first hand during the fieldwork seasons, but for any Folkestone school (predominantly primary) to support their teaching programmes independent of the excavations. In this way, I hope the web materials will have longevity beyond the *A Town Unearthed* project.

A Town Unearthed related activities

In association with the excavations at East Cliff and the Folkestone Book Festival, the *A Town Unearthed*

(ATU) project team organised a family fun day held in Tontine Street. Ninety-five children and adults enjoyed the Trust’s Little Dig (simulated model trenches with real finds) and finding out about some of the science of Archaeology. This was another opportunity for ATU volunteers to get involved and five of them came on the day.

In the spring, the Trust and three ATU volunteers jointly set up stalls at the Folkestone Skills Fair for upper primary schools and secondary schools. Hundreds of pupils and students enjoyed tasters from a wide range of voluntary groups and employers.

The BBC has been running a series of *Hands on History* events around the UK to help adults and children learn together and two of these focusing on Folkestone’s history and archaeology were based at the Heritage Resource Centre, supported by the ATU team. Around forty-five Folkestone children and adults went along to enjoy a range of activities, taking home some good quality BBC goodies.



Folkestone Skills Fair. Our display is at the back!

Other CAT education activities during the year

Apart from the *A Town Unearthed* project, the Education Service has continued its day to day activities of running its loans service, making classroom visits (Hawkinge, Canterbury, Maidstone, Hadlow, Dover and Sittingbourne schools, primary and secondary, supporting a range of curriculum needs), teaching at Canterbury Christ Church University and responding to a range of formal and informal educational enquiries.

During the past year the Education Service has enjoyed the company and support of Trust colleagues Andy Macintosh, Andrew Savage, Jacqui Matthews, Helen Swaffer, Kirsty Bone, Jake Weekes, Andrew Richardson and Laura O’Shea. I would also like to thank the fieldwork team at Folkestone’s East Cliff for its support, under the leadership of Keith Parfitt



BBC Hands on History event. Fascinated by an Anglo-Saxon skull.



BBC Hands on History event. Ian Coulson makes his point.

THE FRIENDS David Shaw

Membership of the Friends has picked up somewhat since my report last year (when we had had a clear-out of names for which we had lost contact) but we are still some way short of our target of 400 supporters for the work of the Trust. If you can encourage friends and colleagues to join you will be helping greatly to swell the funds which we have available for grants to the Trust and its staff.

Events during the Spring and Summer of 2010 have included lectures on the work of the Kent Underground Research Group, the Construction of the Pyramids of Egypt, a visit to the exhibition and conservation workshop of materials from the Anglo-Saxon cemetery at The Meads, Sittingbourne, visits to Horton Priory and to Saltwood Castle, and the first of two visits to the re-excavation of the Roman Villa on the East Cliff at Folkestone.

Our autumn events included a visit to the Medieval and Renaissance Galleries at the Victoria and Albert Museum where we were met and guided by two of the specialist curators. We had a lecture on aspects of Roman Pompeii from Professor Ray Laurence, the new Professor of Archaeology at the University of Kent. The Trust's Director, Dr Paul Bennett, once again gave a review of the Trust's work during the previous year at the Frank Jenkins Memorial Lecture at Canterbury Christ Church University in January organised in conjunction with the Canterbury Archaeological Society. This remains an immensely popular and well supported event. This was followed in February and March by a talk by Peter Clark on the Dover Bronze Age Boat project and by Keith Parfitt on the Folkestone Roman Villa.

The Friends once again arranged a series of walks for the Canterbury Festival programme. These were very successful and resulted in a record income of over £1,700 for the Friends' funds (after the Festival Office had taken its share). We owe many thanks to Meriel Connor, our Walks organiser, and to her team of walk leaders.

The surplus which we had built up in Friends' finances allowed us to make several substantial grants to the Trust as well as smaller grants to support staff participation at conferences, educational materials, and the purchase of books and journals

for the library. Grants totalling about £20,000 were made towards the design and implementation of a new web site, the replacement of the telephone system and ancillary equipment, and additional work on the Roman Tower Exhibition

in the Canterbury Bus Station. The Friends have also contributed to the costs of the Trust's Developer Awards ceremony in 2010 and to a publication launch at Waterstone's Canterbury for the volume on the Ickham excavations. At its January 2011 meeting, the Friends' Committee approved grants of around £7,000 for alterations to the Trust's building at Kingsmead and for repairs to the main building in Broad Street, Canterbury. Having built up a healthy surplus over several years, we were able to make this series of grants representing about twice our annual income.

A full programme of events is published in our newsletter and on the Trust's new web site. One of our newsletter deliveries includes a copy of the Trust's Annual Report; we have found that the postage costs for sending the Annual Report have risen alarmingly and we are taking steps to increase the number which can be delivered by hand by volunteers.

I mentioned last year that we had lost two valuable members of the Friends Committee. I am very happy to report that we have found two new, equally valuable, members who have both taken on some of the organisational roles which help to keep the Friends moving forward. I would still like to find a volunteer Newsletter Editor who could assemble the material for the

Trust's graphic designer to turn into the excellently produced Newsletter which our members receive three times a year.

The Friends were represented at meetings with the City Council and local representatives on the future of local museums, especially the Roman Pavement Museum. We have been very pleased with the positive response from all sides and hope that the future of the various museums is now more secure ☺



Dr Andrew Richardson, the Trust's Finds Manager, explains the layout of the Roman villa being re-excavated at Folkestone during a Friends' visit.

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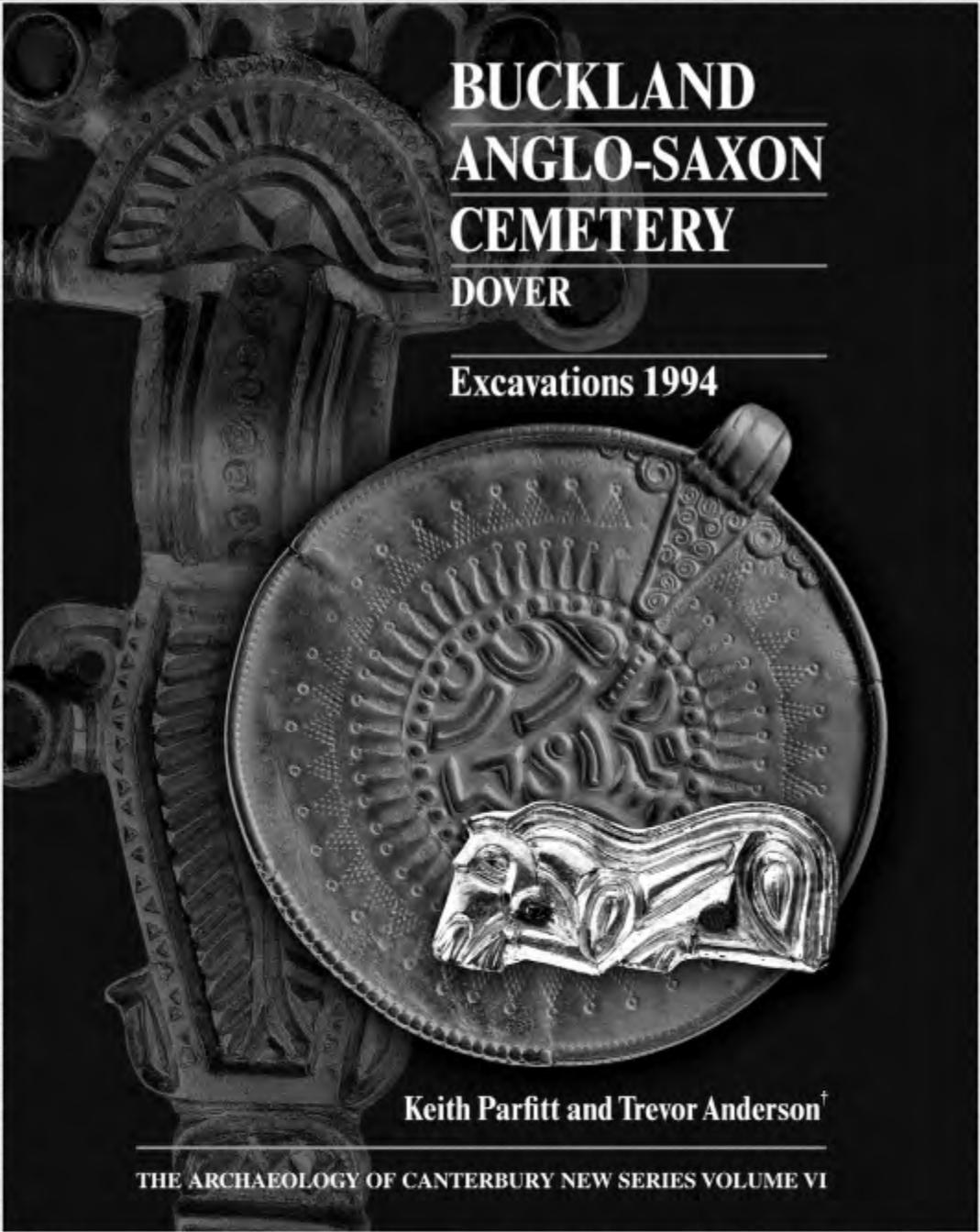
Larkings (Mr Michael J Moore)

BIBLIOGRAPHY

- ACTA 2008, Mote Park, Maidstone. Conservation Plan, Draft 2
- Allison, E 2010a, 'Bulk samples from deposits associated with medieval buildings excavated on land at Fordwich Garage, Sturry, near Canterbury, Kent', unpublished Canterbury Archaeological Trust archive report
- Allison, E 2010b, 'Environmental analysis' in R Lane, 'An archaeological evaluation at Stoneless Golf Course, Ebbsfleet Lane, near Ramsgate', unpublished Canterbury Archaeological Trust report 2010/8, 15–7
- Allison, E 2010c, 'Assessment of insect remains in samples from archaeological excavations at Star Carr, Vale of Pickering, North Yorkshire in 2007 (Site Code SC07, Trench 24)', prepared for the Universities of York and Manchester. Canterbury Archaeological Trust Report 2010/98
- Allison, E 2010d, 'Assessment of insect remains from archaeological excavations at Star Carr, Vale of Pickering, North Yorkshire in 2010 (Site Code SC10)', prepared for the Universities of York and Manchester. Canterbury Archaeological Trust Report 2010/101,
- Allison, E 2011a, 'Environmental samples from an archaeological watching brief at the Bigbury Camp Fence', unpublished Canterbury Archaeological Trust archive report
- Allison, E. 2011b, 'Environmental samples' in A Gollop, 35–9
- Allison, E 2011c, 'Marine molluscs from Roman and early Anglo-Saxon deposits on the Whitefriars site, Canterbury, Kent (Canterbury Archaeological Trust Site Codes CW21, CW29, CW46, CW50, CW64)', Canterbury Archaeological Trust Report 2011/29
- Allison, E 2011d, 'Marine molluscs from late Anglo-Saxon deposits and early medieval deposits on the Whitefriars site, Canterbury, Kent (Canterbury Archaeological Trust Site Codes CW21, CW29, CW46, CW50, CW64)', Canterbury Archaeological Trust Report 2011/30
- Allison, E 2011e, 'Marine molluscs from late medieval and post-medieval deposits on the Whitefriars site, Canterbury, Kent (Canterbury Archaeological Trust Site Codes CW21, CW29, CW46, CW50, CW64)', Canterbury Archaeological Trust Report 2011/31
- Allison, E 2011f, 'Insect remains from archaeological excavations in Southgate, Bath (Museum of London Site Code SO-SGT06)', Canterbury Archaeological Trust Report 2011/55
- Allison, E 2011g, 'Insect remains from Roman and Saxo-Norman pits excavated at 29–33 King Street, London EC2 (Museum of London Site Code KGT06)', Canterbury Archaeological Trust Report 2011/56
- Allison, E 2011h, 'Insect remains from waterlogged deposits at Brooklands, Milton Keynes (Oxford Archaeology South Site Code BRBR07-09)', prepared for Oxford Archaeology South. Canterbury Archaeological Trust Report 2011/1
- Allison, E, Carruthers, W and Locker, A 2010a, 'Thanet Earth: Assessment of biological remains from the environmental samples. (Canterbury Archaeological Trust Site Codes TEP1-P8.EX07)', Canterbury Archaeological Trust Report 2010/39
- Allison, E, Bates, M, Weekes, J and Wenban-Smith, F 2010b, 'An archaeological evaluation in the car park adjacent to the YMCA Roundhouse, Overy Street, Dartford, Kent. (Canterbury Archaeological Trust Site Code OSD.EV10)', Canterbury Archaeological Trust report 2010/63
- Austin R 2010, 'Canterbury Cathedral, South-west Transept, the Great South Window' unpublished Canterbury Archaeological Trust client report
- Barber, B and Bowsher, D 2000, *The Eastern Cemetery of Roman London: Excavations 1983–1990*, Museum of London Archaeology Service Monograph 4
- Barber, L 2011, 'The post Roman pottery' in R Lane, 'Archaeological excavation of Fordwich Garage, Sturry, assessment report', unpublished Canterbury Archaeological Trust report 2011/6, 26–31
- BBC Food website: <http://www.bbc.co.uk/food/>
- Bennett, P 1984, 'The Topography of Roman Canterbury', *Archaeologia Cantiana* c, 47–56
- Bennett, P 1989, 'Canterbury' in V A Maxfield (ed), *The Saxon Shore, A Handbook*, Exeter Studies in History No 25, 118–29
- Bennett, P and Sparks, M 2000, *The Outer Court of the former Archbishop's Palace, Canterbury. A desk assessment*, unpublished Canterbury Archaeological Trust report
- Blockley, K 1997, 'Archbishop Lanfranc's Norman cathedral. Period 5A' in K Blockley *et al*, 111–21
- Blockley, K and Blockley, P 1989, 'Excavations at Bigberry, near Canterbury, 1981', *Archaeologia Cantiana* cvii, 239–51
- Blockley, K, Sparks M and Tatton-Brown, T 1997, *Canterbury Cathedral Nave: Archaeology, History and Architecture*, The Archaeology of Canterbury, New Series I, Canterbury
- Blockley, M 1979, 'No 36 St Margaret's Street, 1979' in K Blockley, M Blockley, P Blockley, S S Frere and S Stow, *Excavations in the Marlowe Car Park and Surrounding Areas*, The Archaeology of Canterbury V, Whitstable, 73–83
- Bruce, M. 2003. *The oyster seekers*, London
- Carrott, J and Kenward, H 2001, 'Species associations among insect remains from urban archaeological deposits and their significance in reconstructing the past human environment', *Journal of Archaeological Science* 28, 887–905
- Carruthers, W J 2000, 'Charred plant remains from the Neolithic horizon, Chalcolithic horizon & Bronze Age horizon', in M Patton, 'Le Pinnacle, Jersey: a reassessment of the Neolithic, Chalcolithic and Bronze Age horizons', *Archaeological Journal* 158, 1–61
- Carruthers, W J 2010, 'Ellington School, Ramsgate. The charred plant remains', specialist report produced for Canterbury Archaeological Trust
- Carruthers, W J forthcoming, 'The charred plant remains' in P Crane, *South Hook Liquid Natural Gas Pipeline*, Dyfed Archaeological Trust
- Carruthers, W and Allison, E 2010, 'Shelford Farm Estate, Broadoak, Canterbury, Kent. Biological remains from the palaeoenvironmental samples (Canterbury Archaeological Trust Site Codes SQA13.EX02, SQAP01, SQAPB.01, SWAP01)', Canterbury Archaeological Trust Report 2010/37
- Champion, T 2007, 'Prehistoric Kent' in J H Williams (ed), 67–132
- Church of England and English Heritage 2005, *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*, Swindon
- Clark, A J and Thompson, F H 1989, 'Revised radiocarbon dates for three hillforts in Kent and Surrey', *Antiquaries Journal* lxxix, pt II, 303–7
- Clark, J G D 1954, *Excavations at Star Carr*, Cambridge
- Coldstream, N and Draper, P (eds) 1982, *Medieval Art and Architecture at Canterbury before 1220*, British Archaeological Association Conference Transactions for the year 1979, with Kent Archaeological Society, Leeds
- Cooper M R and Johnson, A W 1984, *Poisonous plants in Britain and their effects on animals and man*, London, MAFF Ref Book 161
- Cross, R 1996, 'Shelford – Proposed Landfill Extension: Archaeological Desk Study', Canterbury Archaeological Trust report 1996/26
- Davidson, A 2006, *The Oxford companion to food*, second edition, edited by Tom Jaine, Oxford
- Davies, P 2008, *Snails: Archaeology and landscape change*, Oxford
- Duff, A (ed) 2008, *Checklist of beetles of the British Isles*, Wells, Somerset, privately printed
- Esmonde-Cleary, S 2000, 'Putting the dead in their place: burial location in Roman Britain' in J Pearce, M Millet, and M Stuck (eds), *Burial Society and Context in the Roman World*, Oxford, 127–42
- Farrar, R A H 1958, 'Excavations at Canterbury. The Whitehall Road site', *Archaeological Newsletter* vi, No 5, 126
- Fleming, C 1972, 'Case of poisoning from red whelk', *British Medical Journal* 1971, 3, 520–1
- Flower, B and Rosenbaum, E 1958, *The Roman cookery book*, London
- Frere, S S 1970, 'The Roman Theatre at Canterbury', *Britannia* I, 83–113
- Gem R 1982, 'The significance of the 11th-century rebuilding of Christ Church and St Augustine's, Canterbury, in the development of Romanesque architecture' in N Coldstream and P Draper, 1–19
- Gollop, A 2009, 'An archaeological evaluation at the former Hallet's Garage, 21–24 St Dunstan's Street, Canterbury, Kent', unpublished Canterbury Archaeological Trust report 2009/16
- Gollop, A 2010, '28 St Dunstan's Street, Canterbury, Kent: Archaeological evaluation report', unpublished Canterbury Archaeological Trust report 2010/82
- Gollop, A 2011, 'Land to the north-west of the Thanet Way, High Street Road, Waterham (Herne Hill), Kent', unpublished Canterbury Archaeological Trust report 2010/109
- Gollop, A and Rady, J forthcoming '28 St Dunstan's Street, Canterbury, Kent: Archaeological Evaluation Report'
- Gostling, W 1777, *A Walk in and Around the City of Canterbury*, second edition, Canterbury
- Gray, L 2011, 'The charred plant remains' in A Gollop, 39–43
- Greep, S 1990, 'Objects of worked bone and antler' in J C Driver, J Rady and M Sparks, *Excavations in the Cathedral Precincts, 2 Linacre Garden, 'Meister Omers' and St Gabriel's Chapel*, The Archaeology of Canterbury IV, Maidstone, 190–2

- Grieve, M 1976, *A modern herbal*, London
- Günther, R T 1897, 'The oyster culture of the ancient Romans', *Journal of the Marine Biological Association of the United Kingdom (New Series)* 4, 360–5
- Hall, A and Kenward, H 2011, 'Plant and invertebrate indicators of leather production: From fresh skin to leather offcuts' in R Thomson and Q Mould (eds), *Leather tanneries: The archaeological evidence*, London, 9–32
- Hall, A, Kenward, H, Jaques, D and Carrott, J 2000, 'Technical report: Environment and industry at Layerthorpe bridge, York (site code YORYM 1996.345)', Reports from the Environmental Archaeological Unit, York 2000/64
- Hansen, M 1987, 'The Hydrophiloidea (Coleoptera) of Fennoscandia and Denmark', *Fauna Entomologica Scandinavica* 18, Leiden
- Harvey, B 1993, *Living and dying in England 1100-1540: the monastic experience*, Oxford
- Hasted, E 1800, *The History and Topographical Survey of the County of Kent*, second edition, 12 vols, Canterbury 1797–1801
- Hayward, P, Nelson-Smith, T and Shields, C 1996, *Sea shore of Britain and Europe*, London
- Hewett C and Tatton-Brown T 1976, 'New structural evidence regarding Bell Harry tower and the south-east spire at Canterbury', *Archaeologia Cantiana* xcii, 129–36
- Hicks, A and Houlston, M 2003, 'Whitefriars (The Big Dig)', *Canterbury's Archaeology 2000–2001*, 4–7
- Hicks, A and Seary, P 2009, 'South precincts, Canterbury Cathedral. Phase 1. An archaeological desk-based assessment', unpublished Canterbury Archaeological Trust client report 2009/145
- Hillman, G 1982, 'Evidence for Spelling Malt' in R Leech (ed) *Excavations at Catsgore 1970-73. A Romano-British Village*, Western Archaeological Trust Excavation Monograph 2, Bristol, 137–41
- Holland, D G 1972, *A key to the larvae, pupae and adults of the British species of Elminthidae*, Freshwater Biological Association Scientific Publication 26, Ambleside
- Holman, D 2005, 'Iron Age coinage and settlement in east Kent', *Britannia* 36, 1–54
- Holman, J 2008, 'An archaeological evaluation of the Old Dover Road frontage, St Lawrence Ground, Canterbury', unpublished Canterbury Archaeological Trust report 2008/1
- Howes, F N 1962, 'Part III, Tanning materials. Botanical Part' in H Endres, F N Howes and C von Regel, *Die Rohstoffe des Pflanzenreichs. 1. Lieferung – Gerbstoffe/Tanning materials*, Weinheim
- Humphreys R 1991, *Thanet at War 1939-1945*, Sutton Publishing, Stroud
- Hussey, R C 1874, 'The British settlement in Bigbury Wood, Harbledown', *Archaeologia Cantiana* ix, 13–15
- Jacomot, S 1987, *Prähistorische Getreidefunde*, Botanisches Institute der Universität Abteilung Pflanzensystematik und Geobotanik, Basel
- Jenkins, F 1951, 'Archaeological notebook, Canterbury, 1949–51', *Archaeologia Cantiana* liv, 71–2
- Jenkins, F 1972, 'Fordwich from 500 AD' in K H McIntosh (ed), *Fordwich a Lost Port*, Ramsgate
- Keller, P T 1988, 'The evidence for ancient quern production at Folkestone', *Kent Archaeological Review* 93, 59–68
- Keller, P T 1989, 'Quern production at Folkestone, South-East Kent: An interim note', *Britannia* 20, 193–200
- Kent County Council 2010, 'Specification for a targeted level 2 RCHME earthworks survey and subsequent test pitting programme at Mote Park, Mote Road in Maidstone. Specification for work at Mote park'
- Kenward, H K and Hall, A R 1997, 'Enhancing bioarchaeological interpretation using indicator groups: stable manure as a paradigm', *Journal of Archaeological Science* 24, 663–73
- Lasdun, S 1991, *The English park: royal, private and public*, London
- Light, J 1995, 'Duckpool, Morwenstow, Cornwall: the bias introduced by selective collection of the marine molluscs', *Cornish Archaeology* 34, 172–5
- Linklater, A and Willson, J 2002, 'An archaeological watching brief at St Mary the Virgin Church, Chartham, Kent' unpublished Canterbury Archaeological Trust report, 2002/75
- Medieval wares website, consulted 13.11.11 <http://medievalwares.com/brooch%20manufacture/Cast%20Brooch.html>
- Millet, M 2007, 'Roman Kent' in J H Williams (ed), 135–84
- Milner, N 2007, 'Fading Star', *British Archaeology* 96, 10–14
- Milner, N, Taylor, B and Conneller, C et al 2010, 'Star Carr: An excavation to inform future management discussion', Assessment report produced for English Heritage, December 2010
- Mount family 2000, 'The Mount family of Harbledown' in P Osborne (ed), *Harbledown Heritage*, 50–60
- Mullen, G R and Durden, L A (eds) 2009, *Medical and veterinary entomology*, second edition, London
- Newhook, R and Holman, J 2008, 'St Lawrence cricket ground, Old Dover Road, Canterbury', *Canterbury's Archaeology 2006–2007*, 8–10
- Oakley, A M 1979, 'The end of the fair', *Canterbury Cathedral Chronicle*, no 73 Online dictionary. <http://onlinedictionary.datasegment.com/word/sepia>
- Payne, S 2010, 'The dark secrets of ancient peat', *British Archaeology* 114, 11
- Percival, J 1921, *The wheat plant: A monograph*, Duckworth
- Philp, B J 1990, 'Excavations on the Roman villa at Folkestone 1989', *Kent Archaeological Review* 99, 206–9
- Philpots, J R 1890, *Oysters and all about them*, London
- Pike, G, Cann, J, and Lambert, R 1992, *Oysters and dredgermen*, Seasalter
- Pilbrow, J 1871, 'Discoveries made at Canterbury in 1868', *Archaeologia* xliii, 151–64
- Pipe, A 2006, 'Animal remains' in D Whipp, *The medieval postern gate by the Tower of London*, MoLAS Monograph 29, 63–5
- Pratt, S 2005, 'Outer Court, Archbishop's Palace', *Canterbury's Archaeology 2003–2004*, 7
- Pratt, S and Austin, R 2003, 'Rear of 35–37 Palace Street, Canterbury: Archaeological Note', unpublished Canterbury Archaeological Trust report
- Rady, J 1990, 'Lavender Farm', *Canterbury's Archaeology 1988–1989*, 29–30
- Rady, J 2009, 'Thanet Earth, Monkton' *Canterbury's Archaeology 2007–2008*, 11–25
- Rady, J 2010a, *Excavations at North Lane, Canterbury 1993 and 1996*, Canterbury Archaeological Trust Occasional Paper 6, Canterbury
- Rady, J 2010b, 'Thanet Earth, Monkton', *Canterbury's Archaeology 2008–2009*, 1–16
- Rady, J, Tatton-Brown, T and Bowen, J A 1991, 'The Archbishop's Palace, Canterbury. Excavations and building recording works from 1981 to 1986', *Journal of the British Archaeological Association* 144, 1–60
- Rawlinson, R (ed) 1714, 'A copy of a letter from Robert Plot, LI D, Keeper of the Ashmolean Museum in the University of Oxford: design'd to be sent to the Royal Society in London, *Miscellanies on several curious subjects: Now first Publish'd from their RESPECTIVE ORIGINALS*, London
- Reid, T M, Gould, I M, Mackie, I M, Ritchie, A H, and Hobbs, G 1988, 'Food poisoning due to consumption of red whelk (*Neptunea antiqua*)', *Epidemiology and Infection* 101 (2), 419–23
- Richardson, A 2011, 'CSI Sittingbourne: Community Science Investigation and Exhibition', *Canterbury's Archaeology 2009–2010*, 45–6
- Robertson, D and Wilson, T 2009, 'House of Agnes, 71 St Dunstan's Street, Canterbury', *Canterbury's Archaeology 2008–2009*, 30–2
- Robertson, Canon S 1883, 'Roman Canterbury (Durovernum)', *Archaeologia Cantiana* xv, 338–50
- Roth, C 1950, *The rise of provincial Jewry: the early history of the Jewish communities in the English country side, 1748-1840*, Jewish Monthly, London
- Scott G E 1875, 'The choir screen in Canterbury Cathedral', *Archaeological Journal* 32, 81–8
- Searle W G 1897, *Christ Church, Canterbury: I. The Chronicle of John Stone, Monk of Christ Church 1415-1471. II. Lists of the Deans, Priors, and Monks of Christ Church Monastery*, Cambridge
- Seary, P 2011, 'Mote House, Maidstone', *Canterbury's Archaeology 2009–2011*, 28–33
- Simmonds, A, Marquez-Grant, N and Loe, L 2008, *Life and Death in a Roman City: Excavation of a Roman Cemetery with a Mass Grave at 120–122 London Road, Gloucester*, Oxford Archaeology Monograph 6, Oxford
- Simmonds, N W 1976, *Evolution of Crop Plants*, London
- Single, A 2008, 'Specification for Archaeological Evaluation on land north-west of the Thanet Way and south-west of High Street Road in Hernehill in advance of horticultural development; Site Specific Requirements', unpublished Kent County Council document
- Smith, C R 1844, 'Letter communicating an account of some antiquities found in the neighbourhood of Sandwich in the county of Kent', *Archaeologia* xxx, 132–6
- Smith, C R 1852, 'Discoveries of coins of Romans near Rochester', *Numismatic Chronicle* 15, 59
- Smith, D, Whitehouse, N, Bunting, M J and Chapman, H 2010, 'Can we characterize "openness" in the Holocene palaeoenvironmental record? Modern analogue studies of insect faunas and pollen spectra from Dunham Massey deer park and Epping Forest, England', *The Holocene* 20, 2, 215–29
- Smith, N 2011, *Introduction to Heritage Assets: Pre-industrial Lime Kilns*, English Heritage
- Sparey-Green, C 2010a, 'Preliminary survey of earthworks in the vicinity of Bigbury Camp and the Blean Woods', *Canterbury's Archaeology 2008–2009*, 32–5
- Sparey-Green, C 2010b, 'Homestall Wood earthworks, Harbledown, Kent', *Kent Archaeological Society Newsletter* 86, Winter 2010, 14–15

- Sparks, M 1990, 'The 'New Foundation' and its domestic buildings' in J C Driver, J Rady and M Sparks, *Excavations in the Cathedral Precincts, 2. Linacre Garden, 'Meister Omers' and St Gabriel's Chapel*, The Archaeology of Canterbury IV, Maidstone, 21–36
- Sparks, M 2007, *Canterbury Cathedral. A historical survey*, Canterbury Starr Carr website. Consulted 31 October 2011. <http://sites.google.com/site/starcarrfieldwork/Home>
- Stevens, C 2011, 'An early Neolithic charred cereal deposit from Westwood Cross, Thanet', *Canterbury's Archaeology* 2009–2010, 44
- Strik H J A 1982, 'Remains of the Lanfranc Building in the Great Central Tower and the North-West Choir/Transept Area' in N Coldstream and P Draper, 20–6
- Stukeley, W 1776, *Itinerarium Curiosum: Centuria II*, London (posthumous)
- Sykes, N 2004, 'The dynamics of status symbols: wildfowl exploitation in England AD 410–1550', *The Archaeological Journal* 161, 82–105
- Tatton-Brown, T 1983, 'Miscellaneous other sites', *Annual Report 1982–83*, Canterbury Archaeological Trust, 25
- Tatton-Brown, T 1991, 'The history of the Archbishop's Palace in Canterbury' in Rady *et al*, 1–18
- Tatton-Brown, T 1997, 'The rebuilding of the nave and western transepts 1377–1503' in K Blockley *et al*, 128–46
- Taylor, B, Conneller, C and Milner, N 2010, 'The little house by the shore', *British Archaeology* 115, 14–17
- Taylor, M V 1932, 'Romano-British Kent: IV, Country houses and other buildings', *Victoria County History* III, 102–26
- Thompson, F H 1983, 'Excavations at Bigberry, near Canterbury, 1978–80', *Antiquaries Journal* lxxiii, 237–77
- Weston, A 2005, 'First-century samian pottery from East Wear Bay, Folkestone', *Kent Archaeological Review* 161, 11–14
- Wikipedia. <http://en.wikipedia.org/wiki/Cuttlebone>
- Williams, J H (ed) 2007, *The Archaeology of Kent to AD 800*, Kent History Project 8, Woodbridge
- Willis R 1845, *The Architectural History of Canterbury Cathedral*, London
- Wilson, C A 2003, *Food and drink in Britain from the Stone Age to the 19th century*, Chicago
- Wilson, T 2010, 'The Meads, Sittingbourne', *Canterbury's Archaeology 2008–2009*, 17–21
- Winbolt, S E 1925, *Roman Folkestone*, Methuen, London
- Winder, J 1985, 'Oyster culture' in G Milne, *The port of Roman London*, London, 91–5
- Woodman F 1981, *The Architectural History of Canterbury Cathedral*, London
- Woodruff C E 1933, 'The rebuilding of the South-West Tower of Canterbury Cathedral in the Fifteenth Century', *Archaeologia Cantiana* xlv, 37–47
- Woodruff, C E 1937, 'The registry and chartulary of the Hospital of St Laurence, Canterbury', *Archaeologia Cantiana* I, 33–49
- Woolnoth W 1816, *A Graphical Illustration of the Metropolitan Cathedral Church of Canterbury*, London
- Wright, J 2009, *Edible seashore*, London
- Yonge, C M 1960, *Oysters*, New Naturalist Monograph 18, London
- Yonge, C M 1966, *The sea shore* (revised edition), London
- Zohary, D and Hopf, M 2000, *Domestication of Plants in the Old World*, third edition, Oxford



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