

Eleventh-Century, Later-Medieval and Early Post-Medieval Evidence from Investigations at Jesus College and Market Street, Oxford

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SUMMARY

Small-scale investigations during recent refurbishment work at Jesus College have revealed a sequence of occupation dating from the eleventh century through to the construction of the present college kitchen in the early seventeenth century. The excavation uncovered evidence for an early post-built structure, associated with substantial deposits of charred grain from the parching of wheat and the malting of barley. Two sherds of pottery from an imported Beauvais-type vessel were associated with these deposits and represent the first occurrence in Oxford of this type, which is datable to the period c.900–1100. The posthole structure and the evidence for grain processing are similar to results from other excavations in this area of the city, which were datable to the late Saxon period. A number of post-Conquest pits on the site are likely to have been dug in the back yards of tenements fronting onto Market Street (formerly Cheyney Lane). These support other evidence that Market Street was built up during the twelfth century.

In January and February 2009 Oxford Archaeology (OA) carried out a number of small-scale archaeological investigations at Jesus College, Oxford. The area of the investigations lies at c.64 metres OD, with basement floor levels at c.62.70 metres OD. The location of the investigations is shown in relation to the plan of the college in Fig. 1. The wall between the college kitchen and buttery was recorded prior to its partial demolition for the insertion of a new lift shaft, and, within the kitchen, the area to be taken up by the new lift shaft was hand-excavated (Fig. 1, trench 2). A watching brief was maintained during the mechanical excavation of a trench for a new foul water pumping station within the Second Quad (Fig. 1, trench 3). Outside the college, a trench dug by Thames Water to repair the foul water main in Market Street was archaeologically monitored (Fig. 1, trench 1).

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The medieval town of Oxford developed from a fortified settlement, or *burh*, that was constructed around the turn of the tenth century AD. Remains of the late Saxon *burh* have been recovered in numerous excavations throughout the town centre. The nature and extent of the *burh* in its earliest years remains a subject of debate, but by the early eleventh century much of the town was built up.¹

¹ For the Anglo-Saxon town see A. Dodd (ed.), *Oxford before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town*, Thames Valley Landscapes Monograph, 17 (2003).

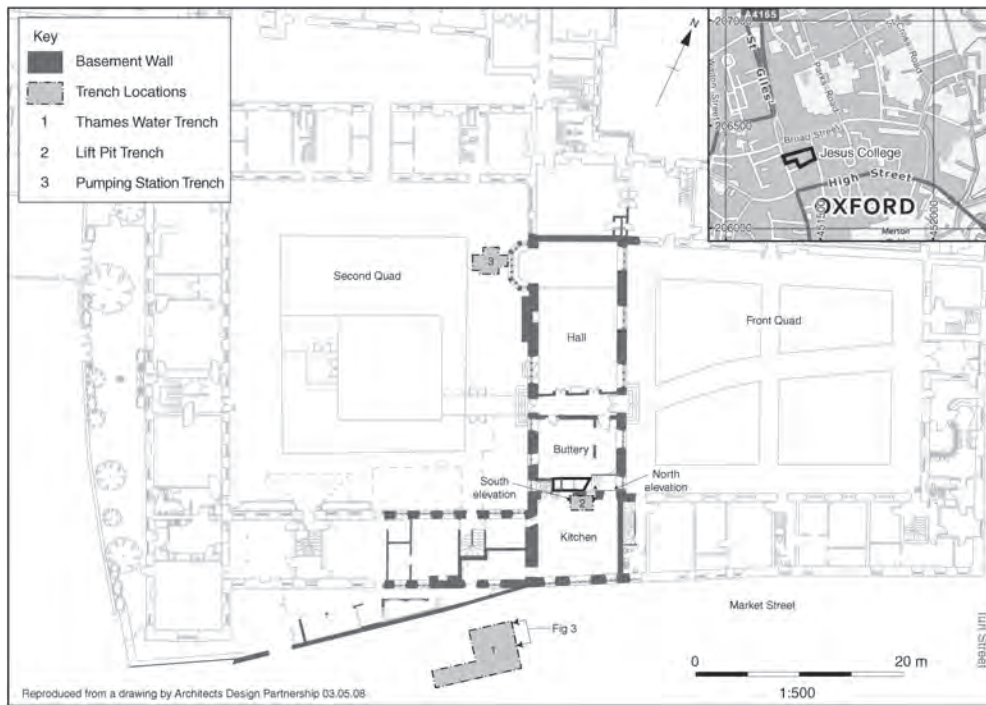


Fig. 1. Plan of Jesus College showing trench locations

The site now occupied by Jesus College lies within the central area of the *burh*. Cornmarket Street and Turl Street formed part of the original late Saxon street grid, and Ship Street is likely to have been an intramural street dating from the same period, running behind the northern defences.² There is currently no evidence that Market Street, formerly known as Cheyney Lane, existed at this time, and it has been suggested that it was created in the 1120s.³ Two excavations on the site of Lincoln College, on the opposite side of Turl Street, have revealed important evidence dating from the late Saxon period. Here, excavations in 1973–4 in the redundant All Saints Church (now Lincoln College library) revealed a sequence of late Saxon timber fences and buildings. One of the earliest elements of this sequence was a large deposit of cleaned bread wheat that had been destroyed by burning in the late ninth or tenth century.⁴ Subsequent excavations in 1997–2000 on the north side of Lincoln College, adjacent to Brasenose Lane, revealed more evidence for late Saxon timber buildings, again preceded by an apparent episode of burning of quantities of stored clean barley and wheat grain. This was thought to date from the early eleventh century or earlier.⁵ The only previous excavation to have taken place in the immediate vicinity of Jesus College, on the corner of Cornmarket Street and Market Street, recovered evidence for a sequence of pits and walls from the backyards of properties fronting onto Cornmarket Street, dating from the tenth or eleventh century onwards.⁶

² Ibid. pp. 26–9.

³ D. Sturdy and J. Munby, 'Excavations in Cornmarket and Queen Street 1959–62', *Oxoniensia*, 50 (1985), pp. 47–94.

⁴ Dodd (ed.), *Oxford before the University*, p. 233.

⁵ Z. Kamash et al., 'Late Saxon and Medieval Occupation: Evidence from Excavations at Lincoln College, Oxford, 1997–2000', *Oxoniensia*, 67 (2002), pp. 199–286.

⁶ Sturdy and Munby, 'Excavations in Cornmarket', pp. 49–59.

Salter placed some ten documented medieval properties along the north side of Cheyney Lane.⁷ Although there is no information currently available that takes the history of these as far back as the suggested opening up of Cheyney Lane in the 1120s, a number of these properties are recorded as early as the 1170s and 1180s, which suggests that the street was indeed developed at a relatively early stage. The area now occupied by Jesus College kitchen lay within a property later known as White Hall (Salter NE30; see also below). This had belonged to William Burewold and was described as a capital messuage when sold by his son Lambert in 1262 to Reginald de Hulmo, who granted it to St Frideswide's in the following year. Salter notes that White Hall, like the nearby Hawk Hall, was for legists, or legal specialists.⁸ White Hall, by this time including adjacent properties that it had absorbed, was granted to the new foundation of Jesus College in Queen Elizabeth I's charter of 27 June 1571, and there is evidence to suggest that the college continued to use the former White Hall buildings until c.1615 or later.

The process by which the college acquired and consolidated its site has been studied in detail by Brigid Allen.⁹ Most significantly for the present archaeological investigations, Allen notes that Queen Elizabeth's grant included the buildings of White Hall as well as its land, and in particular the hall and buttery, which lay parallel to Cheyney Lane. The college's existing hall, buttery and kitchen (Fig. 1) are believed to have been built during the time of principal Griffith Powell (1613–20). The kitchen occupies what was thought to have been the east end of the dining hall of White Hall which may have been demolished or converted around 1620.¹⁰ An impression of the college site in its earliest years is given by the near contemporary map of Ralph Agas (1578), reproduced by Allen (as her figure 1). This shows a collection of detached buildings of very different character, amongst them what appears to be a range parallel to Cheyney Lane in the position of the dining hall and buttery of White Hall, with a second range or building set perpendicular to its north (rear) face.

DISCUSSION OF THE RESULTS

The most informative investigations were those carried out in trench 2, the kitchen lift pit excavation. The results discussed in the following section are from that trench, except where otherwise indicated.

Eleventh Century (Figs. 2 and 3)

The earliest evidence was for probable eleventh-century occupation, including an east–west alignment of postholes (Figs. 2 and 3). There was some evidence for a north–south return of the post alignment, suggesting the corner of a structure. Within the structure was a probable hearth, a shallow sub-circular feature (250) with an ashy upper fill rich in charcoal and charred plant remains. Only three sherds of pottery were recovered from these features; most unusually these were a sherd of Stamford ware (850–1150) and two sherds from a vessel of Beauvais-type red-painted ware (c.900–1100; see Fig. 6, no. 1). The latter is an import from north-west France and is a newly identified pottery type from Oxford (Cotter, below), possibly indicative of the increasing importance of Oxford as a centre of trade in the eleventh century.

Analysis of the charred plant remains recovered evidence for both the malting of barley grain for brewing, and for the parching of wheat grain, possibly prior to milling (Smith, below). This may represent debris redeposited with spent fuel from nearby ovens. This is supported by the evidence of fired clay fragments with wattle impressions recovered from associated contexts, which is typical of material generally interpreted as oven wall (Poole, below). Ovens built of clay reinforced with wattles were used until the adoption of brick in the later medieval

⁷ H.E. Salter, *Survey of Oxford*, vol. 1, OHS, ns, 14 (1960), map NE1, properties NE29–38.

⁸ *Ibid.* pp. 36–7.

⁹ B. Allen, 'The Early History of Jesus College, Oxford, 1571–1603', *Oxoniensia*, 63 (1998), pp. 105–24.

¹⁰ *Ibid.* pp. 109–11 and fig. 2.

period. A number of sites in the vicinity have produced similarly striking deposits of charred grain (see above). This suggests the large-scale storage of free-threshing wheat and barley, with associated parching and malting activities possibly leaving the area prone to numerous destructive fires. At All Saints Church, the combined evidence of stratigraphy and radiocarbon dating suggested that this could have happened at a very early stage in the history of the *burh*, but unfortunately the results from other sites are not currently as closely dated. However, the new results reported here from Jesus College provide further evidence for a concentration of this kind of activity in the vicinity. Although the limited pottery evidence from the present site would allow for a post-Conquest dating, the similarity of the posthole structure and the burnt grain deposits to those recovered from late Saxon contexts elsewhere suggests that a late Saxon date here is very plausible.

Late Eleventh to Early Thirteenth Century (Figs. 2 and 3)

The east–west aligned configuration of postholes described above appeared to be superseded by a ditch on the same east–west alignment (197/224/208). Although the relationship between the ditch and the postholes was unclear due to the similarity of their fills, the ditch fills contained only pottery in fabrics OXAC and OXY, which would suggest that it dates broadly from the later eleventh or twelfth century. The purpose of the ditch is unclear. The fact that it is on the same alignment as the earlier postholes, and is parallel to Market Street/Cheyney Lane and at right-angles to Turl Street, suggests that it may have marked some kind of early property boundary.

A series of intercutting pits were observed to the north of the ditch, although some appeared to encroach upon it. The dating evidence from the pits was very similar to that recovered from the ditch, and the stratigraphic relationship was far from clear. The dating evidence from the pits suggests that they could have been sited in the back yard of a tenement fronting onto the newly laid out Cheyney Lane to the south. The pottery fabrics that define this phase are not closely datable, but John Cotter suggests (see pottery report, below) that the presence of many large, fresh sherds in fabrics OXY and OXAC undoubtedly represents activity on the site during the twelfth to early thirteenth century. The absence of Brill/Boarstall ware from these contexts would favour a twelfth-century date, and this would add to the impression from the documentary evidence noted by Salter (see above) for the development of properties along Cheyney Lane during the twelfth century. Overlying the pits were a series of fairly homogeneous silts, probably representing the mixing and reworking of the upper fills within the back yard or garden. The appearance of the first sherds of Brill/Boarstall ware pottery in the upper layers of these silts would be consistent with their accumulation in the late twelfth or early thirteenth century.

The Kitchen of White Hall, Thirteenth to Sixteenth Century (Figs. 3–5)

The earliest elements of the foundations of the present kitchen/buttery wall may belong to a stone building constructed here around the turn of the thirteenth century. The footing of the existing wall between the buttery and the kitchen was clearly of at least two phases of construction, represented by wall 248/132 and wall 152/125 (see below and Fig. 5). Structure 248 produced eleventh- to late thirteenth-century pottery from within the wall fabric, and a series of surfaces (181, 158) overlying the silt layers described above may also relate to a phase of activity associated with the construction of this wall. These surfaces contained small quantities of pottery fabrics OXAQ (east Wiltshire ware, 1150–1350) and OXAW (early Brill/Boarstall ware, 1175–1400), but no sherds of the main Brill/Boarstall ware fabric OXAM, which appears c.1225. This suggests a date in the late twelfth or early thirteenth century for the construction of wall 248/132 and the building to which it presumably related. Numerous fragments of ceramic roof tile dating to the thirteenth and fourteenth centuries were recovered (Shaffrey, below), including tiles in an early off-white fabric. These are likely to have been used for the roof of a substantial building, the appearance of which is hinted at by the traces of a



Fig. 4. Lift pit (Trench 2); later-medieval hearth, looking north-east. Contexts 153 and 157, stone spreads, overlay surface 158 and were separated by burnt timbers 156.

yellowish glaze that survived on numerous fragments. The occurrence of medieval roof tile in some early seventeenth-century contexts adds to the evidence that medieval buildings survived on the site until their demolition for the construction of new accommodation for Jesus College (see below).

South of wall 248/132 was a probable hearth. This was formed by two spreads of stone (157 and 153) overlying surface 158; these had roughly opposing faces (Fig. 4). Between them was a group of burnt timbers (156); analysis of charcoal and charred plant remains from this deposit suggests the presence of a thatched structure here made from wattle and daub, and a fragment of wattle-impressed fired clay was recovered from the layer (Poole, Challinor and Smith, below). The whole deposit may represent collapse from a chimney or lining and a thatched roof. The hearth was subsequently repaired and reinstated (group 146 and layer 151), comprising a rebuilt stone element on the west side and a surface of limestone and tile between this and the surviving east side (153). The associated pottery suggests a date within the thirteenth or fourteenth century for the rebuild, as sherds of Brill/Boarstall ware (OXAM) were present in elements of group 146. Wattle and daub fire hoods or chimneys were not uncommon at this time, although their obvious fire risk eventually made them obsolete or outlawed, as in London in the fourteenth century.¹¹

The rebuilt hearth was overlain by an accumulation of deposits that built up during the late medieval period (149/141 and 139/130). The latest pottery from these deposits includes fabrics OXBG (coarse Boarder ware, c.1350–1500), OXBX (late medieval Brill/Boarstall ware c.1450–1625), PMRE (early post-medieval red earthenware c.1480–1600) and FREC (Frechen stoneware c.1525–1750). Amongst these were sherds from dripping pans, pottery vessels

¹¹ M. Wood, *The Medieval English House* (1965), pp. 265, 289.

that were placed below spit-roasts to catch the dripping for reuse (see Cotter, below). The presence of the dripping pan fragments suggests large-scale catering, such as might have been undertaken at an academic hall. Taken together with the evidence for the presence of stone wall 248/132, this suggests that the area of the excavations was part of a kitchen from the thirteenth to fourteenth century onwards, and that, by its later years at least, this was the kitchen of White Hall, and may have continued to serve as the kitchen for Jesus College during its early years. The building can be associated with that shown on Ralph Agas's map of 1578.

The Construction of the College Kitchen in the Early Seventeenth Century (Figs. 3, 5 and 6)

Wall 125 (Fig. 5) represents the base of the existing wall between the college kitchen and buttery, with wall 152 thought likely to be contemporary consolidation to counteract subsidence into the soft fills of underlying pits. A clear construction trench for this wall (119) was apparent on the east side of the lift pit excavation (Fig. 3), cutting the late-medieval and early post-medieval occupation layers. The upper fills of the construction cut contained material of late sixteenth- to early seventeenth-century date. The construction cut for the wall was not so clear on the west side of the trench, but here layers of tile and mortar (Fig. 3) are likely to represent debris from this building campaign. The presence of leaded and grozed sherds of window glass in contexts of this date (Scott, below) suggests the likelihood that there had been glazed windows in the buildings of White Hall.

A number of pits were seen to cut these surfaces; these contained building debris and the most plausible explanation for them is that they were dug to dispose of waste from demolition of earlier structures and from the contemporary building campaign, before the floor of the kitchen was consolidated. This is supported by the fact that the artefactual evidence from the pits is overwhelmingly of early seventeenth-century date, and there is a marked cut-off point in both the pottery and clay pipe assemblages that suggests that from this point no further rubbish was disposed of in this area. The deposits in the watching brief trench in the Second Quad (trench 3) are likely to represent pit fills of a similar date to those cutting the construction horizons in the kitchen trench.

Finds from contexts of this period were the most varied and interesting from the excavations. They suggest that members of the college enjoyed a comfortable lifestyle and were early adopters of novelties. The presence of numerous early clay tobacco pipes (Fig. 6, no. 4) suggests that members of the college had taken up the new habit of smoking by this time, and the pottery and glass assemblages include sherds from German stoneware drinking mugs and from glass goblets and an early seventeenth-century wine bottle. Unusual items among the pottery assemblage include sherds from a decorative vessel in north Netherlands maiolica, and from a ceramic money box that had presumably been broken to extract the contents. A hooked clasp of this period comes from the fastening of a book. Three tuning pegs or pins are rather rare finds (Allen, below; Fig. 6, nos. 5a-c). These would have been used for instruments such as harps, lyres and lutes and, given the very strong Welsh associations of the early College, it is interesting to note that they are a type that could have been used on Welsh harps. The animal bone evidence (Strid, below) suggests that the college had access to good-quality meat, including prime cuts of leg of mutton or lamb, and prime beef or veal. The most unusual evidence, however, is a turkey bone found in a late sixteenth century context. The earliest known occurrence of turkey in England dates from 1541 and turkey was still probably something of a novelty when it was consumed at the present site.

Market Street (Fig. 3)

A sherd of possible St Neots ware (850–1100) pottery was recovered towards the base of a well-preserved series of street surfaces revealed within the Thames Water trench. However, the level of the earliest of these surfaces (63.33 metres OD) would appear to be too high to be of tenth-century date. Even allowing for a rise in the underlying ground level northwards towards Market Street, it seems unlikely that it represents a primary street surface when compared to the

height of the nearest recorded level on a tenth-century surface from All Saints Church, where the Turl Street surface was observed at 61.90 metres OD. Wherever the primary street surface has been recorded it directly overlies the natural subsoil. However, in the present excavations, the top of the undisturbed loess in the kitchen lift pit trench was at 62.28 metres OD, which is approximately a metre lower than the earliest surface revealed in the Market Street trench. It therefore seems likely that the earliest surfaces revealed (300, 301) are medieval at the earliest, deposit 301 displaying some evidence for lamination suggestive of a number of resurfacings. A fragment of possible medieval tile was recovered from the trample deposit (302) overlying the latest of these. Deposit 303, while also of gravel and sand composition, was more mixed and less well compacted and may represent a more rudimentary surface, perhaps indicative of Oxford's economic decline in the fourteenth and fifteenth centuries. The siltier composition of deposit 304 may indicate a levelling deposit, rather than a surface in itself, and it is possible that this is a base layer for the overlying gravel and cobble surface 305, with overlying deposits 306 and 307 possibly representing a 'wearing course' over the cobbles. The stone-lined drain 316 was cut from this level, and is likely to be contemporary. The Oxford Improvement Act of 1771 set up commissioners to supervise 'paving, cleansing, lighting and general improvement', which was to include a considerable improvement to the city's sewerage and drainage.¹² It is possible that the phase of activity represented by 304, 305–7 and 316 reflects this, particularly as the laying out of what is now the covered market also began at this time. The remaining levelling deposit (308) and cobbled surface (309) were directly overlain by the modern tarmac, and may be early twentieth century in origin.

Catalogue of Selected Illustrated Finds (Fig. 6)

- (1) Pottery. Beauvais-type ware (OXBS). Two red-painted body sherds from the same vessel. Eleventh century? Contexts (257) and (139). See description in report below. Scale 1:1.
- (2) Pottery. Brill/Boarstall 'Tudor green' copy (OXBC). Small ?anthropomorphic-faced terminal probably from the inside of a Tudor green-style 'novelty' lobed cup with several others facing the drinker. Cylindrical shaft with rounded end. Pair of stabbed eyes and gaping oval mouth formed by flattening or bevelling-off a projection. Attachment scar at opposite end. Dense sandy pale grey fabric with darker grey core. Dark green glaze, with bubbly patches, all over externally. Maximum length 20 mm. Date *c.*1375–1550. Context 101 (SF 6). Fill of post-medieval Pit 100. Spot-date *c.*1550–1625. Scale 2:1.
- (3) Fragment of ceramic peg tile with near-complete signature mark, probably thirteenth to fourteenth century. Context 153. Scale 1:2.
- (4) Clay tobacco pipe bowl with heel stamp of eight-pointed star with alternating straight and wavy arms and a small central raised pellet. Unusually fine, white clay. This stamp can be paralleled exactly in London; *c.*1610–40. Context 110. Scale 1:1.
- (5) Side and end views of three fragmentary bone tuning pins, possibly from Welsh harps or similar instruments; probably late sixteenth to early seventeenth century. Contexts 101 (5a), 131 (5b, SF 21), 122 (5c). Scale 1:1.

STRATIGRAPHIC SUMMARY

Jesus College Kitchen Lift Pit: Trench 2 (Figs. 2–4)

The existing York stone and concrete floor in the trench location was cut and broken out by the principal contractor (Carter Construction). Following the removal of the floor and

¹² *VCH Oxon.* 4, p. 232.

associated hogging, the underlying deposits were hand-excavated, and the resulting spoil was removed by Carter Construction.

Eleventh century. The natural gravel (205) at c.62.18 m OD was overlain by a 0.2-m thick layer of reddish brown loessic soil (204) beneath a 0.1-m thick deposit of similar composition, but with varying concentrations of gravel, charcoal and fired clay (199=206=242). A line of postholes (234, 232, 230, 228, 187) cut layer 199/206 along the southern edge of the trench. The postholes were between 0.3 and 0.5 m in diameter. Two further postholes (201 and 244) were located immediately south and north of this line. In the south-east corner of the trench was a probable hearth (250), a large shallow feature c.0.3 m deep, filled by grey brown clay silt (240). A stake hole, 257, was seen in the hearth. Deposit 240 was overlain by a deposit of burnt clay and charcoal, with concentrations of ash throughout (203). It is probable that deposit 199/206/242 is the reworked upper part of the loessic soil; although the observed features appeared to cut this layer, it seems likely that it represents occupation associated with the posthole structure described above, and some parts of it may have built up while the posts were in place.

Late eleventh to early thirteenth century. To the north of the posthole group were a series of intercutting pits (214, 236, 212, 238, 195, 190, 193) and a ditch (197=224=208), the latter on the same east–west alignment as the postholes. The relationships between the pits, ditch and postholes were unclear given the similarity in the composition of the fills and the artefactual assemblage. The largest and best defined of the pits (212) was not excavated to its base, but was in excess of 0.8 m deep. The lowest excavated fill (252) contained a concentration of large limestone blocks. Overlying the pit fills were a series of fairly homogeneous friable, mid grey brown clayey silts (219–179 inclusive) with occasional concentrations of gravel (186) and limestone (188); these were probably the reworked upper fills of the pits.

Thirteenth century to late sixteenth century. In the west of the trench, these homogeneous deposits were overlain by a spread of limestone rubble (181), which was in turn overlain by a layer of well-sorted gravel (158) and together these may have represented a rudimentary surface. In the east of the trench, the homogeneous deposits were overlain by a layer of redeposited loess (180) which was overlain by a silty deposit (182) at the same elevation as the gravel to the west (c.63.35 m OD).

Overlying these deposits was a probable hearth represented by two spreads of stone (157 and 153), approximately 1.5 m. apart. Between these two features – and partially overlying the east face of structure 157 – was a deposit of charred timber (156) from a wattle structure, from which a large fragment of wattle-impressed fired clay was recovered. The charred timbers were overlain by a compact, mid brownish grey silty gravel deposit (155), which was in turn overlain by a charcoal rich deposit (154). It is possible that these two deposits represent a rudimentary resurfacing of the hearth, laid down following the deposition of the charred timbers, and subsequently overlain by occupation debris (154) prior to the construction/deposition of the overlying structures and deposits.

A later rebuild of the west side of the hearth was represented by group 146 and surface 151, with structure 153 again forming the eastern side. Group 146 comprised two elements; structure 147 was a roughly square (albeit truncated) configuration of roughly coursed limestone fragments, with a possible post-setting in the centre. Structure 148 was a linear configuration of burnt stone, which corresponded with the east face of 147, and may have been part of the same structure. The possible surface (151) was a fairly level spread of limestone and tile which was apparent between structures 147 and 153 and, together with an overlying deposit of pea grit (150), may have formed a further surface within the hearth.

Surface 151 was overlain by a layer of redeposited gravel-rich material (140). This also appeared to be present to the east of structure 153, although with considerably less gravel

inclusions (143). This was in turn overlain by a possible occupation deposit or accumulation of soil which was excavated in two spits (149/141 and 139/130). The dating evidence from these two spits would suggest a gradual deposition from the late fourteenth to the early sixteenth century.

These deposits were further subdivided by their location within the trench. Although there was no discernible difference in composition, the truncation of the eastern half of the trench by later features (see below) made any correlation between the deposits at either end of the trench problematic.

The accumulated soil in the east of the trench (149 and 139) was overlain by a layer of limestone roof tile, which sloped from south to north and possibly represents the first in a series of deposits associated with the construction of the standing wall between the kitchen and the buttery. The tile 'surface' was overlain by a layer of compacted gravel (123), which appeared to form a relatively level surface and may have represented a construction horizon. Overlying surface 123 was a possible occupation deposit with relatively high concentrations of charcoal and bone (122).

Early seventeenth century. The remaining mortar surfaces (113, 116, 117 and 118) are likely to be associated with the construction of the upstanding section of wall (125, see below). The pits, which cut these surfaces (100, 128, 137 and 104), were early seventeenth-century in date, contemporary with the early college occupation of the site. Pit 104 was partially exposed in the south-east corner of the trench and measured at least 1 by 0.8 m in plan, and 2.1 m deep. The fills were predominantly silty clays and fairly homogeneous, although lenses of mortar and concentrations of redeposited building material were present throughout. The fills of Pit 100 – which was 1.2 m in diameter and approximately 0.95 m deep – contained stone and ceramic tiles, possibly demolition debris. Pits 128 and 137 were less clearly defined, although both also contained redeposited roof tile.

Recording of the Standing Wall between the Kitchen and the Buttery (Fig. 5)

The east–west orientated wall between the buttery and the kitchen was recorded prior to the demolition of a 2.5 m length to accommodate the new lift shaft. Prior to dismantling, the wall was extremely solid and structurally sound. The modern plasterwork over the area of wall to be affected by the development was removed by Carter Construction and the historic fabric was recorded archaeologically broadly to Level II-III as defined by English Heritage in *Understanding Historic Buildings: A Guide to Good Recording Practice*. The north side of the wall was faced with evenly coursed squared stones with smooth worked faces on the exterior, approx 0.3 by 0.2 by 0.2 m.

The rubble interior was made up of large stones and a grey brown clay silt deposit, with some ceramic building material inclusions. The bond was mostly friable sandy mortar with frequent pebble inclusions. Some layers of harder white lime mortar were observed between the courses of facing stones, mostly on the north side. Toward the base of the wall there was earth packing behind the north-facing stones. Occasional lumps of iron slag were packed tightly between stones. The south face was recorded at foundation level, from the lowest level seen in the excavation trench for the lift pit up to the base of the standing wall. Although the north face of the wall appeared to be of relatively uniform build, the south face displayed evidence for at least two different phases of construction, numbered as structures 248/132 and 152/125.

The south-facing elevation. Structure 248: the base of the wall foundation (248) appeared to be trench-built on its southern side, as the construction cut (246) was barely discernible in plan. The foundation was seen to be deeper where it encountered the softer fills of earlier features.

Structure 132: Structure 132 was seen to be continuous with structure 248 and is likely to represent the same build.

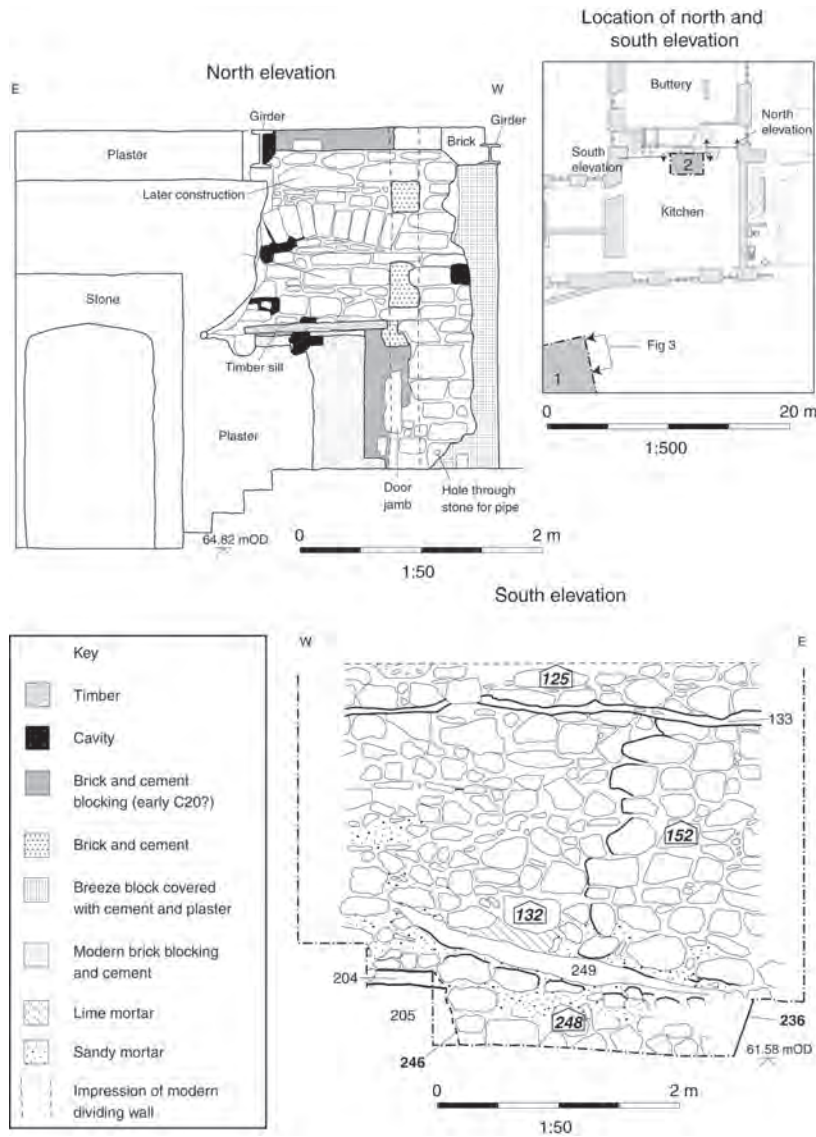


Fig. 5. Kitchen/buttery wall: elevations showing opposite sides of the wall (north elevation) and its foundation (south elevation) in relation vertically

Structure 152: There was a wide and obvious construction cut (119, see Fig. 3) for wall 152, which used considerably larger stones than wall 248/132. Wall 152 would appear to have been placed to reinforce the earlier foundation (248/132) and appears to consolidate the earlier wall which showed signs of subsidence represented by soil 249.

Structure 125: Overlying the top of footing 132/152 was a band of mortar-rich soil (133) which roughly corresponded to the uppermost of the sequence of mortar surfaces described above (113). This appears to be the horizon at which the upstanding wall has been constructed (125).

The north-facing elevation east of the lift shaft by Deirdre Forde. The north-facing wall between the buttery and the kitchen features at least three phases of construction with many areas of patching and repair. Repairs and blockings appear to range from a possible blocked window to modern breeze block and concrete consolidation on the west side of the wall. The first phase of stonework is roughly coursed stone with rubble packing, bonded with loose and friable light brownish mortar with frequent pebble inclusions. The coursing is made up of mainly large, squared undressed stones, 0.2–0.3 by 0.1 m in size, around which are packed smaller narrower stones. Approximately 2 m above the level of the top of the steps, within the stonework, is a floating arch. It is bonded with a hard, compact white lime mortar. Approximately 1.0 m below the arch, and just above a modern brick blocking, is a wooden lintel or sill. This is likely to be contemporary with the arch feature and may have been the sill of an early window. Alternatively, it may be an early lintel contemporary with the primary phase of construction and the arch is a relieving arch for the opening below. Over the primary construction and stonework blocking of the possible window is later hard compact lime mortar repointing. Above the arch and primary stonework, there appears to be a later phase of construction. It features irregular coursing, packed with rubble and occasional red brick. It is bonded with a rough, pinkish brown lime mortar with large pebble inclusions. There is a small moulded stone and a larger, narrow stone sitting vertically within this brickwork but they most likely pre-date it and may be part of an original door jamb. Alternatively, it may represent part of the return of a wall, which is now gone. There is modern brick and cement patched into the wall about 0.70 m from the west edge where a modern dividing wall abutted it. This obscures an area where there is possible evidence for door or window jambs.

The Pumping Station Watching Brief Trench: Trench 3 (not illustrated)

The watching brief on the excavation of the trench for the new pumping station (see Fig. 1 for location), revealed a series of post-medieval deposits (262–274) filling a cut (261) which may have represented a pit. The dating evidence and lack of clay pipe suggested that these date to the late sixteenth century at the latest. The possible pit (261) cut a deposit (260) that yielded a sherd of thirteenth- to fourteenth-century pottery.

The Thames Water Foul Water Main Repair Trench on Market Street: Trench 1 (Fig. 3)

A 4 by 2 m trench (subsequently extended) was excavated on Market Street to facilitate the repair of the foul water main (for location see Fig. 1) and reached a maximum depth of 2.5 m. It revealed what were almost certainly a series of street surfaces present across the whole trench. These had been subject to a degree of truncation from other services, but where not truncated a sequence in excess of 2.2 m deep appeared to survive intact.

The deposit at the base of the sequence was a very compacted orange sand and gravel (300), at least 0.10 m thick and overlain by a further 0.30 m of compacted sand and gravel (301), which displayed some evidence for lamination. The possible lamination and the thickness of this deposit suggest that it represents a number of resurfacing episodes; a small fragment of possible St Neots ware was retrieved from the top of this deposit.

The compacted layers were overlain by a mid-dark grey silty clay (302) from which a fragment of possible medieval tile was recovered. This deposit may have been a layer of trample over the latest of the surfaces represented by deposit 301, which had accumulated prior to the deposition of a very compacted layer of orange gravel, approximately 0.26 m thick, and apparently representing a single phase of deposition (303).

Overlying this was a distinctly dirtier/siltier horizon (304) which was originally interpreted as trample. The siltier composition and thickness of deposit 304 may indicate a levelling layer, rather than a surface in itself, and it is possible that this is a base layer for the overlying gravel and cobble surface 305, with overlying deposits 306 and 307 possibly representing a 'wearing course' over the cobbles. The stone-lined drain 316 was cut from this level, and is likely to be

contemporary. The remaining levelling deposit (308) and cobbled surface (309) were directly overlain by the modern tarmac, and may be early 20th century in origin.

POTTERY BY JOHN COTTER

A total of 544 sherds of pottery weighing 8.194 kg was recovered. Of this 79 per cent of the pottery by sherd count and 70 per cent by weight is of medieval date, the remainder being post-medieval (c.1550+). Medieval pottery fabrics were recorded using the system of codes developed for the Oxfordshire county type series, and post-medieval pottery fabrics were recorded using the codes of the Museum of London, which can be applied to most post-medieval types in south-east England.¹³ The range of fabrics and vessel forms present is typical of sites along or near the main thoroughfares of central Oxford, and the late Saxon, medieval and post-medieval periods are all represented.¹⁴ The pottery sequence from the present excavations seems to end sharply around 1625–50. Given the availability of good published parallels for most of these types in the city, coupled with the relatively small size of the present assemblage, what follows is a quantified list of the various fabrics present and a summary report focusing on the more significant or interesting aspects of the assemblage. Full details are available in the project archive.

OXR: St Neots-type ware, c.850–1100 (mainly c.950–1075 at Oxford). South-east Midlands. 4 sherds, 30 g.

OXZ: Stamford ware, c.850–1150. Lincolnshire. 1 sherd, 6 g.

OXAC: Early medieval Oxford ware ('Cotswold'-type calcareous gravel-tempered), c.875–1250 (mainly c.1050–1225 at Oxford). Central and north-west Oxfordshire, Gloucestershire. 66 sherds, 975 g.

OXBS (new code): Beauvais-type red-painted ware, c.900–1100 (Fig. 6, no. 1). Import, north-west France. 2 sherds, 10 g. This is a newly identified pottery type from Oxford and so is described here in some detail. The two sherds here (probably from the same wheel-thrown vessel) have a very hard, almost 'ringing', coarse cream-coloured sandy fabric with a very pale grey core. There is moderate to abundant evenly spaced quartz, mostly rounded, occasionally sub-angular, in the 0.1–1.5 mm size range but mostly 0.25–0.75 mm with sparse-rare grits up to 1.5 mm. The quartz is clear and milky, also commonly pink and iron-stained orange-red. There is sparse red iron oxide to 4 mm, rare flint to 0.5 mm, rare fine calcareous inclusions and abundant very fine white mica. Both sherds have red-brown painted decoration which is quite thick. On the thinner body sherd, which is probably from the middle of the globular vessel, two parallel vertical stripes of red paint survive (c.11 mm wide). On one of the stripes are two tiny specks of clear glaze (accidental?). The thicker sherd is probably from the lower wall of the vessel and bears the lower end of a painted stripe of the same width as above. The hardness of the sherds is fairly similar to German Pingsdorf-type ware (Fabric OXBV), of which a few sherds are known from Oxford. Pingsdorf, though usually grey or brown and much harder, can also sometimes be cream coloured and the possibility that the two sherds might actually be Pingsdorf cannot be ruled out. However the sherds from Jesus College compare best under

¹³ M. Mellor 'Oxfordshire Pottery: A Synthesis of Middle and Late Saxon, Medieval and Early Post-Medieval Pottery in the Oxford Region', *Oxoniensia*, 59 (1994), pp. 17–217; LAARC, 2007 Post 1992 Museum of London code expansions: Post-Roman pottery, at http://www.museumoflondonarchaeology.org.uk/NR/rdonlyres/F0118AAF-EF24-4228-A07A-39F89E6F092E/0/post92mol_post_roman.pdf.

¹⁴ Nearby sites with a comparable range of late Saxon to post-medieval material include 113–119 High Street (J. Timby and C. Underwood-Keevill, 'The Pottery', in G. Walker and R. King, 'Early Medieval and Later Tenements at 113–119 High Street, Oxford: Excavations in 1993–5', *Oxoniensia*, 65 (2000), pp. 409–19). The high- and late-medieval assemblage from the site is also comparable to the larger and more diverse assemblage from Merton College (P. Blinkhorn, 'Pottery', in D. Poore et al., 'Excavations at No. 4A Merton St., Merton College, Oxford', *Oxoniensia*, 71 (2006), pp. 258–78).

the microscope with samples of Beauvais-type ware from Winchester and with published descriptions of the ware from Canterbury and Dover (north France-type red-painted ware), and from Southampton.¹⁵ The most likely vessel form that the Oxford sherds come from would probably be a spouted pitcher or a jar. Late Saxon Continental imports are rare in the city but not unknown.¹⁶

- OXY: Late Saxon-medieval Oxford ware (sand-tempered), c.1075–1300. Oxfordshire. 181 sherds, 2390 g.
- OXAG: Ashampstead-type ware. Formerly late Saxon-medieval Abingdon ware (sand-tempered), c.1050–1400 (mostly c.1175–1400 at Oxford). Berkshire. 3 sherds, 41 g.
- OXBK: Medieval shelly coarseware, c.1100–1350. Including Northamptonshire shelly ware. 1 sherd, 28 g.
- OXAQ: Early-late medieval east Wiltshire ware (flint and algal limestone), c.1150–1350. 13 sherds, 144 g.
- OXAW: Early Brill/Boarstall ware, c.1175–1400. Buckinghamshire. 13 sherds, 302 g.
- OXAM: Brill/Boarstall ware, c.1225–1625. Buckinghamshire. 101 sherds, 981 g.
- OXAP: ‘Overfired’ Brill/Boarstall ware or ‘proto-stoneware’, c.1225–1625 (mainly c.1540–1625). Buckinghamshire. 3 sherds, 69 g.
- OXBG: Coarse border ware, c.1350–1500. Surrey/Hampshire. 14 sherds, 130 g.
- TUDG: Tudor green ware, c.1375–1550 (mainly c.1450–1550). Surrey/Hampshire. 4 sherds, 18 g.
- OXBC: Brill/Boarstall ‘Tudor green’ copies, c.1375–1550. 2 sherds, 5 g.
- OVBX: Late medieval Brill/Boarstall ware, c.1450–1625. Buckinghamshire. 18 sherds, 513 g.
- RAER: Raeren stoneware, c.1475–1550. Import, Germany. 5 sherds, 78 g.
- PMRE: Early post-medieval red earthenwares, c.1480–1600. 10 sherds, 353 g.
- FREC: Frechen stoneware, c.1525–1750. Import, Germany. 48 sherds, 1208 g.
- NNTG: North Netherlands maiolica, c.1550–1600. Import. 2 sherds, 8 g.
- BORD: Surrey/Hampshire white border ware, c.1550–1700. 10 sherds, 87 g.
- BORDG: Surrey/Hampshire white border ware, green-glazed, c.1550–1700. 40 sherds, 682 g.
- PMR: Post-medieval red earthenwares, c.1550–1900. Local, including Brill (Bucks.). 2 sherds, 122 g.
- MISC: Unidentified oxidised medieval sandy ware, c.1150–1350? 1 sherd, 14 g.

Summary by Period

Eleventh century to early thirteenth century. There are only seven smallish, mostly very worn, sherds that occur in fabrics normally regarded as late Saxon and these are probably all residual. These comprise four sherds of St Neots-type ware (OXR), a single small sherd of Stamford ware (OXZ, possibly from a cooking pot?) and two sherds probably from a single vessel in Beauvais-type ware (OXBS) with red-painted decoration. St Neots-type ware is fairly common from late Saxon contexts in central Oxford and Stamford ware (usually present as glazed spouted pitchers) is also occasionally found. The Beauvais-type ware (Fig. 6, no. 1) is, to date, the first example of this ware identified from the city (see above) and a significant addition to the small number of Continental imports of this period known here. One of the Beauvais sherds was from the fill of a stake hole (257) in the base of a possible hearth assigned to the eleventh century phase, which also produced the Stamford ware sherd (240). All of these types, however, continued to be produced and supplied to Oxford for some years after the Norman Conquest.

¹⁵ J.P. Cotter, ‘The Pottery’, in K. Parfitt et al., *Townwall Street Dover Excavations 1996*, The Archaeology of Canterbury, ns, 3 (2006), pp. 121–254, 407–16; D.H. Brown, ‘Pottery and Late Saxon Southampton’, *Proceedings of the Hampshire Field Club and Archaeological Society*, 50 (1994), pp. 127–52.

¹⁶ M. Mellor, ‘The Saxon and Medieval Ceramic Finds from the Town Sites’, in Dodd (ed.), *Oxford before the University*, pp. 326–45.

A similar dating ambiguity applies to early medieval Oxford ware (or 'Cotswold'-type ware, OXAC), which is common on this site, mostly as fairly large, fresh jar/cooking pot sherds and a bowl or two. Medieval Oxford ware (OXY) is the dominant pottery type from the earlier features on the site; it is common during the period c.1075–1300 (and was probably in decline by c.1250). It is present here mostly in the form of unglazed jars/cooking pots, with beaded rims which frequently have thumbled decoration, but characteristic yellow-glazed pitchers are also quite common. These certainly include fairly large tripod pitchers as examples of tripod feet, together with tubular spouts attached to rims and handle fragments decorated with characteristic braided strips of clay were all recovered. Many large fresh sherds were present in the OXY (and OXAC) assemblage, so this material undoubtedly represents contemporary activity on the site. Other regional wares of the period are also represented but only in small quantities (OXAQ, OXAG, the latter probably thirteenth century). A wheel-thrown jug rim in a smooth brown shelly ware fabric (OXBK, context 101) probably dates to the thirteenth century and represents a fairly rare class of regional import (or personal possession?), probably from Northants. or Bucks.

Medieval (from 1225), late medieval and post-medieval. The high and late-medieval assemblage is dominated by products of the Brill/Boarstall ware industry (mainly OXAM), especially plain and decorated glazed jugs in a very fragmentary state. A few pieces with red and white applied strip decoration in the 'highly decorated' style (c.1250–1350) would undoubtedly have been attractive vessels when complete. Forms other than jugs are very rare and possibly comprise a few jar sherds and a small dish. A few sherds of the earlier Brill/Boarstall fabric (OXAW), also jugs, were recovered too. The late-medieval assemblage has a wider variety of vessel forms. While the main Brill/Boarstall fabric (OXAM) continues (mostly as plain jugs) as late as c.1625, the late-medieval Brill/Boarstall fabric (OXBX), though fairly scarce here, includes a number of more unusual vessel forms such as dripping pans, bottles, a chafing dish and a money box. The dripping pans are of particular interest here as they may derive from the fifteenth- to sixteenth-century kitchen of White Hall. Dripping pans were placed below spit-roasts with the purpose of catching the dripping for general reuse and they are often heavily sooted along one side from contact with the flames. Fragmentary profiles of no less than four separate examples were recovered here (7 sherds in all), an unusually high number for such a small overall site assemblage. One example is in late Brill/Boarstall (OXBX) and the other three are in coarse sandy early post-medieval red earthenware (PMRE); these were recovered from an occupation layer (149) overlying medieval hearth 153/157 and from the fills of early seventeenth-century pits 128 and 104.

Other unusual forms in OXBX include the body of a bottle-like form (from the base fill of pit 104, context 171) and a small sherd from the rim of a chafing dish (plate-warmer) with a frilled rim and perforated wall.¹⁷ This has a glossy internal yellowish glaze and is probably a late sixteenth- or early seventeenth-century piece (114). Probably the most unusual form in this fabric is a money box complete with knife-cut slot to receive coins. This has fresh breaks and was probably broken to access the contents and discarded soon after. Money boxes are a fairly rare form in this fabric and the example here has a flatter, more angular, form than other known examples.¹⁸ The context date (c.1600–25) associates it with the construction of the college.

Sherds from one or two late-medieval Tudor green ware (TUDG) drinking vessels occur, including the rim of a classic lobed cup (255). These delicate thin-walled vessels (in TUDG or coarse border ware OXBG) occur widely across southern England and were copied by the Brill/Boarstall potters (OXBC) but rarely survive well in the ground. The two sherds here are no exception but one small rod-like sherd is unusual in that it terminates in a little stylised

¹⁷ M. Mellor, 'Oxfordshire Pottery', fig. 54.15–16.

¹⁸ *Ibid.* fig. 55.19–23.

face (Fig. 6, no. 2). This was probably once attached to the inside wall of a Tudor green-style 'novelty' cup and provides important evidence that Brill/Boarstall potters were capable of copying even the most whimsical latest fashions in other ceramic industries. Late-medieval Rhenish stonewares are represented by rim sherds and frilled bases from at least two Raeren stoneware mugs (RAER) – a classic type-fossil of the period *c.*1475–1550. A single sherd from a post-medieval Raeren panel-style jug of *c.*1580–1630 was also recovered (121). Frechen stoneware, from near Cologne, is well represented on this site, mostly from pits assigned to the early seventeenth century. This mostly occurs in the form of plain jugs with a globular body, cylindrical neck and a moulded pad base. The small size of some of the jugs here would be consistent with their use as drinking jugs and they are also common from other Oxford colleges. At least two body sherds, from different vessels, come from early-style Frechen Bellarmine or Bartmann jugs with an applied bearded mask or face on the neck.

English post-medieval pottery from the later sixteenth or the seventeenth centuries is not very common here, most of it being glazed whitewares from the Surrey/Hampshire border ware potteries, including a single early chamber pot or handled jar (context 102) which has been crushed into 36 pieces. Two sherds of olive- or yellow-glazed border ware (BORD) have large but accidental drips of brown glaze on the outside; brown glazes on border ware usually indicate a date after *c.*1640. These, potentially, are the latest datable pottery types in the assemblage. The absence of English tin-glazed pottery (common after *c.*1630), coupled with other indicators, suggests a cut-off date of *c.*1625–50 for the assemblage and this impression is reinforced by the scarcity of clay pipes.

THE CERAMIC BUILDING MATERIAL BY RUTH SHAFFREY

A total of 424 fragments of ceramic building material was recovered, weighing almost 35 kg. Most is medieval in date, with some later material present. The main features of interest are summarised here, and the full report is available in the project archive.

Much of the assemblage is flat roof tile, mostly peg tile, of medieval date. Two fragments have what appear to be signature marks (the more complete of these is illustrated as Fig. 6, no. 3). Thirty-five peg tiles were perforated, almost all with wide circular punched holes; one example had a narrower perforation, presumably for a nail. Eight fragments of probable ridge tile were identified. A total of 28 tiles retained some glaze, mostly of a pale yellow colour; of these, four were probable ridge tiles. The only floor tile identified was a single piece of possible quarry tile.

The fabrics were recorded using the OA reference collection for the city.¹⁹ The assemblage is dominated by a pink fabric, Oxford tile fabric VIIB, which makes up just under half the assemblage by both fragment count and weight. This fabric was used almost exclusively for peg tile. Some 40 fragments (12 per cent of the assemblage) are of a distinctive off-white fabric (VIIA) which is probably from a local source and is relatively early in date (mainly thirteenth to early fourteenth century). Four tiles each of fabric IIIC and IVA may have been made near Nettlebed and were in use from the fourteenth century, although the fabric IIIC fragments found here were recovered from seventeenth-century contexts only.

The small assemblage of bricks included four thin bricks that may be of medieval or Tudor date; these were recovered from context 102 and context 112, a fill of pit 104.

FIRED CLAY BY CYNTHIA POOLE

Eleven fragments (578 g) of fired clay were recovered from the following contexts: the early layer of disturbed soil 199, hearth 250 and posthole 232, from fills of late eleventh-

¹⁹ J. Cotter, 'Ceramic Building Materials', in Poore et al., 'Excavations at No. 4A Merton St., Merton College', p. 293.



Fig. 6. Selected finds from excavations at Jesus College

to thirteenth-century pits 193 and 212 and from the charred timber deposit 156 within medieval hearth 157/153. The pieces are structural in character, probably deriving from oven structures rather than major buildings. The general characteristics of firing, thickness and size of wattles is typical of material generally interpreted as oven wall compared to wattle and daub walling, where larger split wattles or laths are more common. House daub is unlikely to have survived except in very severe house fires. Ovens would have continued to be built of clay reinforced with wattles until the later medieval period when brick started to replace more traditional methods of construction. A full report is available in the project archive.

OTHER FINDS

Forty-five pieces of clay pipe weighing 148 g were recovered (identified by John Cotter with additional information from David Higgins). These comprise seven bowl fragments, of which five were complete, one mouth piece and 37 stem fragments. The pipes are all consistently early and are all datable to the period before c.1650. Most pieces derive from the post-medieval pits and one or two surfaces of the same date. The earliest piece is a complete very small bowl of c.1580–1610 from a pit context (101); it is burnished but un-milled around the rim and has a large circular heel flush with the stem.²⁰ All the other bowls are common types of the first half of the seventeenth century, mostly with good-quality burnishing and with milling around the rim. Stem bores are mostly c.3 mm in diameter and thus characteristically seventeenth century too. The only marked bowl came from pit fill 110. It dates from c.1610–40 and is complete with good-quality vertical burnishing. It has an unusually small circular heel (7 mm diameter) stamped with an eight-pointed star with alternating straight and wavy arms and a small central raised pellet (Fig. 6, no. 4). The clay is unusually white and fine. The stamp can be exactly paralleled by examples from the City of London, including two that are now in the London Archaeological Archive and Research Centre from 8–10 Crosswall (XWL 79 5169 <562>) and 118 Minories (MIO 86 1002 <121>). It belongs to a group of star marks that is found on early pipes and which seem to be particularly associated with London manufacturers. The Jesus College example was almost certainly made in London and represents the movement of high-quality goods from London to Oxford during the early seventeenth century.

Sixty-two metal objects and three worked bone objects were recovered from the excavations at Jesus College kitchen. Four of these were jettons, which were identified by Martin Allen (full details are available in the project archive). The earliest was a French jetton of fifteenth-century date; the others were Nuremberg jettons of late sixteenth- to early seventeenth-century date, a type that is commonly found in deposits of the period. The remaining objects were identified by Leigh Allen and comprised mostly nails and small pins and lace tags that were commonly used for fastening clothing in the late-medieval and early post-medieval period. Among the small number of other metal objects, the earliest is a fragment from the arm of a horseshoe of eleventh- to fourteenth-century type, which was found in early layer 206. The most interesting objects came from layers 122 and 131, which were probably contemporary with the construction of the wall between the kitchen and the buttery. Of these, a hooked clasp (layer 122) was designed for use on the cover of a book; the clasp has a front plate decorated with a herring bone design and a sprung back plate. Hooked clasps of this type are reasonably common finds and are of late- and post-medieval date. A small key for a mounted lock was recovered from context 131; it has an oval bow, a moulded stem and a complex bit ending in line with the stem. Two worked bone musical instrument pegs were also recovered from the same layers (Fig. 6, nos. 5b-c). The more complete example, SF 21 (context 131), has a squared-off head and a circular section shaft, with a slit in the end of the shaft for attaching the string. The second peg is more crudely made with a roughly squared head and a shaft that has not been smoothed or finished. Pegs of this type were for use on instruments with open structures such as harps, lyres and simple lutes, where the peg can be inserted (and tuned) from behind.²¹ The latest objects came from the fills of post-medieval pits 100 and 104. In addition to further examples of nails and lace tags, these included part of a scale tang knife, two sections of lead window came and a third instrument peg (Fig. 6, no. 5a). This peg, from fill 101 of pit 100, has a cross cut in the end for the attachment of the string but is otherwise identical to the pegs described above.

²⁰ See A. Oswald, *Clay Pipes for the Archaeologist*, BAR 14 (1975), fig. 3G.1.

²¹ Winchester type A III; G. Lawson, 'Pieces from Stringed Instruments', in M. Biddle, *Object and Economy in Medieval Winchester* (1990), pp. 711–18, fig. 201.

A small assemblage of 35 sherds of glass was identified by Ian Scott. Of these, 27 are small pieces of window glass, many with slightly wavy surfaces. All are weathered and encrusted, and are almost certainly of post-medieval date. The window glass sherds are from late sixteenth- or early seventeenth-century contexts and a number of them show evidence of leading (from contexts 102, 112 (x 2 sherds), 110) and grozing (contexts 112 (x 3 sherds), 169 (x 2 sherds), 175). The eight fragments of vessel glass include the upper part of a hexagonal case bottle of early seventeenth-century date (context 122), two sherds from a goblet foot of post-medieval date (context 122), a baluster from an early seventeenth-century elongated baluster goblet (context 270) and bases from two phials or pharmaceutical bottles of later seventeenth- or eighteenth-century date (contexts 169 and 272). The remaining sherds of vessel glass comprise a small undiagnostic neck sherd from a wine bottle (context 103) and a small sherd from a beaker in blue green glass (context 196). The latter sherd is not closely datable, but is not medieval and is intrusive in a medieval context.

Three worked flints were identified by David Mullin. Context 103 contained a flaked piece of gravel flint and context 115 a core trimming flake of grey flint. A single piece of burnt flint was recovered from context 139. Although this material is all redeposited, it adds to the growing evidence for prehistoric activity in central Oxford.

ANIMAL BONE BY LENA STRID (TABLE 1)

The animal bone assemblage from the small kitchen excavation comprised 1,196 refitted fragments from four phases, ranging from the late eleventh to the early seventeenth centuries. Of the bones 182 (15.2 per cent) were recovered from sieved bulk samples. The following report summarises the main results of the analysis and a full record of the assemblage can be found in the project archive, which includes details of the evidence for butchery and pathology.

The bone assemblage from the eleventh-century phase comprised only 17 speciable bones, from cattle, sheep/goat, pig, field vole and a small perching bird (passerine). The vole and small bird probably represent natural mortalities. The other species represented are characteristic for the period. The late eleventh- to thirteenth-century assemblage was more diverse and additional species included horse, roe deer, domestic fowl and goose, bones from all of, which were present in small numbers. Of these species, fowl and goose would almost certainly have been eaten, but the single roe deer metatarsal could derive either from kitchen waste or have been intended for bone working. The almost equal numbers of cattle and sheep/goat remains at Jesus College may be a consequence of the small sample size, since larger assemblages of this period usually show a predominance of sheep/goat. The epiphyseal fusion and dental ageing data show a wide range of slaughter ages, from juvenile to very old. No pattern could be discerned due to the small sample size. The measureable cattle and sheep/goat bones were within the same size range as equivalent bones from contemporary Oxford sites.

Cattle and sheep/goat continue to dominate the small thirteenth- to late sixteenth-century assemblage, although caprines outnumber cattle when the minimum number of animals is considered. Pig remains are scarce, which may suggest a preference for beef and mutton over pork, or that the purchased pork was mostly cured, thus lacking the bones. Typically, urban assemblages from Oxford are dominated by bones from sheep/goat, although higher than average proportions of cattle bone have been noted in some college assemblages, suggesting that they may have enjoyed a more varied diet.²² Epiphyseal fusion indicated that most cattle and sheep/goat were subadult or adult when slaughtered, whereas all pigs were

²² B. Charles, 'The Animal Bone', in Kamash et al. 'Late Saxon and Medieval Occupation: Evidence from Excavations at Lincoln College', p. 253; L. Strid, 'Animal Bones from Queen's College Kitchen', in forthcoming OA report; F. Worley and E-J. Evans, 'Animal Bone', in Poore et al., 'Excavations at No. 4A Merton St., Merton College', pp. 312-13.

Table 1. Animal bone

	L11thC	11th-13thC	13th-16thC	L16th -E17thC
Cattle	2 (1)	38 (2)	20 (1)	35 (3)
Sheep/goat	10 (1)	34 (2)	20 (3)	98 (10)
Sheep		5	2	2
Goat		1		
Pig	3 (1)	12 (2)	6 (1)	11 (2)
Horse		2 (1)		
Dog				1 (1)
Rabbit				1 (1)
Roe deer		1 (1)		
Domestic fowl		1 (1)	5 (1)	13 (2)
Goose		1 (1)	3 (2)	1 (1)
Duck				1 (1)
Turkey				1 (1)
Passerine	1			
Indeterminate bird	1	2	7	11
Rat				1 (1)
Field vole	1			
Rodent	2		2	
Microfauna	1			
cf. Cyprinid				1
Salmon				1
Plaice/Flounder				1
Small mammal				2
Medium mammal	20	21	25	214
Large mammal	6	43	28	72
Indeterminate	105	41	95	165
Total fragment count (NISP)	152	202	213	632
Total weight (g)	230	3933	1846	4494

sub-adult or younger. All bones from domestic fowl and goose were fused, indicating they were bred primarily for secondary products such as eggs and feathers. No juvenile remains were recorded. One cattle bone and three sheep/goat bones could be measured. All fell within the size ranges of cattle and sheep from contemporary Oxford sites.

Sheep bones dominate the assemblage from the college construction period (late sixteenth to early seventeenth century). This is in contrast to the earlier phases, but is consistent with contemporary assemblages from Lincoln College and Merton College. As was found at Merton College, the sheep/goat assemblage is dominated by bones from the meat-rich upper limb, indicating a preference for purchases of specific cuts of meat rather than an entire carcass. No similar skeletal element distribution could be identified for cattle or pig. Judging by epiphyseal fusion, there is little evidence of cattle older than 3.5 years, suggesting a preference for prime beef and veal. Most sheep/goat on the other hand were over 3.5 years old when slaughtered, which may reflect the predominance of the wool industry in the surrounding countryside. The assemblage includes several juvenile cattle bones, but only one each from sheep/goat and

pig. This may reflect a greater taphonomic loss of the porous small bones of lambs and piglets, or an actual preference for, or greater availability of, veal. The avian fauna at Jesus College is represented by domestic fowl, goose, duck and turkey. The turkey bone derives from a late sixteenth century deposit, and is an early occurrence of this bird, which is first recorded in England in 1541.²³ Turkey is rare in post-medieval Oxford; only 20 bones have been found so far, most of those from seventeenth century features from the Greyfriars excavation.²⁴ The few fish bones were identified and reported by R. Nicholson and include a freshwater cyprinid, salmon and a flatfish (plaice or flounder). The last was certainly imported from the coast and it is likely that the salmon was also imported; both may have been preserved by salting. The cyprinid was probably caught locally. While too few bones were present to allow for detailed study, the measureable bones were all within the same size ranges as contemporary bones from other sites in Oxford.

THE WOOD CHARCOAL BY DANA CHALLINOR

Five samples were examined from group 156, a deposit of charred timbers found in association with a probable medieval hearth, 157/153; this report presents the results of the study and the full details are available in the project archive. The charcoal was generally small sized, with most less than 4 mm in transverse section. Two taxa were identified: *Corylus avellana* (hazel) and *Quercus* sp. (oak). The scanning of the whole assemblage suggested that no other taxa were present. The hazel was notably dominated by roundwood fragments, indicated by the curvature of the rings. One stem with a bark edge was recorded in context 159; this had a radius of 6 mm and was seven years old. A couple of the oak fragments were identified as heartwood, and some were from slow grown wood. The hazel charcoal is consistent with structural remains such as wattle and daub; coppiced hazel rods were commonly used for wattles in buildings in the medieval period. The rods were often cut at five to nine years' growth, which is consistent with the limited evidence here.

CHARRED AND MINERALISED PLANT REMAINS by WENDY SMITH (TABLE 2)

Twenty-four samples were collected on site. Following assessment six samples identified as good to rich were selected for full analysis. Five of these were from the earliest features on the site: sample 11 came from fill 202 of posthole 201, samples 21 and 23 came from the early mixed soil layer, contexts 199 and 206 respectively, and samples 12 and 27 came from the fills of early hearth 250, contexts 203 and 240 respectively. The final assemblage, sample 10, came from context 164, part of group 156, a deposit of charred timber associated with probable medieval hearth 157/153. This report summarises and discusses the results of the analysis. Notably, all of the samples have produced relatively well-preserved charred plant remains. Charred cereal grain, cereal chaff and accompanying weeds of crop have been found in these samples, but clearly reflect radically different uses of this material. Table 2 summarises the main plant categories, which are discussed below. Full details of methodology and a full taxa list are available in the project archive.

²³ R.D. Crawford, 'Turkey', in I.L. Mason (ed.), *Evolution of Domesticated Animals* (1984), p. 330.

²⁴ L. Strid, forthcoming report on animal bones from excavations at the Ashmolean Museum extension, OA; B. Wilson, 'Medieval and Post-Medieval Animal Bones and Marine Shells', in T.G. Hassall et al., 'Excavations in St. Ebbe's, Oxford, 1967–1976: Part II: Post-Medieval Domestic Tenements and the Post-Dissolution Site of the Greyfriars', *Oxoniensia*, 49 (1984), p. 267, MF VI C6.

Table 2. Charred plant remains recovered from Anglo-Norman and Medieval samples at Jesus College, Oxford

Sample Number	11	21	23	12	27	10
Context Number	202	199	206	203	240	164
Feature Number	201			250	250	156
Group Number	225	?225	?225			
Feature Description	fill of post hole 201 – part of post-hole Group 225	buried soil – appeared to be cut by PH group 225; same as 242, 206 – disturbed loess – composition appeared to differ in relation to G225	buried soil – appeared to be cut by PH group 225; same as 242, 199 – disturbed loess – composition appeared to differ in relation to G225	upper fill of hearth/ but possibly upper fill of pit 250	fill of possible hearth/pit 250	surface – part of structure 156
Phase	I – late 11C	I – late 11C	I – late 11C	I – late 11C	I – late 11C	IV – 13–16C
Sample Volume (L)	10	10	10	15	18	15
Flot Volume (ml)	55 ml	70 ml	35 ml	280 ml	12 ml	250 ml
Proportion Flot/HR sorted	100%	50%	100%	100%	100%	25%
Seeds per litre of sediment	11.0	83.6	28.6	11.3	17.1	81.3
Total Count Charred Plant Remains (Flot + Heavy Residue)						
Cereal Grain	46	354	204	46	230	112
Detached Embryo/Sprout + Germinated Grain	4	37	32	7	48	1
Cereal Chaff	4	1	11	2	1	118
Pulses	0	0	0	1	3	1
Tree/Shrub	4	0	2	5	1	3
Weed/Wild	36	18	27	80	12	70
Unidentified/Indeterminate	16	8	10	28	12	0
Total Count Charred Plant remains (combined Flot & Heavy Res)	110	418	286	169	307	305
Relative proportion charred plant remains (Flot + Heavy Residue)						
Cereal Grain	41.8%	84.7%	71.3%	27.2%	74.9%	36.7%
Detached Embryo/ Sprout + Germinated Grain	3.6%	8.9%	11.2%	4.1%	15.6%	0.3%
Cereal Chaff	3.6%	0.2%	3.8%	1.2%	0.3%	38.7%
Pulses	0.0%	0.0%	0.0%	0.6%	1.0%	0.3%
Tree/Shrub	3.6%	0.0%	0.7%	3.0%	0.3%	1.0%
Weed/Wild	32.7%	4.3%	9.4%	47.3%	3.9%	23.0%
Unidentified/ Indeterminate	14.5%	1.9%	3.5%	16.6%	3.9%	0.0%

Shading indicates those plant categories where charred cereal grain and detached embryo/ sprout and germinated grains dominated the assemblage

Samples 11, 21, 23, 12 and 27, from Early Features

Three of the samples from the earliest features (samples 21, 23 and 27) produced assemblages strongly dominated by charred cereal grain and containing significant proportions of detached embryo/ sprout (coleoptile) and/or clearly germinated grain (with distinctive groove of sprout preserved). All these samples are dominated by charred free-threshing wheat grain, which is possibly of a compact variety of free-threshing wheat in that the grains recovered were relatively small-sized and frequently not much longer than they were wide. Unfortunately, remains of free-threshing wheat rachis nodes were extremely limited and in all cases had broken at the point of the abscission scar, making identification to species level impossible. When considering tenth to eleventh century material from All Saints Church, Oxford, Robinson suggested that this type of small-sized, compact grain may be rivet wheat (*Triticum turgidum* L.).²⁵ The hulled barley (*Hordeum* spp.) grains within these samples were frequently clearly germinated and loose detached sprouts (coleoptiles) were also recovered. The relative proportions of detached sprouts and obviously germinated grain in these samples (all >10 per cent) are relatively high for these fragile remains, which suggests that debris from malting barley was deposited into these features. There is no evidence that the free-threshing wheat was malted; often a normal-sized embryo was still intact. The wheat is therefore most likely to be debris from parching (the roasting of grain prior to milling). Ovens in the area could easily have been used both for parching and malting since the same technology was applied for both processes. The presence of charcoal mixed in with the grain-rich deposits is consistent with small quantities of grain becoming accidentally charred during the processes of parching and malting, and subsequently being disposed of along with spent fuel. Samples 11 and 12 were not particularly rich, but they provide additional supporting evidence.

Since these are relatively small samples taken from a constricted area it is somewhat difficult to establish the actual scale of parching/ malting activity. The recovery of individual deposits strongly dominated by charred grain has occurred at several other nearby sites. In all cases, these were from limited excavations working within a restricted area. Robinson has studied one grain-rich assemblage each from All Saints Church²⁶ and 113–119 High Street,²⁷ Ruth Pelling studied another very rich assemblage of charred grain from Lincoln College,²⁸ and the author has recently had a similarly grain-rich deposit, although of later date, from the Ashmolean Museum.²⁹ If not accidental, which is presumed to be the case at All Saints Church, such grain-rich debris suggests that we are in the vicinity of an oven where heating of cereal grain was regularly taking place. Indeed, the mixed and cross-cutting layers sampled in the foundations of the Jesus College lift shaft may reflect a number of dumped deposits related to an oven or ovens in the vicinity. All Saints Church and Lincoln College produced significant assemblages of charred grain dating to the late Saxon period, and the assemblage from the present site seems likely to be of similar date; this may suggest the presence in the vicinity of a number of corn driers or ovens, where malting and parching were possibly carried out on a large scale.

Sample 10

This sample is loosely dated from the fourteenth to the sixteenth centuries and is believed to be associated with White Hall. It is strongly dominated by rye (*Secale cereale* L.) remains, both

²⁵ M. Robinson, 'Environmental Evidence from All Saints Church', in Dodd (ed.), *Oxford before the University*, p. 389.

²⁶ *Ibid.*

²⁷ M. Robinson, 'Macroscopic Plant and Insect Remains', in Walker and King, 'Early Medieval and Later Tenements at 113–119 High Street', pp. 433–7.

²⁸ R. Pelling, 'The Charred Plant Remains', in Kamash et al. 'Late Saxon and Medieval Occupation: Evidence from Excavations at Lincoln College', pp. 261–71.

²⁹ W. Smith, forthcoming report on charred and mineralised plant remains from the Ashmolean Museum extension, OA.

rachis nodes and grain. Small quantities of free-threshing wheat (*Triticum* spp.) and barley (*Hordeum* spp.) were also recovered. However, this sample also produced abundant compacted straw/plant stalk matter and definite cereal/large grass culm nodes (the articulations along the straw) and culm bases (the root bases). Unfortunately, it is not possible to distinguish stalks of large wild grasses from cultivated crops; nevertheless, the likelihood is that this is cereal straw. What is notable is that culm bases are preserved which suggests that the full length of the cereal straw is present. In addition to finds of cereal straw, partially complete seed heads of knapweed (*Centaurea* sp.) and corncockle (*Agrostemma githago* L.) were recovered. The recovery of whole, heavy seed heads is linked to the earliest stages in the crop processing sequence, and again suggests that we are dealing with whole rye, and possibly barley/free-threshing wheat, plants. Given that the building is within an urban environment, which would have been built up and therefore well removed from direct agricultural activities, the most obvious interpretation of this assemblage is that it is straw intended for stabling material or possibly thatch.

Studies of extant medieval thatch have established that rye (*Secale cereale* L.) was frequently a preferred cereal straw for thatching.³⁰ It also is clear that, at times, rye was grown only for its straw and was placed on the roof during thatching with grain still contained within the spikelet.³¹ Work on the weed flora associated with thatch has also established that many weeds occur as intact or semi-complete seed heads,³² which is consistent with the state of preservation of sample 10 here. The deposit itself was found on a surface layer with charred wood representing the remains of a wattle and daub structure (Challinor, above). This has strong parallels with the results of Moffett and Smith from Stone, Staffordshire where a similar deposit dominated by cereal straw remains (culm nodes) was recovered from in and amongst preserved timbers.³³ In short, the most likely interpretation of the charred timbers and associated material sampled from context 164 (group 156) is that this is the charred remains of the thatched roof of this structure.

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³⁰ J.B. Letts, *Smoke Blackened Thatch. A Unique Source of Late Medieval Plant Remains from Southern England* (1999).

³¹ *Ibid.*

³² D. de Moulins, 'The Weeds from the Thatch Roofs of Medieval Cottages from the South of England', *Vegetation History and Archaeobotany*, 16 (2007), pp. 386–7, pp. 394–5 (figs. 2 and 3); M. Ernst and S. Jacomet, 'The Value of the Archaeobotanical Analysis of Desiccated Plant Remains from Old Buildings: Methodological Aspects and Interpretation of Crop Weed Assemblages', *Vegetation History and Archaeobotany*, 15 (2005), pp. 45–56.

³³ L. Moffett and D. Smith, 'Insects and Plants from a Late Medieval and Early Post-medieval Tenement in Stone, Staffordshire, U.K.', *Circaea*, 12:2 (1996), pp. 157–76.