

Medieval and Later Activity at Worcester College, Worcester Street, Oxford

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SUMMARY

Modifications to the kitchen and associated areas of Worcester College prompted small-scale excavations and a watching brief. A number of medieval rubbish pits and possible quarries dating from the late twelfth century were found. The areas investigated was probably formed part of the rear area of tenements on Worcester Street rather than lying within the precinct of the Carmelite friary documented to have lain within or close to the site. A stone structure and boundary wall that later occupied the northern part of the site may have been associated with Worcester College, which was founded in 1714. Nineteenth-century evidence included the remains of a toilet block and associated drains from which an assemblage of tableware dated to 1820–40 was recovered, some bearing crests of Worcester College.

Alterations to the kitchen, kitchen ancillary rooms, and associated areas of Worcester College led to a programme of archaeological work by Oxford Archaeology (OA) between November 2013 and January 2014 (Fig. 1). The investigation was undertaken in response to a brief issued by Roland B. Harris outlining the scope of archaeological work required in mitigation of the below ground works.¹ The historical background (summarized below) and archaeological potential of the site was previously presented in an assessment report by Harris that included details of the extant medieval and later buildings.² It was further informed by an archaeological evaluation and test-pit monitoring undertaken during 2011–12.³ This resulted in the production of a Written Scheme of Investigation (WSI) that detailed the methodology of the archaeological work in order to fulfil the requirements of the planning condition by Oxford City Council.

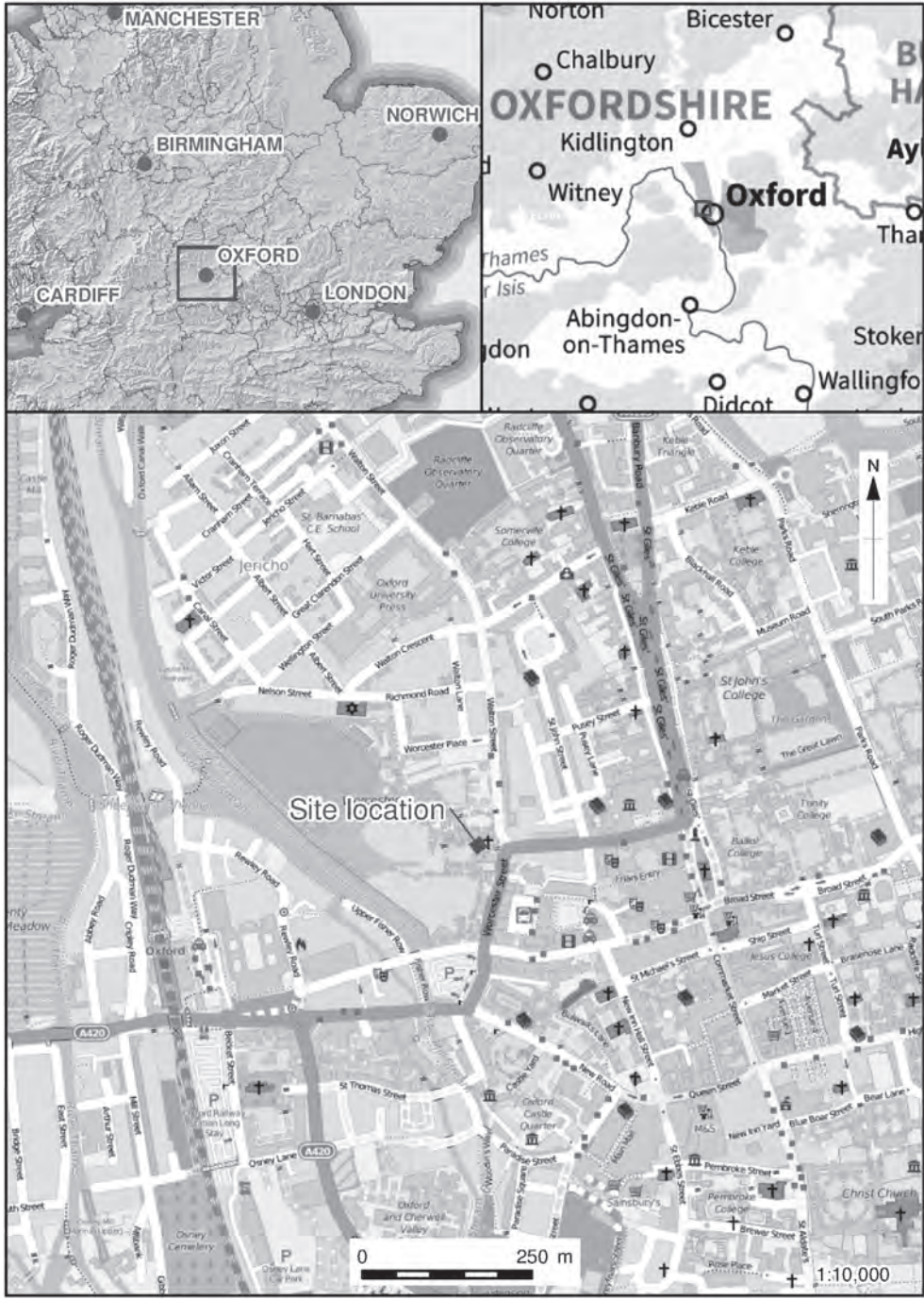
Worcester College is located on the gentle south-west facing slopes of a large southwards projecting gravel spur formed by the valleys of the River Thames, the main channel of which lies c.600 metres to the west (Castle Mill Stream bounds the College site on the western side, c.250 metres to the west), and the River Cherwell which lies c.1.2 km to the east. The underlying geology consists of river terrace gravels, which in turn overlie deposits of Oxford Beds Clay of the Jurassic.⁴ The site is located entirely within, and on the eastern side of the college's campus on Worcester Street, Oxford. It is bounded to the east by a boundary wall

¹ R. Harris, 'Worcester College, Oxford. Kitchen: Brief for Archaeological Excavation and Watching Brief', unpublished report (2013).

² Idem, 'Worcester College, Oxford. Kitchen: Archaeological Assessment and Mitigation Strategy', unpublished report (2013).

³ R. Bashford, 'Worcester College, Lecture Theatre and Kitchen Project, Worcester Street, Oxford. Archaeology Evaluation', unpublished OA report (2012).

⁴ Geological Survey of Great Britain (England and Wales), Sheet 236.



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Fig. 1. Site location plan.

along Worcester Street, to the north by the college Main Quad and Hall, and to the west and south by the college grounds.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The site lies some 200 metres north-west of the defences of the late Anglo-Saxon *burh* and medieval town of Oxford. It is likely that a road along the line of the present-day Worcester Street (formerly Stockwell Street) linked the Norman castle of 1071 to the king's houses (later Beaumont Palace) constructed for Henry I by 1132 that faced the main frontage of present-day Worcester College.⁵ To the west of this road and north of what is now Hythe Bridge Street, Nicholas de Meules, or Molis, granted land to the Carmelite (White) friars in 1256, which became the site of their new friary. A series of adjacent plots was added over the following twenty-five years. Significantly, the site of the Carmelite friary was already occupied with houses on the street frontage. The precise boundary of the Carmelite friary is unknown, but it certainly abutted the south side of Gloucester College when the latter was founded in 1283 (see below). In fact, the Carmelites claimed that the college extended into their land, although there is no implication that it subsumed any friary buildings at this date (Fig. 2).⁶ It is possible that the site of the Carmelite friary extended northwards into the area occupied by the later medieval buildings of Gloucester College.

The origins of Worcester College lie in a cell of Gloucester abbey, founded in 1283 on part of the site of the present-day college. The foundation resulted from a gift in 1283 by Sir John Giffard of Brimpsfield, Gloucestershire (1232–99) of a house that he bought in Stockwell Street (now Worcester Street), which had previously been a possession of the Knights Hospitallers.⁷ In 1290, Giffard granted an additional four tenements. In 1298 the properties were confirmed to the college.⁸

The Benedictine Order was responsible for the public buildings, which in 1367 comprised an *aula*, *panitria*, *botelaria*, [and] *coquina simul cum pistrina* (a hall, pantry, buttery, and kitchen together with a bakehouse), while the individual Benedictine houses were responsible for the building and repair of their own chambers in the college.⁹ Gloucester College, as it continued to be known, expanded in 1321, when it acquired the adjacent site of the Carmelite Friary, the friars having relocated to Beaumont Palace in 1318.¹⁰ The area of the 1321 expansion is not known, but may have extended as far south as Hythe Bridge Street.¹¹

The Dissolution spelled the end of the Benedictine monasteries and, as a consequence, Gloucester College was in the king's possession by 1541, when it was granted to John Glyn and John James, yeomen of the guard. In 1542 it was granted to the new bishopric of Oxford. During the period before the site was surrendered to Edward VI (1547) the chapel was dismantled, and the demolition of 'the best part of the college' followed at around 1557. In 1560 the site and remaining buildings were conveyed to St John's College, becoming a dependent academic hall called Gloucester Hall.¹²

⁵ R. Beckley and D. Radford, *Oxford Archaeological Resource Assessment 2011: Norman (1066–1205)* (<http://www.oxforddirectservices.co.uk/PageRender/decP/OxfordArchaeologicalPlan.htm> (accessed February 2016) (2012), pp. 16, 58.

⁶ *VCH Oxon.* 2, pp. 137–43; J. Munby and T. Dodd, 'Survey of West Oxford', *Oxoniensia*, 71 (2006), pp. 469–72.

⁷ *ODNB* (Giffard, John, First Lord Giffard).

⁸ V.H. Galbraith, 'New Documents about Gloucester College', in H.E. Salter (ed.), *Snappe's Formulary and Other Records*, OHS, 80 (1924), pp. 337–54; *VCH Oxon.* 2, pp. 70–1; *VCH Oxon.* 3, p. 301.

⁹ Galbraith, 'Gloucester College', pp. 380–3.

¹⁰ *VCH Oxon.* 3, pp. 301–2; *VCH Oxon.* 2, pp. 137–43.

¹¹ Munby and Dodd, 'Survey of West Oxford', p. 472.

¹² *VCH Oxon.* 3, p. 298.

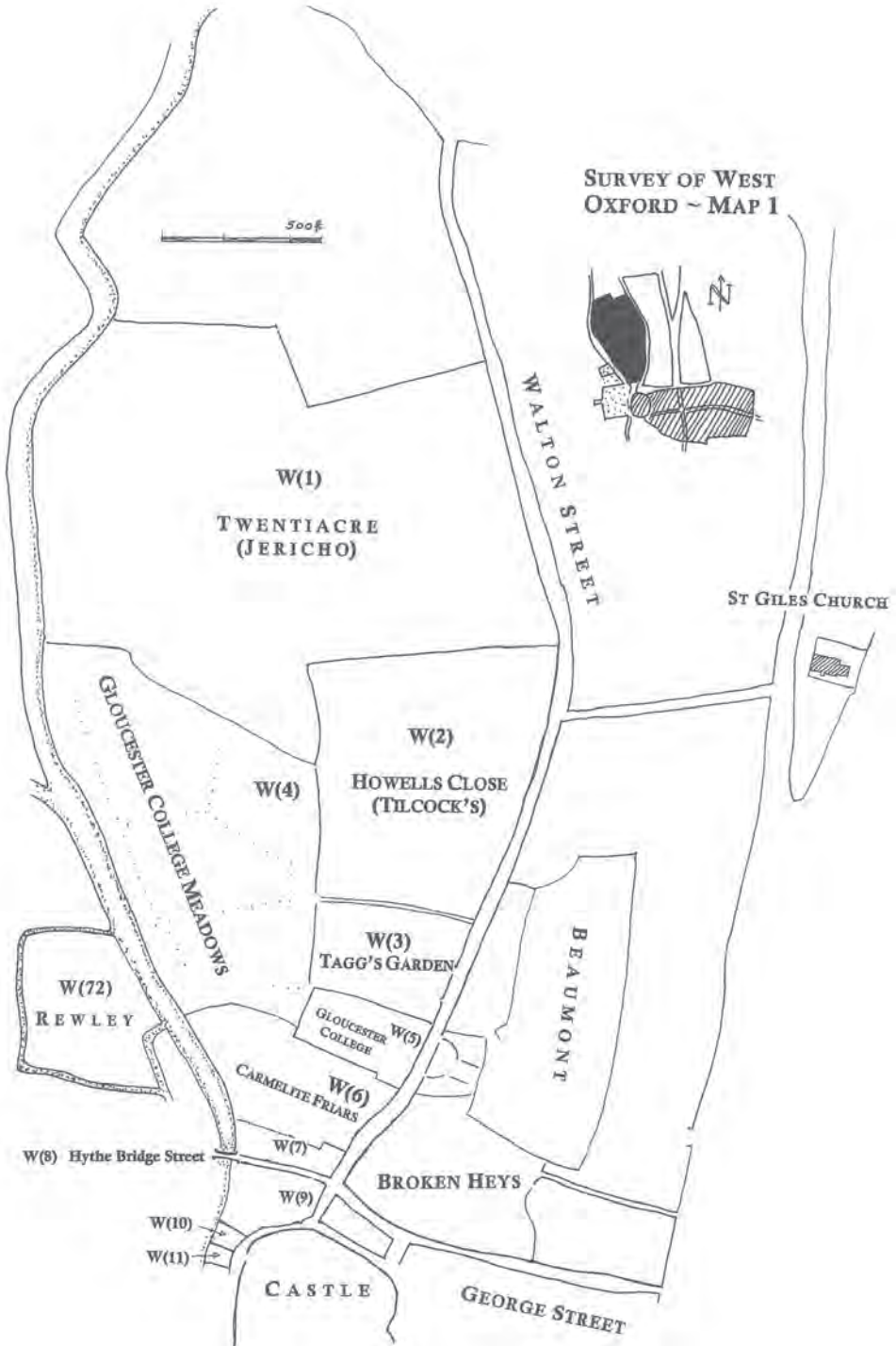


Fig. 2. Walton Street properties 1–12, showing Carmelite Friary (W6) and Gloucester College (W5) (after Munby and Dodd 2006).

As was the case with other halls, Gloucester Hall was deserted after 1642 and utilized by Royalists in 1644 for repair and manufacture of arms. The Gloucester Hall buildings are depicted on Hollar's map of 1643 (Fig. 3). Following the Civil War sporadic attempts were made to revive the hall but it was not until the early eighteenth century that fortunes turned with the foundation of Worcester College on the site in 1714 resulting from the bequest

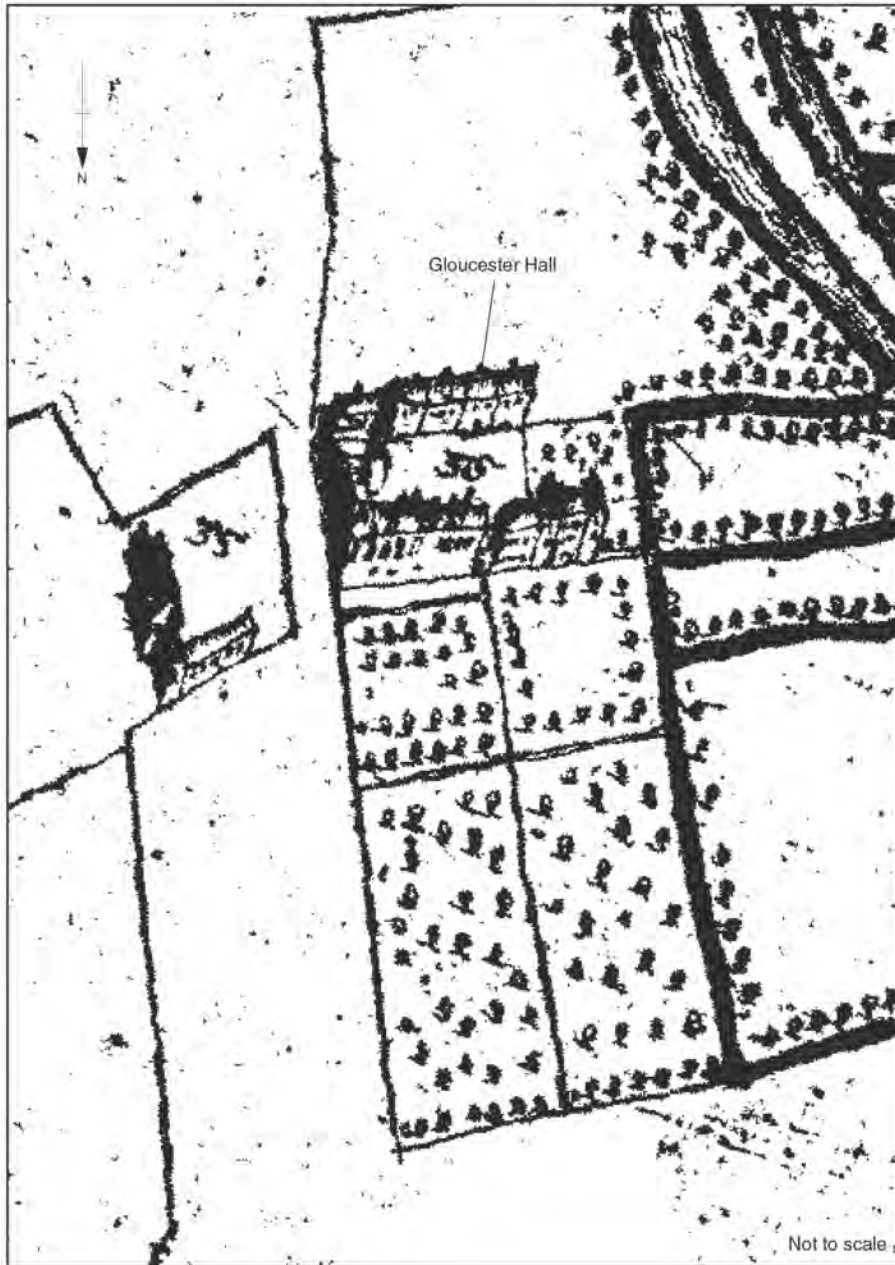


Fig. 3. Detail from Hollar's Map of Oxford (1643), depicting Gloucester Hall.

of Sir Thomas Cookes of Bentley, Worcestershire.¹³ Building work began in 1720 with the, only partly realized, Main Quad ranges completed in 1776. These buildings are depicted in William Faden's 1789 street plan of Oxford (Fig. 5, below). The site also saw expansion during this period, with the addition in 1741 of the garden on the south side of the college (that is, much of the land that had been added to Gloucester College back in 1321) followed by the establishment of gardens and meadows on the north and west sides of the college in 1744–5.¹⁴

A new kitchen together with an adjoining larder, scullery and scout's room were built in 1844 with further expansion south-eastwards with the construction of two lavatory blocks. These were first depicted on James King's plan of 1848.

FIELDWORK METHODS AND RECORDING

During evaluation four trenches were excavated, three within the Kitchen Quad (Fig 7, Trenches 1–3) and a fourth (Trench 4) within the Pump Quad. The work was undertaken in conjunction with a watching brief that monitored a series of geo-technical test-pits (Fig. 7, TP 1–11). Where relevant, the results of the evaluation results have been incorporated in this report, otherwise full details are available in the evaluation report.¹⁵ The second phase of archaeological work involved excavation in the areas where the underlying archaeology would be affected by the new foundations and services. Any such impact had been minimized by design as part of the mitigation strategy for the development, and was thus largely confined to the area of the new strip foundations and the installation of new manholes (Fig. 7, Areas 11–22). A watching brief was maintained during the lowering of floor levels, new service runs and the underpinning of the boundary wall on Worcester Street.

Modern hard-standing, make-up and garden soils were removed with a mechanical excavator fitted with a toothless bucket down to the latest archaeological levels, and under archaeological supervision. A sample of the finds was retrieved by recorded context in order to confirm dating of these levels. Where appropriate, the trenches were widened and stepped in order to facilitate the safe excavation of archaeological levels within the area of the strip trenches. All subsequent excavation was carried out by hand and archaeological recording was undertaken in accordance to the WSI.

DISCUSSION

The Area of the Carmelite Friary

The site appears to have remained open within the areas investigated throughout the medieval period, when it was utilized for the digging of pits. No evidence for activity prior to the late eleventh century was found, and it is likely that most, or all, of the pits date to no earlier than the late twelfth century. However, the recovery of several residual sherds of Stamford ware glazed pitchers and cooking pots suggest activity in the vicinity prior to mid twelfth century, perhaps during the late Anglo-Saxon period. Five small rubbish pits (Phase 1) were dated on stratigraphic and ceramic evidence to c.1175–1225. An absence of the ubiquitous later fine 'high medieval' Brill/Boarstall wares hints at activity prior to the foundation of the Carmelite (White) Friary in 1256, and also before the establishment of Gloucester College by Sir John Giffard in 1283. Although the earlier pit digging activity was not as extensive as that of the thirteenth and fourteenth centuries, it points to occupation on the site from the late twelfth century, probably to the rear of tenement(s) fronting the

¹³ Ibid. pp. 299–300.

¹⁴ Ibid. pp. 299–300, 309.

¹⁵ Bashford, 'Archaeology Evaluation Report'.

west side of Worcester Street (formerly Stockwell Street). This indicates that this part of the north-west suburb of the town was in existence by this time, and was contemporary with the development of the northern suburb alongside St Giles, as demonstrated in the excavations at the Ashmolean Museum and the Classics Centre.¹⁶ Perhaps the growth of the suburb was influenced by the construction by Henry I of the king's houses (later referred to as Beaumont Palace) on the opposite side of Stockwell Street and abutting the rear of tenements on St Giles.¹⁷

From the middle part of the thirteenth century and well into the fourteenth century (Phase 2), the intensity of pitting-digging activity increased to the extent that it resembled the rear area of many typical medieval tenements commonly used for the disposal of household refuse. The closely spaced distribution of the pits suggests constraints on space, perhaps within well-defined tenement boundaries, especially towards the northern end of the site. The alignment of pits in the northern part of Area 11 suggests clustering against one such boundary, and it is noteworthy that this location was later occupied by a wall (539) marking a possible boundary associated with the post-medieval college.

Two categories of pits were recognized within the excavated area – large rectangular features, probably quarries, which tended to fall earlier in the Phase 2 sequence, and smaller rounded rubbish pits. A similar distribution of medieval pits was found at the Ashmolean Museum, where the larger quarry types probably represented gravel extraction for flooring, yards and maintenance of the street opposite the tenement.¹⁸ The pit contents included an animal bone assemblage of typical butchery and kitchen waste, predominantly of cattle and sheep/goat, with little pig. This is consistent with the diet of an average inhabitant of medieval Oxford, and not indicative of particularly high status. Of note are the metapodials and phalanges (foot bones) of a red deer, possibly the product of tanning of deer skins, a process in which the feet were often left attached to the skins when sold to tanners. However, the quantities are far too small to be conclusive, though the location of the site outside the walled area and close to water would be a favoured location for such activity, as recently seen on Brewer Street within the southern suburb.¹⁹

The excavations revealed no medieval structural remains, and whether any of the remains of medieval activity were associated with the Carmelite Friary or the adjacent Gloucester College is unclear due to the paucity of archaeological evidence. However, the spatial arrangement of the pits suggests that they occupied the rear area of smaller houses located on the street frontage, an area not investigated. The documentary evidence suggests that the friary occupied the area behind four extant tenements, and the lack of medieval structural evidence could support this. However, there is scant evidence for pitting beyond the middle of the fourteenth century, and possibly before. This evidence corresponds to the reallocation of the friary to Beaumont Palace in 1318, or could reflect the depopulation of the town during the Black Death in 1348–9. Whatever the explanation, a large part of site saw the accumulation of garden soils until into sixteenth and seventeenth centuries. Although these soils contained fragments of ceramic building material, as did the earlier pits, there was nothing in the assemblage to suggest that anything other than domestic buildings of ordinary status occupied the site during this time.

Worcester College (Gloucester College) (Fig. 4)

The medieval buildings of Gloucester College probably lay to north of the site, and the southern boundary may have been defined by the south side of the surviving medieval

¹⁶ D. Poore and D.P. Wilkinson, 'Beaumont Palace and The White Friars: Excavations at the Sackler Library, Beaumont Street, Oxford', OAU Occasional Paper, 9 (2001); S. Teague and B.E. Ford, 'Medieval and Later Occupation at the Site of the Ashmolean Museum Extension', forthcoming.

¹⁷ Beckley and Radford, *Oxford Archaeological Resource Assessment*, pp. 16, 68.

¹⁸ Teague and Ford, 'Medieval and Later Occupation at the Site of the Ashmolean Museum Extension', forthcoming.

¹⁹ S. Teague et al., 'Excavations in the South Suburb at Brewer St, Littlegate St and Rose Place', forthcoming.



Fig. 4. Birdseye view of Gloucester Hall from the east, by David Loggan: *Oxonia Illustrata* (1675).

walls of the Pump Quad, which dates to c.1397–1425 and is part of the additional land granted to the college in 1397.²⁰ This incorporates the former kitchen of 1423, which was superseded by the present kitchen in 1844. The position of a substantial east–west wall foundation (539) with a northern return (508) found about 7.4 metres south of the Pump Quad corresponds to the south wall of the present kitchen, and also to a change of alignment in the current Worcester Street boundary wall, here marked by external quoins. The pottery evidence suggests that both walls were built no earlier than 1550, and it is possible that an early seventeenth-century Bellarmine jug fragment found within the fabric of wall 508 is residual.

The maps of Taylor (1751) and Faden (1789) both depict a building occupying the street frontage on the east side of the present-day Kitchen Quad (Fig. 5). This building is absent on earlier maps, including Hollar's map of 1643 (Fig. 3). Loggan's view of the deserted Gloucester Hall of 1675, predating the founding of Worcester College in 1714, also shows no such building projecting southwards from the Pump Quad on the street frontage, but does depict a building set back, which corresponds to the area of the 1844 kitchen (Fig. 4). The south wall of the kitchen corresponds with the alignment of wall 539, so perhaps this originated as a boundary at this time and the 1844 kitchen is of earlier origin.

A geo-technical test pit (TP 10) excavated at the point where the Worcester Street boundary wall changes direction marks the south-east corner of this later building, and showed a junction of two walls of different construction.²¹ This was confirmed by Dr Harris's survey, which showed that the north wall reduced in thickness from c.800 mm to c.420 mm at this

²⁰ *VCH Oxon.* 3, p. 302.

²¹ Bashford, 'Archaeology Evaluation Report', p. 9.

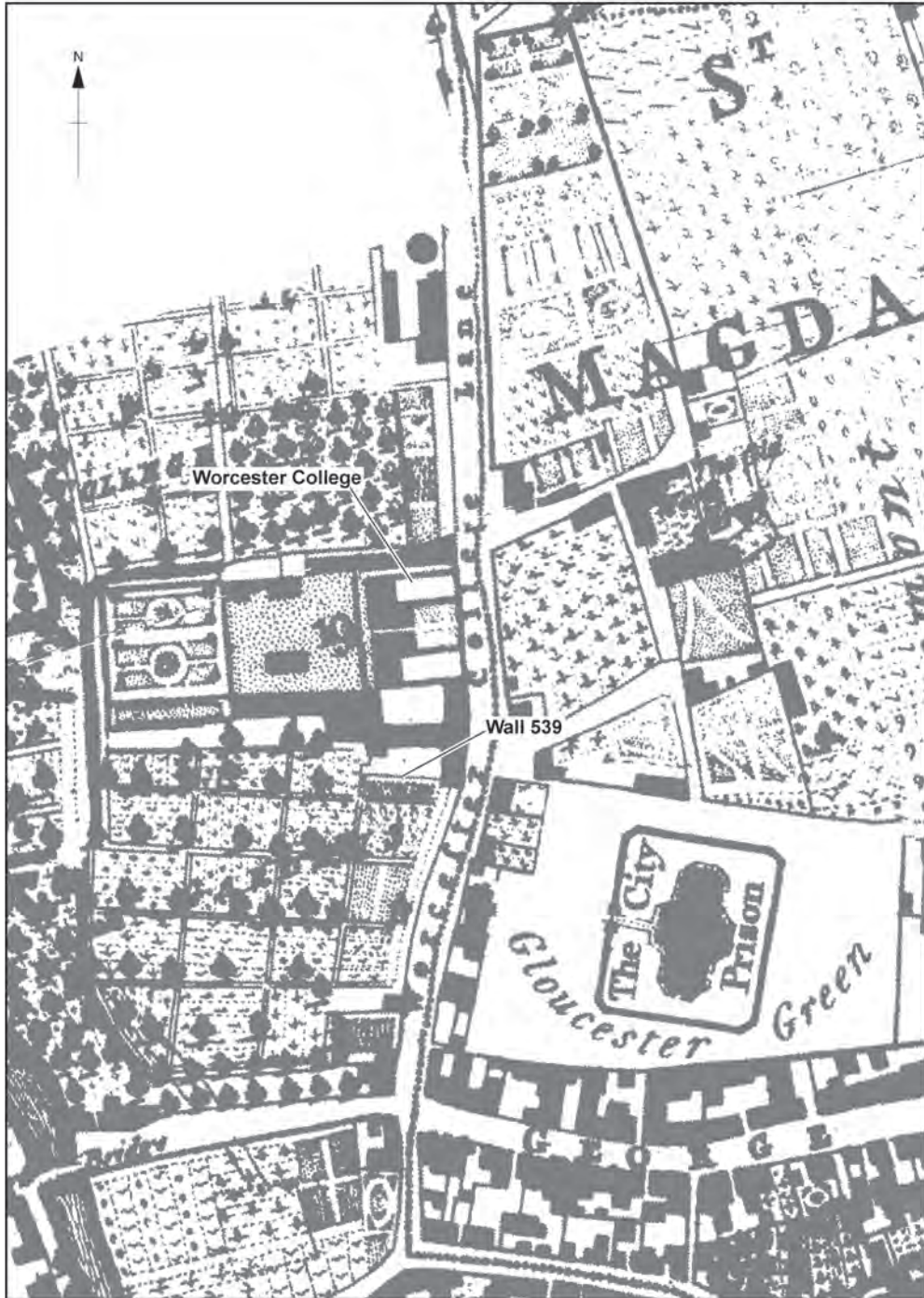


Fig. 5. Detail from Faden's Street Plan of Oxford (1789), showing Worcester College.

point, terminating with Headington freestone quoins, and that the thinner wall to the south abutted it. This indicates that the northern stretch supported a more substantial structure, most likely the eastern side of the building represented by walls 539 (formerly a boundary wall) and 508. The combined evidence places the construction of this structure between 1675 and 1750, and probably later than the foundation of Worcester College in 1714. Land directly to the south may have already been in possession of Gloucester Hall as an exterior paved yard or path, perhaps defined later to the south by wall 643. This was associated with pottery dated to no later than the sixteenth century.

The Ordnance Survey map of 1878 (Fig. 6) shows that the building to the east of the kitchen had been demolished by that date, though boundary wall 643 now formed the southern wall of the kitchen quad although it is possible that it originated at the time of this new arrangement. The 1844 kitchen with adjoining larder and scullery are also depicted, the latter bisecting the line of wall 539. Perhaps the kitchen represented the refurbishment of an older building corresponding to the one depicted by Loggan, but with new additions to its eastern side. Dr Harris's examination of the walls of the kitchen shows they were constructed with coursed rubble, largely of Wheatley limestone, with Headington freestone quoins that were more akin the eighteenth-century works of the college.²²

To the south of boundary wall 643 a triangular arrangement of ancillary buildings comprising stone and brick foundations were exposed. These correspond closely to those depicted on the 1878 map and date from 1844, or possibly later.²³ Of particular interest is a collection of 'college' tableware dated to 1820–40, some bearing crests of Worcester College, found within a contemporary sewer pipe trench and an adjacent pit together with a collection of wine and sherry bottles. Perhaps these construction works gave the college an opportunity to dispose of some old crockery.

STRATIGRAPHIC SUMMARY

Due to density of pitting and other disturbances the untruncated surface of the natural gravel was exposed in only limited areas of the site. The natural was highest in the northernmost part of the site, recorded at 58.92 m OD in the evaluation trench. Towards the south it was revealed at 58.18 m OD within the southern part of Area 11 and at 58.11 m OD within Evaluation Trench 2, suggesting that it sloped away from north to south.

Phase 1 (Late Eleventh to Early Thirteenth Century) (Fig. 8)

The earliest features were several shallow pits (593, 600, 689, 693 and 784) scattered across the site, none of them fully exposed. All contained small quantities of domestic refuse, including pottery, most fragments broadly datable to 1175–1350, though the lack of Brill/Boarstall wares suggests a date of 1175–1225. Intercutting pits 600 and 593, both about 0.60 m deep, were the earliest in a sequence of medieval pits located within the eastern part of Area 10 (Fig. 10, Section 505). Pit 593 notably contained two residual sherds of a glazed pitcher, probably Stamford ware (850–1150). The sherds may have derived from the earlier pit (600), which contained only sherds of a Cotswold ware vessel (1050–1250), so a date prior to the late twelfth century is reasonable for pit 600.

Phase 2 (Early Thirteenth to Mid Fourteenth Century) (Fig. 8)

Phase 2 saw a marked increase in the intensity of pit digging across the site, especially in the northern part. A total of 24 pits were identified and, though none was fully exposed in plan, it was clear that the larger pits (for example, 562, 566, 597, 599 and 627) were

²² Harris, 'Archaeological Assessment and Mitigation Strategy', p. 22.

²³ *Ibid.* p. 14.



Fig. 6. Detail from Ordnance Survey first edition 1:500 Town Plan (1878), showing part of Worcester College. Archaeological trenches highlighted in black.

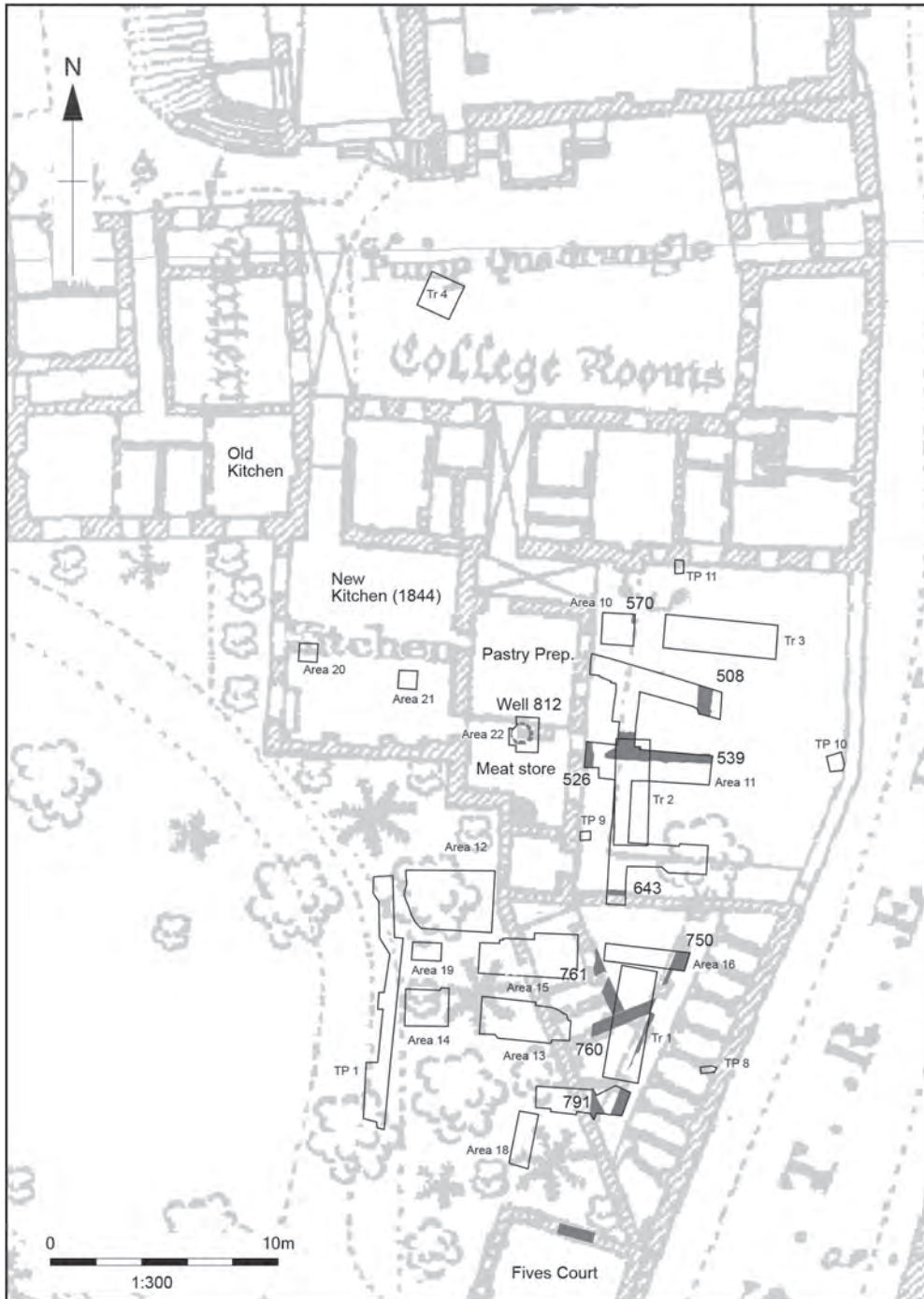


Fig. 7. Trench locations on Ordnance Survey first edition 1:500 Town Plan (1878).

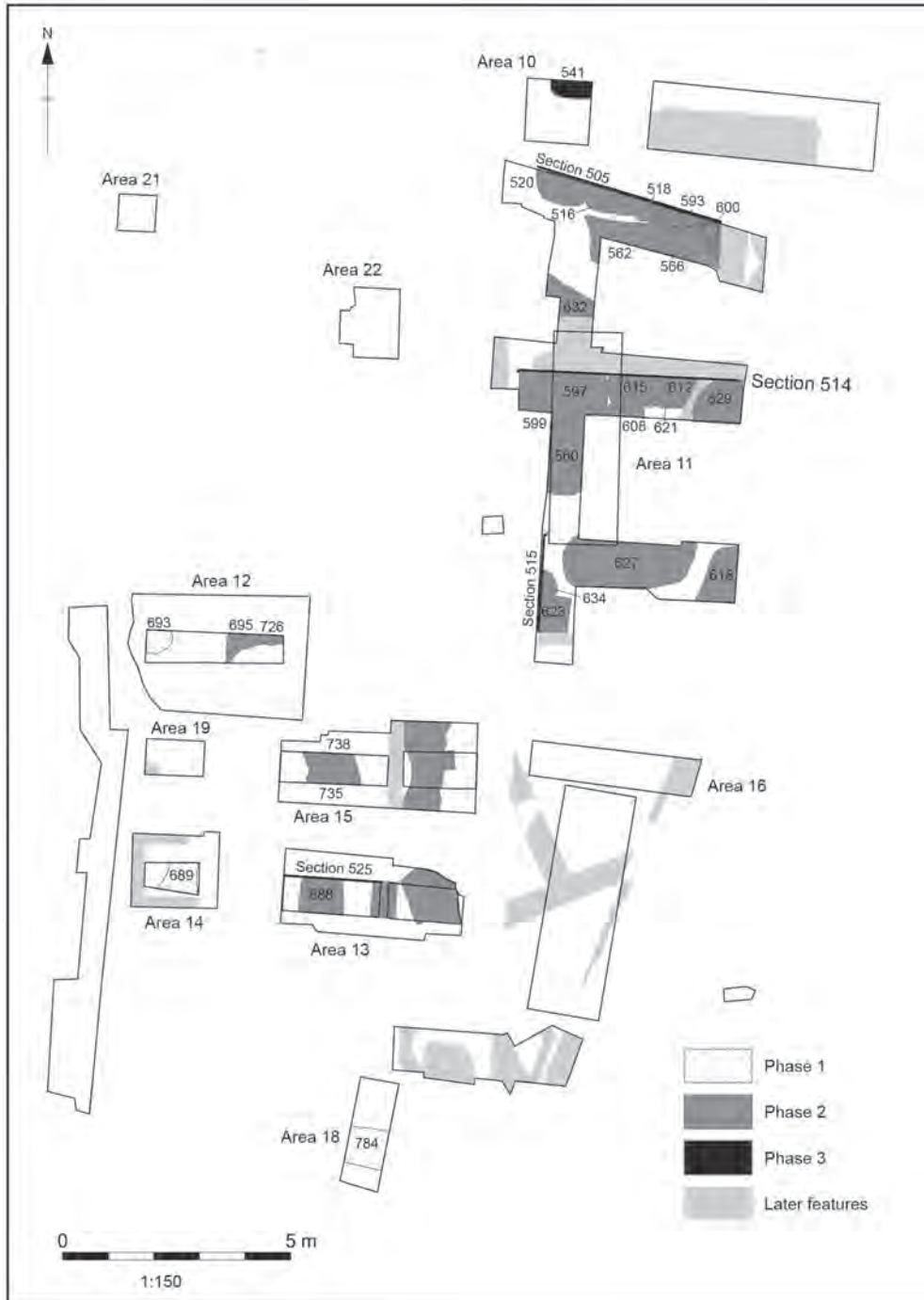


Fig. 8. Medieval (Phases 1–3).

confined to the northern part of the site. All of them were probably rectangular, with steep sides and flat bases and up to 0.60 m deep. The full widths of only two pits (599 and 627) were exposed in plan. They were 1.84 m and 2.80 m across respectively. Most of the pits contained a single, predominately gravel-rich fill with moderate amounts of domestic rubbish, indicative of rapid backfilling. Their size and fills also suggest that they were originally gravel quarries, especially considering their location in areas that had generally not previously been cut by pits. This group of pits can be generally dated to c.1225–1400 on the evidence of Brill/Boarstall wares, although pit 562 contained developed jug sherds of fourteenth-century date. This pit also produced a copper alloy pendant horse mount (SF 500, Fig. 14).

The smaller pits were rounded with concave sides and bases (for example, Fig. 10, Section 514, pits 612 and 615). Most were no more than 1.2 m across and 0.5–0.6 m deep, with a single fill of dark grey sandy silt. Most of them contained some domestic rubbish, although the only significant quantities of kitchen waste were recovered from pits 560, 608, and 615, a cluster within the central part of Area 11.

Phase 3 (Late Fourteenth to Early Sixteenth Century) (Fig. 8)

This period effectively saw the cessation of pitting on the site and the beginning of the accumulation of a thick deposit of ‘garden’ soils across the area that sealed the earlier pits (Fig. 10, Section 525, context 674). It may have commenced earlier during Phase 2 towards the southern end of the site and continued into Phase 4 (Fig. 10, Sections 514 and 515, contexts 567 and 568). They were typically mid-dark grey brown sandy silts, surviving up to 0.50 m in depth and contained an appreciable assemblage of late-medieval pottery including late developed Brill/Boarstall wares, Brill wares, and a sherd of German Langerwehe stoneware, suggesting a date between c.1375–1550. The only feature that may date to this period was pit 541, partially exposed on the north side of Area 10 that contained residual Cotswold ware. It cut a thick silt layer (543, not illustrated) that produced a sherd from a possible Hessian crucible, dated to c.1480–1700. Green copper-rich globules were embedded in the internal surface, indicative of copper alloy working.

Phase 4 (Mid Sixteenth to Eighteenth Century) (Fig. 9)

Activity during the early part of the post-medieval period was largely confined to the north side of the site, with resurgence of pit digging and further accumulation of garden soils. This included a large oval pit (510) that probably continued to the north within Area 10 as pit 521. It was approximately 2.6 m by 2.3 m across, 0.86 m deep and contained several rubble-rich fills (Fig. 10, Section 505, contexts 511–13). The latest sherds recovered were Brill wares but a large fragment of an early type of post-medieval earthenware suggests a date of c.1580–1650. The pit also contained a small quantity of ceramic roofing tiles, including worn fragments of medieval ridge tiles and fresh fragments of peg-tiles of fifteenth- to seventeenth-century date, suggesting debris from nearby demolition/construction work. Also present was a worn fragment of a fifteenth- or sixteenth-century Flemish-style floor tile. The pit cut rubble-filled pits 551 and 569 to the south, which contained similar fragments of medieval ridge tiles and later roofing tiles, suggesting that they were associated with the same activity. It is possible that postholes 514 and 534 were also associated with this activity as both contained early post-medieval pottery dating to c.1580–1625. A large pit (308) recorded within Evaluation Trench 3 contained sherds from a Brill chaffing dish and jugs, datable to c.1550–1625, found together with large fragments of worn medieval roofing tiles.

An accumulation of garden soils overlay these features (Fig. 10, Sections 505, context 533; Section 514, context 567; and Section 515, context 568), suggesting another period of inactivity during which the area remained open ground. Subsequently a substantial stone-built structure was constructed, the south side of which was defined by a 1.2-m wide wall

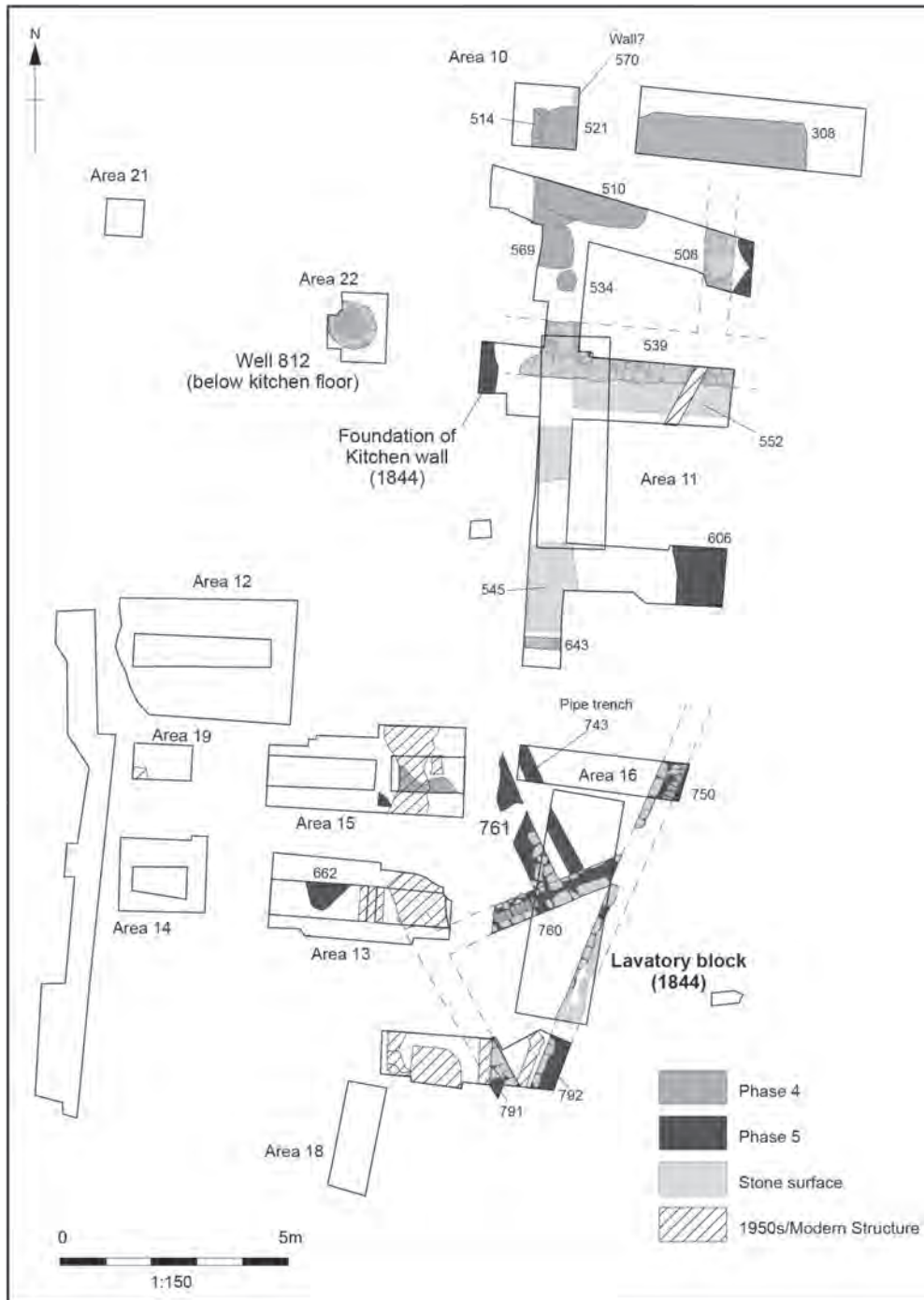


Fig. 9. Post-medieval (Phases 4-5).

foundation (539). A second wall (508) that ran at right angles to its north side was probably contemporary though it had a lesser width of 0.65 m. It may have formed part of a structure built up against wall (539). However, no evidence for wall 508 was found within Evaluation Trench 3 to the north, but pit 308 may have removed it or the wall returned within the unexcavated area between Areas 10 and 11. A possible wall fragment (570) exposed in section on the north-east corner of Area 10 runs along the same alignment, and may have been of contemporary construction.

Wall 539 cut a garden soil 567 (Fig. 10, Section 514) that contained sherds of late Brill ware (c.1550–1625?), fragments of brick and a sixteenth- or seventeenth-century peg tile. A sherd of a possible Frechen stoneware Bellarmine jug, dated to c.1550–1700, was recovered from the fabric of wall 508. Both the walls survived largely below foundation level and were apparently trench built, constructed with largely roughly hewn limestone blocks, bonded by pale yellow/light brown sandy mortar (Fig. 11). Both were deeply founded at about 0.75 m depth, suggesting they supported a building of two or more storeys. Traces of render were found on the east face of the uppermost course of wall 508, which was slightly off-set, suggesting this part of the wall was above foundation level and that the space to the east of it was internal.

A fourth wall (643) was partially exposed at the southern end of Area 11. It ran parallel to and 5.7 m south of wall 539 and probably formed part of a boundary wall. It was trench-built and of similar construction to the other walls, but was more deeply founded at least 1.2 metres deep. It was not clear from which level it had been constructed, and is potentially late in date as it corresponds to a boundary wall depicted on both King's plan of 1848 and the Ordnance Survey map of 1878 (Fig. 7).

Within the area between walls 539 and 643, the pre-existing garden soils (Fig. 10, Section 515, context 568) were overlain by a 0.22-m thick deposit of crushed limestone rubble (545=552), possibly a rudimentary surface or construction debris. On the south side it overlay a thin gravel surface (Fig. 10, Section 515, context 558), a possible earlier yard surface. This may have been contemporary with a similar, but thicker surface, found to the south of wall 647 (Fig. 10, Section 525, context 673). These surfaces were overlain by another accumulation of garden soil (Section 515, context 554), suggesting that this area remained external. It was not entirely clear what the relationship of these deposits with the walls were, given their trench-built construction. However, their levels all occur below that of the offset of wall 643 (Section 515), suggesting they pre-dated the walls. Most of the pottery from these levels dates to no later than the sixteenth century with only several small sherds of later, possibly intrusive, pottery of late eighteenth- or early nineteenth-century date from garden soil 554.

A capped limestone-lined well (812) exposed below the flagstone floor of the kitchen in Area 22 may have either belonged to an earlier arrangement of the building or pre-dated its construction in 1844, though no dating evidence was recovered.

Phase 5 (Nineteenth Century and Later) (Fig. 9)

The limestone wall foundations of the nineteenth-century lavatory block, constructed in 1844, were revealed in the south-east part of the site (750, 760, 761, 791 and 792). The walls corresponded closely to that of the buildings depicted on the Ordnance Survey map of 1878. They were constructed with roughly hewn limestone blocks set in light yellowish brown sandy mortar, with wall 750 faced on its east side with red brick. A sewer trench (743) contemporary with the block contained a clay pipe and a large assemblage of pottery datable to c.1820–40, including tableware bearing the coat of arms of Worcester College (see Fig. 12). During the Watching Brief a short length of an east–west aligned limestone-built wall was exposed close to the southern boundary. It corresponds closely with the north wall of Fives Court as depicted on the OS map of 1878 (Fig. 7).

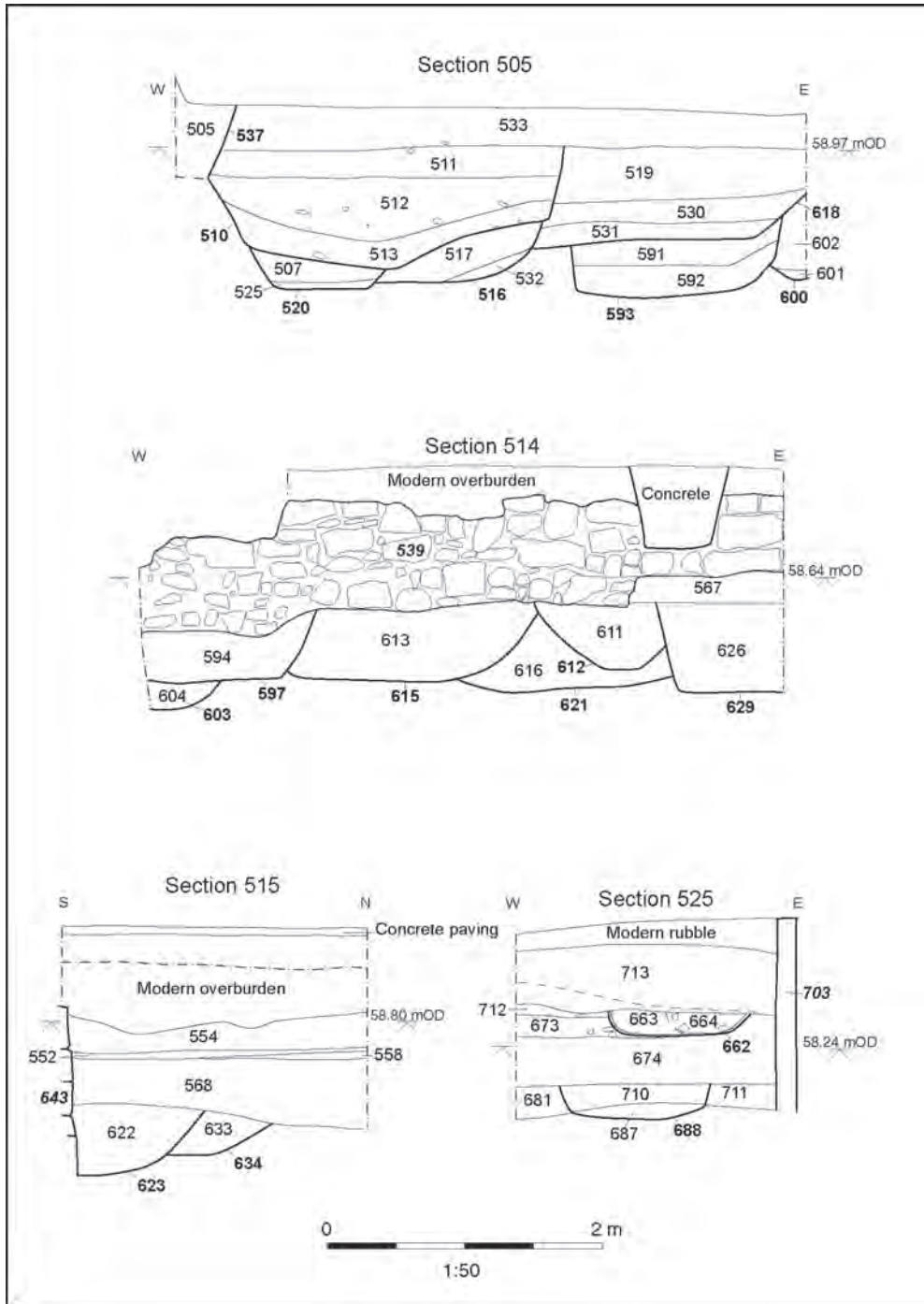


Fig. 10. Sections 505, 514, 515, 525.



Fig. 11. Walls 508 and 539, looking east.



Fig. 12. Pottery.

NOTE ON HISTORIC BUILDINGS WATCHING BRIEF

by ROLAND B. HARRIS

The development in 2013–14 had an impact on the standing buildings and structures in and around the kitchen yard. Complete demolitions were largely limited to twentieth-century buildings, such as the extensions and boiler room between the kitchen and the Nuffield Building, and the coal bunker and the two minor outbuildings abutting the Worcester Street wall. To the east of the Nuffield Building, its much altered lavatory block of 1939 was partly demolished. Of more archaeological potential was the internal rearrangement of the kitchen of 1844 and its ancillary rooms, which involved demolition of some internal partition walls, re-flooring, creation of a new doorway into the passage leading to staircase 14, and modification to some window openings. A watching brief was kept on the works, and the key findings are summarized here.²⁴

Phase 3 (Late Fourteenth to Early Sixteenth Century)

Extending east from the medieval kitchen along the south side and over half the eastern side of Pump Quad are chambers built by Glastonbury abbey. This part of the college was granted to the abbey in 1397, but its building works were evidently still in progress after 1424.²⁵ The north wall of the 1844 kitchen is formed by the southern wall of the Glastonbury chambers, but refurbishment in 2013–14 left most of the plaster intact so that scope for archaeological investigation was limited. Removal of the suspended ceiling, however, revealed some small areas of intact ashlar above the plaster line and between the areas of modern brickwork associated with steelwork of 1966. This stonework is consistent with the early fifteenth-century work of the north face of the Glastonbury chambers and confirms survival of the medieval wall.

Phase 5 (Nineteenth Century and Later)

The refurbishment of the 1844 kitchen exposed details of its construction. Demolition of its eastern wall, which separated it from the former larder and scullery, was preceded by removal of the plaster, exposing Wheatley limestone coursed-rubble construction with brick relieving arches above the timber lintels of the two doorways. There was limited removal of plaster in the rest of the kitchen, but some loss by the entrance to the passage to Pump Quad (staircase 13) confirmed that the doorway there dates from 1844. At the southern end of the kitchen, removal of modern finishes exposed the brick construction of the fireplaces of 1844. Lifting of modern red quarry tiles exposed a stone flag floor: most of the flags had been pecked to provide a non-slip floor. The flags were in use until 1966, and very probably represent the original flooring of 1844. Similar flags were exposed in the former larder and scullery, to the east, along with – at the south-east corner of the scullery – an area of brick flooring. The latter probably relates to the location of a copper (or water heater) here in the nineteenth century.

To the east of the 1844 kitchen, demolition of a substantial coal bunker and adjacent steps, built c.1939, revealed remains of an earlier ramp up to a gate in the Worcester Street boundary wall. The ramp was built against an east–west wall of which fragments have been identified above ground at the east and west ends, and in the excavation (feature 643). The ramp, wall and the gate to Worcester Street almost certainly all dated from 1844, when a new near-oblong Kitchen Quad was established on the east side of the new kitchen: the southern wall of the quad was removed in 1939.

²⁴ The historic buildings investigations are described more fully in R.B. Harris, ‘Worcester College, Oxford, Kitchen: Historic Buildings Report’, unpublished report (2016).

²⁵ *VCH Oxon.* 3, p. 304.

THE POTTERY by JOHN COTTER

A total of 838 sherds of pottery weighing 13.858 kg were recovered. Of this 77 per cent by sherd count is medieval and 23 per cent post-medieval (c.1480+). The percentages for weight however are a little closer (54 per cent medieval, 46 per cent post-medieval). The average sherd weight for the medieval pottery is 11.6 g, and for post-medieval pottery 33 g. These differences reflect both the thinner-walled and more fragile nature of medieval pottery compared to more robust post-medieval forms and also the greater length of time the medieval assemblage has been exposed to post-deposition processes and increased fragmentation.

In general the assemblage is in quite a poor and fragmentary condition – particularly the medieval assemblage – and only the more robust mass-produced pottery of the later eighteenth and nineteenth centuries has survived reasonably well. The medieval pottery derives from numerous relatively thin deposits (mainly pit fills and garden soils) and much of it is probably redeposited. Some sherds are relatively fresh, but there are no reasonably sized groups of medieval material that significantly enhance our knowledge of pottery of this period from Oxford. The later post-medieval assemblage, however, includes a small group of interesting tablewares bearing the arms of Worcester College, or inscriptions relating to it, and these, rather than the earlier pottery have been singled-out for closer attention.

The range of fabrics and vessel forms present is fairly typical of sites along or near the main thoroughfares of central Oxford. There are a few possible (residual) late Anglo-Saxon sherds, but most of the assemblage is medieval and mainly from the later twelfth century onwards with the thirteenth and fourteenth centuries best represented. The late-medieval period through to the late sixteenth or early seventeenth century is also fairly well represented – mainly by the presence of late-medieval Brill/Boarstall ware (OXBX, c.1400–1625). After this there was an apparent decline in pottery deposition until the later eighteenth and earlier nineteenth centuries, and very little deposition after this. Nearly all the types present here also occur in a much larger assemblage of medieval and post-medieval pottery recently studied from the 2011 Pembroke College site where these types are described in more detail.²⁶ A similar range of pottery has also been published from Merton College.²⁷ Given the availability of good published parallels for most of these types in the city, coupled with the poor condition of most of the Worcester College material, what follows is a simply a quantified table of the various fabrics present and a summary report focusing on the more significant or interesting aspects of the assemblage.

Methodology

An intermediate level catalogue of pottery types was constructed (in Excel), following standard procedure, for the whole assemblage and spot-dates produced for each context. The catalogue includes, per context and per pottery fabric, quantification by sherd count and weight only. Given the fragmentary nature of most of the assemblage any more detailed quantification (of vessel form and so on) was not considered worthwhile. However, further details including vessel form, part, decoration or any other features of note were frequently recorded in a comment field. The only exception to this is the small collection of inscribed college tablewares where each vessel was assigned a separate catalogue entry and all dimensions and other details were described in some detail. Full details remain in the archive. As better parallels for the medieval material exist elsewhere, only a few photographs of the college tablewares have been illustrated.

²⁶ J. Cotter, 'Pottery', in Teague et al., 'Excavations in the South Suburb'.

²⁷ P. Blinkhorn, 'Pottery', in D. Poore et al., 'Excavations at No. 4A Merton St., Merton College, Oxford: The Evolution of a Medieval Stone House and Tenement and an Early College Property', *Oxoniensia*, 71 (2006), pp. 258–78.

Pottery Fabrics

Medieval pottery fabrics were recorded using the system of codes developed for the Oxfordshire county type series.²⁸ Post-medieval pottery fabrics were recorded using the codes of the Museum of London, which can be applied to most post-medieval types in southern England.²⁹ The types and quantities occurring here are listed below in roughly chronological order (Table 1).

Summary by Period

Medieval to Early Post-Medieval (Phases 1–3). The 19 sherds assigned to Phase 1 are mostly from pit fills and are mostly quite small although a mixture of fresh and worn sherds is present. The presence of early Brill/Boarstall ware (OXAW, c.1175–1400) and East Wiltshire ware (OXAQ, c.1150–1350) imply a starting date after c.1175 while the absence of the fine 'high medieval' Brill/Boarstall fabric (OXAM, mainly c.1225–1400) suggests deposition before c.1225. The early Brill fabric (OXAW) includes sherds of both jars/cooking pots and glazed jugs, including one with traces of red slip decoration. The OXAQ sherds also include a jug sherd decorated with combed wavy horizontal bands on the shoulder and straight vertical bands on the neck.³⁰ A small number of other fabrics are present (OXY, OXAC, OXZ) of which the two small sherds of Stamford ware (OXZ) are almost certainly residual. The Stamford ware sherds from the site (five in total from at least three vessels) may well be late Anglo-Saxon in date but like several other 'Saxo-Norman' pottery types has a date range spanning the Conquest period (c.850–1150). The two sherds from Phase 1 (context 592) probably come from the same yellow glazed spouted pitcher but both are highly abraded, with only slight traces of glaze surviving. Another sherd (Phase 3) – either Stamford ware or a medieval northern French whiteware – is almost certainly from a second pitcher with a lemon-yellow glaze. Two other very similar unglazed body sherds (Phases 2 and 3) probably come from the same Stamford ware cooking pot with traces of external sooting. Though residual, this handful of Stamford ware sherds could suggest some late Anglo-Saxon (or at least eleventh-century) activity in the vicinity. However, the complete absence of St Neots-type ware (c.850–1100) from the site is unusual as this is always much commoner on late Anglo-Saxon sites in Oxford than Stamford ware. Cotswold-type ware (OXAC), also has pre-conquest origins (from c.900+) but is commonest in Oxford during the early post-Conquest period. The earlier forms or instances of this are difficult to date in isolation without the association of other late Anglo-Saxon fabrics.

Other notable early medieval vessels are few in number and mostly perhaps residual in Phase 2 or later contexts. They include a short complete (but very worn) tubular spout attached to a pitcher rim in yellow glazed Medieval Oxford ware (OXY, context 559) and a possible curfew rim in Cotswold-type ware (598) – both perhaps dating to the twelfth or first half of the thirteenth century. Early Brill/Boarstall ware (OXAW, c.1175–1400) is the single commonest fabric type from the site in terms of sherd count (186 sherds) and is equally common as cooking wares and glazed tablewares (jugs). OXAW cooking wares mainly comprise thin-walled cooking pots, a few wide bowls and a single pipkin handle. The jug sherds include plain green- or yellow-glazed examples but also a considerable number of quite highly decorated strip jugs (mainly c.1250–1350) with decoration in applied red, white or neutral-coloured clay, or zones of red or white painted slip. The other, finer, Brill/Boarstall ware fabrics (OXAM and OXBX) are also very common and collectively the fabrics of this industry dominate the site assemblage – as they do on most medieval/early post-medieval sites in the city. OXAM

²⁸ 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.

²⁹ London Archaeological Archive and Research Centre (LAARC), 'Post-1992 Museum of London Code Expansions: Post-Roman Pottery' (2007).

³⁰ Mellor, 'Oxfordshire Pottery', fig. 44.1.

Table 1. Pottery types and quantities in broad chronological order

Fabric	Common Name	Date	Sherds	Weight
OXZ	Stamford ware (Lincs)	850–1150	5	32
OXAC	Cotswold-type ware	1050–1250	41	448
OXY	Medieval Oxford ware	1075–1300	27	387
OXAQ	East Wilts ware (Kennet Valley B)	1150–1350	87	969
OXCG	Olney Hyde-type shelly ware	1150–1400	6	104
OXAG	Ashampstead-type ware (Berks)	1175–1400	14	131
OXAW	Early Brill ware (Bucks)	1175–1400	186	1891
OXAM	Brill/Boarstall ware (Bucks)	1225–1625	128	1302
KING	Kingston-type ware (Surrey)	1230–1400	5	55
CHEA	Cheam whiteware (Surrey/Hants)	1350–1500	2	23
LANG	Langerwehe stoneware (Germany)	1350–1550	2	29
OXBC	Brill Tudor Green copies	1375–1550	3	11
TUDG	Tudor Green ware (Surrey/Hants)	1375–1550	2	4
OXBX	Late med Brill ware (Bucks)	1400–1625	135	2045
RAER	Raeren stoneware (Germany)	1475–1550	2	18
PMRE	Early post-med redwares	1480–1600	1	74
HESS	Hessian crucible (Germany)	1480–1900	1	7
FREC	Frechen stoneware (Germany)	1525–1750	13	321
BORD	Border ware (Surrey/Hants)	1550–1700	4	88
PMR	Post-medieval red earthenwares	1550–1900	48	1162
TGW	English tin-glazed earthenware	1575–1825	7	26
PMBL	Post-med black-glazed redware	1580–1750	3	17
WEST	Westerwald stoneware (Germany)	1590–1750	2	13
CHPO	Chinese porcelain	1600–1900+	5	9
BRSL	Brill post-med slipware	1650–1800	1	67
ENGS	English stonewares (misc)	1670–1900	2	35
NOTS	Nottingham stoneware	1700–1800	1	5
SWSG	Staffs white salt-glazed stoneware	1720–1780	3	25
ENPO	English porcelain	1745–1925	4	25
CREA DEV	Developed Creamware (Staffs/Yorks)	1760–1830	42	1352
PEAR	Pearlware (Staffs/Midlands)	1780–1840	11	141
PEAR TR	Transfer-printed Pearlware	1780–1840	34	1426
TPW	Transfer-printed wares (Staffs etc)	1780–1900+	5	573
BONE	Bone china	1794–1900	3	33
ROCK	Rockingham ware (Yorks/Midlands)	1800–1900	3	1010
TOTAL			838	13858

(mainly c.1225–1400) also includes many fragmentary jug sherds (decorated and plain) and a few rarer forms including sherds from two double-shelled oil lamps³¹ and sherds from at least four or five typical Brill/Boarstall bottles³², and one or two small dishes and jars. There is also a rim and joining handle from a Brill Tudor Green-style lobed cup (OXBC). The late medieval/

³¹ *ibid.* figs. 54.18–22.

³² *Ibid.*, figs. 55.1–18.

Table 2. Pottery quantities by phase

Site Phase	Description	No. Sherds	Weight (g)
0	Unphased	4	24
1	L12–E13C	19	233
2	E13–M14C	233	2647
3	M14–M16C	119	1499
4	M16–L18C	222	2635
5	L18C+	241	6820
Total		838	13858

early post-medieval fabric (OXBX, to c.1625) is not always easily distinguished from OXAM, but vessels tend to be thicker walled, plainer and more sparsely glazed or unglazed. It mainly occurs here as jugs and single possible examples of a moneybox and a lid.

Post-Medieval (Phases 4–5). Aside from a fairly late group of college tablewares the range of post-medieval wares present is fairly unremarkable although the unusually low sherds counts of Surrey/Hampshire border ware (BORD), tin-glazed wares (TGW) and Staffordshire white stoneware (SWSG) suggest that relatively little pottery was discarded on the site during the seventeenth and eighteenth centuries compared to earlier centuries. The post-medieval phase assemblages produced a limited range of local, regional and some imported pottery types better represented on other Oxford sites and covered in detail in the St Ebbe's and Market Street pottery reports.³³ The later pale-coloured products of the local Brill/Boarstall ware industry (OXBX) continued to dominate until the early seventeenth century when they were replaced by the ubiquitous post-medieval red earthenwares (PMR) which continued in production as late as c.1900. Of the 241 sherds assigned to Phase 5 (deposited after c.1780) around 44 per cent were residual (or 19 per cent by weight), mainly from garden soils and cleaning contexts, which produced a high proportion of residual medieval and early post-medieval wares (for example, OXAW, OXAM, OXBX and FREC). Nineteenth-century pipe trenches however mostly produced broadly contemporary pottery.

One item of note is a small rim sherd probably from a triangular Hessian-style crucible (HESS) in a very hard sandy near-stoneware fabric.³⁴ This is assigned to a Phase 3 layer (context 543) and is therefore quite an early example of this type, possibly imported from Germany during the first half of the sixteenth century. The crucible, which is heat-altered, shows evidence of copper or copper-alloy smelting in the form of green copper-rich globules fused to the inner surface. Five triangular Hessian-style crucibles (and many other chemical vessels) were found in 1999 during excavations to the rear of the Museum of the History of Science (the old Ashmolean Museum) on Broad Street, Oxford. These were almost certainly used in the old science laboratory in the museum basement during the late seventeenth and eighteenth centuries and dumped during a major clear out about 1770–80. Chemical analysis

³³ M. Mellor and G. Oakley, 'A Summary of the Key Assemblages. A Study of Pottery, Clay Pipes, Glass and other Finds from Fourteen Pits, Dating from the Sixteenth to the Mid-Nineteenth Century', 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), pp. 181–219; P. Blinkhorn, 'Pottery', in K. Taylor and G. Hull, 'Excavation of Post-Medieval Features and a Dump of Late Eighteenth-Century Artefacts from 5/6–7 Market Street, Oxford', *Oxoniensia*, 67 (2002), pp. 318–43.

³⁴ J. Cotter, 'The Mystery of the Hessian Wares': Post-Medieval Triangular Crucibles, in D. Gaimster and M. Redknap (eds.), *Everyday and Exotic Pottery from Europe c.650–1900. Studies in Honour of John G. Hurst* (1992), pp. 256–72.

of these wares however suggests that most are probably English and probably made at John Dwight's Fulham pottery factory.³⁵

Though fragmentary, the 'college' tablewares (and a few associated vessels) form a small but interesting and cohesive group united by a combination of features including fabric, form and decoration. A minimum of fourteen 'college' vessels was identified from three features (containing four contexts or fills), mainly from two contiguous lengths or sections of nineteenth-century pipe trenches. These are associated with the toilet block in Area 16 which was constructed in 1844 – at the same time as the new kitchen to the north (Areas 20–22). Together the northern and southern lengths of the pipe trench excavated (Features 743 and 755) extend for c.6 m and there are cross-joining sherds between the two lengths, as well as fresh joining sherds from single vessels, but no definite cross-joins with similar material from Pit 662 which lies 5 m to the west. Because of their intrinsic interest and possible close dating all the vessels were catalogued in detail. Full details remain in archive but the main points of the 'college' assemblage are summarized here while selected pieces are described in slightly more detail in the illustration catalogue below.

The three features produced a combined total of 41 sherds (3,698 g) of pottery of which 27 sherds (1,386 g) were college wares. The largest and heaviest item is a non-college Rockingham-type ware storage jar (2 sherds, 1,008 g). Aside from two small residual medieval sherds (7 g) all the vessels are broadly contemporary; probably within c.1780–1840 (or perhaps to c.1860 at the latest in the case of the single TPW vessel). On the basis of style however it is suggested that most the college wares were probably manufactured c.1820–40, probably in Staffordshire or Leeds, although Bristol is also a possible source and well-connected to Oxford at this time by road and canal. Of the minimum fourteen college vessels identified ten are shallow dishes/plates, two are gravy/sauce boats and two are cylindrical tankards (Fig. 12.1–6). They occur in range of refined white- or very pale cream-bodied earthenwares identified here as transfer-printed Pearlware (PEAR TR, c.1780–1840) owing to the slight bluish tint (from cobalt) in the glaze of some vessels. Some could just as easily be identified as developed Creamware (CREA DEV, c.1760–1830) or even refined whiteware (REFW c.1805+) or transfer-printed ware (TPW, mainly after c.1830). The differences between them in terms of fabric are very slight and are probably insignificant except perhaps to indicate that some vessels were made during the transitional period c.1820–40 between thinner-bodied cream-coloured tablewares (CREA DEV and PEAR TR) and thicker-bodied whiter tablewares (REFW and most TPW).

It is fairly clear, however, that most vessels belong to the same table 'service' probably used in the college dining hall or students' and masters' quarters. Batches of branded tablewares such as these were probably commissioned directly by Oxford colleges from the industrialized potteries of Staffordshire and South Yorkshire. The common elements which unite the Worcester College pieces are black or dark brown transfer-printed designs in the centre of dish/plate forms displaying the arms of Worcester College and/or an inscription bearing the name of the college in English or Latin ('*Vigornia*'), and in one case a personal name. Very similar college wares are known from several recent excavations in the grounds of other Oxford colleges,³⁶ and from several non-college sites (where they may perhaps have strayed via untrustworthy students or butlers). Another group of contemporary college plates and a gravy boat, in Creamware and Pearlware, has been published from the St Ebbe's area of the city.³⁷ The St Ebbe's pieces bear the names of colleges, college cooks and of some wealthy local merchants and possibly innkeepers, although there are no colleges in the immediate vicinity.³⁸ These differ from the

³⁵ J.A. Bennett et al., 'Chemical Vessels', in J.A. Bennett et al. (eds.), *Solomon's House in Oxford: New Finds from the First Museum* (2000), pp. 35–9.

³⁶ For example, Pembroke College, New College and University College; Cotter, forthcoming pottery reports.

³⁷ Mellor and Oakley, 'A Summary of the Key Assemblages', in 'St. Ebbe's, Oxford', pl. 4, nos. 9–10 and 12–14.

³⁸ *Ibid.* pp. 207–9.

Worcester College group in that most bear hand-painted personal names on the back rather than transfer-printed marks on the front – as here. The St Ebbe's group probably dates to the late eighteenth-century while the Worcester College group is probably early nineteenth century (though possibly including some fairly old vessels at time of deposition). The construction of the new kitchen in 1844 may have prompted a clear out of old pots and pans.

The transfer printed designs are finely engraved (linear, not stippled) and probably come from inked copper plate originals from which the design was transferred to the vessels on sheets of wet paper, or just possibly by the bat-printing technique (using flexible gelatine sheets). Dishes/plates – the commonest form – are shallow with a broad gently hollowed flanged rim, a short rounded wall and either a plain flat base or a slightly recessed/footering base with a tooled shallow concave chamfer at the basal angle externally. Some of the rim sherds are clearly from fairly large oval dish forms and on these the lip of the rim is very slightly crimped or indented every c.100 mm around the circumference. Most dishes have a pair of hand-painted black bands around the circumference of the rim, one (or occasionally two) at the lip, and one at the internal rim/wall angle. In two separate instances there is single band at the lip but none at the internal angle. Similar (single) black banding occurs on the rims of the two gravy/sauce boats, but not on the only tankard rim identified. A few dish bases bear very small impressed marks on the underside – probably batch marks – which may eventually be traced to individual factories or years of production (see illustration catalogue). The undersides of one or two dish rims also bear small trivet (kiln furniture) marks in the glaze acquired during firing.

A minimum of eight other broadly contemporary vessels in other fabrics were identified (not illus.) including three almost identical large sub-rectangular baking dishes (showing scorch marks) in developed Creamware (CREA DEV) which probably originated from the college kitchen. Also present is a Creamware chamberpot rim and the lower part and pad base of a large storage jar or deep bowl in Rockingham-type coarseware (ROCK) with a dark red body and an all-over internal white slip (possibly used as a chamberpot or stool pan from a wooden commode?). The latest type identified from the two pipe trenches is a wide bowl or washbasin in transfer-printed ware (TPW, or possibly PEAR TR) with blue marble-effect transfer-printed decoration (present as two large cross-joining sherds from the two lengths of the trench). This was provisionally assigned a spot-date of c.1840–60 on the basis of style – but a slightly earlier date closer to when the kitchen (and possibly the toilet block) was constructed may well be possible. The broken college tablewares and other vessels were probably discarded into the back fill of pipe trenches in 1844 when the kitchen was constructed, or very shortly after this. By then, some vessels may have been up to two or three decades old. No evidence for flushing ceramic water closets was recovered (see CBM report); these were very rare before c.1850. It appears that the toilet blocks were brick-built structures and probably provided with wooden seats although no evidence for these survives. The college ware contexts are summarized below.

Pit 662 (fill 664), Area 13. College-style dish/plate profile (diam. c.250 mm but possibly slightly oval). This has a single painted black/brown band at the rim edge or lip only – one of only two dishes with a single rim band (see (757) below for very similar but separate dish). Separate dish base with Worcester College arms (Fig. 12.1). This was the only vessel with this exact design – showing a straight-sided shield (Design A). In same context a small rim sherd from a teacup in English porcelain (ENPO) with a band of tiny painted blue and ochre flowers inside and out – probably c.1800–40/50?

Pipe Trench 743 (Fills 745 and 746), Area 16. Most of the college tablewares came from fill (745). This fill includes cross-joining sherds with Pipe Trench 755 immediately to the south in Area 17. It also includes three dishes with a different, possibly later, version of the college arms, showing an oval shield (Design B; Fig. 12.2–3). The two illustrated dishes are of identical form (with slightly recessed/footering base) but the printed design on the second example (Fig. 12.3)

is slightly smaller than the first and so possibly from a different-sized engraving. The third example (not illustrated) is a profile fragment from a large sub-rectangular/oval dish identical to Fig. 12.3 but with plain flat base and with only the final 'N' of 'VIGORN' surviving. The latter is fairly robust/thick-walled (original dimensions c.290 mm across short axis and c.370 mm across long axis; Height 42 mm. The base shows use-wear). Two examples of dishes with the plain 'Coll: Vig.' inscription survive (Design C; Fig. 12.4) survive. The second example (not illustrated) has a very small circular impressed mark or 'o' underside (diameter 4 mm). Parts of two identical gravy/sauce boats were recovered – the almost complete example has part of a personal name inscription 'Brock[---]' on the side (Fig. 12.5). The other piece is a rim sherd from the spout/pouring lip area with a black rim band. Two cylindrical tankards were recovered including one inscribed 'Wor. Coll.' on the side (Fig. 12.6). The second tankard is represented by a complete plain footring base (diam. 82 mm) with the lower stub of vertical handle. Non-college wares include a TPW (or PEAR TR?) washbasin with a blue marble-effect (not sponged) transfer design inside and out (diameter c.360 mm; from (745) and (746)). The latter possibly dates to c.1834 or at any rate c.1830–60.

Pipe Trench 755 (fill 757), Area 17. The southern continuation of Pipe trench 743 above. A single college-style dish/plate rim with a single black rim band (diameter c.240 mm), is very similar to, but a separate vessel from, that in Pit 662 above. Large base sherd of Rockingham (ROCK) storage jar/deep bowl (cross-joining with (745) above). Also a small footring base sherd from a jug or bowl in engine-turned white stoneware (ENGS), or low-grade porcelain (Castleford-type?) with a clear glossy (feldspathic?) glaze internally – probably c.1800–25?

The paucity of pottery types from the site dating after c.1830/40 has been noted above. The latest vessel probably dates to c.1873–1900. This is a complete cylindrical preserve jar of common type in transfer-printed whiteware (TPW) with a black inscription including 'James Keiller & Sons Dundee Marmalade' and the medal award date '1873' (context 809, make-up layer).

Illustration Catalogue:

Fig. 12.1. Transfer-printed Pearlware (PEAR TR). Design A. Flat base from college dish/plate with arms of Worcester College in grey-brown transfer print with motto 'COLL/VIGORN/OXON' on ribbon. Medieval-style castellated helmet on top crowned with arm holding a dagger. Small (5-mm wide) impressed mark underside comprising square grid stamp of four cells. Height of shield (minus helmet) 29 mm. Pit 662 (fill 664), Area 13. Phase 5.

Fig. 12.2. Transfer-printed Pearlware (PEAR TR). Design B/1. Base of oval College dish/plate with recessed base/slight footring (diam. c.110 mm, but varies). Arms of Worcester College in centre in sepia grey-brown transfer print (finely engraved lines). Right half is surviving only. Elaborate baroque oval shield with ribbon below containing last word of motto 'VIGORN'. Trace of castellated helmet similar to No. 1 above (context 664) but with scrolling 'tassel' emerging from the back. Max. height of whole crest 92 mm. On underside a small impressed circular mark or 'O' (5 mm wide). Pipe trench 743 (fill 745), Area 16. Phase 5.

Fig. 12.3. Transfer-printed Pearlware (PEAR TR). Design B/2. Circular dish/plate (diam. 240 mm). Profile with hollow flanged rim and recessed base with slight ext. chamfered footring. Worcester College arms as B/1 above – but only upper half of helmet survives (with lattice grille in visor). Identical but slightly smaller – so possibly from a different sized engraving – the dagger is shorter too. Rim edge is very slightly crimped or indented every 90mm. Dark brown/black band at rim edge and narrower black line at rim angle internally. Pipe trench 743 (fill 745), Area 16. Phase 5.

Fig. 12.4. Transfer-printed Pearlware (PEAR TR). Design C/1. College dish/plate base, probably circular (diam. c.160 mm), with rounded basal angle and trace of flanged rim (height c.20 mm).

Black transfer printed arching inscription in centre ‘Coll: Vig’ (i.e. Worcester College). Tallest letters 7–8 mm. Traces of use-wear underside. Pipe trench 743 (fill 745), Area 16. Phase 5.

Fig. 12.5. Transfer-printed Pearlware (PEAR TR). Profile near-complete gravy/sauce boat. Roughly oval in plan with sub-rectangular footring (max diam. 88 mm). Plain upright rim. Complete at spout/pouring lip end but handle and rear rim area missing. Max. height 94 mm. Made in a two-piece mould with seam along long axis. Part of the same college service as dishes above with painted black band at the rim int. and ext. Part of ?owner’s name in black transfer print in centre on left-hand side ‘Brock[---]’. Tallest letter 7 mm high. Fairly thick-walled. Slight bluish pearl tint to glaze and tiny accidental blue specks in places. Small impressed letter ‘T’ underside (5 mm tall). Pipe trench 743 (fill 745), Area 16. Phase 5.

Fig. 12.6. Transfer-printed Pearlware (PEAR TR). Rim from cylindrical college tankard/mug (diam 90 mm) with black transfer-printed inscription ‘Wor. Coll.’ on side. Tallest letters 8 mm high. Pipe trench 743 (fill 745), Area 16. Phase 5.

CERAMIC BUILDING MATERIAL by CYNTHIA POOLE

Some 140 fragments of ceramic building material (CBM) weighing 14 kg were recovered from 47 contexts, predominantly pit fills and spread layers, especially garden soils, stone rubble surfaces and gravel deposits.

The CBM was catalogued on an Excel spreadsheet at an ‘intermediate’ level of detail – somewhere between a basic catalogue (recording sherd counts and weight per context) and a detailed catalogue. According to this system broad functional categories were recorded by sherd count per context (roof tile, ridge tile, and so on), giving a more detailed snapshot of the composition of the assemblage than a basic catalogue but not constituting a detailed catalogue. No systematic attempt was made to classify each fragment within the existing Oxford fabric codes (see below) and therefore only an impression of the quantitative breakdown of tile fabrics is presented here. Other details, recorded in a comment field include, for the more complete or significant pieces, measurable dimensions, fabric description, decoration and condition and so on. An approximate spot-date was assigned to the latest material in each context. Some categories (for example, medieval ridge tile) were recorded in greater detail than others. Subsequently, weights were added for each functional category per context as well as some additional details such as tile thickness and peg hole size. Full catalogue details reside in the site archive and are summarized in this report. A breakdown of CBM categories is presented in Table 3.

Date and Character of the Assemblage

All excavated pieces were retained for examination, though some may eventually be discarded. The assemblage is generally fragmentary and condition is mixed, consisting of both fairly

Table 3. Types and quantities of ceramic building materials

Type	Nos	Wt g
Flat roof / peg tile	91	4558
Ridge tile	16	1429
Floor tile	3	126
Brick	22	7762
Miscellaneous	8	204
Total	140	14079

fresh large pieces and abraded smaller pieces. There are no complete roof tiles or complete examples in any category except for a small number of post-medieval bricks. The assemblage comprises two main components, a dominant group of flat roofing tile (91 pieces), and all other types of CBM (49 pieces) which include ridge tiles, floor tiles, bricks and 'other'. The 'other' category consists predominantly of sanitary ware. The main types of CBM correspond to those from many other medieval and post-medieval sites in the city, including a recently published assemblage from Merton College.³⁹ The main Oxford fabric types identified in the assemblage and referred to in this report are given below (slightly updated).

Fabric IB: Oolitic limestone-tempered. Mostly brown or orange-brown firing, sometimes grey or with a grey core, with a dull greenish glaze. Almost exclusively used for ridge tiles. Source probably north-west Oxfordshire although very similar to Minety ware (Fabric OXBB) from north-east Wiltshire.⁴⁰ Date c.1175–1325?

Fabric IIIB: Coarse sandy orange-red or orange-brown fabric with a grey core. Sometimes reduced. Clear, white and pink quartz. Sparse iron compounds. Clear, orange, or greenish-brown glaze, sometimes mottled, sometimes dark brown to black. Very similar to the fabric of Ashampstead ware (Fabric OXAG, formerly Abingdon-type ware), made from the London Clay, and therefore thought to come from the Newbury-Reading area of Berkshire. Used for 'stabbed Wessex' floor tiles. Also the main fabric used for medieval roof tiles in Oxford but these may have been more locally produced. Date c.1175–1500+?

Fabric III sub-type St Giles: Orange, red or maroon sandy laminated or marbled clay fabric containing frequent red clay pellets and cream or buff marly clay pellets. Date: fifteenth–seventeenth century.

Fabric VIIA: Cream or yellow fabric with a fairly smooth texture relatively low in quartz sand. Moderate fine chalk or limestone inclusions and sparse coarse red-brown iron oxide. Patchy clear or greenish or yellow glaze. Mainly roof tiles. See Fabric VIIB below. Generally early in date, perhaps c.1200–1325?

Fabric VIIB: As VIIA above but pink or pinkish-brown sometimes with a grey core. Rounded chalk inclusions can be common. Chalk often dissolved from surfaces leaving a finely pock-marked texture. Surfaces sometimes off-cream in colour, resembling a thin slip (probably leaching caused by high calcium carbonate content). Glaze clear, amber or olive-green, sometimes leached and opaque. Mainly roof tiles, also ridge tiles. Possibly made from outcrops of the Gault Clay – as they resemble other medieval tiles made from this (for example, Naccolt, near Wye, Kent). Source unknown but presumed to be fairly local to Oxford where they are common on monastic sites. Generally early in date, perhaps c.1200–1325?

Fabric VIIBB. First described from the Tidmarsh Lane site as Fabric 'B'⁴¹ but modified here to VIIBB. This is the same as pink VIIB above but the chalk and limestone inclusions are sparse or rare. Quartz sand moderate-abundant. Source and date as above.

Flat Roof Tile (91 Pieces)

This is by far the commonest category of CBM from the site. All is likely to derive from peg tile, though only a small number of fragments preserve evidence of the peg or nail holes.

³⁹ J.P. Cotter, 'Ceramic Building Materials', in Poore et al., 'The White Friars', pp. 292–305.

⁴⁰ Mellor, 'Oxfordshire Pottery'.

⁴¹ P. Booth, 'Tile', in P. Booth, 'The West Gate of Oxford Castle: Excavations at Boreham's Yard, Tidmarsh Lane, Oxford, 1994–1995', *Oxoniensia*, 68 (2003), p. 408.

These tiles are of typical rectangular shape and fairly crude manufacture with a pair of peg holes most commonly circular at the top end. None is complete but the thickness ranges from 10–18 mm, with 14–17 mm being commonest (73 per cent). Peg holes are all of the circular type (cylindrical or conical) and range from 12 mm to 16 mm in diameter; they are set 24–30 mm from the top edge and 33–53 mm from the nearest side edge. Several had finger marks from handling on the edges and one had a large paw impression (55 mm wide), probably from a dog. Glaze tends to be patchy and is usually green, though one is clear amber effect on red/orange tile and one black, possibly the effect of a clear glaze on the grey fabric.

Nearly all the roof tile appears to be of medieval date. Most of the tiles are in the St Giles fabric, which was defined as a separate category at the Classics Centre, where a late-medieval or early post-medieval date, approximately fifteenth to seventeenth century, was suggested.⁴² A smaller number occur in red sandy fabric IIIB, which is the predominant medieval fabric in Oxford, generally dated to the late twelfth–fourteenth century. The closely related pink-buff fabrics VIIB and VIIIB, which are likely to be of thirteenth–fourteenth century date, also occur in small numbers. These early pink tiles were particularly common in early-mid thirteenth-century contexts at Oxford Castle⁴³ and were also noted at Tidmarsh Lane by the presumed west gate of Oxford Castle.⁴⁴

Ridge Tile (16 Pieces)

Fragments of these (usually glazed) have been defined by the presence of an apex or ridge, or by their marked curvature. However, one or two obvious fragments from the flatter sides and corners have been admitted to this category. Pieces in this category are generally very thick (15–24 mm), often thickening to the corner or edge, though two are only 11 mm thick. Several have evidence of glaze either green or clear/amber.

The ridge tiles were made in oolitic limestone fabric IB (three examples), orange sandy fabric IIIB (four examples), pink fabric VIIB (one example) and St Giles fabric (two examples). One of the tiles in fabric IB, found in garden soil 725, bears the trace of a diagonal incised line, probably decoration of the type found on tile at Eynsham abbey.⁴⁵ The second from this layer has an applied triangular hand moulded spur with pinch or thumb impressions either side partially surviving, as did a similar unglazed piece from layer 620, which has a trace of circular socket on the tile apex, into which the spur had been set. The same type has been found at Merton College, the Classics Centre and Queen's College.⁴⁶

Three joining fragments of crested ridge tile made in fabric IIIB or possibly sub-type St Giles fabric has three complete surviving knife-cut triangular spurs each 54 mm long, 30 mm high and 15 mm wide with a clear/amber glaze. These were residual in a modern layer 654, but fragments of similar type were found in a Phase 4 stone surface 545. Also made in fabric IIIB and found in another Phase 4 layer (538) is a large fairly fresh lower corner fragment of ridge with clear glaze, horizontal wiping marks on the upper half and a small pre-fired perforation 8 mm diameter through the side: a comparable example was found at Oxford Castle/Paradise Street with a nail hole and the same quite pronounced longitudinal wiping marks.⁴⁷ A similar (residual) tile is known from Merton College.⁴⁸ Both the Castle examples came from Phase 3

⁴² J.P. Cotter, 'Ceramic Building Materials', in A. Norton and G. Cockin, 'Excavations at the Classics Centre, 65–67 St Giles, Oxford', *Oxoniensia*, 73 (2008), pp. 187–9.

⁴³ J.P. Cotter, 'The Ceramic Building Material from Oxford Castle (OXCAST 02)', forthcoming.

⁴⁴ Booth, 'Oxford Castle', p. 409, table 2.

⁴⁵ A. Hardy et al., *Aelfric's Abbey. Excavations at Eynsham Abbey, Oxfordshire, 1989–92*, Thames Valley Landscapes Monograph, 16 (2003), p. 215.

⁴⁶ Cotter, 'Ceramic Building Materials', in Poore et al., 'Merton College', fig. 22, T23; Cotter, 'Ceramic Building Materials', in Norton and Cockin, 'Classics Centre', pp. 187–9; J.P. Cotter, 'Ceramic Building Material', in A. Norton, 'Anglo-Saxon Pits and a Medieval Kitchen at The Queen's College, Oxford', *Oxoniensia*, 75 (2010), p. 197.

⁴⁷ Cotter, 'The Ceramic Building Material from Oxford Castle'.

⁴⁸ Cotter, 'Ceramic Building Materials', in Poore et al., 'Merton College', fig. 22, T25.

moat contexts and are probably of late-medieval (fifteenth- to sixteenth-century) date as the same contexts also contained sixteenth-century pottery.

Floor Tiles (3 Pieces)

These comprise a small fragment of encaustic decorated floor tile of thirteenth- to fourteenth-century date, a single fragment of Flemish-style floor tile, and a worn unglazed red seventeenth- to eighteenth-century quarry tile.

Brick (22 Pieces)

Sample individual bricks were taken from a brick culvert and a brick vault structure. The one from the culvert (637) was noted as unusually heavy (2,532 g) and measured 220 mm long, 106 mm wide and 58 mm thick; it is unfroged and neatly made in a very sandy orange fabric and has a thick whitewash layer on one side. The second brick of nineteenth- to twentieth-century date from the vault 753 is an orange unfroged machine made brick weighing 3098 g and measuring 225 mm long, 190 mm wide and 67 mm thick. One side is covered in white primer and dark green paint.

Fragments of early brick of sixteenth- to seventeenth-century date made in a fine sandy fabric containing red ferruginous sandy grits came from garden soil 567 and a gravel layer 772. A fairly fresh edge fragment from a brick of seventeenth- to eighteenth-century date in a red sandy fabric came from garden soil 568. A worn edge scrap of (probably) eighteenth-century brick from linear feature 606 and another of similar type from garden soil 705 is 66 mm thick. Other brick fragments of nineteenth- to twentieth-century date measure 68 mm thick and included possible machine made examples. All bricks are unfroged.

Sanitary Ware (7 Pieces)

This category is represented mostly by drainpipe and sanitary ware. Five pieces of nineteenth- to twentieth-century brown salt-glazed stoneware drain pipe 15–18 mm thick and c.100–130 mm diameter in cream and red fabrics were found in 565, 704, 780, a linear feature (606) and garden soil (778). A modern layer (654) also produced a rounded edge fragment of white glazed sanitary ware (REFW), possibly a bathroom tile or moulding and 704 produced a piece of WC in cream stoneware with a brownish yellow glaze.

Conclusions

The CBM was found predominantly in layers of garden soil, gravel and stone surfaces, make-up layers and pit fills, deposited following its disuse, and no doubt some considerable time after its manufacture. The assemblage is dominated by medieval and early post-medieval forms of roof tile, which are typical of that found throughout Oxford. The medieval glazed roof and ridge tile and fragment of decorated floor tile may have derived from the friary buildings, though some may have come from domestic structures as the group gives the impression of average status buildings present during the medieval and early post-medieval period. The absence of floor tile during the medieval and post-medieval periods, except for a few small fragments, is consistent with normal domestic occupation and suggests other forms of flooring were used, such as timber or flagstones. The sanitary ware may be linked to a toilet block in 1844, which may have been installed in response to the cholera outbreak of 1832.

GLASS by IAN SCOTT

There are 126 sherds of glass, comprising 108 sherds of vessel glass and 18 sherds of window glass. The glass derives from contexts of Phases 2 to 5, but the overwhelming bulk of glass is from Phase 5 (late eighteenth-century and later) contexts (Table 4).

Table 4. Summary quantification by phase and glass type

Phase	Glass type		Totals
	vessel	window	
1			
2		1	1
3	1	1	2
4	8	6	14
5	99	10	109
Total	108	18	126

Dating

Sixty-two sherds of glass, including 15 fragments of the window glass are not closely datable. The datable glass includes a rim sherd from a medieval flask or urinal (context 614, Phase 3) (Fig. 13, 1) and two pieces of probable medieval window glass (contexts 500 and 705, both Phase 5), 41 sherds dating from the mid eighteenth to mid nineteenth century, and 19 sherds dating to the later nineteenth or early twentieth century. There is one piece of modern window glass. Almost all the datable vessel glass dates from eighteenth century or later.

Provenance and Composition

There is no glass from Phase 1. The only glass from Phase 2 is a small thin weathered sherd of window glass from garden soil 682, which is not closely datable. There is a devitrified rim sherd from a medieval flask or urinal from Phase 3 context 614 (Fig. 13.1) and a tiny weathered sherd of window glass of uncertain date from the same context. These sherds are the only glass from Phase 3.

There are 14 sherds from Phase 4 contexts, including six sherds of window glass, much of which is not closely datable. Two sherds from garden soils include a complete late nineteenth- or early twentieth-century ink bottle (context 571). There are three sherds of glass from the make-up layer 725 beneath the flagstone floor of the kitchen, of which include two sherds from dip-moulded wine bottles mid eighteenth- to early nineteenth-century date.

Phase 5 contexts produced 109 sherds of glass including 99 sherds of vessel glass. The bulk of the vessel comprises sherds from wine and sherry bottles (49 sherds) ranging in date from the mid eighteenth to mid nineteenth century. Included amongst the glass from wine bottles is a bottle seal embossed 'Etty' (Fig. 13.2) from garden soil 742. Another 22 sherds come from a variety of different bottles mainly of nineteenth- to early twentieth-century date (22 sherds). There are a further ten sherds from medicine bottles and single base from a small phial. These include five sherds from a bottle of 'Cordial Balsam of Gilead' (Fig. 13.3), a patent medicine sold by Dr Samuel Solomon, from a possible garden soil 651. There are two sherds from a stemmed glass of late eighteenth or early nineteenth-century date (layer 758) and two sherds from plain tumblers of uncertain date from context 663 (pit 662). Pit 662 (contexts 663–664) produced 14 sherds of glass comprising 13 sherds of vessel glass and one sherd of window glass. The datable vessel glass (8 sherds) dates from the mid eighteenth century to the early nineteenth century. Much of the Phase 5 glass comes from the fills of pipe trenches 743 and 787 (30 sherds), from garden soils (30 sherds), and from cleaning (context 500) (14 sherds).

Catalogue (Fig. 13):

- 1 Flask or urinal. Fire polished rim sherd, weathered opaque and devitrified. Probably with a wide neck and rounded or globular body with basal kick. Rim D: c.100 mm. Context 614. Medieval, thirteenth to fifteenth century.

Table 5. Summary quantification of glass by phase and context (fragment count)

Phase	Glass date										Totals		
	medieval	18th C	mid 18th - early 19th c	late 18th - early 19th c	late 18th - early 19th c	18th - 19th c	early 19th c	mid 19th c	early to mid 19th c	19th c		late 19th c - early 20th c	modern undated
2												1	1
3												1	2
4		1	2								1	10	14
5		1	6	9	5	8	2	7	6	10	2	1	50
Totals	3	2	8	9	5	8	2	7	6	10	3	1	126

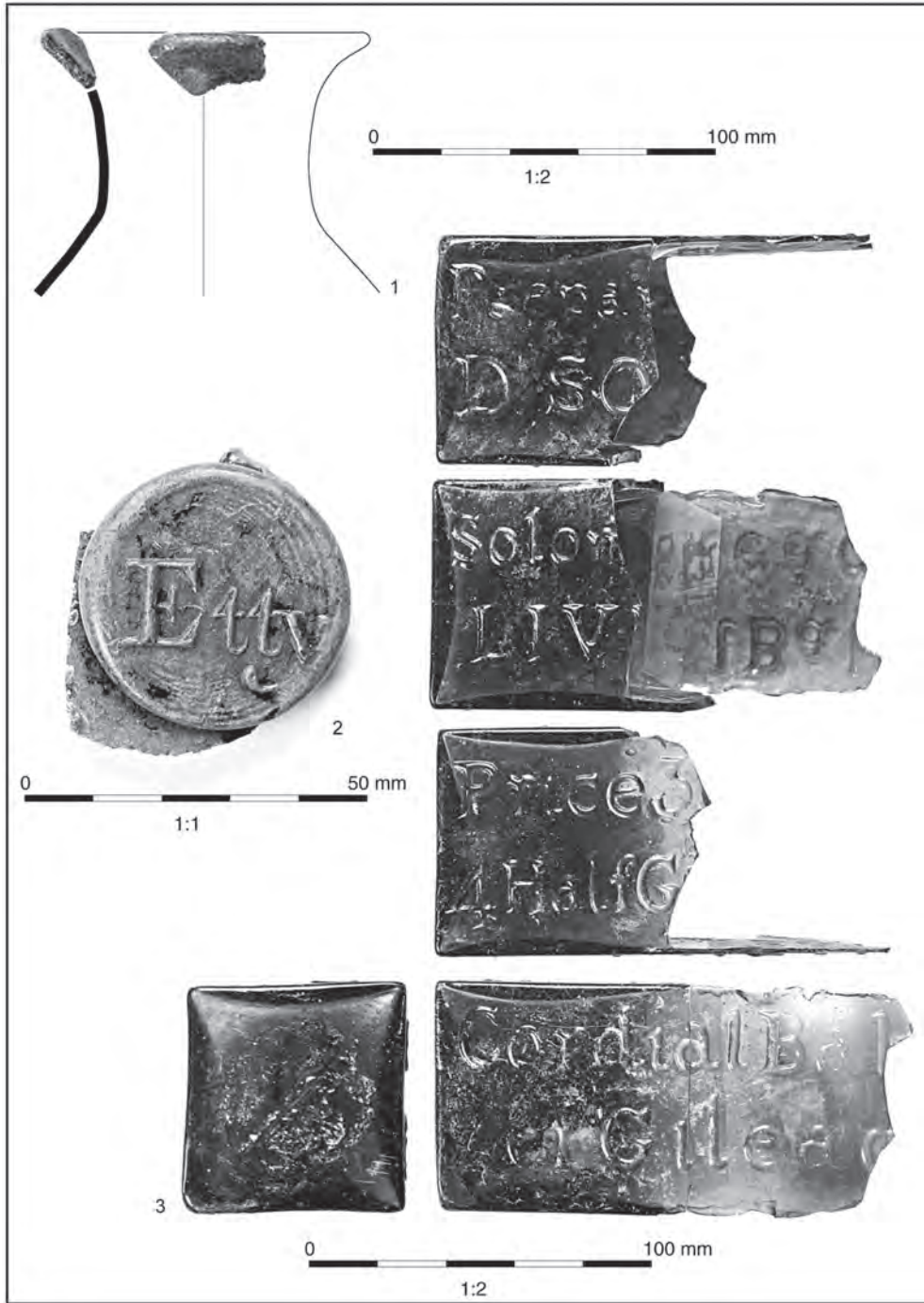


Fig. 13. Glass.

- 2 Bottle seal, embossed 'Etty'. Weathered opaque surfaces, light green metal. D of seal: 39 mm x 38 mm. Context 742, Sf 504. The Etty family was lessees or sub-lessees of a vault at No. 101–102 St Aldate's between 1771 and 1802.⁴⁹
- 3 Patent medicine bottle. Moulded bottle of square section made in a two piece mould and embossed on all four faces. Five sherds. The neck and upper portions of the bottle are missing. Olive green metal. Base: 39 mm by 39 mm. Context 651.

The embossing on each face of the bottle is incomplete but reads:

- 1) 'Cordial Bal[m | of Gilead'
- 2) 'Prepar[ed by . . . | Dr SO[LOMON . . . ?
- 3) 'Solom[on . . . | LIV[ERPOOL . . . ?
- 4) 'Price 3[3s | 4 Half G^a[lon . . . ?

Dr Solomon began selling his patent Cordial Balm of Gilead in 1796. He also published a 'Guide to Health' in the same year. His Cordial Balm was very successful and in 1805 he moved into the newly built Gilead House in Liverpool. Solomon died in Bath in 1819, but his business was continued by his manager Ebenezer Daniell until the latter's death in 1842, when the business collapsed.⁵⁰

STONE by RUTH SHAFFREY

Nine fragments of stone weighing 2.5 kg, all fragments of limestone roofing, were identified as worked. They were recovered from contexts 506, 595, 614, 640, 745, 751 and 752 and include two complete examples from 614 and 745. All retain their circular perforations of between 5–10 mm diameter. Stone roofing of this type is typical of Oxford in the later-medieval and post-medieval periods and was in use from at least the thirteenth century.

METALWORK AND WORKED BONE FINDS by LEIGH ALLEN

A total of 82 metal objects and two worked bone objects were recovered from the excavations at Worcester College Kitchen, Oxford. The metalwork assemblage comprises 13 copper alloy objects, 66 iron objects (of which 29 are nails) and three lead objects. The metalwork is in poor condition and there are very few identifiable objects other than nails. The majority of the finds came from mid sixteenth-century to late eighteenth-century contexts.

Phase 1 (Late Twelfth Century to Thirteenth Century)

The only finds recovered from Phase 1 contexts were nails and miscellaneous iron fragments. Three nails came from tree throw 785 and two other nails and four miscellaneous fragments came from context 592, fill of pit 593.

Phase 2 (Early Thirteenth Century to Mid Fourteenth Century)

Most Phase 2 finds came from pits. A copper alloy crescentic harness pendant mount (SF 500) was recovered from context 506 (fill of pit 562). This delicate object measures 35 mm across and has a suspension loop at the top of a crescent shaped frame (Fig. 14). The arms of the frame have circular, slightly dished terminals. At the apex of the frame below the suspension loop there is a small circular perforation from which a third loose arm, also with a circular, dished terminal, hangs. The pendant is decorated with incised criss-cross lines with

⁴⁹ E.T. Leeds, 'Glass Vessels of the Sixteenth Century and Later from the Site of the Bodleian Extension, in Broad Street, Oxford', *Oxoniensia*, 3 (1938), p.15, no. 8–9, pl. xii, c 12.

⁵⁰ *ODNB* (Solomon, Samuel).



Fig. 14. Copper alloy pendant horse mount.

gold plating visible in the grooves. A similar object was recovered from a fourteenth-century context at Winchester.⁵¹

The tip of a nail shank and an iron fragment were recovered from context 559 (fill of pit 560). Two nails and a strip of copper alloy came from context 736 (fill of pit 735). There is a small circular perforation at one end of the strip, which is possibly a fragment of a simple folded strap end. Another nail head came from context 766 (dark silt layer).

Phase 3 (Mid Fourteenth Century to Mid Sixteenth Century)

Fragments from nails and miscellaneous iron fragments were found in silting layers 614 and 620 and garden soil 620.

Phase 4 (Mid Sixteenth Century to Late Eighteenth Century)

A total of 12 objects were recovered from Phase 4 contexts, mostly from pits, gravel dumps and garden soil. A copper alloy lace tag and two nail fragments came from pit 501 and a decorated shoulder plate for a knife from pit 521. The shoulder plate is a tube/collar of hexagonal section, flaring slightly towards the base, and decorated with fairly crudely incised lines. Iron from the knife tang survives in situ. Only nail fragments were recovered from gravel dumps 558 and 553 and garden soils 567 and 568.

Phase 5 Late Eighteenth Century and Later

The largest number of objects was recovered from Phase 5 contexts, many of them unidentifiable scraps and fragments. Cleaning layer 500 produced a plain discoidal button, the very fragmentary remains of a lead spoon and a sexfoil back-plate from a drop handle. The latter, probably a drawer handle, has a lozenge shaped perforation through the central domed area.⁵² Two bone objects were also recovered from this context. One is a sawn section of a completely hollow long bone. The other is part of a handle of a whittle tang implement, circular in section and decorated with incised grooves that spiral the length of the handle, creating raised rounded ridges in between. Four nail fragments were also recovered from this context. Garden soil 705 produced the highly corroded remains of a key with a circular bow, and pit 662 produced another plain discoidal button and a corroded fragment of a whittle tang knife.

⁵¹ D. Hinton, 'Harness Pendants and Swivels', in M. Biddle, *Objects and Economy in Medieval Winchester. Winchester Studies 7ii. Artefacts from Medieval Winchester* (1990), pp. 1047–53.

⁵² S. Margeson, *Norwich Households: The Medieval and Post-Medieval Finds from Norwich Survey Excavations 1971–8*, East Anglian Archaeology Report, 58 (1993), fig. 45, no. 487.

Rubble layer 678 produced a single ivory object (SF 502), a highly polished slender handle, circular in section with a bulbous and softly rounded butt end. The implement itself is missing but the handle may have belonged to a pen or paintbrush. It is stamped with the legend

J METTCALF
GT. MARY BONE STREET.

A Jacob Mettcalf is listed in Kent's Original Directory of 1823 as an ivory and household turner residing at 38 Gt Mary-le-Bone Street.⁵³

Illustration Catalogue:

1. Pendant mount, copper alloy, complete. L 35 mm, SF 500, context 506.

COINS by IAN SCOTT

- 1 Silver penny, Elizabeth I (1558–1603) 2nd issue 1560–1. *Obv*: left facing crowned bust, inscription: 'E D G ROSA SINE SPINA' 'Elizabeth by the Grace of God a rose without a thorn', mint mark a crosslet; *Rev*: Royal arms within a shield, Inscription: 'CIVITAS LONDON' for the London mint. D: 15 mm. Residual in eighteenth- to nineteenth-century garden soil, context 651, sf 501.
- 2 Farthing, Charles I (1625–49). *Obv*: Crown with crossed maces, inscription is poorly struck possibly reads 'CAR[olvs.D.G. Mag.]BRIT' 'Charles by the Grace of God [king] of Great Britain. *Rev*: Harp and Crown, inscription poorly struck: 'FRA .ET. HI[b. Rex]' 'King of France and Ireland'. D: 16 mm x 17 mm. Unstratified, sf 503.

CLAY TOBACCO PIPE by JOHN COTTER

A total of 67 pieces of clay pipe weighing 291 g were recovered. These comprise seven bowl fragments (of which four were complete), four mouthpieces and 57 stem fragments. Their condition is generally quite poor and fragmentary with a mixture of fresh and worn pieces present. The longest surviving stem fragment is 90 mm long and most are much shorter than this. Bowl shapes have been compared, initially, to those published from St Ebbe's, Oxford and also Oswald's more general national typology.⁵⁴ The St Ebbe's pipe dates have been used in preference to more general national dating. Other (mainly later) bowls are identified in the catalogue according to a series of codes based on Atkinson and Oswald's London pipes typology with bowl types assigned to an abbreviated code (for example AO22).⁵⁵

A full catalogue of the pipes has been compiled (full details in archive). Apart, however, from their dating value and one or two decorated pieces, the assemblage is not particularly remarkable and is simply summarized here. None of the pieces is illustrated as they can be paralleled in other publications. The seven bowl fragments represent a minimum of seven pipes ranging in date from the seventeenth to the nineteenth century. Associated pottery dates indicate that two of the seventeenth-century bowls are residual in later contexts and the only bowl of c.1690–1720 is also residual. Some of the early 'chunky' stem fragments of

⁵³ H.K. Causton, *Kent's Original London Directory: 1823, Being an Alphabetical List of More than 18,000 Merchants and Traders of London and Adjacent Parts* (1823).

⁵⁴ A. Oswald, 'Clay Pipes', 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), pp. 251–62; idem, *Clay Pipes for the Archaeologist*, BAR, 14 (1975).

⁵⁵ D. Atkinson and A. Oswald, 'London Clay Tobacco Pipes', *Journal of the British Archaeological Association*, 32 (1969), pp. 171–227.

the seventeenth and earlier eighteenth century are also clearly residual. Other pieces however are broadly contemporary with the pottery spot-dates or provide the only dating for the few contexts lacking in pottery. The greatest number of pieces from a single context is the 14 pieces from (500) – a cleaning context that produced a range of nineteenth-century and residual pipes and pottery.

The earliest bowl is also the most interesting and is the only marked piece in the assemblage. This is a small complete bulbous bowl of c.1610–40 (AO7) with a milled rim and an unusually small circular heel (diam. 6 mm) stamped with an 8-pointed star with a small central raised pellet (context 639). A bowl (of c.1630–50) with almost exactly the same stamp was found on the 2009 excavations at Jesus College, Oxford, and a photograph of it is published in the report there.⁵⁶ Fairly similar star stamps are known on seventeenth-century pipe bowls elsewhere. The best (though not exact) parallel, however, is with a pipe bowl of c.1610–40 in the Museum of London clay pipes archive.⁵⁷ The pipe here, which is slightly worn, is residual in a context of c.1770–1830. There are three other seventeenth-century pipe bowls of St Ebbe's Type B – a common local type with a barrel-shaped bowl and a stubby conical spur or very narrow.⁵⁸ These are conventionally dated c.1650–90 but some slightly larger and more 'chinned' examples may continue into the early eighteenth century. Two of these occur in contexts with no other datable finds (661 and 719). There is a single (residual) bowl of c.1690–1720.⁵⁹ The two latest pieces comprise a complete bowl of c.1780–1830 (AO27) with a prominent spur and a bowl base of c.1840–1900 (AO28).

Other pieces worthy of note include a seventeenth-century stem fragment (35 mm long) with traces of decorative pinching along the length of the stem (residual in context 500). A similar piece was noted on the 2006 excavations for the Ashmolean Museum extension.⁶⁰ Context (544) produced three fresh mouthpieces, which are probably of eighteenth-century date; it produced no other pipes but also contained pottery of c.1580–1650? It is unusual to find three mouthpieces (and no other pipes) in a single context. The pieces – which appear unused – may be broken rejects from a shop or an inn, or possibly wasters.

ANIMAL BONE by LENA STRID

The animal bone assemblage from Worcester College, Oxford (WORC13) comprised a total number of 830 re-fitted fragments from securely dated layers and features. A total of 196 bone fragments (23.6 per cent) came from sieved soil samples. A record of the assemblage, documented in a Microsoft Access database, can be found in the site archive.

Methodology

The bones were identified at Oxford Archaeology using a comparative skeletal reference collection, in addition to standard osteological identification manuals. Sheep and goat were identified where possible, using Boessneck et al. (1964) and Prummel and Frisch (1988).⁶¹ They were otherwise classified as 'sheep/goat'. Mammal long bones, ribs and vertebrae, with exception of atlas and axis, were classified by size: 'large mammal' representing

⁵⁶ R. Bashford and B.M. Ford, 'Eleventh-Century, Later-Medieval and Early Post-Medieval Evidence from Investigations at Jesus College and Market Street, Oxford', *Oxoniensia*, 79 (2014), fig. 6, no. 4.

⁵⁷ LAARC Pipes, <http://www.museumoflondon.org.uk/claypipes/pages/marks.asp> (Die No. 100020) (accessed October 2014).

⁵⁸ A. Oswald, 'Clay Pipes', fig. 51b.

⁵⁹ *Ibid.* Type C.

⁶⁰ D.A. Higgins, 'The Clay Tobacco Pipes', in Teague and Ford, 'Ashmolean Museum Extension'.

⁶¹ J. Boessneck et al., 'Osteologische Unterscheidungsmerkmale zwischen Schaf (*Ovis aries* Linné) und Ziege (*Capra hircus* Linné)', *Kühn-Archiv*, 78 (1964); W. Prummel and H.J. Frisch, 'A Guide for the Distinction of Species, Sex and Body Side in Bones of Sheep and Goat', *Journal of Archaeological Science*, 13 (1986), pp. 567–77.

Table 6. Bone preservation grading methodology

Grade 0	Excellent preservation. Entire bone surface complete
Grade 1	Good preservation. Almost all bone surface complete
Grade 2	Fair preservation
Grade 3	Poor preservation. Most bone surface destroyed
Grade 4	Very poor preservation. No surface structure remaining
Grade 5	Extremely poor preservation. Unlikely to be able to identify element

cattle, horse and deer, 'medium mammal' representing sheep/goat, pig and large dog, 'small mammal' representing small dog, cat and hare, and 'microfauna' representing rat, mouse and frog.

The general condition of the bones/context was graded on a 6-point system. Grade 0 equating to very well preserved bone, and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognizable (Table 6).

For ageing, Habermehl's data on epiphyseal fusion was used.⁶² Three fusion stages were recorded: 'unfused', 'in fusion', and 'fused'. 'In fusion' indicates that the epiphyseal line is still visible. Tooth wear was recorded using Grant's tooth wear stages,⁶³ and correlated with tooth eruption.⁶⁴ In order to estimate an age for the animals, the methods of Halstead and Payne were used for cattle and sheep/goat.⁶⁵ Sex estimation was carried out on morphological traits on cattle pelves, sheep/goat pelves and pig canine teeth as well as on presence of medullary bone and spurs on fowl bones, using data from Schmid and Vretemark.⁶⁶ Measurements were taken according to von den Driesch, using digital callipers with an accuracy of 0.01 mm.⁶⁷

Overview of Assemblage

The bone was generally in a good to fair condition (Table 7). A small number of gnawed bones were present in all phases, suggesting that scavengers, probably dogs, had occasional access to butchery and table waste. Burnt bones were very rare, except in the mid sixteenth- to mid eighteenth-century assemblage. Since most of them came from a single sieved soil sample from pit 560, the increase of burnt bones is unlikely to be correlated to changes in cooking methods.

Of the 830 recorded bones, 312 (38 per cent) could be determined to taxon (Table 8). The identified animals included cattle, sheep/goat, pig, horse, dog, rabbit, red deer, domestic fowl, goose, duck, raven, mole, frog and toad. A single humerus from a small songbird (passerine) was also recovered. It is uncertain whether the goose and duck remains represent wild or domestic birds, as it is very difficult to tell the domestic goose and duck apart from their wild counterparts, the greylag goose and the mallard. However, the domestic forms are very common in medieval records, which suggests that the bones are more likely to represent domestic birds. A small number of sheep bones

⁶² K.H. Habermehl, *Die Altersbestimmung bei Haus- und Labortieren* (1975).

⁶³ A. Grant, 'The Use of Toothwear as a Guide to the Age of Domestic Ungulates', in B. Wilson et al. (eds.), *Ageing and Sexing Animal Bones from Archaeological Sites*, BAR BS, 109 (1982), pp. 91–108.

⁶⁴ Habermehl, *Die Altersbestimmung bei Haus- und Labortieren*.

⁶⁵ P. Halstead, 'A Study of Mandibular Teeth from Romano-British Contexts at Maxey', in F. Pryor, *Archaeology and Environment in the Lower Welland Valley*, East Anglian Archaeology Report, 27 (1985), pp. 219–24; S. Payne, 'Kill-Off Patterns in Sheep and Goat: The Mandibles from Aşwan Kale', *Anatolian Studies*, 23 (1973), pp. 281–303.

⁶⁶ E. Schmid, *Atlas of Animal Bones. For Prehistorians, Archaeologists and Quaternary Geologists* (1972); M. Vretemark, *Från ben till boskap. Kosthåll och djurhållning med utgångspunkt i medeltida benmaterial från Skara*, Skrifter från Länsmuseum Skara, 25 (1997).

⁶⁷ A. von den Driesch, *A Guide to the Measurement of Animal Bones from Archaeological Sites* (1976).

Table 7. Preservation level for bones from all phases, including number of burnt bones

Grade 0	Excellent preservation. Entire bone surface complete
Grade 1	Good preservation. Almost all bone surface complete
Grade 2	Fair preservation
Grade 3	Poor preservation. Most bone surface destroyed
Grade 4	Very poor preservation. No surface structure remaining
Grade 5	Extremely poor preservation. Unlikely to be able to identify element

Table 8. Number of identified fragments per species

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
	M11-E13thC	E13-M14thC	M14-M16thC	M16-M18thC	L18-19thC
Cattle	7	28	23	39	10
Sheep/goat	5	26	21	43	11
Sheep	2	3	4	4	
Pig	4	11	13	14	5
Horse			2		
Dog		2	1	2	2
Rabbit			1	2	2
Red deer		2			
Domestic fowl	1	3	4	2	3
Galliform		1			
Goose		1	1	2	
Duck		1			
Raven			1		
Passerine			1		
Indet. bird		6	2	5	2
Mole	1		1		
Frog			1		
Toad			1		
Amphibian	1				
Microfauna			2		
Small mammal				1	2
Medium mammal	14	13	21	43	12
Large mammal	11	29	33	78	12
Indeterminate	55	17	35	108	11
Total fragment count	101	143	168	346	72
Weight (g)	523	2154	2870	3090	1573

were noted in all phases except Phase 5. Goat has not been identified and it seems likely that most or all of the sheep/goat bones are from sheep. Species diversity is greatest in the early thirteenth- to mid fourteenth-century and mid fourteenth- to mid sixteenth-century assemblages, which may relate to increased wealth of the inhabitants in the area. However, this is very tentative and no signifiers of greater wealth such as game or small wildfowl are present.

All five assemblages are too small for secure analyses of inter-species livestock frequency, the recommended minimum being 300 fragments.⁶⁸ However, cattle and sheep/goat dominate, in almost equal numbers in each assemblage. A predominance of cattle and sheep/goat, followed by pig is common on most medieval and post-medieval sites in Oxford. The representation of skeletal elements from cattle, sheep/goat and pig indicate that all body parts are present in the assemblages, suggesting that the faunal remains represent a mix of butchery and kitchen waste. The presence of a red deer metacarpal and first phalanx in the early thirteenth–mid fourteenth century assemblage is ambiguous. It may suggest that venison was occasionally eaten, but as these foot bones do not come from a meat rich body part, they may instead represent remains from tanning of deer skins. Metapodials and phalanges were sometimes left attached to the skins when they were sold to the tanners.⁶⁹ In fact the phalanx did indeed display several transverse cut marks mid-bone which are likely to have derived from skinning. The bones from raven, mole, frog and toad probably represent natural mortalities. Ravens are scavengers and would have been attracted to urban refuse. The passerine humerus may also come from a bird, which died a natural death, but since songbirds were eaten in the medieval period⁷⁰ it is possible that the bone represents kitchen waste.

Ageing data are scant for all assemblages (Tables 9–10), but suggest that the majority of cattle and sheep/goat were killed as sub-adults or adults, whereas pigs were killed as sub-adults. This is a common pattern in medieval and post-medieval animal keeping, reflecting the importance of secondary products. Surplus animals were raised for meat and killed when they had attained full growth, whereas the older animals represent animals kept for dairy and wool production, or as draught oxen, and were killed when they were past their prime. Pigs, on the other hand, were raised solely for meat and were therefore slaughtered at a young age. A small number of juvenile remains are present in all assemblages, representing the utilisation of veal and suckling pig.

Only a small number of bones could be sexed or measured. They are included in Tables 11–12 for completeness and to facilitate future regional research.

Evidence of butchery is common: sagittally split vertebrae and portioned ribs from large and medium mammals are frequent. Other butchery marks include disarticulation and/or portioning of large mammal vertebrae, cattle, sheep/goat and pig limb bones, as well as a pigeon wing bone. A rabbit pelvis shows signs of having been split along the mid-line. Cut marks from filleting were found on the shafts of a sheep/goat humerus and a fowl ulna.

Pathologies were only found on bones from the early thirteenth- to mid fourteenth-century and the mid fourteenth- to mid sixteenth-century assemblages. They include exostoses on the distal quarters of a pig tibia and fibula shafts, both from the early thirteenth- to mid fourteenth-century assemblage, albeit not from the same context and therefore unlikely to derive from the same animal. This part of the hind leg is not covered in muscle tissue and can therefore be susceptible to trauma. It is very likely that both bones represent a reaction to fracture of the absent fibula and absent tibia. Pathologies in the later assemblage include a healed fracture on a medium mammal rib and an extension of the proximal joint surface on a cattle first phalanx: a sign of stress to the joint, or age-related modification.

⁶⁸ E. Hambleton, *Animal Husbandry Regimes in Iron Age Britain. A Comparative Study of Faunal Assemblages from British Iron Age Sites*, BAR BS, 282 (1999), pp. 39–40.

⁶⁹ D. Serjeantson, 'Animal Remains and the Tanning Trade', in D. Serjeantson and T. Waldron (eds.), *Diet and Crafts in Towns: The Evidence of Animal Remains from the Roman to the Post-Medieval Periods*, BAR, 199 (1989), pp. 129–46.

⁷⁰ D. Serjeantson, 'The Animal Bones', in S. Needham and T. Spence, *Refuse and Disposal at Area 16 East Runnymede*, Runnymede Bridge Research Excavations, 2 (1996), pp. 194–253.

Table 9. Tooth wear and estimated age of cattle and sheep/goat, following Grant (1982), Halstead (1985) and Payne (1973)

Species	Phase	Dp4	M1	M2	M3	MWS	Estimated age
Cattle	M14–M16thC		l	k	k	46	Senile
	M16–M18thC				k	46–50	Senile
Sheep/goat	M11–E13thC		g	g	e	34	3–4 years
			l	g	f	38	3–4 years
Pig	M14–M16thC		g	d	V	23	1–2 years
	M16–M18thC	a	f	a	V	20–22	Immature
	L18–19thC		m	m	e	43	Adult

Table 10. Epiphyseal fusion of cattle, sheep/goat, pig and horse in all phases, following Habermehl (1975). Fusion stages follows Serjeantson (1996)

M11–E13th C		Unfused	Fusing	Fused
Cattle	Early fusion			3
	Mid fusion			
	Late fusion		1	
Sheep/goat	Early fusion			
	Mid fusion			1
	Late fusion			
E13–M14th C		Unfused	Fusing	Fused
Cattle	Early fusion			
	Mid fusion			5
	Late fusion			
Sheep/goat	Early fusion			3
	Mid fusion	1	1	2
	Late fusion	1		3
Pig	Early fusion	1		2
	Mid fusion	2		1
	Late fusion	1		
M14–M16th C		Unfused	Fusing	Fused
Cattle	Early fusion			1
	Mid fusion			3
	Late fusion			1
Sheep/goat	Early fusion			4
	Mid fusion	1		3
	Late fusion		2	2
Pig	Early fusion			2
	Mid fusion	2		
	Late fusion	3		
M16–M18th C		Unfused	Fusing	Fused
Cattle	Early fusion			4
	Mid fusion	2		6
	Late fusion		1	

(Continued)

Table 10. (Continued)

M16–M18th C		Unfused	Fusing	Fused
Sheep/goat	Early fusion			11
	Mid fusion			5
	Late fusion	4	2	5
Pig	Early fusion			1
	Mid fusion	2		
	Late fusion			
L18–19th C		Unfused	Fusing	Fused
Cattle	Early fusion			2
	Mid fusion	1		1
	Late fusion			1
Sheep/goat	Early fusion			4
	Mid fusion			1
	Late fusion	1		1
Pig	Early fusion			
	Mid fusion	1		
	Late fusion	1		

Table 11. Sex estimation of cattle, sheep/goat, pig, domestic fowl and fowl-sized bird

Period	Species	Element	Female	Male	Intact male	Castrate
E13th–M14th C	Cattle	Pelvis		1		
	Bird	Tibiotarsus	1			
M14th–M16th C	Sheep	Horn core				1
	Domestic fowl	Tarsometatarsus		1		
M16th–M18th C	Sheep/goat	Pelvis				1
L18–19th C	Sheep/goat	Pelvis		1		
	Pig	Mandible		1		

Table 12. Greatest length (GL) and greatest distal breadth (Bd) of limb bones from cattle, sheep/goat and red deer

Period	Species	Element	GL	Bd
E13th–M14th C	Cattle	Metacarpal		50.0
	Sheep	Metacarpal		24.4
		Metatarsal		22.7
		Red deer	Metacarpal	
M14th–M16th C	Cattle	Tibia		54.2
	Sheep	Metacarpal		24.2
		Metatarsal		22.7
		Sheep/goat	Radius	147.0
		Tibia		23.8

(Continued)

Table 12. (Continued)

Period	Species	Element	GL	Bd
M16th–M18th C	Sheep	Metacarpal		24.8
		Metatarsal		22.9
	Sheep/goat	Radius	139.0	26.4
		Tibia		24.0
				25.7
L18–19th C	Sheep/goat	Tibia		25.7

FISH BONE by REBECCA NICHOLSON

A very small number of fish bones were recovered during the excavation at Worcester College and from the residues from sieved soil samples. Marine fish were represented by a cod (*Gadus morhua*) caudal vertebra, from a fish of around 70–80 cm from Phase 3 context 679 and a small dermal denticle from Phase 1 context 592 (sample 501), probably from a thornback ray (*Raja clavata*). Single eel vertebra from Phase 1 context 601 (sample 502) and from Phase 4 context 559 (sample 500) were almost certainly from fish caught in local waters. A small number of rays and spines could not be further identified.

SHELL by REBECCA NICHOLSON

Around 200 shells weighing 2,417 g were recovered during the excavation at Worcester College, with occasional fragments extracted from the residues from sieved soil samples. Left and right valves were counted where possible and brief notes about shell condition have been made (Table 13).

The great majority of shells are from the native oyster *Ostrea edulis*, with occasional examples of larger land snails, particularly *Helix aspersa*, although the latter are likely to be accidental inclusions rather than food debris. Oysters were recovered from Phase 1 to Phase 5 contexts, with no obvious concentrations in any phase or features. Context 742 also includes several small fragments of mussel shell (*Mytilus cf edulis*) and a crustacean, probably crab (cf. *Cancer* sp.) claw came from context 746. The oyster valves are of variable size and shape, although the majority are the traditional round form. The valves are in variable condition, with some examples complete and well preserved and others flaky and fragmentary. Examples of parasite infestation and encrustations are few. Several valves exhibit opening notches. Oyster shells occur on most medieval and later sites in Oxford, evidence that these shellfish were harvested, transported inland and sold while still edible.

PLANT REMAINS by KATHRYN HUNTER

Nine bulk soil samples were taken from pits, silting layers and a tree throw ranging in date from the eleventh to the nineteenth century. The samples were examined to assess their potential to contain identifiable plant remains and charcoal that might help in the interpretation of these features. For the recovery of charred plant remains the samples were processed using a siraf style floatation machine; the flots were washed over a 250 µm mesh sieve and the residues were retained in a 500 µm flexible nylon mesh. The flots and heavy residues were dried in a heated room at c.25 °C and were scanned using a low powered microscope at a magnification of between x10 and x20 (Leica EZ4D). The nomenclature for the plants remains follows Stace.⁷¹

⁷¹ C. Stace, *New Flora of the British Isles*, 3rd edn (2010).

Table 13. Shellfish, Crustacean and hand collected land snails

Context	Sample No	No of Objects	Weight (g)	Species	No left valves	No. right valves	Notes
500		13	80	oyster	4	5	small valves, 3 measurable
502		1	4	oyster			frag
504		1	3	oyster			frag
511		9	48	oyster, <i>Helix</i> sp.	3	5	two right valves measurable
512		6	71	oyster	3	2	incomplete valves; opening notch on one right valve
513		2	19	oyster	1	1	
515		5	85	oyster	4	1	2 measurable; 1 has elongated hinge
524		2	22	oyster		2	
538		4	34	oyster	2	2	
540		2	64	oyster	5		poor condition. One valve has <i>Polydora hoplura</i> tunnel internally and externally
544		5	147	oyster	4	1	large valves, 1 thickened with internal blisters, 2 measurable
547		1	8	oyster		1	
553		1	9	oyster	1		
554		1	3	oyster			frag
565		1	11	oyster		1	measurable
568		4	85	oyster	2	2	variable size, 2 measurable, 1 right valve has opening notch
591		1	3	oyster			frag
605		3	51	oyster	3		1 measurable, 1 small valve
614	503	1	3	oyster			frag
614		10	80	oyster	3	5	incomplete
620		6	105	oyster	1	3	left valve has opening notch; measurable
639		4	82	oyster	2	1	2 large valves and 1 smaller valve, 2 measurable. One left valve has opening notch
640		2	16	oyster		2	
651		8	106	oyster	4	3	most valves measurable
654		7	75	oyster	3	3	
671		6	3	land snails nfi			
673		8	77	oyster	4	4	incomplete valves
675		3	6	oyster and land snails nfi	1		
679		12	170	oyster	8	3	mostly thick with internal blisters, one elongated valve

(Continued)

Table 13. (Continued)

Context	Sample No	No of Objects	Weight (g)	Species	No left valves	No. right valves	Notes
682		7	23	oyster	3	2	one right valve measurable
684		1	7	<i>Helix aspersa</i>			
691		3	8	<i>Helix aspersa</i>			
705		1	26	oyster	1		
709		1	3	?			frag.
712		5	32	oyster	2	1	incomplete
713		4	27	oyster	2	1	smallish valves, 1 left and 1 right measurable; 1 has opening notch
732		1	15	oyster		1	valve has opening notch
734		2	38	oyster	1	1	poor condition
737		1	15	oyster	1		
742		13	170	oyster, mussel	10	3	mussel frags, oysters incomplete, variable size
743		1	13	oyster	1		
745		3	56	oyster	1	2	
746		1	23	oyster	1	1	1 right valve measurable
746		1	2	crab			claw
751		6	43	oyster	2	3	
752		9	192	oyster	5	2	poor condition, one left valve has opening notch; range of sizes
766		5	102	oyster	3	1	incomplete, poor condition
778		1	13	oyster	1		small valve, measurable
779		1	7	oyster		1	
780		2	16	oyster	1	1	
785		2	30	oyster	1		left valve has opening notch
786		2	21	oyster	2		small valves. measurable
797		1	25	Fossil: Gryphaea			

The identification of the plant remains was carried out using modern reference material and a standard reference text.⁷² The results are recorded in Table 14.

All of the assessed samples contained charred plant remains. Unfortunately much of it was poorly preserved or not diagnostically significant. Whilst there was evidence of relatively low quantities of cereals, including wheat, barley, oat and possibly rye present in seven of the samples, there was no diagnostic chaff which could have taken the identification further. A single free threshing wheat rachis (sample 507) was so poorly preserved it was not possible to identify it to either a hexaploid or tetraploid type. One wheat grain (sample 508) did appear to be distorted in such a way as to suggest that it had been infected by the ear cockle nematode (*Anguina tritici*). This is a pest found in cereal crops from the medieval period in Britain,

⁷² R.T.J. Cappers et al., *Digital Seed Atlas of the Netherlands*, Groningen Archaeological Series, 4 (2006).

Table 14. Plant remains

Phase	Sample No	Context	feature	sample	vol/litres	flot vol/ml	% scanned	Grain	Cereal NFI	Chaff	Legume	Seed	Fruit/ nut	ACF	Charcoal	Comments on Inclusions	Potential
M11-E13	501	592	Pit 593	40	275	10	*									Modern roots, bone frags inc. fish. CPR-bread like frags, free threshing type wheat, hazel nut shell fragments,oat, Galium aparine (cleavers)	D
M11-E13	502	601	Pit 600	8	10	100	*	*								Modern roots, bone, CPR-barley,free threshing type wheat	D
M11-E13	508	785	tree throw	30	550	25	**	**	*							Abundant modern roots,wood,Sambucus nigra (elder),mollusc,CPR-Bloated wheat grain (possibly infected with Anguina tritici (Ear cockle nematode)), indet. Wheat, 4mm legume	D/C
E13-M14	500	559	Pit 510	40	600	<10	***	*		*						Charred textile, bone inc.small mammal and fish. Modern roots, mortar, cress concretions. CPR- hazel nut shell fragments, possible pea (cf. Pisum sativum),Free threshing wheat,hulled barley,oat,indet legumes,?rye	D/C
E13-M14	504	622	Pit 623	40	40	100	**	*								Abundant modern roots and some seeds. Mollusc, CPR-free threshing type wheat	D
E13-M14	507	625	Pit 627	40	150	60	***	*	*	*	*	*	*			Abundant modern roots,wood, moss. Mollusc. CPR-hulled barley,wheat, possible rye,4mm & 2mm legumes,Rumex sp (dock),free threshing type wheat rachis(indet), hazel nut shell fragments	D/C
M14-M16	505	620	siltng layer	38	100	75		*								Abundant modern roots,wood,Mollusc,bone incl. large mammal and fish,coal, clinker,glass (patinated)	D
M14-M16	506	624	Pit 569	40	25	100										Modern roots and seeds,limestone fragments,CBM frags,fish bone,	D
L18-19	503	614	siltng layer	40	50	100	*									Abundant modern roots,wood. Mollusc inc. Cecilloides,coal,clinker. CPR-free threshing type wheat	D
ACF	Amorphous charred fragments of organic origin																

which cause the distortion and subsequent loss of wheat grains in the ear.⁷³ A single poorly preserved legume (sample 500) may have been garden pea but it had lost its seed coat and was somewhat eroded.

Many sites of similar periods in Oxford have produced plant remains of sufficient quantity and quality to allow interpretation of the deposits (Boardman in prep.).⁷⁴ Despite the paucity of the remains from Worcester College kitchen, and the relatively poor preservation, the material highlighted the potential for survival of charred remains in the immediate area. The presence of relatively rich mineralized assemblages from urban and ecclesiastical sites elsewhere in Oxford suggests that any future excavation at Worcester College should take into account the potential for such remains.

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⁷³ W. Carruthers, 'The Plant Remains', in C. Harding et al., *The Post-Medieval Farm and Vicarage Site. Wharram: A Study of Settlements on the Yorkshire Wold*, 12, York University Archaeological Publication, 14 (2010).

⁷⁴ M. Robinson, 'Waterlogged and Insect Evidence', in N. Palmer, 'Beaker Burial and Medieval Tenement in the Hamel, Oxford', *Oxoniensia*, 45 (1980), pp. 84, 96; R. Pelling, 'Charred Plant Remains', in Poore and Wilkinson, 'Beaumont Palace and The White Friars'; 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); W. Smith, 'Charred and Mineralised Plant Remains from Eleventh Century-Seventeenth Century Deposits at the Ashmolean Museum, Oxford', in Teague and Ford, 'Ashmolean Museum Extension'.