

Excavations at No. 4A Merton St., Merton College, Oxford: The Evolution of a Medieval stone house and tenement and an early college property

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SUMMARY

No. 4A Merton Street has been a property of Merton College since the 1270s, and for much of the period was in use as the Warden's stables. Excavations were carried out by Oxford Archaeology in the back yard of the property between 2000 and 2002 in advance of redevelopment. Early 11th-century occupation of the site was apparent from pottery evidence, but the earliest structural remains relate to horn working, probably during the later 12th century. Pictorial and excavated evidence suggests that the standing building on the Merton Street frontage of the site was constructed around 1200, with a back range. This stone mansion was occupied by a burgess family called Edrich from c. 1228, passing to the college in the late 13th century. The college subsequently demolished the back range and built a new stone house on the Kybald Street frontage that was itself demolished by the end of the 14th century. The excavations uncovered large numbers of pits associated both with the domestic occupation of the site between the 12th and 14th centuries, and subsequently with its use from the late 14th to the mid 16th century for the dumping of stable waste and general refuse from the main college site across the road. The large finds and environmental assemblages provide a rare and valuable insight into the diet and standards of living of a 13th-century burgess family and an early Oxford college. Items of particular note include rare high lead vessel glass, unusual quantities of ceramic lamps, and plant remains possibly deriving from medieval ornamental trees and medicinal herbs. Fragments of architectural stone found during the excavations are likely to derive from the original windows of the stone mansion.

The excavations were carried out on land to the rear of No. 4a Merton St., part of Merton College, on the north side of Merton Street immediately opposite the main entrance to the college (NGR SP 5172 0614). The location of the site is shown on Fig. 1. The Merton St. frontage of the site is occupied by two buildings of note. No. 4a Merton St. (known as Merton Stables) is an important Grade II listed building of early origins, which is discussed further below. The building now known as Postmasters' Hall (No. 5 Merton St.) occupies the frontage immediately to the east, and is a Grade II listed building of 16th- to 17th-century origins. Much of the north-eastern quarter of the yard area behind the houses is occupied by the Real Tennis Court, rebuilt in 1798 following the destruction by fire of its predecessor, which dated from c. 1595. The excavated area lay almost entirely in the yard behind No. 4a.

The archaeological works were carried out in response to development plans put forward by Merton College in 2000. The college proposed to construct a new three-storied building with a basement across much of the western third of Postmasters' Hall Yard, in an area then occupied by a row of modern garages. The excavation took place in the footprint of the new building following the demolition of the garages. Further observations were carried out in a narrow strip of garden to the north of the Real Tennis Court, and on the eastern side of Grove House, which lies immediately to the north of Postmasters' Hall Yard. The proposals

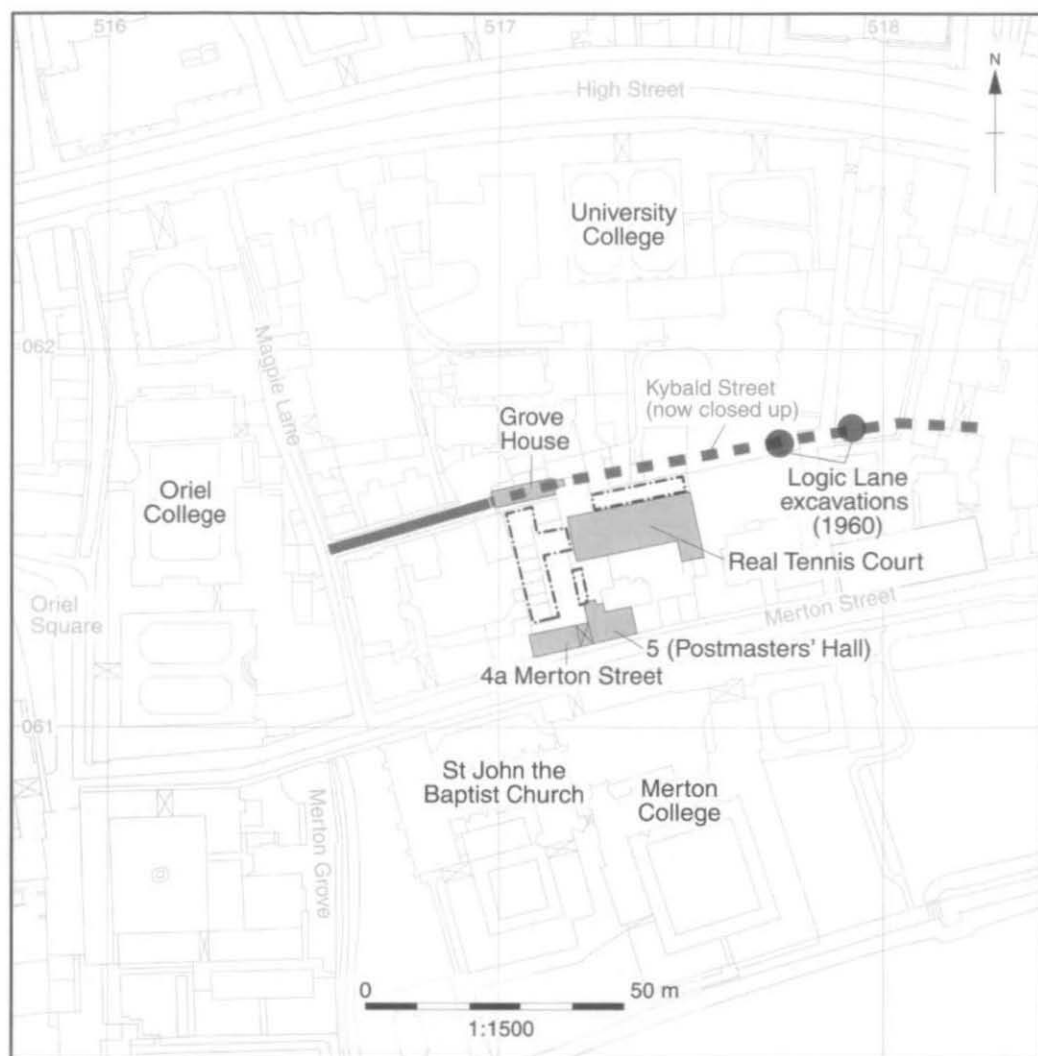


Fig. 1. Site location

also included hard landscaping and the demolition of a brick wall running northwards from the north-west corner of No. 5 Merton St. Most of the stone walls forming the boundaries of the yard were to be retained.

Arrangement of the report

This report commences with a period **narrative** and discussion of the development of the site (including historical and architectural evidence), followed by an account of the **finds** (pottery, coins and jettons, objects of metal and bone, glass, tiles and bricks), and **environmental evidence** (fish, animal bone and plants).

Geology and topography

The site slopes gently to the south from 62 m. OD at the north, to 60.1 m. OD at the south. It is located on the edge of the Summertown-Radley (second) terrace comprising river gravels. Immediately south and east of the site is the Floodplain (first) gravel terrace. The site is located at the tip of a peninsula of gravel terraces surrounded by the alluvial floodplains of the river Cherwell c.350 m. to the east, and the Thames some 500 m. to the south-west.

Excavation methodology

A desk-based assessment was carried out, which surveyed the known historical and archaeological information available about the site, and incorporated the results of preliminary test pit investigations carried out in 2000.¹ Further observations and test pit excavations were undertaken by Oxford Archaeology at the site in late 2001, and indicated the likely presence of significant medieval remains including a possible stone-built cellar or undercroft. Structural remains relating to the stable block known from 19th-century maps were also recorded.

The main excavation began in June 2002, covering the entire footprint of the proposed building. It was contained by sheet piles, with the exception of the area bordering the southern half of the western boundary wall and the area adjacent to the Real Tennis Court, where excavation extended up to the walls themselves. The site was machined to the first significant archaeological horizon, and then hand excavated stratigraphically using a single context planning and recording system.

Archaeological and historical background

Relevant information relating to the history of the site and previous archaeological discoveries has been incorporated in the Description and Discussion below, and need not be repeated in detail here. Most of the small-scale archaeological investigations that have been carried out in the vicinity of the college have produced limited results with little bearing on the present site. The main exception to this is the work carried out at Logic Lane in 1960 (Fig. 1), which revealed late Saxon pits and features relating to the medieval development of the area, including the laying out of Kybald St. c.1130.² Although the site of the excavations lay within the eastern half of the late Saxon town of Oxford, little is currently known about how the area developed during the 11th and 12th centuries. By the 13th century it is clear that tenements existed along both frontages of Merton St. and Kybald St, and it was on the south side of Merton St. that Walter de Merton began in the mid 1260s to acquire the properties for his newly founded college that still form the nucleus of its site today. The site of the present excavations was acquired by Master Peter of Abingdon, the first Warden of Merton College, in 1272-3. It passed formally into the college's ownership after his death and has remained college property ever since. For much of this time it was used as stabling for the Warden's horses.

The standing building, No. 4a Merton St., is one of Oxford's oldest surviving houses and is likely to date from around 1200. This building is discussed in more detail below. Prior to the excavations the evidence of historic maps suggested that the land behind had remained

¹ Postmasters' Hall Yard, Merton College, Oxford: archaeological desk-based assessment, Oxford Archaeological Unit (unpublished; December 2000).

² F. Radcliffe, 'Excavations at Logic Lane, Oxford', *Oxoniensia*, xxvi-xxvii (1961/2), 40-69.

largely open, but a small building fronting Kybald St. is shown by Loggan in 1675, and might have been the 'Twychen'. Taylor's map of 1750 shows a stable block built against the west boundary wall of the site, which is shown as extended in the Ordnance Survey 1:500 scale map of c.1878-80. By c.1930 a meeting room, fives court and scullery had been constructed on the opposite side of the yard. By 1958 the stables and other buildings had all disappeared, and garages had been constructed at the west side of the site. These were still standing at the time of the excavations.

The celebrated Real Tennis Court stands at the rear of the adjacent property, Postmasters' Hall, the home of the Oxford antiquary Anthony Wood. A real tennis court was probably first constructed here in the late 16th century, and was replaced by the current structure after a fire in 1798. During the present excavations the 18th-century foundations were recorded where they extended into the site.

The report

No results of significance were obtained from the observations north of the Real Tennis Court or adjacent to Grove House. The present report therefore deals only with the results obtained from the main trench, behind No. 4a Merton St. Here, much of the archaeology revealed by the excavations comprised sequences of large intercutting pits dating from the 11th century through to the early post-medieval period. The interest of these pits lies in the changing nature of the finds and environmental remains recovered from them, rather than in the form and sequence of the pits themselves. A full account of the sequences, fills and stratigraphic relationships of the pits was prepared during the post-excavation analysis, but is not reproduced here in detail. It is available for consultation in the project archive. The following account focuses on the interpretation of the activity the pits represent through the integration of stratigraphic, finds, environmental and documentary information. Structural evidence is more fully described, and details of individual pits can be found in Tables 1-6. The phase plans show the latest pits only, for each phase. In most cases the original shapes of the pits have been obscured where they have been cut away by the insertion of later features in the same area.

DESCRIPTION AND DISCUSSION OF THE SITE

Phase 1: Pre 11th Century AD

The earliest layers encountered comprised natural gravel overlying Oxford Clay. The clay was seen only in the north-west corner of the excavation, and the gravel had been heavily truncated over most of the site by the extensive pit digging of the medieval period. A single sherd of Roman pottery was present in the ceramic assemblage. More unusually, four sherds of early to mid Saxon handmade pottery were identified, one of which is decorated with incised lines suggesting a 5th- to 6th-century date. Paul Blinkhorn ('Pottery', below) discusses other finds of early to mid Saxon pottery in the city centre; three sherds are also reported from the excavations at 113-119 High St.³ To date, the settlement where this pottery was used remains unidentified.

³ J. Timby and C. Underwood-Keevill, 'The Pottery', in G. Walker and R. King, 'Early medieval and later tenements at 113-119 High Street, Oxford: excavations in 1993-5', *Oxoniensia*, lxxv (2000), table 2.
Published in *Oxoniensia* 2006, (c) Oxfordshire Architectural and Historical Society

*Phase 2: Mid 11th to early 13th Century (Figs 2 and 3)*Summary and dating

Phase 2 represents the earliest surviving evidence of human occupation of the site, and comprises three areas of pits. The dating relies entirely on the pottery. The presence of 90 sherds of St Neot's type ware, together with single sherds of Flemish Greyware and Thetford ware, indicates that there was occupation on the site during the late Saxon period. St Neot's type ware was in use in Oxford during the 10th century, but it is present in much greater quantities in contexts of the first half of the 11th century, where it is usually dominant. It was falling out of use in Oxford by the middle of the 11th century. The Merton assemblage contained no pottery of the earlier shelly limestone tradition (fabric OXB) that is common elsewhere in the city centre, and was in use during the 10th and early 11th centuries. However, almost all the St Neot's type ware occurred as redeposited material with later pottery in later features; only a few sherds of late Saxon pottery were noted in features that did not also contain later wares. It seems likely therefore that most of the late Saxon strata at the site had been destroyed by later activity. There were a few contexts with pottery no later than Cotswolds-type ware (OXAC), which first occurs in quantity in Oxford around the middle of the 11th century, around the time that St Neot's type ware went into decline. The pottery therefore suggests that occupation of the site began during the first half of the 11th century, with the emphasis towards the middle of the century rather than its beginning.

Unfortunately the pottery does not allow close dating of individual features since the same wares (principally Cotswolds type and Medieval Oxford ware, both of which were in use throughout this period) form the great majority of the pottery from the features of Phase 2, and the repeated digging of pits has led to a high degree of redeposition. However, there was a small assemblage of Brill-Boarstall ware (fabric OXAM), which first appears c. 1200; this is consistent with other evidence that the activity of Phase 2 came to an end around the turn of the 13th century (see below).

The 11th century

The site lies towards the southern edge of the eastern half of the late Saxon town. The High Street itself appears to have been extensively built-up by the early 11th century at the latest.⁴ There is as yet only limited evidence for the spread of occupation into the south-eastern quarter of the town, but both the present site and the excavations nearby at Logic Lane suggest that this was occurring during the first half of the 11th century. How the area was divided up at this time remains unknown. In the medieval period, the site of the excavations lay on the south edge of a block of land bounded by Merton St. (then known as St John's St.) on the south, Magpie Lane on the west and Logic Lane on the east. There is no firm evidence for the date at which any of these streets originated, although on topographical grounds it seems quite possible that they formed part of the late Saxon street system.⁵ Excavated evidence suggests that Kybald St. was laid out around 1130.⁶

⁴ The evidence is summarised in A. Dodd (ed.), *Oxford before the University* (Oxford Archaeology Thames Valley Landscapes Monograph No. 17, 2003), 37-40.

⁵ The position of Merton St. is comparable to that of the known late Saxon Church St. in the western part of the town. Magpie Lane continues the line of Catte St. to the north of the High Street, which is also a known late Saxon street. Possible late Saxon gravel road surfaces were observed during contractors' excavations in Logic Lane (Oxon SMR 6466).

⁶ F. Radcliffe, *op. cit.* note 2.

The distribution of St Neots type ware in features of Phase 2 implies, as might be expected, that late Saxon activity was focused in the southern half of the site. Only occasional sherds occurred in pits in the northern part of the trench, whereas they were present in all but one of the pits at its south end. A rimsherd of 10th- to 11th-century Flemish Greyware storage jar (Fig. 12 No. 3) was also recovered from pit 1603 within this group. The Merton St. frontage of the property was not available for excavation owing to the presence of the standing building, No. 4a., but this is the most likely location of any contemporary house. No convincing evidence of late Saxon structures has been identified elsewhere on the site. The earliest pit in pit group B (pit 1326, see below) may be the earliest surviving feature on the site since its fills contained three sherds of St Neots type ware and no later pottery. This pit was roughly circular in plan, approximately 1 m. deep, with steep sides and a concave base.

12th-century industrial use of the site (Figs. 2 and 3; Table 1)

During the 12th century the site appears to have been used by people engaged in the processing of animal carcass elements, principally horn. The occasional presence of Brill-Boarstall ware pottery and fragments of ceramic roofing tile in late Phase 2 contexts, but associated with characteristic industrial-type debris, provides the best dating evidence we have for this activity. The industrial use of the site must have ceased at some point before the construction of the stone buildings of Phase 3 (one of which was built over the top of pits containing industrial debris) but it seems likely that it dates later rather than earlier within Phase 2. Evidence from a number of excavated sites in Oxford suggests that the town suffered a set-back in the second half of the 11th century. Several sites that had been occupied in the early 11th century are known to have been abandoned at this time,⁷ and Domesday Book records a very high proportion of waste property in the town by 1086. It would not be surprising if the present site, in a relatively remote part of the town, had at least temporarily suffered a similar fate.

The most distinctive evidence comes from the two groups of features in the southern part of the site, one group stratified beneath the back range constructed in Phase 3 (see below), and the other immediately to the north of it. For ease of reference, these will be referred to as pit groups A and B respectively (Table 1). The presence of Brill-Boarstall pottery and fragments of roofing tile in late contexts in both these sequences suggests the likelihood that they represent, at least in their final stages, contemporary activity. Apart from the earliest pit in group B (pit 1326, which may be late Saxon), all these pits were of a distinctive sub-rectangular form with vertical sides and flat bases (Fig. 3 No. 1). Their original dimensions can no longer be established, but the latest three stratified beneath the Phase 3 building (pits 1576, 1567 and 1588) are probably the best preserved, with dimensions of 1.75-2.6 m. in length, 1.4-1.8 m. in width and 1-1.7 m. in depth. Two of the group B pits preserved some evidence for linings and/or internal features. Pit 1315 had three courses of limestone lining surviving on the western and southern sides. The stones were roughly hewn and bonded with clay. Fill 1320 of pit 1321 was pierced by four badly decayed wooden stakes.

The fills of the pits in group B consisted of grey and brown sandy silts. Apart from a single greenish-brown gravelly silt deposit overlying pit 1315 there is no suggestion of the disposal of cess or food remains in these pits, although they contained pottery. There was virtually no animal bone present, and environmental sample 44 (from a charcoal-rich fill in pit 1315) contained only very small quantities of grain and weed seeds and a few fragments of

⁷ For abandoned sites, see A. Dodd (ed.), *op. cit.* note 4, 51-2.

hazelnut shell. The fact that two of the pits retained traces of lining/internal structures, however, must mean that they were designed for use and had not simply been excavated for the extraction of gravel or soil. It seems most likely that these pits were used for some form of industrial activity, quite possibly associated with the processing of animal carcasses, clear evidence for which was present in the group of pits immediately to the south.

TABLE 1: PITS OF PHASE 2 GROUPS A AND B*

Cut number	Length (m.)	Breadth (m.)	Depth (m.)	Fills	Notes
Pit group A					
1605	1.20	1.10	1.65	1609, 1604	100, 200, 300. Cess-like fills with numerous animal bones
1608	0.70	0.35	0.70	1607	Cessy fill
1603	1.50	1.10	0.90	1606, 1602	100, 102 (Flemish Greyware), 200
1576	2.00	1.40	1.00	1600, 1599, 1598, 1597, 1578, 1577=1443	100, 200, 202, v. little 300. Animal bone including hare
1567	1.75	1.40	1.70	1574, 1573, 1570, 1569, 1568	100, 200, 202, v. little 300. Much animal bone including rat
1588	2.60	1.80	1.40	1587, 1593, 1586, 1585, 1584, 1583, 1601	Organic, cessy fills. 100, 200, 205 (Stamford ware), much 300. Much animal bone i/c frog, toad. Large horncore deposit. Roof tile frags.
1527	—	—	—	1526, 1525, 1523	Seen in section only. Greenish fills and charcoal. 100, 202, 300
Pit group B					
1326	0.90	0.90	0.39	1327, 1339	100 only. Possibly early
1338 = 857	2.60	0.60	0.95	1337=1349, 1328	100, 200, 300, 352
1321	1.30	0.80	0.50	1320, 1319	200, 300. Fill 1320 pierced by four wooden stakes
1315	1.45	0.60	0.53	1314, 1313, 1312, 1311, 1307	200, 300. Stone lining. S44
1276	1.30	0.60	0.15	1275	200, 300. S43
1318	1.80	1.00	1.60	1292	200, 300
1264	1.20	0.60	0.65	1263	202, 300. East of main group B pits

*Note to Tables 1-6. Pits and fills are listed in stratigraphic order, from earliest to latest. Pits outside the main stratigraphically related groups are preceded by a double line. Measurements are the maximum surviving dimensions. Notes are provided on the main characteristics of the fills and their contents, where these are distinctive. Pottery wares present are indicated by fabric numbers. The location of environmental samples is indicated, sample numbers being preceded by the letter S.

Two hearths roughly 1 m. in length, 0.5 m. in width and 0.10 m. thick (1252 and 1258) postdated the fills of pit 1276 in the pit group B sequence. Both consisted of fire-reddened clay with charcoal and ash inclusions. Area 1252 was overlain by two charcoal-rich layers interspersed with lenses of redeposited gravel, the latest of which contained a single fragment of peg tile. These layers also contained four sherds of Brill-Boarstall ware. Ceramic roof tile is thought to have come into use by the late 12th century, and Brill-Boarstall ware c.1200.

The pits in group A had markedly more organic fills, with numerous green cess-like layers. Animal bone was present in much greater quantities. Much of this seems likely to be food waste, including meat-bearing elements of cattle, sheep/goat and pig (particularly long bones and ribs), and bones of domestic fowl, duck, goose and roe deer. Herring bone was identified in a sample taken from pit 1588. The animal bone evidence suggests the distinct possibility that these pits were left open while in use. Pit 1567 contained two bones of black rat, representing the earliest positive identification of this serious urban pest from medieval Oxford (see 'Animal bone', below). In general the animal bone from Merton showed little evidence for gnawing by scavengers, suggesting that food remains were quickly sealed in pits. However, the presence of rats suggests that food waste was accessible in this area, at least at this time. The lowest fill of pit 1588 contained a large number of bones from frogs or toads, representing at least four individuals of different sizes. It is quite possible, if the pit had been left open for some time during the autumn, that these creatures had burrowed into it in order to hibernate.

In addition to food waste and natural casualties, the pits in group A also contained notable quantities of animal bone characteristic of debris from industrial-type activities. Skull, horncore and hoof elements from cattle and sheep or goats were present in small quantities in most pits in this group, but one of the last in the sequence, pit 1588, contained 64 cattle horncores, or horncore fragments, and 2 goat horncores. Fifteen of the cattle horncores had cut marks. This is strongly suggestive of the processing and possibly the working of horn at the site. In medieval towns, hornworking debris is often found in association with debris from the related trades of butchery, tanning, tawing and leatherworking, all of which used the same raw materials. Horns could be used whole (for example to make knife handles), but the horn sheath was commonly removed for a variety of uses.⁸ The horns were soaked in water in pits for a number of weeks to loosen the sheaths. Subsequently, the sheaths were split lengthwise and boiled in a cauldron to soften. They were then held over the fire, prised open with tongs and pressed flat into horn plates, to be worked into objects or sold on to a horn industry operating elsewhere.

Hoof and leg elements from cattle and horse were also present in a number of these pits, and may also represent industrial rather than food debris. Neatsfoot oil, the finest of animal fats used for dressing leather, was (and still is today) extracted from cattle feet, and marrow fat and bone grease could be used as a substitute. To extract these materials the bones of cattle, sheep and horses would have been chopped to expose the marrow cavity, and then boiled to release the fat and grease. The possibility that the debris in these pits is contemporary with the hearths described above is suggested by the presence of small quantities of tile in an upper fill of pit 1588 and a tile fragment together with Brill-Boarstall ware in charcoal overlying the hearths. It seems likely that the hearths were used for boiling

⁸ A. MacGregor, 'Antler, bone and horn', in J. Blair and N. Ramsay (eds.), *English Medieval Industries* (London, 1991), 370-2 for the information that follows here.

horns and bones. Further areas of burning and charcoal had been observed to the north of these hearths during the initial phase of test pit investigations, suggesting that this activity had spread over quite a wide area, and possibly beyond the present western boundary of the site.

It is surprisingly difficult to identify the industrial structures and processes of medieval towns with confidence from archaeological remains, despite the fact that we know from documentary sources and the evidence of finds that such activity must have been widespread, even if often only carried out on a domestic scale. External hearths of 13th-century date were found in the yards behind tenements on Church St.; they were associated with an oven of uncertain function, and were constructed from flat stones.⁹ Their function was not apparent, although they might have been associated with two large and heavily overfired crucibles found in a nearby pit. More directly comparable evidence comes from the excavations at 113-119 High St.¹⁰ This area, on the southern frontage of the High St., had been unoccupied from the later 11th century. Numerous intercutting pits were dug on the site during the 12th to 13th centuries and animal bone from these contained a relatively high proportion of sheep/goat horncores, suggesting that horn preparation or working had been taking place. It is interesting to note, although no definite connection can be established, that a large pit excavated towards the rear of the same trench had been roughly lined with stone blocks in a decayed yellow mortar. Elsewhere, horncore groups in 13th-century deposits at the Hamel, in the western suburb of St. Thomas's, are also indicative of the presence of tanners and other users of by-products of the early stages of cattle butchery.¹¹

Late 12th-century domestic activity (Fig. 2; Tables 2 and 3)

A further group of pits (pit group C) datable to Phase 2 was located to the north (Table 2). These pits contained a much higher proportion of Medieval Oxford ware than the other pit sequences, and their fills are more characteristic of domestic activity. Brill-Boarstall ware was present in pit 1397, and fragments of peg tile and stone slates were found in pits 1551 and 1476, suggesting that they are also datable to the late 12th century. All pits in this group were roughly circular in plan. A number were sampled for environmental remains, and these provide an interesting contrast with the pits described above, with evidence for brewing and the presence of burnt processed grain and fruit. The presence of a probable hoe fragment even suggests the possibility of cultivation.

An environmental sample was taken from a charcoal-rich fill of pit 1581, at the base of the sequence. This proved to be a deposit of possible malted grain. Nearly 1000 grains of barley and oats were counted in a 100 ml. sample, approximately half of them showing clear signs of germination; in addition a further 112 detached embryo sprouts were counted. This suggests that the grain derived from a mixed crop or drage being malted for the production of beer presumably burnt accidentally during the process. The charcoal derived from oak and alder or hazel. A fragment of a hoe or malt-rake was also recovered from the same pit. The overlying pits were very large. The largest, pit 1476, was more than 3.5 m. in diameter and contained several green-coloured fills, suggestive of a high organic content. It was sampled for environmental remains (sample 73) and small bone. Fish bone, largely herring,

⁹ T. Hassall, C.E. Halpin and M. Mellor, 'Excavations in St. Ebbe's, Oxford, 1967-76: Part I: Late Saxon and medieval domestic occupation and tenements, and the medieval Greyfriars', *Oxoniensia*, liv (1989), 100.

¹⁰ G. Walker and R. King, op. cit. note 3, 396-7.

¹¹ B. Wilson, 'Animal bone and shell', in N. Palmer, 'A Beaker burial and medieval tenements in The Hamel, Oxford', *Oxoniensia*, xlv (1980), 198; B. Wilson, 'Medieval animal bones and marine shells from Church Street and other sites in St. Ebbe's, Oxford', in T. Hassall et al. op. cit. note 9, 267.

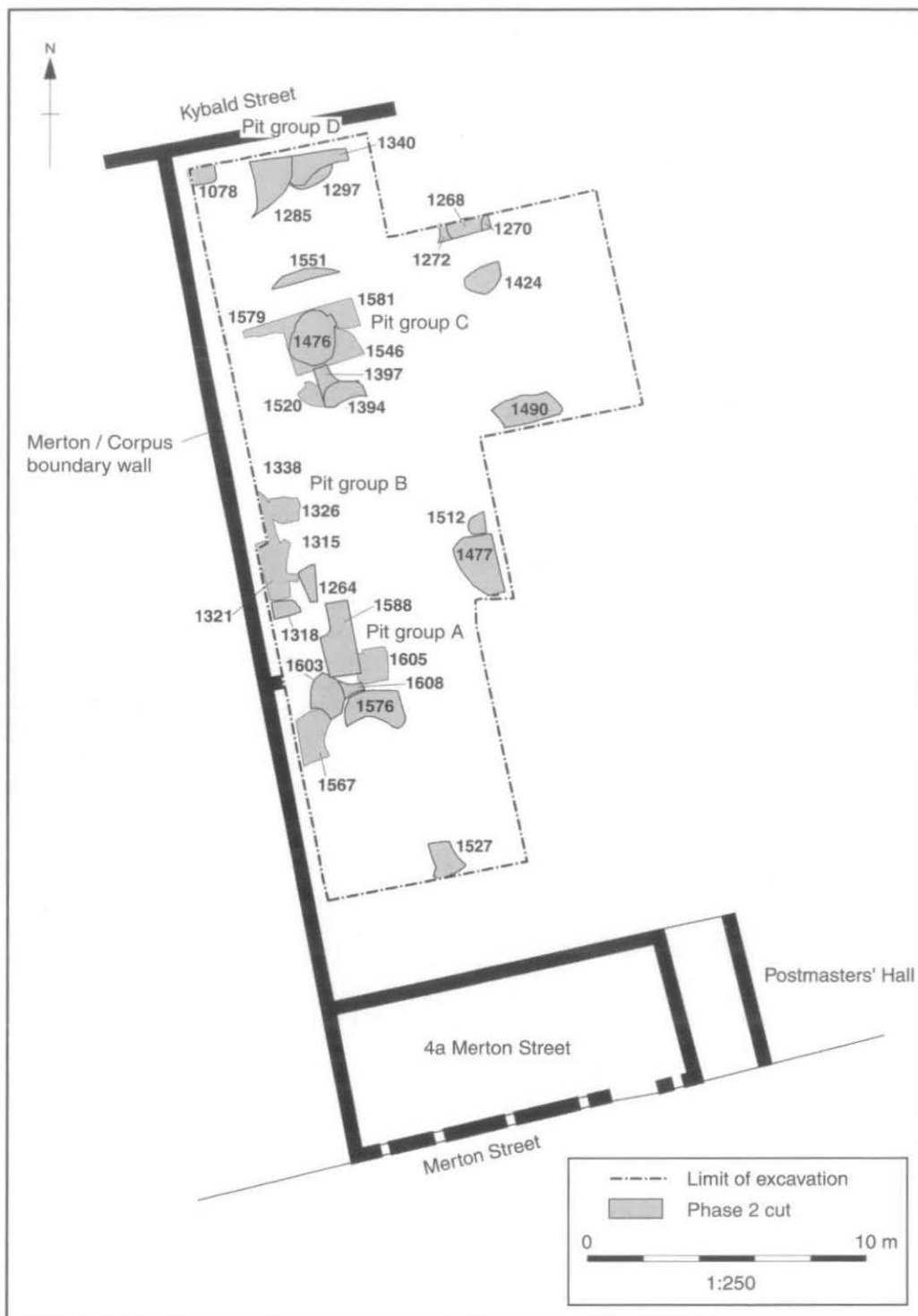


Fig. 2. Plan of phase 2 features

was present, together with other food waste including numerous rib bones from cattle and sheep, a goose bone, and four hare bones. Clean grain of wheat and barley, with occasional contaminants including rye, oats and cornfield weed seeds, was identified, together with seeds of elder and fig, and hazelnut shell fragments. The charcoal was mostly oak, with ash and alder or hazel.

There were no horncores, although numerous elements from the jaws and skulls of cattle, sheep or goats and pigs were present. Meat from animal skulls (including brain, cheek etc) was certainly consumed, but the presence of waste skull elements here conforms with a pattern noted elsewhere in Oxford for change in butchery practice during the medieval period. Reviewing evidence from the medieval domestic tenements at Church St., St. Ebbe's, in the south-west part of the town, Bob Wilson noted that there was a significant change in the site refuse from cattle and sheep after the 14th or 15th century, suggesting that the butchery of large and medium-sized carcasses (of cattle, sheep etc) became more specialised during the later medieval period. This led to a decrease in waste elements such as head and foot bones at domestic sites, as secondary and unusable carcass parts were increasingly centrally removed and disposed of by the butchers.¹² Conversely, such waste is more common on earlier sites, suggesting domestic butchery of whole carcasses. Some further evidence to support this has recently been noted amongst a small assemblage from Rewley Abbey.¹³ Bob Wilson suggested a possible association with the known relocation of animal slaughtering in Oxford during the 14th or 15th century, from the vicinity of the High St. to slaughterhouses in Brewer St. (or 'Slaying Lane'). At this peripheral location, the butchers could dispose of secondary carcass parts and rubbish more efficiently. The presence of horse jaw and leg bones in pit 1476 (at least one of which had butchery marks) can also be paralleled at Church St. It is likely that horse bone was being used for dog meat or other carcass products, although the possibility of human consumption, especially at times of famine, cannot be ruled out.

In the north-west corner of the site was a probable well, 1078, which was sub-rectangular in shape and cut through the natural clay. Its fill was a waterlogged soft black silty clay with decayed organic material. An environmental sample taken from the well fill (sample 11) was dominated by fruit seeds, including grape, bramble or blackberry, plum, cherry and several seeds of pear. Ruth Pelling ('Charred and waterlogged plant remains', below) comments that the seeds do not have the characteristics of sewage type deposits and may be from a store of fruit or fruit processing waste. Two cattle skulls and two skull fragments were also present in the well fill, along with limb and shoulder bones from sheep or goat.

These results are particularly significant in that they represent the first appearance of assemblages rich in fruit and plant remains, which are of exceptional quality in Phase 3. The assemblages from these pits, and from the well, suggest domestic activities including butchery, brewing and the preparation of food, and a varied diet that included hare and goose, although the fish remains are more limited than those of later phases. It is possible that this derives from the domestic activity of the hornworking household, although if so it suggests an unexpected level of prosperity. An alternative, and perhaps more likely, explanation is that these pits mark a shift in the nature of occupation at the site as low-status activities such as bone boiling were replaced by the houses of the prosperous burgesses who are evident in the area from this point onwards. Perhaps this is the food debris of the people who built the stone house and occupied the site during the earlier part of the 13th century, who are unknown to us before c.1228 (see below).

¹² Ibid. 262-3.

¹³ L. Strid, 'The animal bone', in J. Munby, A. Simmonds, R. Tyler and D.R.P. Wilkinson, *From Studium to Station: Rewley Abbey and Rewley Road Station, Oxford* (Oxford Archaeology Occasional Paper 15, 2007).

TABLE 2: PITS OF PHASE 2 GROUPS C AND D

Cut number	Length (m)	Breadth (m)	Depth (m)	Fills	Notes
Pit group C					
1078 (?well)	0.90	0.65	0.40	1077	200. S11
1581	1.20	1.00		1592, 1591, 1582,	
1551			0.51	1590, 1589 1575, 1541	200. S77 malting waste 200, 300. Roof tile and slate. Hoe fragment
1579	2.90	0.90	0.50	1580	200, 202
1546	3.40	2.70	0.60	1547, 1566, 1565, 1564	300
1563	3.60	2.00	0.60	1561, 1560, 1559, 1558	200, 300
1476	3.64	3.54	0.44	1557, 1556, 1554=1555, 1553, 1552	200, 300, 330. S73. Green cessy fills with fish and much animal bone. Roof tile
1520	1.05	0.95	0.55	1519	300
1397	1.40	1.46	0.45	1399	200, 300, 352
1394	1.50	0.70	1.70	1395	300
Pit group D					
1297	1.40	0.50	1.45	1298, 1345, 1296	100, 200, 300. Stone slate.
1340	1.30	1.10	0.34	1286, 1341, 1342, 1343	200
1285	1.60	1.50	1.30	1344, 1287, 1288, 1289, 1290, 1291, 1345	100, 200, 300

TABLE 3: PHASE 2 PITS TOWARDS THE EAST OF THE SITE

Cut number	Length (m)	Breadth (m)	Depth (m)	Fills	Notes
1272	0.68	0.60	0.80	1273, 1310	–
1435		0.70	1.65	1265, 1266	200, 300
1268	1.60	0.70	1.74	1269	–
1270	0.70	0.64	0.40	1271, 1267	– Primary fill large dump of stones
1424	1.62	1.62	0.55	1425	200, 202, 300
1490	2.40	1.10	0.90	1493, 1492, 1491	200, 202, 300. Roof tile, i/c glazed ridge tile
1510	1.68	0.50	1.00	1511, 1509	–
1477	2.00	1.25	0.95	1508, 1506	200, 300. Padlock key fragment
1512	0.72	0.68	0.46	1513	300

Other pits

Three intercutting pits at the very north of the site (1297, 1340 and 1285; group D, Table 2) were roughly circular in shape with concave bases. Finds from these pits were very sparse and the pits appeared to have been left open for some time, filling gradually with material eroding from their sides. A fragment of stone roof slate was present in the final fill of pit 1297. It seems likely that these pits were dug for the extraction of soil and gravel. This may have occurred in connection with building on the site at the turn of the 13th century, although it is also possible that the pits could have been dug to obtain material for the consolidation and surfacing of Kybald St., laid out just to the north c.1130. Their presence confirms that the Kybald St. frontage of the site was not built up during Phase 2.

Further pits were located towards the east edge of the site (Table 3). The majority of these were of sub-circular form, and the nature of their fills suggests they may have been dug in association with building campaigns on the site at the turn of the 13th century. Pottery and animal bone were present in relatively small quantities. The primary fill of pit 1270 consisted of a dump of large stones. A fragment of a padlock key of 11th- to 13th-century type was present in pit 1477, and the final fill of pit 1490 contained a fragment of peg tile and a fragment of ridge tile with brown cover glaze.

Phase 3: Early to mid 13th Century (Figs 3- 5; Plates XI-XIII)

Summary and dating

Features assigned to Phase 3 are dated by the first appearance in quantity of Brill-Boarstall ware (OXAM), which is present in Oxford from around 1200, but the absence (apart from a single sherd) of Surrey Whitewares. Surrey Whiteware did not become common in London until the middle of the 13th century, although it never represented more than a very small proportion of the pottery at the present site (see 'Pottery', below). The dating of Phase 3 is also derived from the architectural style of windows visible in Green's mid 18th-century view of the stone house at No. 4a Merton St. (see below; Fig. 5). This building is still standing, but Green's view shows two first-floor windows that no longer survive. These have a rounded outer arch and label, and a pointed inner arch or window light, and are likely to date from around 1200. If they were original elements of the building, they would date its construction to the turn of the 13th century. Fragments of stonework recovered from unstratified contexts at the site may indeed be from these windows (Plate XI).

Phase 3 sees a clear change in the use of the site. The stone house mentioned above was constructed on the Merton St. frontage, parallel to the street. A back range was constructed behind it, set at a right-angle to its north-western end. A garderobe was constructed against the north-west corner of the back range. Documentary evidence shows that there were continuous tenements along both sides of Merton St. and Kybald St. in the first half of the 13th century, although they would not necessarily all have been occupied by inhabited houses. The relative lack of excavation in this area compared with other parts of the medieval town means that knowledge of when this development began in earnest and how it proceeded remains very slight. The results of the present excavations, however, combined with documentary records preserved in Merton College's archives and elsewhere, provide a rare insight into the lives of the burgess family who owned the excavated property during the 13th century, and probably occupied the stone house. It is instructive that the presence of the stone house is nowhere mentioned in any of the surviving early deeds relating to the property.

The stone house (Figs. 3-5; Plates XI-XIII)

Merton Stables (No. 4a Merton Street) is a plain stone building of ragstone, with two blocked windows on the ground floor and a broad gateway; in plan it is rectangular, lying parallel to the street, and the rear wall has no obvious medieval features, apart from masonry similar to the front wall. On the front, the first floor has four plain stone windows, including two larger openings containing modern steel windows. None of this would excite attention were it not for a drawing of c.1750 by James Green in his collection of views of Oxford halls in the Gough collection which depicts the stables with two late Norman or early Gothic windows at first floor level.¹⁴ The windows may be dated around 1200, and must belong to the house before it was acquired by Merton. With its plain lower storey (the openings are standard stable windows, added later) and upper chamber with decorative windows it would seem to be a possible candidate for the 'cellar and solar' type of property, mentioned so frequently in early 13th-century Oxford deeds.¹⁵ The ground floor may have been a workshop or merchant's store, with an entrance on the right, living space above, and further accommodation at the rear. The house has never been fully investigated, and has a late-medieval roof but no obvious evidence of internal arrangements, though it does have a first floor of large lodged timbers which may be original.¹⁶ It is of considerable importance as one of Oxford's oldest surviving houses, and a rare example of a Norman stone house of a type which appeared in Oxford and other towns in the late 12th century.¹⁷

The back range: A second building was constructed at the rear of the stone house, set at right-angles to its north-west corner (Fig. 4; Plate XII), and although the relationship between them could not be investigated, it would seem in all probability to be a linked range. The west wall of the back range (wall 1514) partly survives in the below-ground levels of the current boundary wall with the property of Corpus Christi College to the west. A length of 8 m. of the original wall survives here, nine courses (1 m.) high, of roughly faced limestone blocks of variable sizes. The wall has no foundations and was constructed directly onto the natural gravel or over the top of earlier pit fills. In places it is bonded with hard orange mortar, although this is missing elsewhere. The north wall (1515) was keyed into wall 1514 at its northern end; the extant remains of this wall ran eastwards for a distance of 1.7 m., surviving to a height of 14 courses (1.23 m.). It was 0.72 m. thick, and constructed of roughly hewn limestone blocks bonded by a brownish-grey sandy mortar. Wall 1515 was constructed on top of a layer of limestone rubble (1610) deposited to consolidate the ground beneath. At the eastern end of the wall was the springing for an arch that would have carried the wall over Phase 2 pit 1588. Most of the east wall had been robbed away, with only a short (0.86 m.) length surviving at the southern end of the site (wall 1403=803). This had two surviving courses of roughly hewn limestone blocks bonded with clay, and was of a similar width (0.76 m.) to wall 1515. This wall appeared to have been built within a construction trench. An area of 4 x 2 m. of a floor surface formed by compacted natural gravel survived in the north-west corner of the building, butting the base of walls 1514 and 1515.

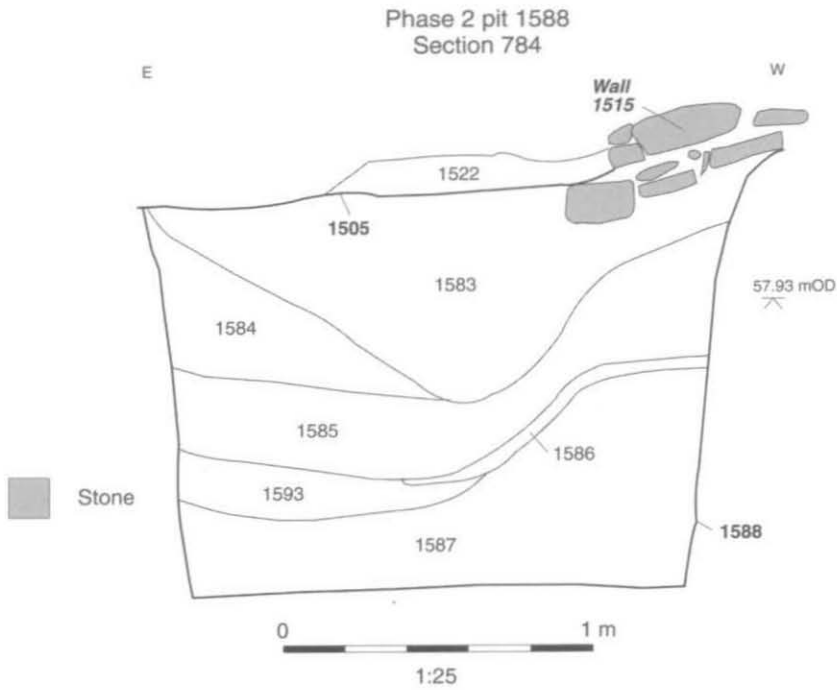
The west wall continued as a property boundary to the north of the building (wall 1516). Like wall 1514, its remains survive within the modern boundary wall of the yard, below more recent rebuilds. It was recorded for a length of 4 m., and comprises 25 courses (standing

¹⁴ Bodleian, Gough Oxon 50, reproduced by Skelton in *Oxonia Antiqua Restaurata* (1823) ii, pl. 154.

¹⁵ That is, in the cartularies of St Frideswide's Priory, Osney Abbey and the Hospital of St John.

¹⁶ RCHM Inventory *Oxford* 1939, 167 (80); the RCHM files in the NMR Swindon record a medieval carved capital found loose in the attic, with nail-head ornament. The floor joists were briefly exposed in a recent refitting, and may prove to be susceptible to tree-ring dating at some future time.

¹⁷ See Anthony Quiney, *Town Houses of Medieval Britain* (2003).



Section through southern garderobe
Section 722 and 739

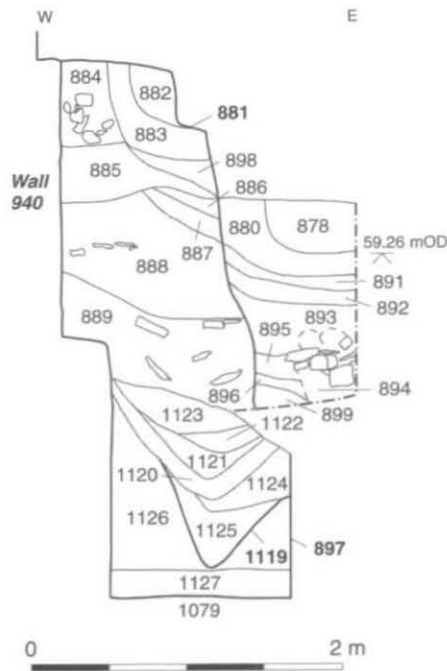


Fig. 3. Sections: phase 2 pit 1588; phase 3 garderobe 890

2.25 m. high) of roughly coursed and faced limestone blocks of variable sizes bonded with hard orange mortar. At the north end of this stretch of wall is a relieving arch (1596) 2.7 m. high and 1.7 m. wide, which carries the wall across the area of pit group B of Phase 2 (Plate XIII). To the north of the arch the wall was obscured by shoring during the excavations.

The garderobe (890; Fig. 3 No. 2; Plate XII) was built against the building's north wall, abutting walls 1515 and 1516 on its southern and western sides respectively. The stone-lined garderobe pit survived to a depth of 1.67 m., with a maximum of 27 courses still *in situ*. The structure presumably originally rose to first floor level to serve a garderobe constructed off the north-west corner of the first floor accommodation. Like the main walls, with which it was presumably contemporary, the garderobe pit walls were constructed of rough hewn limestone blocks of variable sizes, bonded with clay. They were trench built within a construction cut (897) dug into natural gravel and earlier pits. The pit appeared to have been partially cleared out during its period of use (cut 1119, cutting into fill 1126) and deliberately backfilled when the back range was demolished (Phase 4, below; backfilling deposits 1122 and 1123).

With regard to the plan of the building, if the suggestion made above is correct, the street front may have been occupied by a warehouse and private domestic accommodation ('chamber'), with the back range as a more public space ('hall'). On the other hand, if the back range was storeyed and had a garderobe at first-floor level then the back wing may have been more private, though it could have had a public room at ground level. There is no reason to suppose that fixed plans were yet being used, but when the Warden of Merton came to build a new lodging across the road towards the end of the 13th century he had a hall parallel to the street along the front, and his chamber in the back wing.

Two wells were constructed (1451 and 1497) within the yard behind. Both were circular in plan, measuring 1.76 and 2 m. in diameter, and were excavated to the water table, which was reached at depths of 2.41 and 1.4 m. respectively.

There was disappointingly little artefactual or environmental information from the back range. Only small quantities of Cotswold type and Medieval Oxford wares were recovered from the construction cuts and floor surface, and two environmental samples taken from the floor were very poor in charred remains.¹⁸ Some charcoal shows the typical range of species for the site at this time, including oak, alder or hazel (including roundwood), *Maloideae* (apple, pear etc.) and possible willow. Small quantities of animal bone from the fills of the garderobe pit included bones of goose and another unidentifiable bird. The main garderobe fill (1126) also contained two interesting pottery vessels in Medieval Oxford ware. One of these was a near-complete small jar, thickly sooted on the outer surface and heavily limescaled on the inside, which had obviously been used for heating water (Fig. 12 No. 5). The other was a fragment of the base of a yellow-glazed tripod pitcher with two large holes drilled through it (Fig. 12 No. 7). The purpose of this is unclear. A large quantity of oyster shells and a 13th- to 14th-century type of writing lead were found in the fills of robber trenches subsequently dug to demolish the garderobe in Phase 4 (see below), and could have been lost or discarded in the pit during its period of use.

Rubbish pits (Fig. 4 and Table 4)

Much more can be made, however, of the material from a total of 35 intercutting pits dug towards the rear of the site during this phase, presumably for the disposal of the household's rubbish (Table 4). These lay to the east of the Phase 2 pits of group C and have distinctly

¹⁸ R. Pelling, 'Charred and waterlogged plant remains', in D. Score and D. Poore, 'Postmasters' Hall Yard, Merton College, Oxford: post-excavation assessment and updated research design' (Oxford Archaeology 2003), 20.

different ceramic assemblages. Almost all contained Brill-Boarstall ware pottery in addition to Cotswolds type and Medieval Oxford wares, and the proportion of North-East Wiltshire ware rises to just under 14% of the assemblage in this phase, suggesting that it was readily available in Oxford at this time. The largest pit, 1198, measured 4 x 3 m. in plan and was just over 2 m. deep. Some of the Brill-Boarstall pottery was highly decorated, and examples of two green-glazed jugs with applied rouletted strips are illustrated in Figures 12 and 13 (Nos. 6 and 10). Also notable amongst the pottery assemblage for this phase are fragments from four Brill-Boarstall ware lamps, two recovered from fill 1431 of pit 1213 (Fig. 12 Nos. 8 and 9). The first glass vessels from the site are also present in contexts of this phase. Rim and body fragments from a urinal were found in a middle fill of pit 1173, and the convex base and body fragments of a second urinal came from a middle fill of pit 1198. Urinals were made in much the same form from at least as early as the 13th century up to the late 16th or early 17th century. They were used in the practice of uroscopy, the inspection of urine to monitor health and diagnose illness. Uroscopy would have been practised by physicians, but perhaps also by 'health-conscious' laymen, given the presence of urinals at sites such as the manor of the Barentin family at Chalgrove.¹⁹ Evidence from environmental samples, however, does hint that the occupants of the present site may have had a particular interest in medicine, and this is discussed further below. Only a few other non-ceramic finds were recovered from features of Phase 3, comprising a buckle plate fragment, a knife blade and a polished bone implement of unknown function.

Almost all pits contained roof tile fragments, although generally in quite small quantities. In contrast with Phase 2, in which roof tile fragments tended to occur in the upper fills of pits, in Phase 3 they occur throughout the fill sequences, suggesting that roof tiles were present on the site during the first half of the 13th century. The fragments that ended up in the pits could have been waste from an original roofing, a re-roofing, or even individual episodes of repair. The material present in Phase 3 pits includes peg tiles with green and brown cover glaze, peg tiles in a creamy yellow fabric that may be a particularly early type, and ridge tile fragments with brown and green glazes. One of the ridge tile fragments had an unusual trapezium-shaped crest (Fig. 22 No. T24), and another had a hole, probably for a finial. A few fragments of stone roofing tiles were also found. Stone and tile were in use for roofing from at least the later 12th century. They were safer than thatch, being non-combustible, but more expensive, and it was presumably the building on the street frontage that was most likely to have benefited from a fine roof of glazed tiles, with a decorative ridge. John Cotter ('Ceramic building materials', below) has suggested that the presence of the creamy yellow tiles could indicate that the roof incorporated a chequered design. Whether the back range behind would have been roofed as elaborately is hard to say.

Animal bone from the pits generally comprised small quantities of a wide range of elements, suggesting that the material derived largely from food remains. Bones from cattle, sheep or goats and pigs were present, together with a single bone from a fallow deer, and bone from hare, geese, and numerous medium and small birds which would have been regarded as a luxury in the medieval period. A sample from pit 1173 was particularly rich in fish bone, dominated by herring and whiting, but with several bones from cod, eel, cyprinid (including gudgeon) and small pike identified, as well as a large conger eel and a ling. Apart from the pike and eel, which may have been caught locally, most would have been traded as salted, dried or pickled fish.

¹⁹ J. Haslam, 'Vessel Glass', in P. Page, K. Atherton and A. Hardy, *Barentin's Manor: excavations of the moated manor at Harding's Field, Chalgrove, Oxfordshire 1976-9* (Oxford Archaeology Thames Valley Landscapes Monograph No. 25, 2005), 110.

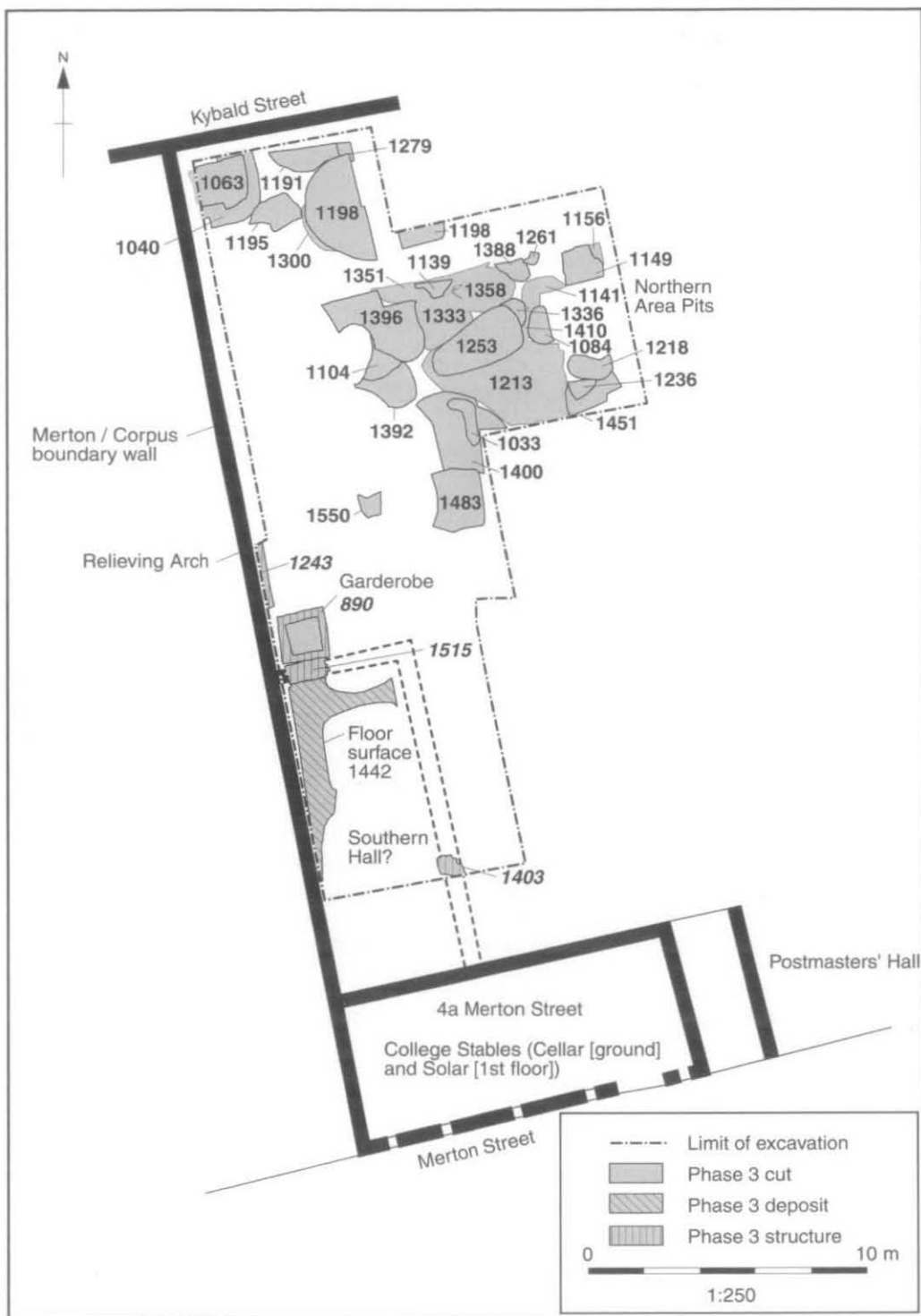


Fig. 4. Plan of phase 3 features.

Environmental samples from pits 1173 and 1483 (samples 36, 33 and 67) contained processed grain, although in contrast to Phase 2, wheat, rye and oats heavily outnumbered barley. Occasional pulses were present, and seeds of elderberry and blackberry or raspberry. Mineralised remains in sample 67 also included a sloe or cherry stone. Charcoal was mostly from oak, with some elm, *Prunus* (cherry) or *Maloideae* (apple, pear) and alder or hazel.

Exceptional results, however, were obtained from waterlogged material in sample 51, also from pit 1483. Tree species identified include large-leaved lime, field maple, birch, beech and willow. Willow may have been growing naturally as a shrub or tree on the floodplain towards the rivers, but Ruth Pelling comments that the other species are all rare in an urban environment and not commonly recorded from contemporary sites. It would seem very likely that there were ornamental trees planted either at or near the site. In addition, orchard planting is suggested by the range of fruit remains, which include grape, plum, bullace/damson/greengage, cherry and walnut. Fig seeds were probably from imported fruit, but the blackberry, raspberry and hazelnuts present could have been grown in a garden or collected from the wild.

In addition, three possible medicinal species were identified in sample 51: opium poppy, hops and cannabis. The poppies might have been weeds or ornamental plants, but the evidence for the deliberate preparation of cannabis seeds suggests that a medicinal use is likely. Hops and hemp were commonly grown for fibre in the past, but the presence of their seeds here suggests that they were the intended crop. The cannabis seeds had all been broken or shattered as if they had been pounded to break them up, possibly for medicinal use. Mark Robinson has previously suggested that a similar range of plants from a site in St Thomas's St. is likely to represent, if not a physic garden, then a medicinal herb plot.²⁰ At that site, a pit associated with a later 13th-century stone-founded house contained waterlogged seeds of opium poppy and hemp, together with seeds of greater celandine, hemlock, henbane and mint, all plants with medicinal or culinary uses. Mark Robinson noted that this could be compared with a similar sample of opium poppy, greater celandine, hemlock and henbane, along with other possible medicinal plants, from a 15th-century drain at the Dominican Priory in Oxford.²¹

The Edrich family

It is not known who built the stone mansion at No. 4a Merton St. From c.1228, however, the property was in the hands of the Edrich family: at first Matilda (possibly the widow of Robert?), who is recorded c.1228, then Nicholas, and finally John and his wife Emma, who sold it to the first Warden of Merton College, Master Peter of Abingdon, in 1272-3.²²

²⁰ M. Robinson, 'Macroscopic plant remains', in A. Hardy 'Archaeological excavations at 54-55 St. Thomas's Street, Oxford', *Oxoniensia*, lxi (1996), 263-7.

²¹ M. Robinson, 'Plant and invertebrate remains from the Priory drains', in G. Lambrick, 'Further excavations on the site of the Dominican Priory, Oxford', *Oxoniensia*, l (1985), 196-201 and Fiche.

²² H.E. Salter, *Survey of Oxford*, ed. W.A. Pantin. (O. H. S. n. s. xiv and xx, 1960 and 1969), SE(186). Around 1228, Alexander Knyt (also known as Alexander the Carpenter), who appears to have been a man of some status in the area, granted his property, which lay immediately to the east (now Postmasters' Hall), to the Hospital of St. John. It is described as lying between the land of Thomas le Macun and Matilda Edrinc in St John's in 'Kybaldistrete': *Cartulary of the Hospital of St John*, II, ed. H. E. Salter (O.H.S. lxxviii, 1915), 106 (591). In 1268-9, John son of Nicholas son of Robert Eddrig granted the property to his wife Emma in dower. In this deed it is described as a messuage that descended to him from his father Nicholas, lying in the parish of St. John, Oxford, between the land of the Prior of St. Frideswide (to the west) and the land of Alexander Knyt, extending to the street called 'Kyboldestrete', J.R.L. Highfield, *The Early Rolls of Merton College* (O. H. S. n. s. xviii, 1963) 409 no. 25 (MCR 346). Alexander Knyt was one of the witnesses of this deed. For the sale to Master Peter of Abingdon see under phase 4, below.

TABLE 4: PHASE 3 PITTS

Cut number	Length (m)	Breadth (m)	Depth (m)	Fills	Notes
1451 (well)		1.76	2.41+	1495, 1445, 1446, 1447, 1448, 1449, 1450, 1241, 1240	200, 300, 352, 1 sherd early to mid Saxon. Roof tile
1497 (well)		2.0	1.4+	1503, 1402, 1498	100, 200, 202, 300, 352. Roof tile
1036	0.70	0.60	0.10	1037	—
1040	2.60	2.40	2.20	1076, 1061, 1075	200, 300, 352. Roof tile i/c one piece cut to form ?gaming piece
1063	2.40	2.30	2.40	1039	200, 202, 300, 352. Roof tile
1084	1.34	0.80	1.12	1086, 1085	200 (1 sherd), 202, 300, 352. Roof tile
1104	2.50	1.20	0.80	1089, 1088, 1087	100, 200, 202, 300. Roof tile
1139	1.25	0.45	0.05	1140	300, 352
1148	1.05	0.80	0.57	1153	—
1149			0.78	1150, 1151, 1152, 1049	200, 202, 300, 352. Roof tile (early creamy yellow fabric)
1156	0.80	0.80	0.60	1453, 1452, 1169, 1157	100, 200, 202, 300. Roof tile (early creamy yellow fabric)
1170	1.15	0.77	0.32	1171	200, 300. Roof tile
1173	1.60	0.68	1.64	1211, 1208, 1196, 1176, 1175, 1174	200, 202, 205 (Stamford ware), 300, 352. Roof tile and stone rubble. Glass urinal frag. S33. S36. Much animal bone i/c bird bone from samples
1191	2.30	0.80	0.70	1195, 1281, 1193	100, 200, 202, 205 (Stamford ware), 300, 352. Roof tile.
1198	4.00	3.00	2.15	1227, 1200, 1201, 1202, 1203, 1204, 1205, 1199, 1207, 1437, 1228, 1229, 1230, 1231, 1232, 1436, 1206	100, 200, 202, 300, 352. Roof tile i/c trapezoidal crest ridge tile, one early tapering type ridge tile, one with green/brown splash/cover glaze and dog paw print. Glass urinal frag.
1213	5.00	3.70	1.67	1431, 1430, 1212	200, 202, 300, 352 (i/c lamps). Roof tile. Buckle plate frag.
1218	1.40	0.60	0.86	1226, 1220, 1219	202, 300, 252
1236	0.90	0.70	0.84	1237, 1238, 1239	100, 200, 300. Hare bone
1248	0.73	0.51	0.36	1249	—

1253	3.00	2.00	0.35	1255, 1254	100, 200, 202, 300, 352. Roof tile i/c early creamy yellow fabric. Knife blade frag. and frag. bone object. Fallow deer bone.
1261	0.52	0.44	0.60	1260, 1259	200, 300, 352
1279	0.70	0.40	0.80	1280	200, 300, 352 (lamp)
1282	2.20	1.00	1.40	1283, 1284, 1194, 1192	200, 300, 352
1300	2.45	2.05	0.30	1301	200, 300, 352. Roof tile i/c ridge tile with brown cover glaze
1323	0.83	0.36	0.58	1322	200, 202, 300, 352
1333	2.20	1.80	1.60	1496, 1334, 1278	200, 300, 352. Roof tile i/c early creamy yellow fabric
1336	1.55	0.6	0.51	1335	202, 300, 352
1351	3.22	0.60	1.23	1357, 1356	202, 300, 352
1358	1.98	1.70	0.79	1423, 1422, 1419	200, 300. Roof tile
1388	0.91	0.83	0.45	1387	—
1392	2.06	1.40	0.55	1393	200, 202, 300, 352
1396	3.20	2.40	0.45	1399	200, 300, 352. Lamp
1400	3.00	2.50	1.80	1521, 1464, 1463, 1462, 1461	200, 202, 300, 352. Roof tile. Cat bones
1410	1.35	1.26	0.70	1409, 1408, 1407, 1406	200, 352
1411	1.70	1.06	0.40	1412	352
1427	0.8	0.63	0.23	1428	—
1483	1.80	0.60	2.00	1501, 1500, 1499, 1486, 1485, 1484	200, 205 (Stamford ware), 300. S51 very rich waterlogged sample (i/c cannabis, hops, opium poppy). S67
1550	0.98	0.50	1.00	1548, 1549	200, 300, 352

We cannot know for certain that the Edrich family actually lived on the site, but it seems more likely than not, given that they had a substantial stone house here and are not known to have had land elsewhere in the town. They also held a second property on the opposite side of Kybald St., which John sold to his future brother-in-law *c.* 1260 (see below).²³ The association between this family and the stone house is of great interest, since it provides an unusual insight into the early ownership of such properties in a medieval town.

²³ Salter, *Survey*, SE(218); S. Wigram, *Cartulary of St Frideswide's*, i (O.H.S. xxviii, 1894), 413 (587).

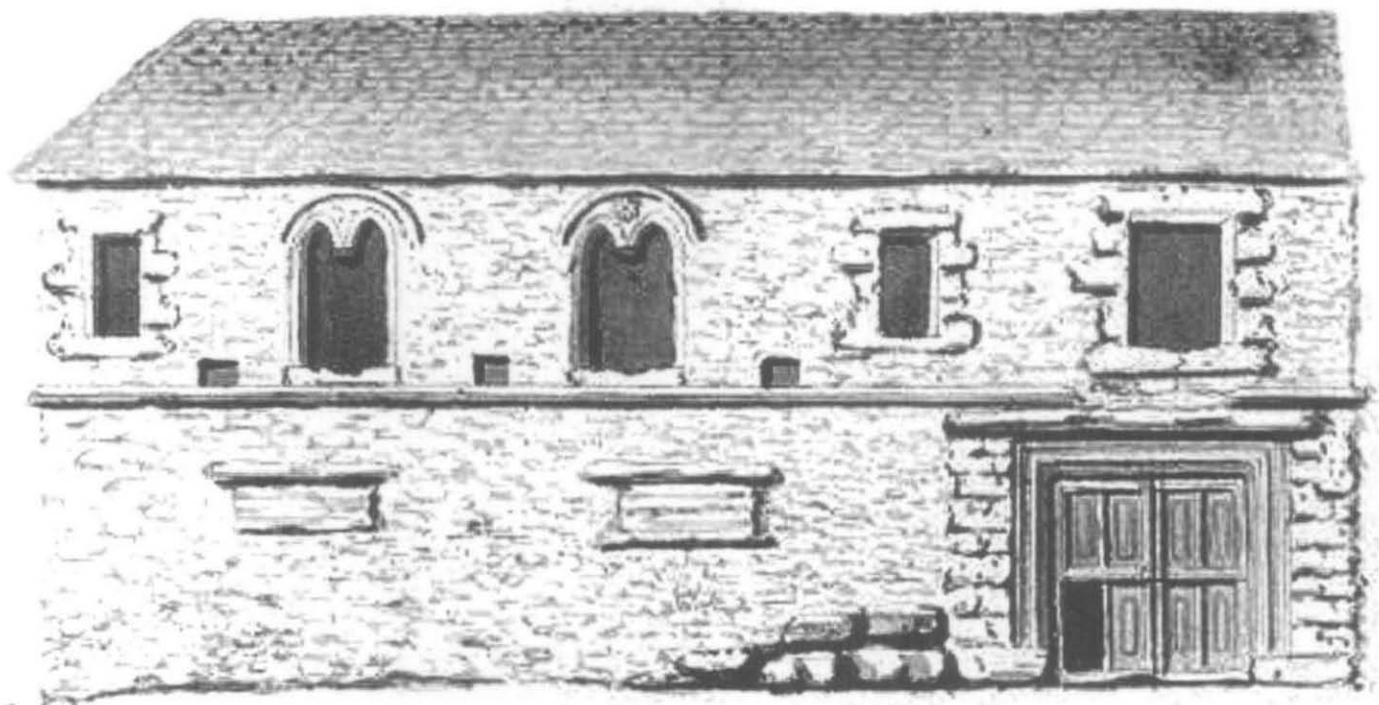


Fig. 5. No. 4a Merton St. (Merton Stables), depicted by James Green c. 1750 (Bodl. MS Gough Oxon 50.27, reproduced by Skelton in *Oxonia Antiqua Restaurata*, 1823)

Documentary sources can provide us with a little more information about John Edrich and his family. His father Nicholas appears to have been a man of some standing. The record of a legal case heard in Oxford in March 1252 suggests that Nicholas was the master (*dominus*) of a man called John Sutor who had been murdered. Nicholas had accused another burgess of Oxford, Philip Curteys, of committing this crime, according to Curteys falsely and maliciously after an argument between them. Curteys had been arrested and detained at the prison of Westminster Abbey in Westminster, or had perhaps taken refuge in the sanctuary at Westminster until he could clear his name. In the event he was exonerated by the Oxford jury, it being known that another man, John Benereche, had abjured the realm for the murder.²⁴ It is likely that Sutor was a servant, apprentice or perhaps a journeyman of Nicholas Edrich. The name usually means a tailor, although it could also be used of a shoemaker. If John was indeed a tailor or shoemaker, this would provide a very interesting insight into Nicholas's own business activities, although it remains possible that he had inherited the surname and was himself following a different occupation. What is also interesting, however, is the possibility that Nicholas Edrich had sufficient influence to engineer the arrest and detention of Curteys by Westminster Abbey.

We hear more of John in a deed of 1282-3, relating to his acquisition of a house in Shidyerd (Oriell St.), in which he is referred to as John *Pictor* (the painter), son of Nicholas Edrich.²⁵ This property, known as Foxhall, was mentioned by the 16th-century antiquary Brian Twyne as occurring in the will of John 'le Peyntour', of the period 1321-2,²⁶ and occurs again in a deed of 1348 by which two parts of a messuage called Foxhall were granted to St Frideswide's by John Forlang, clerk of Oxford, with the third part being held by Margaret widow of Edmund le Peyntour for her lifetime.²⁷ John, we can assume, was most likely a painter (if not a sculptor), but whether he was involved in Oxford's book trade, glazing or wall-painting cannot be known.²⁸ However, his wife was the daughter of Hugh the Limner (Illuminator) of Catte Street, the centre of book production, and was presumably a man who decorated manuscripts. Hugh's son Richard, however, to whom John Edrich had sold his property on the north side of Kybald St., was a barber. Subsequently, Richard gave the property to his stepdaughter (Marion, daughter of Basilia, Richard's wife) and her husband Richard de Morton, also a barber. In c.1290 Richard and Marion granted the property to St Frideswide's Priory.²⁹

If the association of this family with a substantial stone house is unexpected, then so too is some of the other evidence from the pits in their backyard. Lamps, highly decorative Brill-Boarstall ware jugs and a writing lead are perhaps not unusual finds from the home of a prosperous tradesman. More unusual, however, are the fragments from two urinals, and the botanical evidence for the presence in the vicinity of ornamental trees, an orchard and a medicinal herb garden. During post-excavation analysis, careful consideration has been given to the possibility that these remains derive from the early years of the college's ownership of the site (Phase 4, below), rather than from the tenure of the Edrich family. There is no clear archaeological dating horizon between the end of Phase 3 and the beginning of Phase 4 and it is possible that some of the later pits in the sequence, at least,

²⁴ H.E. Salter, *Snape's Formulary* (O.H.S. lxxx, 1924), 268 (3) = PRO C144/1/10.

²⁵ *Cartulary of Osney*, ed. H. E. Salter (O.H.S. lxxxix-xci, 1928-9), i, 368 (426).

²⁶ Bodl. MS Twyne xxiii, 556.

²⁷ *Cartulary of Osney*, i, 369 (427).

²⁸ John Harvey, *Mediaeval Craftsmen* (1975), 159ff.

²⁹ *Cartulary of St. Frideswide's*, 413 (588) of 1260 x 1290, and 414 (589), of c.1290.

could equally well be rubbish pits that were in use while members of the college were occupying the stone mansion, between c. 1272-3 and 1290, if not after. It would be easier to attribute the practice of uroscopy, the preparation of medicines, and the orchard and ornamental trees to Merton College (which is known to have had a garden) than to the family of a painter. However, perhaps we should not feel obliged to do so. It is unlikely that the college used the stone mansion for residential accommodation for very long. By 1290 at the latest No. 4a was in use as a stables, and it seems entirely possible that the back range had been demolished by this time, and a new house constructed on Kybald St. (see below). The majority of the Phase 3 pits either underlay this new house or were located immediately outside it and they cannot have continued in use for rubbish disposal.

The picture that thus emerges of the Edriches is of an established family of burgesses, occupying a stone house in a fairly newly developed area of the town, with an indoor privy and a decorative tiled roof. Houses of this sort, while not uncommon in major medieval towns, were certainly in a minority and belonged to the more prosperous.³⁰ Several 'stone houses' are documented in Oxford between 1190 and 1250, and while the Edrich house is one of only two survivors, remains of seven others are known from a variety of sources (see Appendix 'Stone Houses', below).³¹ From at least 1206, the area had its own parish church, of St John the Baptist, later taken over for Merton College's chapel. The difficulties of distinguishing for certain between rubbish generated by the Edriches and that possibly generated by short-lived Merton College occupation at the site in the mid to late 13th century has been discussed above. However, there is no evidence of a sudden change in the material standard of living as one household succeeded the other. The occupants of the stone mansion enjoyed a good diet that included beef, mutton, pork, geese, hare, venison and luxury small birds, an increasing range of fish, although most of it in cured form, and an impressive variety of fresh fruit and nuts. Tablewares included highly decorative pottery jugs. Evidence for a literate household, possibly the keeping of business records or academic study, is provided by the writing lead and the lamps for lighting, an expensive commodity in the medieval period. The evidence suggests that one, or possibly both, households had an interest in medicine. The comparable evidence from the suburban site in St. Thomas's suggests that the growing of herbs and preparation of medicines may have been more widespread than is currently apparent from archaeological evidence, although in neither case can we be certain whether this was for purely private consumption or for wider supply. We can only speculate whether any more formal connection with medicine can be inferred from evidence that Merton College fellows were studying the subject at this time, or from the fact that there were barbers in the Edrich family (who would have carried out surgical procedures in the medieval period as well as cutting hair).

These results are of particular interest in two respects. They provide evidence firstly for the nature of this area of the town during the 13th century, and secondly for the standard of living of a well-to-do burgess family. The Edriches, although clearly comfortably off, were not in the first rank of burgesses of the town and represent a level of society that is not often very obvious to us in the documentary or archaeological record. They provide an unusual insight into the aspirations, lifestyle and perhaps the interests of a class of people we can otherwise only very rarely identify with any certainty, in Oxford or elsewhere.

³⁰ For a general account of merchants' stone houses, see A Quiney, *op. cit.* note 17, chapter 13.

³¹ For a general discussion of early houses in Oxford, see J. Munby, '12th- and 13th-century houses' in Dodd (ed.), *op. cit.* note 4, 60-1.

*Phase 4: Mid 13th to mid 14th Century (Fig. 6; Plate XIV)*Summary and dating

Phase 4 is dated to the period from the mid 13th century to the mid 14th century. This is based on pottery chronology, with no pottery present that dates later than the Surrey Whiteware tradition. The absence of 'Tudor Green' wares from this phase suggests it ended in the later 14th century, since 'Tudor Green' wares first occur in London c.1380, spreading to Oxford soon after. The phase therefore covers the period of the acquisition of the property by the first Warden of Merton College, Master Peter of Abingdon, and the first century or so of the college's ownership, although there remains a possibility that some of the later pits described under Phase 3 derived from college use of the site.

The back range of the great stone house at No. 4a Merton St. was demolished in this phase. As has been noted above, a number of devices had been adopted by the builders to counter the instability of the ground here, where there were large 11th- to 12th-century pits filled with organic waste that would have been decaying and compacting. It seems very likely that this would have caused problems of subsidence for the building, and this is possibly what prompted its demolition. A new house, which was much more substantially built, was constructed on the Kybald St. frontage of the property. Unfortunately, the exact sequence of events cannot be demonstrated from the archaeological evidence. However, it seems very likely that the possibly unstable southern hall was demolished first, and all reclaimable material from it was then used in the construction of the second building, with only unusable broken tiles and small stone rubble left behind. It is particularly notable that there was very little of the miscellaneous building ironwork such as hinge pivots and nails that are usually quite common on sites of this type, suggesting that the reclamation operation had been very thorough.

The demolition of the back range of the stone house (Fig. 6)

The demolition of the superstructure of the building was represented by a layer of compact demolition rubble (1494=1441) found overlying floor layer 1442, and layers of redeposited natural gravel and silt (1440, 1439 and 1438). The builders must have taken care to avoid undermining or destabilising the west wall, which served as the property boundary, since the foundations of the west end of north wall 1515 and the stone lining of the garderobe pit had been left standing to quite a high level (see Plate XII). The eastern foundations of north wall 1515 were dug out, however. A trench was dug around the wall, and the stones were removed (robber trench 1505; fill 1522); a pit (1572) in the area may have been dug for the same purpose. The eastern wall of the building appears to have been very thoroughly robbed, as almost nothing survived of it. Similarly, there had been some robbing of the east side of the garderobe pit. Subsequently, the undercroft was backfilled with gravelly soils interspersed with lenses of ash and dark grey sand.

Pottery from the demolition rubble and the fills of the robber trenches consisted chiefly of Cotswolds-type, Medieval Oxford and Brill-Boarstall wares. However, the presence of two sherds of Surrey Whiteware in deposits associated with the robbing of the garderobe provides some evidence to suggest that the demolition of the building took place after the middle of the 13th century. Otherwise there were very few finds associated with the demolition deposits, the only exception being the robber trench fills associated with the garderobe lining. Within these fills were large amounts of oyster shells, lumps of mortar and a 13th- to 14th-century writing lead. It is possible that the shells and the writing lead, as well as the pottery, had been in the garderobe pit when the building was demolished (see Phase 3, above).

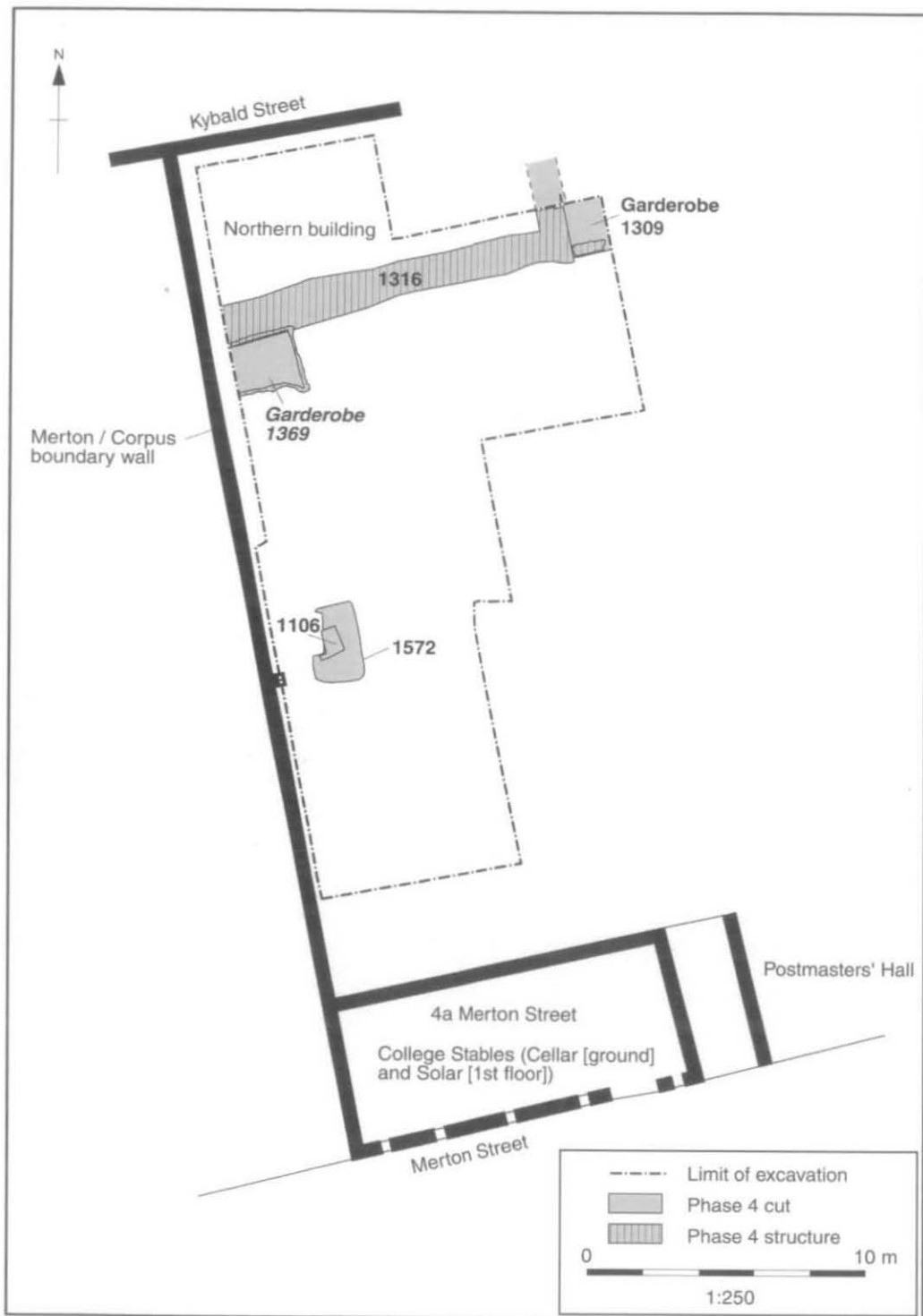


Fig. 6. Plan of phase 4 features.

The construction of a building on the Kybald Street frontage (Fig. 6)

A new, substantial stone building was constructed on, and parallel to, the Kybald Street frontage of the site. Only the southern wall and part of the south-east corner of this building lay within the excavated area. However, the southern wall extended to the west edge of excavation, and therefore presumably to the western boundary of the property, and it may therefore be assumed that it covered an area of some 11-12 x 5 m. internally, extending northwards to the street frontage. Evidence for the building's construction consisted of the construction cut, foundations and slight remains of the southern wall and the south-eastern corner. The construction cut (1316=993) measured 6.3 x 1.3 m. and was 1.4 m. deep. It was flat-based with vertical sides. Within it the wall foundations (988=984) comprised a mixture of dressed ragstone blocks and rubble pieces of varying sizes. The southern face of the foundations was well-constructed, surviving to a height of 1.1 m. over a distance of some 6 m. in total. Only short lengths of the wall itself (994=1011) survived above. Three courses survived at the south-eastern corner of the building, bonded by an orange clay. Here, a length of 1.28 m. survived of the southern wall, and 0.7 m. of the north return. The west end of this wall was identified from the trench dug to rob out its foundations (robber trench 933=936), although a wall footing (988) survived at its base.

This building was much more substantially founded than the back range at the southern end of the site. As before, the building had to be constructed in an area that had seen intensive earlier pit digging. However, in this case where the builders encountered pits, the fills were entirely dug out and the foundations taken down to the underlying natural gravel (Plate XIV).

Garderobe 1309 and garderobe pit 1369 (Fig. 6)

A stone-lined garderobe (1309) was constructed at the east end of the building, abutting its south-east corner. Only the south wall of this structure lay within the excavation area. A construction cut for the garderobe pit was recorded, which measured 1.72 x 1.26 m. and 1.8 m. in depth within the excavated area. The east edge of the garderobe had been cut away by the later insertion of the Real Tennis Court wall. The garderobe had four surviving fills, but only the lowest of these (fill 1262) is likely to be contemporary with the occupation of the building. The date of pottery and other finds in the later fills (1209, 1190 and 1050) suggests that the stone-lined pit was later cleaned out and continued to be used as a latrine for the college stable yard long after the house had been demolished, and these fills are discussed further under Phase 7, below. A second garderobe pit (1369) was constructed at the south-west corner of the building, butting against the southern wall. The stone walls of the pit (989, 951 and 1372) were trench-built into a construction cut (1418) roughly 2.3 m. square, that survived to a depth of 2.35 m. The stone lining consisted of rough-hewn limestone blocks of variable sizes, and survived to a height of 2 m. This garderobe appears to have been in use entirely during the lifetime of the building, and is the source of some of the most important evidence for its occupation. A sequence of 12 fills were identified. Layer 1360 contained rubble and limestone pieces, possibly capping off earlier garderobe fills. Above layer 1360, the pottery suggests a 14th-century rather than a 13th-century date.

Finds and environmental evidence

The finds from this phase are entirely consistent with a prosperous and literate household, with some elements of the assemblage suggestive of very privileged occupants. Fragments of roofing tile were present among the surviving foundations and the fills of garderobe pit 1369. Pottery comprised a mixture of Cotswolds-type, Medieval Oxford and Brill-Boarstall wares. However, this notably included a number of fragments of Brill-Boarstall Ware lamps (Fig. 14 Nos. 14-16), highly decorated jugs (Fig. 13 No. 11 and Fig. 14 No. 13) and a skillet

that could have been used for reheating food on a portable stove in a bedroom. This vessel has clearly been heated as the base is heavily sooted. The primary fill of garderobe pit 1369, fill 1371, contained broken pieces from a glass urinal, along with one of the most significant finds from the entire site, fragments from an emerald green high-lead glass beaker with glass trail decoration (see 'The Glass', below; Fig. 21 No. 1). This is the first example of medieval glass tableware to be excavated in Oxford, and is one of only two excavated examples of this type of glass in Britain, the other being from Gresham St. in London. It was probably imported from Germany and is of 13th-century (or possibly 14th-century) date. If it belonged to the occupant of the northern building, then it is suggestive of a very high status household indeed. Other finds come from higher fills 1364 and 1368, and comprise a broken earscoop/tweezers set (Fig. 19 No. 1) and a fragment from a pair of scissors, both possibly personal toilet items, and two keys. It is interesting to note that the medieval college accounts frequently mention the purchase of locks and keys for chests, rooms and gates on college property, suggesting that there was some preoccupation with the need for keeping money and valuables secure.

Three samples of plant remains were analysed from fills 1371, 1373 and 1361 of garderobe pit 1369 (samples 46-8) and from the lowest fill of garderobe pit 1309 (fill 1262, sample 42). The presence of mineralised seeds suggests that some of this material did indeed derive from sewage deposits. Wild strawberry, fig, grape, plum/bullace, sloe/cherry, apple/pear and bramble/raspberry pips and seeds were identified, as well as elder. The presence of broken fragments of the seeds of corn cockle suggests that this common cornfield weed had been ground and consumed accidentally with bread.

The animal bone assemblage from Phase 4 was relatively small. Material from contexts associated with the robbing and demolition of the back range at the south of the site, and the construction of the new building on the Kybald St. frontage, is very likely to have been redeposited material from Phase 3 pits. The only substantial group of animal bone that seems certain to be contemporary with Phase 4 occupation of the Kybald St. building comes from the fills of garderobe pit 1369. It consisted primarily of a small number of meat-bearing elements of cattle, with a little sheep and pig, some bone from domestic fowl, goose and unidentified bird, and a single bone of roe deer. A large group of fish bone was recorded from environmental sample 42, with a much wider range of species present, including herring, eel, pike, cod, whiting, ling, haddock, plaice and roach. Several of the herring and eel bones were distorted in a manner consistent with chewing and digestion. As before, it is likely that the marine fish were traded in preserved form, as dried cod and ling, and pickled herring.

Master Peter of Abingdon, and the acquisition of the site by Merton College (Fig. 7)

During the 1260s, Walter de Merton, the founder of the college, was acquiring property for the support of a community of scholars at Oxford. His original idea was to provide for the education of his own kin, principally the descendants of his seven sisters, and those of his mother's sister and brother. The community was originally based at Malden in Surrey under the authority of Merton Priory, with which Walter had long had close connections, but properties were acquired for a residence at Oxford. During the 1260s, Walter acquired a number of manors and benefices for the financial support of his foundation, and also a number of properties in Oxford, on the south side of Merton St., which formed the nucleus of the college site.

By the early 1270s it had been decided that the community would move to Oxford, where it would function as a self-governing establishment. In the early 1270s (1272-3) Master Peter of Abingdon (also known as Master Peter Lakynge), the first Warden of the college, acquired three properties on the north side of Merton St. opposite the college's main site (Fig. 7).

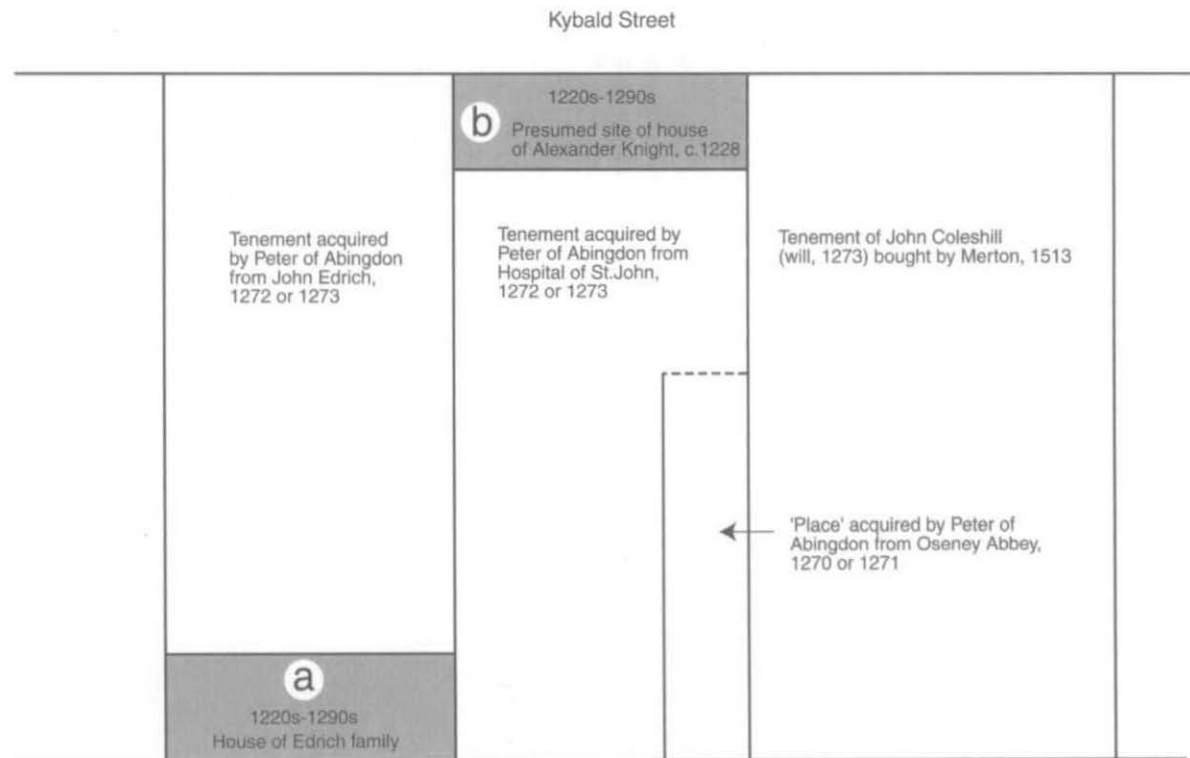


Fig. 7. Tenements on the north side of Merton St. (after R. Peberdy in A. Bott, op. cit. note 48, plate 5).

These were the tenement of Alexander Knight (now Postmasters' Hall), which had by then become a property of the Hospital of St John, a property of Oseney Abbey, which seems to have been a small piece of land on the east side of the Knight tenement, and to the west the tenement of John and Emma Edrich, the site of the excavations, for which he paid 10 marks of silver.

The original charter recording the acquisition of the site is preserved in Merton College's archives, with the seals of John and Emma:

Noveritis nos dedisse, concessisse, et hac presenti carta nostra confirmasse magistro Petro de Abbyndone et heredibus suis vel suis assignatis quibuscumque unum mesuagium cum suis pertinentiis in parochia sancti Iohannis baptiste infra muros Oxon', illud videlicet quod iacet inter domum Alexandri Knhit ex parte orientali et domum prioris sancte Frithewyde ex parte occidentali et abutatur ex parte boreali in vicum qui dicitur Kybaldestrete et ex parte australi in vicum predicti sancti Iohannis Baptiste ex opposito Domus scolarium de Merton' ...³²

The properties were acquired by Master Peter in his own name, and are consistently referred to in the college records as the *curia magistri Petri* or the *curia exterior*. It is not improbable that he lived here during some of his period as Warden (1264-86) while the college was being built, and it has been suggested that the properties were used for the accommodation of the young relatives of Walter de Merton (known as the *parvuli*) and their master.³⁴ The next insight we have into the use that may have been made of the properties comes from a deed from the University, dated 9 October 1276, which states that the house of Master Peter of Abingdon had been granted for three years for the academic use of Master Thomas of Colebrigg.³⁵ Where Master Peter's successor lived is uncertain, as is the location of the 'aula custodis' mentioned in 1283, and of the 'domus custodis' that was plastered or whitewashed in 1286-7.³⁶ The Warden eventually came to occupy Flixthorp's house on the east edge of the main college site, where major building works took place in 1299-1300 to create a Warden's house, which ultimately consisted of a hall, a *camera* or solar over a cellar, and a kitchen.³⁷

By the mid 1280s there seem to have been serious problems between the Warden and the fellows, which led to the intervention of the Archbishop of Canterbury, the Visitor of the college. The fellows were allegedly limiting the increase in their numbers in the hope of increasing their stipends. Some of them were living luxuriously and too much was being paid to the brewer and the cook. Some of those who ought to have been studying theology were in fact studying medicine, and the nephews of the founder were being neglected.³⁸ We do not know where Master Peter himself stood in these matters, but he retired as Warden in 1286, shortly after the settlement. Thereafter, the records show that he remained in close

³² For a detailed account of the foundation, see the introduction to Highfield, *op. cit.* note 22 and Pantin's views of the site in *c.*1250 and *c.*1350 at p.376.

³³ Highfield, *op. cit.*, 424-5 (42) = MCR 344.

³⁴ G.H. Martin and J.R.L. Highfield, *A History of Merton College* (1997), 35.

³⁵ Highfield, *op. cit.* note 22, 430 = MCR 339. This deed states that although the house had been granted for three years for the academic use of Master Thomas this would not necessitate its use as an academic hall in the future. However such dispensations were relatively common at the time, and this may have been acquired as a precaution.

³⁶ Highfield, *op. cit.*, 206 (MR 3614), and 223 (MR 3616).

³⁷ Highfield, *op. cit.*, 60-2, 343ff (MR 4062); the view stated in *Early Rolls* that the Wardens' house was built in the 1280s was later modified in Highfield's article 'Aula Custodis', *Postmaster* (1970), 14-22; see now A. Bott, 'The Domus Custodis', *Postmaster and The Merton Record* (2006), 81-9.

³⁸ *Ibid.* 76-7.

touch with the college, although apparently sometimes living elsewhere; he received regular gifts of wine,³⁹ occasionally food, and clothing.⁴⁰ He also seems to have returned to the college occasionally as a visitor.⁴¹

The most interesting information, however, from the point of view of the current site comes from a series of entries in the bursars' accounts for the period from July 1289 to May 1290. In the second half of 1289 Master Peter was probably mostly elsewhere, as gifts of bread and wine were sent to him on at least three separate occasions.⁴² In the same period, however, the college also paid him the large sum of 66s. 8d.,⁴³ and he appears to have been at the college perhaps just before, or for, Christmas itself. This is followed, in early 1290, by information about the preparation of the Warden's stable in the curia magistri Petri, wages for two workmen cleaning the area where the stable used to be

Item in stipendio j hominis qui preparavit mangerium custodis in curia magistri Petri vij d. ob. Item in gadd' empt' et clav' ad idem ij d. ob ...

*Item in stipendiis ij operariorum ad mundandum aream ubi stabulum erat per ij dies iij d. ob.*⁴⁵

and a series of entries relating to the purchase of timber for Master Peter's house:

Meremium emptum ad domum magistri Petri

*Item in meremio empto domus magistri Petri iij s. ix d. Item in j grosso ligno ij s. vj d. qa. Item in meremio empto ij d. {iij d.} Item in clat' empt. xj d.*⁴⁶

A final reference, in July 1291, is to the purchase of a lock for the door of a latrine at the site:

*in ij gun' et j serura cum apparatu emptis ad hostium cloace in curia magistri Petri iij d.*⁴⁷

This would appear to date the use of the lower storey of No. 4a Merton St. as the Warden's stables to at least early 1290, a function it would continue to fulfil for the next six centuries.⁴⁸ The reference may relate to the conclusion of an operation that had begun a year or so earlier; the accounts of June 1288 to April 1289 suggest quite extensive works on the Warden's stables, although there is nothing to link this specifically with Master Peter's property.⁴⁹ What is meant by the reference to cleaning the area 'where the stable used to be' is also unclear, but it could perhaps be associated with an earlier reference, of 1284-5, which Dr. Highfield suggests indicates that there was a stable attached to the anchorite's house that

³⁹ For example Highfield op. cit. 218-9, Bursar's accounts for late 1286-7: *Item pro ij equis versus Habindon' ad loquendum cum magistro nostro Petro v d. ... In vino misso magistro Petro apud Niwenham ij s. vj d.*
⁴⁰ For example ibid. 233, Bursar's account for 1290: *In panno empto ad robas magistri Petri de Abbindon' et custodis lxiij s. iij d. Item in sindone empto ad robam magistri petro ... Item in tonsura predicti panni xij d.*

⁴¹ For example ibid. 218, Bursar's accounts for late 1286-7: *In stramine ad lectum magistri Petri et aliorum hospitum viij d. ob.*

⁴² Ibid. 225-7 (MR 3618).

⁴³ Ibid. 225: *Item magistro Petro de Habryndon' lxxv s. viij d.*

⁴⁴ Ibid. 303 (MR 4053): *Item in stramine empto in adventu magistri Petri ante nativitatem Domini iij d. qa.*

⁴⁵ Ibid. 301 (MR 4053).

⁴⁶ Ibid. 303 (MR 4053).

⁴⁷ Ibid. 315 (MR 4054).

⁴⁸ A. Bott, 'Postmasters' Hall', *Postmaster and The Merton Record* (2001), 64; J.R.L. Highfield, 'The Warden's Stables', *Postmaster and The Merton Record* (2003), 71-6.

⁴⁹ Highfield op. cit. 296 (MR 4052 B): *in ij bord' emptis ad mangerium equorum custodis ix d. Item in clav' ad idem iij d. aq. Item in stipendio j carpentarii ad reparandum illud mangerium per iij dies x d. ob. Item in stipendio predicti carpentarii qui fecit craticulas equorum per diem iij d. ob.*

stood just to the west of St. John's church, *In reparacione stabuli in domo incluse* [damaged] *et in reparacione murorum ibidem ij s. x d. ob.*⁵⁰ The Warden was allowed horses by the college statutes, and college officers and other fellows might also keep them.⁵¹

At this time the property still belonged to Master Peter. A petition to buy the property was drawn up on behalf of the second Warden, Master William of Worplesdon (1286-95), and the scholars, datable before 1290 but presumably in or after 1286.⁵² There appears to have been little progress in the matter before 1290, however, when the agreements of Oseney Abbey and the Hospital of St John were obtained for the transfer to the college of the properties in which they retained an interest.⁵³ In the event, Master Peter granted his house to three fellows of the college (apparently to hold on the college's behalf) between Michaelmas 1291 and Michaelmas 1292.⁵⁴ He died in the following year. From the description of the property in his grant, as his house (*domus*) in Oxford opposite the college between Coleshill's house (E) and St Frideswide (W), it is clear that this was the enlarged holding of Edrich's plus the Oseney and St John's land.

It is interesting to speculate why the college paid Master Peter 66s. 8d. in late 1289. Was this a pension, or were they buying the property from him, or perhaps making him a payment to offset expenses he would incur in obtaining the necessary agreements and licences to transfer the property into the corporate ownership of the college?⁵⁵ Did the expenditure on timber for Master Peter's house (the word *domus* is used explicitly, rather than the more usual *curia*) arise from repairs, perhaps to No. 4a, or the back range, or even to the construction of the new house on Kybald St.? Is it possible that Master Peter spent the money he had received on building a new house, close enough to the college to be part of it, but remote enough to be quite separate, perhaps with its own entrance from Kybald St.? Did he perhaps intend to pass his last years here?

Unfortunately there remain far more questions than answers and it may be that further research among unpublished records could enable us to date the construction of the new house with more certainty. At present, however, it can at least be said that the archaeological evidence would be consistent with construction around the year 1290, and the events recorded, albeit obliquely, in the accounts would suggest a plausible context within which this could have happened. The presence of unusual quantities of lamps and the high-lead glass vessel suggest the presence of a literate and wealthy household. There was no evidence that this house ever had its own kitchen, and the presence of the burnt skillet would be consistent with occupation of the building by people who were supplied with food from the college's own kitchens for reheating in a chamber, although ready cooked food for reheating could have been obtained from elsewhere in the town. The occupants of the building clearly enjoyed a good and varied diet. It is also interesting to note that the environmental samples of this phase contained very little grain or chaff. While this could be an accident of preservation it presents a striking contrast with the quantities of grain present in earlier samples, and would also be consistent with the presence of a household whose bread and beer were obtained from elsewhere.

⁵⁰ Ibid., 62 and 293, Chaplain's Account 1284-5 (MR 4051).

⁵¹ Martin and Highfield, *op. cit.* note 34, 23.

⁵² Highfield *op. cit.* 438-9, MR 2791; P.S. Allen and H.W. Garrod, *Merton Muniments* (O.H.S. lxxxvi, 1926), 28.

⁵³ Alexander Knyt's property, and the small piece of land adjacent belonging to the abbey: Highfield *op. cit.*, 440 (65) MR 264, and 441 (66) MR 343.

⁵⁴ Ibid., 442 (67) MR 269.

⁵⁵ The introduction of the provisions of Mortmain in 1278-9 sought to control such sales, and the college did not ultimately obtain a licence to acquire Master Peter's property until 1318, Allen and Garrod *op. cit.* note 52, 28.

*Phase 5: Mid to late 14th Century (Fig. 8; Plates XV-XVI; Table 5)*Summary and dating

Phase 5 is dated to the late 14th century on the basis of the continuing presence of earlier ceramic types, and the absence of pottery types introduced in the 15th century. Single sherds of jars and bowls in Brill-Boarstall ware suggest a mid to late 14th-century date, as these vessel types appear to have been introduced at that time (Fig. 14 No. 22). The pottery assemblage from contexts of Phase 5 contains relatively high proportions of wares likely to have been residual by this time, suggesting that the construction and demolition of the new building on the Kybald St. frontage had led to considerable redeposition of material from earlier pits. The fact that the builders had dug out pit fills in order to provide stable foundations suggests one means by which earlier pottery is likely to have been disturbed in the area. A very small number of sherds of later medieval pottery types (Potterspury Ware, Dutch Redware and Surrey Whiteware) were present.

During Phase 5, the building constructed on the Kybald St. frontage was demolished, and domestic occupation of the site seems to have ceased. The contents of pits dug in the southern half of the site were dominated by plants associated with the feeding, grazing and dung of animals and with rubbish pits and middens. Evidence for human food is very much in decline.

Demolition of the building on Kybald St. and pits (Fig. 8; Plate XV; Table 5)

The principal evidence surviving from the demolition of the building on Kybald St. was a stony layer, 919, cut by a robber trench (933=936) that had been dug to remove the foundations of the southern wall. The fills of the robber trench consisted of layers of soil and rubble. A number of pits had been dug in the same area (Table 5, NW corner). Pit 1165, the latest in the sequence, was overlain by a deposit of rubble and gravel, and others contained limestone rubble and ash, suggesting that all the pits in this group were associated with the demolition and robbing operation. A French jetton of the period 1380-1490 was found in stony layer 919, along with part of a lamp (Fig. 14 No. 18). A further urinal fragment, a convex base, was found in robber trench fill 949, and a needle came from fill 1056 of pit 1055. Pit 1114 contained three lamp fragments (Fig. 14 No. 19). Animal bone from stony layer 919 and from the pits associated with the demolition activity is difficult to interpret. A number of bones, particularly fallow deer, red deer and pigeon, would be consistent with a high-status diet. Other bones, however, are more likely to derive from redeposited material from the earlier pits of Phases 2 and 3 in this area, and included cattle horncores and horse limb bones, as well as more obvious food waste such as bones of goose and domestic fowl, and meat-bearing elements of cattle and sheep or goats. Five identifiable bones of fish from contexts associated with the robbing of the northern building were from large cod, conger eel and herring.

A stub of east-west wall (1045) was excavated to the north of these pits in the north-west corner of the site. The construction cut for the wall (1083) cut into the soft upper fill (1039) of Phase 3 pit 1063, into which it had subsequently subsided.

Immediately south-east of the robber trench were three intercutting pits, 1246, 1215 and 1145 (Table 5). All of these contained organic material, with characteristic green fills, and it seems likely that they were used for material cleaned out of the nearby garderobe pit. It is clear that the garderobe was cleared out and kept in use as a latrine for the stable yard until the late 17th century or later (see Phase 4, above, and Phase 7, below). The fills of these pits contained a further lamp fragment, the remains of a pottery jug and bowl (Fig. 14 Nos. 17 and 22), a bone pin and two bone styli. The styli (SFs 210 and 211; Plate XV) were used with wax tablets and are frequently found in scholastic and ecclesiastical establishments (see Allen,

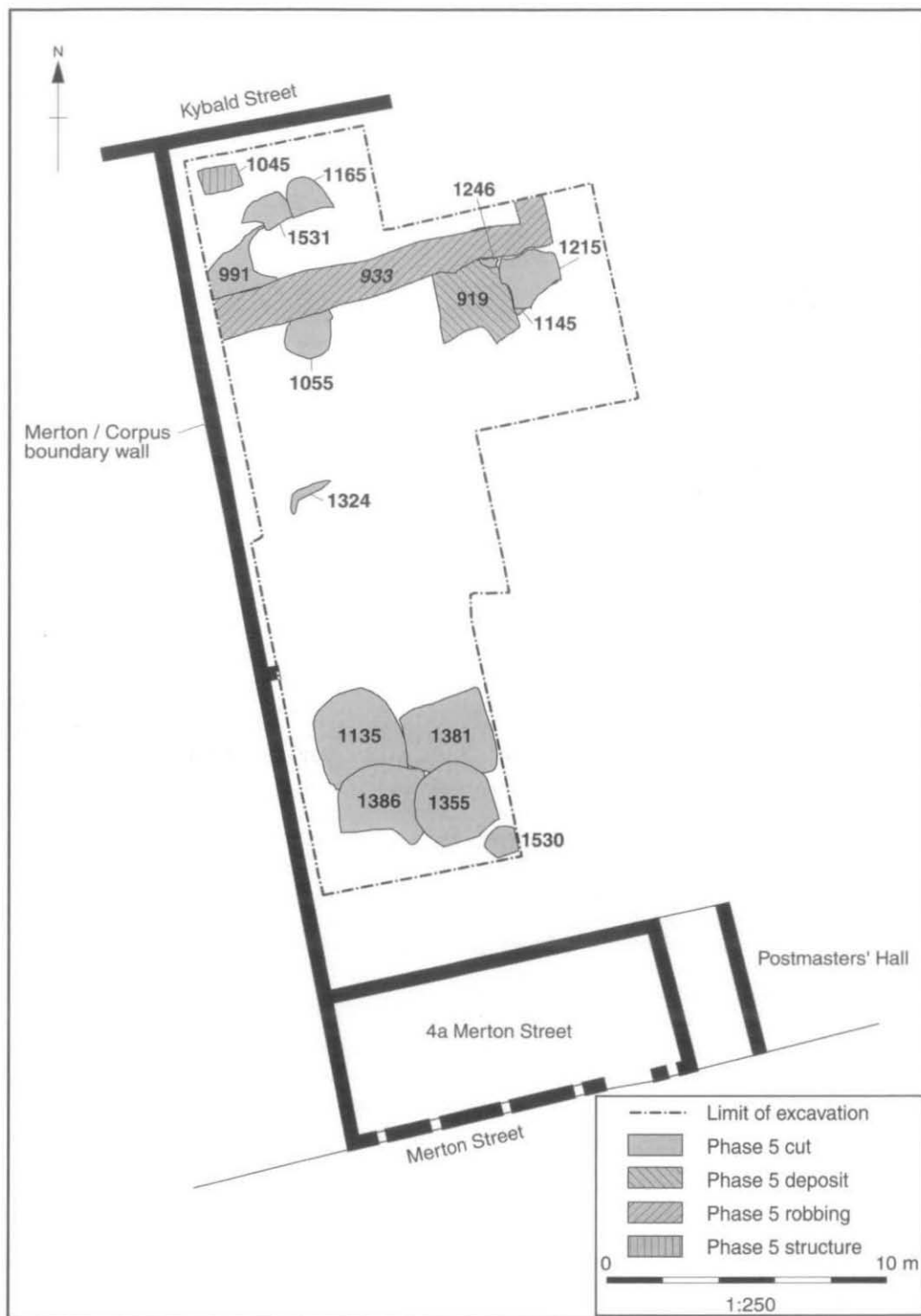


Fig. 8. Plan of phase 5 features

TABLE 5: PHASE 5 PITS

Cut number	Length (m)	Breadth (m)	Depth (m)	Fills	Notes
NW corner					
1055	2.10	1.9	1.1	1060, 1059, 1058, 1057, 1056	100, 200, 300, 352. Needle
991	3.2	2.88	—	1540, 1539, 1538, 1536, 1535, 992	Ash dumps in fills 1539, 1535. 100, 200, 202, 300
1531	—	—	—	1537, 1534, 1533, 1532	100, 200, 300
1114	3.8	0.4+	0.9+	1115, 1116, 1117	Limestone pieces in fill 1117. 100, 200, 300, 352. Lamps
1165	1.4	1.4	0.8	1167, 1166	Fill 1166 deposit of rubble and gravel. 200, 202, 300, 352
SE of garderobe 1309					
1246	—	—	0.25+	1247	Heavily truncated. Organic, green fill. 200, 300, 352
1215	2.2	1.86	0.58	1217, 1216	Organic, greenish fills. 300, 352, lamp
1145	1.3	1.2	0.6	1138	Organic greenish fill. 200, 352
S area					
1381	3	3	2	1470, 1469, 1468, 1467, 1466, 1465, 1380, 1379, 1378, 1377	Lower fills grey clay silt; upper fills redeposited gravel. 200, 202, 300, 352. Finger ring
1135	2.7	2.3	2.1	1542, 1482, 1481, 1480, 1474, 1473, 1454	Gravelly fills. 100, 200, 202, 300, 348 (?Dutch redware), 352. Burnt mortar. Complete pageholder. S62
1386/1456	3	3	1.7	1457, 1455, 1402, 1401, 1385, 1384, 1383, 1382, 1376, 1370	Most fills gravelly. 1376 and 1370 yellow brown sandy fills with mortar and charcoal. 100, 104 (Thetford ware), 200, 202, 300, 352. Lamp
1355	3	2.8	1.4	1354, 1353, 1331, 1330, 1329	100, 200, 202, 300
1530	—	—	1.2	1529, 1302, 1528	Fill 1529 greenish; fill 1302 ash; fill 1528 gravel. 100, 200, 202, 300, 352. Charcoal samples S69, S70 – oak, alnus/corylus, maloideae poss fagus
1324	1.8	0.32	0.57	1325	Fill of dark grey silt with charcoal, shell and bone; 1 sherd 352

below). The copper alloy point used for marking the wax still survives in stylus SF210. The pottery assemblage from the latest of the three pits (1145) contained a Brill-Boarstall Ware bowl rim, from a type of vessel that is thought to have come into use after the mid 14th century. Minimal quantities of animal bone were present in these pits.

In the centre of the site was a heavily truncated pit, 1324, that seems likely to have been used for food waste. It contained charcoal and shell, as well as a small quantity of bird bone including several unidentifiable bird bones, a goose bone and a single bone from a grey heron, which would have been a luxury food.

Pits in the southern half of the site (Fig. 8; Plate XVI; Table 5)

In the southern half of the site was a further group of pits, the most coherent of which were five large sub-rectangular pits with vertical sides and flat bases (Table 5, S area). The only environmental sample analysed from this phase was sample 62, taken from fill 1542 of pit 1135. This sample suggests that this group of pits date a significant change in use of the site, with evidence for food debris very much in decline. While fig and strawberry seeds were present along with very small quantities of grain, the bulk of the remaining species comprise plants characteristic of damp grassland, rubbish pits and middens. As in the more abundant samples from Phase 6, below, it is possible that the species present in sample 62 represent dung from animals (presumably the horses kept in the stables) fed on hay or grazed on meadow grass, and weed colonisation of dumped stable waste. Other finds from these pits include a further fragment from a pair of scissors, a finger ring of 14th- to 15th-century type (Fig. 19 No. 3) and a complete page holder or clip (Fig. 19 No. 2; Plate XVI) that would have been used like a modern bulldog clip. It seems likely that the digging of pits in this area for the dumping of stable waste and college rubbish, which is so marked in Phase 6, had begun during the late 14th century. A number of pits in this area that have been assigned to Phase 6 (in particular pit 1332) may in fact, from their stratigraphic position and pottery dating, belong to the late 14th century. The ring, scissor fragment and page holder may therefore represent material brought from the main college site, rather than objects relating to occupation and activity at Postmasters' Hall Yard itself.

Phase 6: Late 14th to mid 16th Century (Fig. 9; Plate XVII; Table 6)

Summary and dating

Phase 6 is dated by the presence of Tudor Green pottery, current from the late 14th century to c.1500, and small quantities of Cistercian Ware, Rhenish Stoneware and Brill-Boarstall 'Tudor Green' wares, all of which were introduced from c.1475-80. A number of counting tokens or jettons present in pit fills of this phase are datable to the late 14th, 15th and early 16th century. This phase also marks the first appearance of window glass on the site, which presumably derives from broken or demolished windows on the main college site. Structural evidence is very slight indeed. There appears to have been further robbing of the north wall of garderobe 890, perhaps to gain a small quantity of stone for some minor use, or perhaps because it was causing an obstruction. An unusually large lamp (Fig. 15 No. 28) and a probable arrowhead were found in the associated backfill.

Two postholes at the east edge of the site (1064,1066) are on the line of the eastern boundary of the property and were probably for fence posts. Subsequently a stone boundary wall was constructed (1010=1009, in construction cut 1012/1014). The wall was trench-built and in total survived over a length of nearly 5 m.; it was constructed of roughly faced ragstone and some sandstone blocks and some two courses of the foundations and two courses of the wall itself survived. A stone-lined well (914; Plate XVII) was constructed in the centre of the yard. It was 2.64 m. deep, and the drystone lining was made up of a mixture of limestone rubble and small limestone blocks. It remained in use throughout Phases 6 and

There is little doubt that during this period the site was used by the college as a stable yard in which stable and other waste was disposed of in large pits some measuring 4-5 m. in length and up to 4 m. in width. Following the demolition of the building fronting onto Kybald St., it seems unlikely that the large quantities of general food and domestic waste were being generated by occupation on the site itself. Elements of the pottery assemblage are strongly suggestive of a source in a large communal kitchen (see below), and it is considered likely that the rubbish pits were being dug for the disposal of refuse from the main college site across the road. Some of the pottery types in these pits are much more readily datable than the earlier medieval wares, and this supports a more detailed analysis of individual episodes of rubbish dumping. This sheds some light on activities taking place at the college, but more significantly provides unusually precise evidence for the material culture and diet of the college at the end of the medieval period.

A particularly interesting result that has emerged from study of the pit contents is further evidence for a shift in the type and source of wood used in late medieval Oxford. This was observed in assemblages from Lincoln College, where beech replaced oak as the dominant species in charcoal assemblages from the 15th century onwards.⁵⁶ The charcoal at Lincoln College came from kitchen debris and included material from one of the kitchen fireplaces, suggesting that beech wood, possibly used in charcoal form, was the preferred fuelwood for cooking. A number of charcoal samples from the present site were submitted for specialist assessment and have shown the same results.⁵⁷ The charcoal from contexts of Phases 2 and 3 at the present site consists predominantly of oak and alder or hazel, with ash, plum/apple/pear and possible willow present in smaller quantities. Samples from pits 1221, 1197, 1155/867 and 1107 of Phase 6, however, show a clear shift to a dominance of beech, which persists in samples of Phase 7. This suggests that here, as at Lincoln College, beech had become the preferred fuelwood by, or during, the 15th century.

Rubbish pits (Fig. 9; Table 6)

The digging of pits for the disposal of stable waste and general refuse seems to have begun at the south end of the site in the late 14th century, and is evident in later Phase 5 features (above) as well as in those of Phase 6. The Phase 6 pits in this area (Table 6, S of site) were characterised by organic-rich dark coloured or greenish fills, with interleaved capping deposits of gravel. Pit 1162, a shallower pit cut into the top of pit 1221, had a single fill of loose gravel. Three samples of waterlogged plant remains from these pits were analysed (samples 35, 41 and 49). They were all characteristic of stable waste, including dung, and comprised remains of plants of meadows and damp grassland where the horses must have grazed, and also remains of straw, hay, and weeds such as hemlock, which colonises damp middens, pits and rubbish tips.

?Late 14th-century pits: 1332, 1413 and 1415: Pottery from pit 1332, the earliest in this sequence, was primarily of 14th-century date. It included further fragments of lamps in Brill-Boarstall Ware, and a fragment of a dripping dish in the same fabric. The final fill, 1143, contained two decorated floor tiles of 'stabbed Wessex' type (Plate XXI Nos. T10 and T12) and a large fragment (143 g.) of Tudor Green Ware (OXBN) dating the final filling of

⁵⁶ D. Challinor, 'The wood charcoal', in Z. Kamash, D.R.P. Wilkinson, B.M. Ford and J. Hiller, 'Late Saxon and medieval occupation: evidence from excavations at Lincoln College, Oxford 1997-2000', *Oxoniensia*, lxvii (2002), 274 and table 23.

⁵⁷ D. Druce, 'Charcoal assessment'; this study was undertaken during the main phase of analytical work and is available in the project archive.



Fig. 9. Plan of phase 6 features

the pit to the late 14th or 15th century. Pottery from pit 1413 and the lower fills of pit 1415 was 14th-century in character, and both pits had been partially cut away by pit 1221. Pits 1413 and 1415 contained animal bone suggestive of dumped food waste, a further urinal fragment, a further stylus and a lace tag.

15th-century pits: 1144, 1221 and 1162: The pottery from these pits is of 15th-century character, including numerous fragments of Tudor Green Ware and Surrey Whiteware. Individual vessels of note include further lamp fragments, two lids in Brill-Boarstall Ware (Fig. 16 Nos. 36 and 37), a large fragment of Brill-Boarstall drinking jug (Fig. 16 No. 34) typical of the 15th- and early 16th-century products of the industry, and a small Brill-Boarstall Ware jar with drilled holes in the shoulder (Fig. 16 No. 40). Fill 1177 of pit 1221 contained a fragment of thick pale green window glass of medieval or early post-medieval date and a rim fragment from a copper alloy vessel, probably a platter. Also present in this fill, and fill 1179 of the same pit, were two identical decorated floor tiles (Plate XXI Nos. T15 and T16) of Penn/Chiltern type, one of which was very worn. These tiles are datable to the period c.1330-1380 and may be of the same type as tiles described by Loyd Haberly from the college library. A stylus and a French stock jetton datable to the period 1380-1490 were found in pit 1162.

The presence of floor tile in these pits (and also in pits at the north end of the site, see below) in association with 14th- and 15th-century pottery is of some interest. It was suggested by the tile specialist Loyd Haberly that Merton College's tiled floors had been obtained from Oxford monasteries following the Dissolution (see 'Ceramic building materials', below). However, the presence of tiles in these pits, in securely dated contexts with pottery of the late 14th and 15th centuries, provides good evidence that tiled floors were laid in the college during the medieval period, even if they may later have been supplemented by tiles obtained from elsewhere. Both types of tile occur in these pits in contexts later than their known period of manufacture, suggesting that they had been discarded from floors laid earlier, which were perhaps undergoing localised repair. There is a reference in the college accounts to the making of a pavement in the treasury as early as 1291. The preset floor appears to be a late medieval chequerboard-type floor, perhaps a slightly later replacement.⁵⁸

A considerable number of jettons were found in Phase 6 pits (see below); the only earlier example from the site occurred in Phase 5 rubble associated with the demolition of the building fronting onto Kybald St. The jettons were counters used for calculation, and it is very likely indeed that they had been used in the college's exchequer, which may have been located on the ground floor of the first floor treasury or muniment room.⁵⁹ The treasury was built between 1288 and 1291, and the bursar's accounts for the first half of 1291 make several references to the purchase of wood and nails, and the wages of a carpenter, for making a *mensa computator*, or counting table.⁶⁰ Although none of the jettons found in the excavations is as early as this reference, the same system of counting would have been in use during the 15th and early 16th centuries. It is a curious fact that the renowned Mertonian mathematicians were using arabic numerals in the 14th century, but not for the college accounts. Jettons were mass-produced and of little value, and the examples found in the rubbish pits of Phase 6 may simply have been lost. Alternatively they may have been discarded for the purchase of a new set or 'cast'. It is notable that a stylus was found with a jetton in pit 1162, and is presumably also a type of object that would have been in use in the exchequer.

⁵⁸ R. Highfield, op. cit., No. 32, MR 4054; see also J. Cotter, tile reports, below.

⁵⁹ Ibid. 62-3.

⁶⁰ Ibid. 308 (MR 4054).

TABLE 6: PHASE 6 PIT'S

Cut number	Length (m)	Breadth (m)	Depth (m)	Fills	Notes
S or site					
1332	4	2.1	1.5	1305, 1304, 1303, 1161, 1160, 1159, 1143	Organic-rich dark brown and greenish fills and redeposited gravel. 200, 202, 300, 352. 403. Floor tile
1144	4	4	1.70	1434, 1433, 1189, 1188, 1187, 1186, 1185, 1184, 1183, 1182, 1181, 1180	Dark brown organic fills alternating with greenish silts and redeposited gravel. 100, 200, 202, 300, 352, 403, 456. Lamps. Samples S41 and S49 - straw, stable waste
1413	2.45	2.4	1.95	1472, 1471, 1414	Grey silt and redeposited gravel. 100, 200, 300, 352, 456. Lace tag
1415	-	-	-	1417, 1416, 1444	Fill 1416 shell-rich laminated deposit of dark green/brown silty sand. 202, 300, 352, 403. Stylus, urinal
1221	5	3.25	2.63	1426, 1421, 1420, 1214, 1210, 1179, 1178, 1177, 1172, 1164, 1163	Alternating bands of cess with oyster and leather fragments, and redeposited gravel. 200, 202, 205, 300, 352, 403, 425, 456. Floor tile. Window glass; cast metal vessel rim. Waterlogged sample S35 damp grassland; charcoal beech
1162	2.5	1.8	0.63	1147=1158	Loose gravel fill. 200, 202, 300, 352, 403. Stylus; jetton
Centre of site					
1375	4.32	4.60	2.46	1518, 1517, 1479=1475, 1460, 1459, 1458, 1374	Fills 1517 and 1479=1475 oyster rich; fill 1374 high ash and charcoal content. 100, 200, 202, 300, 330, 352, 456. Lead token; lead pan weight.
1197	5.2	3.2	-	1225, 1222	200, 202, 300, 329, 348. 352. 403. 456. Pair of dividers. Charcoal beech
1155=867	5.64	2.6	1.64	1168, 1154, 1146, 1074, 1073, 1072, 1071, 1070, 1069	Recut of 1197. Upper four fills deliberate dumps of rubbish, rubble, charcoal, ash and stone roof tiles. 100, 200, 202, 300. 352 (v. large quantity), 403, 456. Imported vessel glass; window glass; stylus, hammerhead, toggle or buzz bone, jettons, key, knife, lace tag. Charcoal beech.

1016	4.5	3.4	2.67	1031, 1030, 1029, 1027, 1025, 1024, 1020, 1017, 1006, 1005, 1004, 1002	202, 300, 352, 403, 404, 405, 410, 456. Jettons, wall hook, book clasp, knife frag, horseshoe, sieve or colander. Floor tile
1023	2.3	1.4	2	1022, 1021, 1008, 1007	100, 200, 300, 352, 403, 456
North of site					
1108	2.2	2.0	1.75	1101, 1100, 1096	200, 202, 300, 352, 403, 456
1107	2.2	2.2	-	1544, 1099, 1098, 1097	Not bottomed. Fill 1097 mainly stone rubble. 100, 200, 202, 300, 352, 456. Window glass, hooked tag, lamps
985	3.5	2.0	1.1	981, 980, 979, 978	Lower 3 fills charcoal and ash rich. 300, 352, 403, 410, 456. Urinal frags; tubing and base from alembic. Key, knife. Floor tile.
924		1.4	0.38	923	300, 352. Floor tile.
915	2.0	1.8	0.35	920, 916	200, 202, 300, 352, 403, 456
917	0.8	0.92	0.35	918	352
934	0.94	0.3	0.05	935	352
967	1.25	1.13	0.62	968	200, 352
947	1.35	1.17	0.33	948	200, 300, 352
944	0.86	0.35	0.12	941	200, 202, 352
964	1.9	1.6	-	1129, 965, 1109	965 greenish; 1109 ragstone blocks in a silty sand matrix. 200, 202, 300, 352, 410, 456

15th- to 16th-century pits – debris from the college kitchens and elsewhere: In the centre of the site, a second group of large pits contained some cess-like layers, but also quantities of rubble, charcoal, ash, roof tiles, glass and miscellaneous material suggesting that they were being used primarily for the disposal of rubbish from the main college site over the road (Table 6, Centre of site). This includes what was probably unreclaimable debris from building works. This group of pits contained a particularly coherent and interesting assemblage of pottery of the 15th and early 16th century, at least some of which seems to have come from the college kitchens. Significant quantities of food remains are likely to be from the same source.

The earliest of the group, pit 1375, contained a range of 15th-century pottery, including a bifid jar rim in Brill-Boarstall Ware (Fig. 16 No. 33), a type of rim that came into production in the late 14th to 15th century. The same pit also contained an English lead token of the mid 14th century (SF 236).

Pit 1197, a very large pit in excess of 5 m. in length and 3 m. in width, lay to the west. This pit was subsequently recut, suggesting a sustained period of rubbish disposal in this area (the recut is pit 1155/867). These pits contained numerous sherds of Tudor Green Ware, and the character of the pottery suggests a mid to late 15th-century date. One of the most interesting aspects of the pottery from these pits is the presence of numerous dripping

dishes (Fig. 15 Nos. 23 and 24, Fig. 16 No. 32), which would have been used to catch fat from roasting meat. These vessels are very characteristic of communal catering, where the roasting of large joints of meat would have been a regular occurrence. They indicate that rubbish from the college kitchens was being dumped in these pits, and this impression is supported by the presence of fragments from panchcons (Fig. 15 Nos. 25 and 26), large dishes that were used for letting liquids stand, and particularly in the preparation of dairy products. A fragmentary knife with decorative tin pins on the handle may also have been used in the kitchen. A pair of dividers (Fig. 20 No. 1), a type of object thought to have been used to mark out lines or decoration on parchment or paper, was found in the primary fill of pit 1197.

The fills of pit 1155/867 contained two more French stock jettons of the period 1380-1490 and a fragment of a decorated glass bowl, likely to have been made in southern France or Italy in the late 13th or 14th century (Tyson, below; Fig. 21 No. 2). Presumably this vessel had been in the college's possession for some time and had been accidentally broken. The same fill also contained adjoining fragments of pale greenish window glass. Further fragments of decorated floor tile were present in fill 1073 and are possibly to be associated with the dumps of building rubble, charcoal and ash in the overlying upper fills. These fills also contained further miscellaneous finds, including a hinge pivot (also likely to be building debris), a further stylus and a key.

The pottery assemblage from the latest pit in the group, 1016, contains types introduced from c.1475-80, comprising Brill-Boarstall Tudor Green Ware, Cistercian Ware and Rhenish Stoneware. The pit also contained a jetton datable to the period 1497-1521, which would be completely consistent with the slightly later dating of the pottery assemblage, and would suggest that this pit is datable to the early to mid 16th century. Part of a Brill-Boarstall Ware bottle was recovered (Fig. 15 No. 27), a vessel type that remains relatively rare but tends to occur at sites with ecclesiastical associations. Numerous bottles of this type were found at Rewley Abbey, in a context that suggested they might have been used for oil to fill lamps in the abbey church, although they may also have been used as containers for other precious liquids.⁶¹ A modelled face from a Tudor Green jug or mug (Fig. 15 No. 29) is a very rare find, although anthropomorphic decoration is known on other vessel types in this ware (see 'Pottery', below). The final fill of the pit contained a further possible item of kitchenware in the form of a probable sieve or colander in Brill-Boarstall 'Tudor Green' ware (Fig. 16 No. 38). Other miscellaneous general finds from this pit include a book clasp (Fig. 19 No. 4), a looped staple, a wall hook, a fragment from a large implement, possibly a scythe or sickle, a horseshoe, a knife and an arrowhead.

Fish bone included large cod, conger eel and salmon, as well as herring, eel, tub gurnard, tiny cyprinids, pike and small flatfish. Bird bones are very numerous. Identifiable species include numerous domestic fowl (chicken-type), goose, duck, mallard, and single bones from swan, grey heron and thrush. The consumption of swans and herons was restricted by law in the later medieval period, and grey heron in particular is only found at elite and religious houses at this time. Game mammals are represented by two bones from a wild boar and a single positively identified bone of roe deer, although it is possible that other deer bones are present among the large number of ribs that could not be positively identified to species. The presence of heron bone in phase 5 and 6 contexts indicates that falconry was practised. The wild boar was probably raised in a game park, as boars are thought to have become extinct in the wild in the 13th century. The thrush and other unidentifiable small birds are also an

⁶¹ J. Cotter, 'Medieval and post-medieval pottery', in J. Munby et al. op. cit. note 13. Published in *Oxoniensia* 2006, (c) Oxfordshire Architectural and Historical Society

indicator of a luxury diet, since the consumption of small birds (which were presumably also trapped from the wild) was restricted to upper social levels at this time. Game and wild birds might have been gifts from wealthy patrons, but the two arrowheads recovered from contexts of this phase suggest that members of the college were hunting as well.

The majority of bones present are from meat-bearing elements of the common domesticates, particularly of cattle. A large number of rabbit bones were present in pit 1016, largely deriving from two individuals. These showed no signs of butchery and had probably been deposited whole. In the medieval period rabbits were raised on estate warrens, although these might be later individuals that had burrowed into the pit fills and died naturally. Alternatively, they might have been rejected in the kitchen for some reason, or perhaps they had been stewed whole. Further rabbit bones from pit recut 1155 were more obviously table waste. The presence of a few neonatal pig bones could suggest that a pig was kept on the college site, or they might alternatively be the remains of a dinner of sucking pig. The presence of two neonatal sheep/goat bones is less easy to explain, although it is possible that the kitchen kept a ewe or a nanny goat for fresh milk. A few bones of non-food species were also present. A crow bone was found in pit recut 1155/867 and a raven in pit 1016. Ravens were fairly common scavengers in medieval towns and this individual may represent a natural casualty. The crow might also have been a natural casualty, although crow fat was used into recent times. Most of the cat bones from the site were from individuals of less than a year old, and may represent disposal of unwanted kittens. The presence of occasional fragments of horse bone at the site during this period is interesting, since it is highly unlikely that horse meat was eaten. It is possible that it was redeposited from earlier activity in the area, although it is also possible that horse meat was used to feed dogs.

A single pit (1023) just to the north of this group is possibly slightly earlier. It was circular rather than sub-rectangular in form, and the pottery in its fills comprised relatively high proportions of redeposited earlier medieval pottery, including St Neots type ware, only a single small sherd of Tudor Green ware, and none of the distinctive late 15th-century wares present in the other pits. The animal bone present suggests that this pit had also been used for the disposal of food waste, containing bones of domestic fowl, duck and roe deer as well as the major domesticates. The presence of three fragments of horse bone in this pit may well be due to redeposition of earlier material.

Pits at the north end of the site: A group of intercutting pits, 1108, 1107 and 985, were dug in the area of the demolished northern hall (Table 6). A number of fills contained rubble, charcoal and ash, along with further fragments of decorated floor tile (Plate XX Nos. T1 and T3, Plate XXII Nos. T21 and T22) and two adjoining fragments of weathered opaque window glass. Animal bone was also present, suggesting that the pits were used for the disposal of building rubble and general refuse. It is possible that they were associated with activity in a building in the north-west corner of the site. Finally, a stone-lined soakaway constructed of coursed limestone pieces (905) was built in this area. Amongst the pottery assemblage were two more fragments of lamps (Fig. 15 Nos. 30 and 31) and further examples of a possible skillet, a Brill-Boarstall bottle or drinking jug and a dripping dish.

The most interesting group of material came from the primary fill (981) of pit 985. This comprised a fragment of the neck from a green glass vessel, base fragments from a urinal, and a section of glass tubing from an alembic, the upper part of a distilling set (Tyson, below; a second section of tubing, redeposited in a modern context is illustrated as Fig. 21, No. 5). Distilling was used to make medicines, liqueurs and other herbal household preparations, but a distilling set might also have been used for alchemy. Documentary evidence establishes that glass distilling equipment was in use in the 14th century, although actual datable remains are only currently known from the 15th century onwards. The Fellows of the college are known to have been interested in the study of medicine from the late 13th century (see

above); by the middle of the 14th century the college was producing medical scholars of the first order and medicine was to become one of the college's great academic strengths.⁶² Whether alchemy was also practised is less clear, although there is no doubt that it was a fashionable philosophical pursuit at the time.

Pit 985 also contained one of the larger groups of animal bone from the site, including domestic fowl, duck and goose, two rabbit bones, and bones from meat-bearing elements of the main domesticates, cattle, sheep and pig. There was also a horse lateral metapodial with cut marks suggesting the disarticulation of the carcass just above the foot, or possibly skinning, the metapodial and foot being left with the hide. The pottery assemblage does not suggest that there was a great deal of redeposited earlier material in this pit, and the most likely explanation for the presence of this bone is that it had been used for dog meat.

Features in the east of the trench: A number of silty layers (927, 926, 922 and 921) and a pit (924) were recorded over an area some 6-7 m. wide at the east side of the trench. These appear to have been dumps of domestic refuse. Layer 927 consisted of domestic refuse with charcoal; layer 926 contained three adjacent fragments of weathered window glass, of medieval or early post-medieval date, a wire-wound pin of a type that would have been used to secure light clothing or head dress, and two lace tags. Layer 922 was rich in oyster shell. Fill 923 of pit 924 contained a corner fragment from a further piece of decorated floor tile of 'stabbed Wessex' type (Plate XX No. T6).

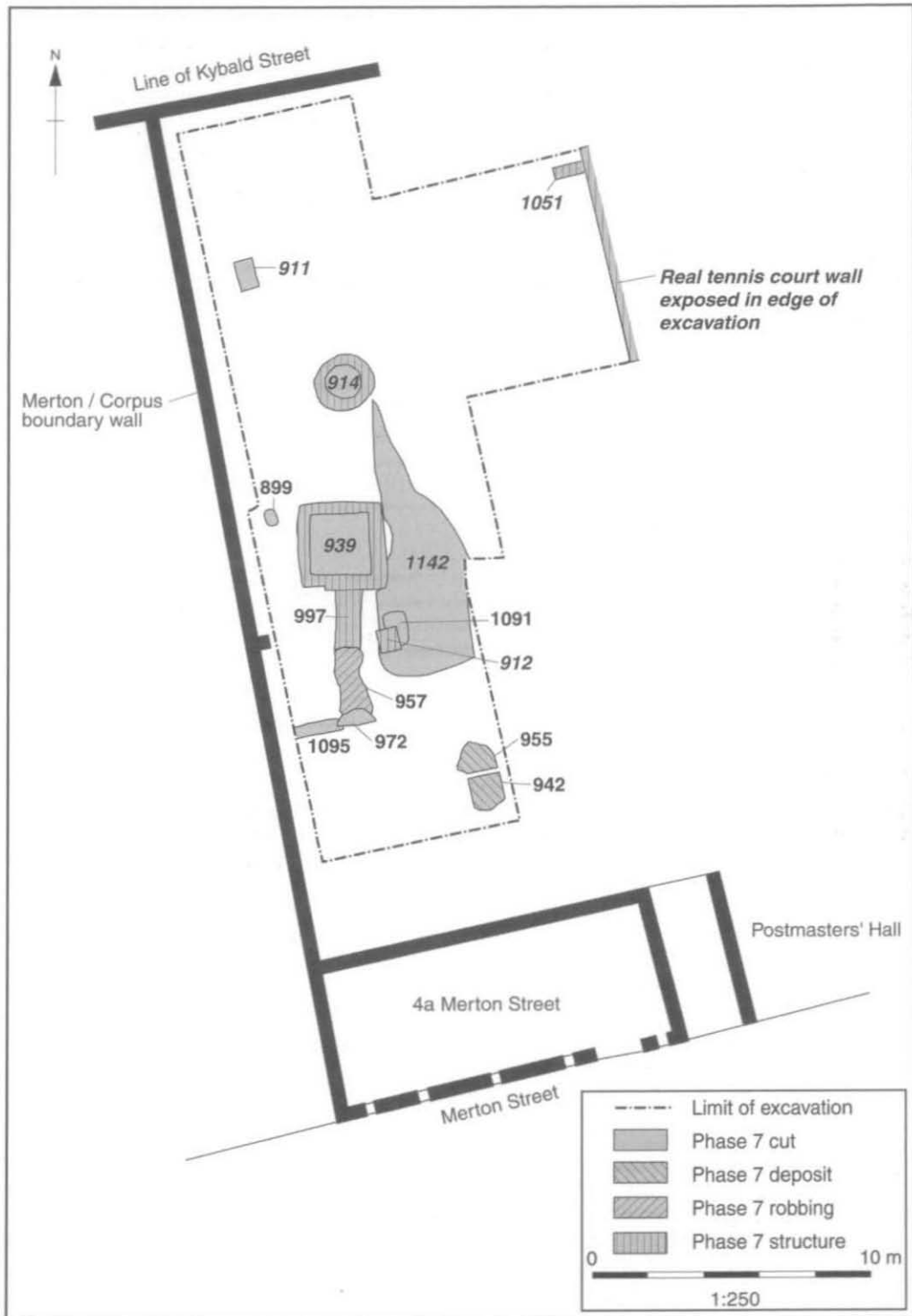
Within this area, pit 915 contained a large group of animal bone fragments of the same characteristic composition as the other pits of this phase, including domestic fowl, duck, goose and rabbit, along with meat-bearing bones from cattle, sheep/goats and pig. The remainder of the pits in this area tended to have single fills of redeposited gravel and sandy soil containing only small quantities of pottery and animal bone, some of it probably redeposited. Their purpose is unclear unless they were associated with the construction of the wall in this area.

Phase 7: Mid 16th to mid 18th Century (Fig. 10; Plates XVII, XVIII)

Dating and summary

During this phase the site remained a stable yard, and numerous finds are associated with horses. A cottage constructed in the north-west corner has left an imprint on the boundary walls, though most of the building lay outside the excavated area (see building survey, below). The well constructed in phase 6 remained in use throughout this period, and the garderobe pit first constructed in phase 4 continued to be used, presumably with some kind of timber superstructure of which no trace survived. During Phase 7, a stone-lined pit (939; Plate XVII) and drain were built and a cobbled surface was laid. Rubbish continued to be dumped on the site, at least during the earlier part of Phase 7. A very large rubbish pit (1142) was dug in this phase, and overlying it was what appears to have been an extensive layer of domestic waste. Some of this is clearly debris from the stables. The source of the remainder is less obvious, but the very mixed nature of the material in pit 1142 suggests that it could represent an episode of 'tidying up', perhaps on the site itself or elsewhere, with much redeposited medieval material incorporated in the two pit fills. There is relatively little contemporary post-medieval pottery in the assemblage, and very little clay pipe, suggesting that the disposal of general college refuse on the site had largely ceased not long after the middle of the 16th century. Much of the later post-medieval glass from the site comes from the deliberate backfilling of stone-lined pit 939 and well 914, rather than rubbish pits.

⁶² R. Highfield, *op. cit.*, 77 n. 1.



The bulk of the pottery assemblage comprises Brill Boarstall 'Tudor Green' wares (OXAM), suggesting that this was the college's main source of pottery towards the middle of the 16th century. Two complete drinking jugs in this ware were found in the old garderobe pit (1309) of phase 4 (Fig. 17 Nos. 41-2; Plate XVIII). A sherd from a jug in this ware has what may be the name of the college inscribed on it, and Paul Blinkhorn has suggested this could indicate that the college was ordering directly from the potters (see below; Fig. 18 No. 49; Plate XIX). Another jug fragment in the same ware has what appears to be a unique modelled, near life-size eye and eyebrow, and might have been a special commission (see below; Fig. 18 No. 46). In contrast, glassware is quite well represented in the assemblages of this phase, which may reflect its increasing availability in the early post-medieval period. Glass and pewter may well, for example, have replaced ceramic drinking vessels at the table.

Structural evidence (Fig. 10)

The stone-lined pit: Stone-lined pit 939, 3.2 m. square and 2 m. deep, was constructed towards the centre of the site (construction cut 881). Within the pit, a dry-stone lining had been constructed of roughly squared limestone blocks and three bricks. The stone lining was built up to a height of 1.45 m., and the uppermost course was roughly level and overlain by an ephemeral wood stain. This implies that the upper part of the lining was wood, or that a timber superstructure had been constructed over the pit. Amongst the finds from the fills of the pit was a fragment of *façon de Venise* glass decorated with *vetro a fili* forming opaque white and blue bands on the outer surface. This can be dated to the late 16th or early 17th century (Fig. 21 No. 7). This type of decoration is characteristic of cylindrical beakers, known from a number of high-status sites in England. It is likely that the vessel was made in northern Europe in the Venetian style, possibly in the southern Netherlands. Other finds include a French jetton of the period 1497-1521, an awl, used for piercing holes in leather, a hinge plate from a chest or small cupboard, a lace tag and a pin.

The pit was overlain by a sequence of dump deposits that included a dump of mortar, several fragments of window glass, some possibly medieval in date, and a Nuremberg Rose and Orb jetton of the first half of the 16th century. Some of the finds from the dump layers are probably from the stables, including the lower half of a sheet metal bell of a type often used on harness and the collars of hunting dogs, a rowel spur and a mount for a belt or harness. The other finds are miscellaneous personal items including numerous lace tags and pins, and two knives, one of which has an expanded bolster dating it to the 16th or more probably the 17th century.

The dump layers also contained fragments of further glass vessels. These included a fragment of rim and neck from a medieval or early post-medieval bottle or flask, a small green-blue glass vessel fragment and three fragments of cobalt blue neck/body fragments from a glass vessel with vertical fluting. The cobalt-blue colour and fluting technique were popular on Venetian-style vessels, including bowls and goblet stems, from the second half of the 15th century into the 17th century. The same dump contained a fragment from the rim and neck of a second medieval or early post-medieval bottle or flask (Fig. 21 No. 6). These green forest-glass flasks or bottles were produced in England between the late 13th and 17th centuries.

The stone-lined drain: Stone-lined drain 997, which ran from a vertical drain pipe on the standing building to the south, drained into the stone-lined pit. The drain was trench-built in a north-south aligned linear construction cut (998) filled with brown silty sand (1000). The drain itself was constructed of randomly coursed and roughly faced ragstone pieces bonded by a sandy limestone mortar and had a single fill. A single capstone survived where the drain fed into pit 939, but elsewhere the capstones appear to have been removed by robbing (robber trench 957, with a gravel and rubbly fill 956). A circular pit (972) cut into the robber

trench contained large amounts of limestone pieces and may also have been associated with the robbing. The few finds from these contexts include further fragments of medieval floor tile, a lace tag and a loop fastener.

A cut feature (1095) to the west of the drain may have been a heavily truncated pit. It had a single fill of mid brown silty clay (987) that contained two fragments from the base of an early post-medieval glass vessel. Pit 899 cut two layers of silt (901 and 885) that had built up against the western boundary wall. The silt layers produced a number of finds, comprising a writing lead, a lead 8 oz. weight, a thimble, a strainer with crude perforations that may have been a watering can rose, and two copper alloy pins. Pit 899 contained building rubble, mortar, ceramic building material and some charcoal. Further silt layers (898, 884, 883 and 882) built up in this area. Three fragments from a wine bottle of 18th-century or later date were recovered from layer 882.

Rubbish pits and dumps (Fig. 10)

Pit 1142: To the east of the drain and stone-lined pit was a very large sub-rectangular pit, 1142, measuring 10.20 m. x 3.40 m. and 1.20 m. deep. It had only two fills, both rich in bone and shell (1141 and 1134), and both appearing to contain organic refuse. The finds from the pit date from the 15th century to the late 17th century or later. None of the pottery from the pit dates later than 1600 at the very latest. However, two fragments from the base of a thick glass bottle of late 17th-century or later date were found in fill 1141, which also contained a rowel spur of 15th- to mid 16th-century type, a circular domed mount, probably from horse harness, and three jettons, two of the period 1380-1490 and a Nuremberg 'Venus Penny' of the 1540s-1560s. The fourth, from fill 1134, was a further French stock jetton of 1380-1490. The very mixed nature of this assemblage suggests that the dumping of organic and food refuse might have accompanied an episode of 'tidying up' either on the site or elsewhere on the college's property, and the probable incorporation of much redeposited medieval material dug up from earlier layers.

The pit was sealed by a layer of domestic waste (1092) that extended over a large area (13 x 4.5 m.) of the south-eastern area of the site, which again appears to incorporate redeposited material, including a Nuremberg 'Venus Penny' jetton of the 1540s to 1560s and a decorated floor tile fragment (Plate XXI No. T14). Hollows in this layer were filled by firm yellowish brown clay silt deposits (1094 and 1093) and sandy silt deposits (1053 and 1035). Layer 1035 provides the first convincingly contemporary pottery for this phase, in the form of sherds of Cistercian ware and Rhenish stoneware, both current to c.1700. However, there was again much redeposited earlier material present, including several items of horse gear: a set of spurs, a curry comb of 15th- to 16th-century type, which would have been used for grooming horses, and a harness fitting (Fig. 19 No. 7 and Fig. 20 No. 6). Fragments of decorated floor tiles (Plate XX Nos. T2 and T7, Plate XXI No. T11 and Plate XXII Nos. T18 and T19) were also present in fills 1035 and 1053, along with a number of miscellaneous finds comprising a shoe buckle, two lace tags, a fragment from a sheet metal vessel, the arm from a pair of scissors, and two whittle tang knife fragments. A sub-circular pit (1091) cut this layer. It had a single fill (1090), which contained Rhenish stoneware.

To the south, two further dumps of domestic waste (960 and 962) overlay layer 1092. A make-up layer of sand, gravel and limestone pieces had been spread over the dumps in preparation for the laying of a cobbled surface (942) in the south-eastern corner of the site, of which only a small area (3 x 1 m.) survived. A fragment of wine bottle of late 17th-century or later date was found associated with the cobbled surface. To the north this area seems to have had a wooden boundary, surviving as a mid brown purple silty clay stain. To the north of this boundary line, a possible occupation layer that contained charcoal and shells was overlain by a rougher limestone surface (955) containing two areas of repair (954 and 946).

Characteristic post-medieval Red earthenware pottery was found in layer 962, but this can only confirm a date of 1550 or after.

An isolated brick pillar (912) built in a rectangular cut (911) was constructed with an outer face of bricks (912) and a mortar core (913). Two courses of unfrogged brick survived, with no discernible bond. The purpose and function of this pillar are unclear.

The Real Tennis Court

The present foundations (1052) for the Real Tennis Court were constructed in this phase. The foundations, at the eastern edge of the site, were in a linear cut (1043) filled by a loose silty clay (1044) that contained fragments of a wine bottle of late 17th- to early 18th-century type. The wall foundations are constructed from dressed limestone blocks in a mortar bond. The foundations for east-west wall 1051 were observed in this area, constructed within a linear trench (1317) and cutting through the fills of the northern garderobe. Eleven courses of poorly-finished limestone pieces survived, in a clay bond. This may relate to a boundary or outbuilding associated with the Tennis Court. The Tennis Court, the only active survivor of several in Oxford, was described in a college lease of 1595 as 'lately builded', and was let with Postmaster's Hall.⁶³

Phase 8: 18th to 20th Century features

The stone well 976 was incorporated into a rectangular stone soakaway (999). The soakaway was trench-built in a rectangular cut, lined with well-dressed stone and roofed with a brick barrel-vault. A rectangular feature (874) revealed in the south-west corner of the site was possibly a trough or cistern associated with the stables. Full details are available in the project archive.

THE FINDS

POTTERY by PAUL BLINKHORN

Introduction

The pottery assemblage comprised 6,102 sherds with a total weight of 121,880 g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 70.21. It is perhaps one of the most significant groups of medieval pottery excavated in the city of Oxford in recent years.

The earliest post-Roman pottery is a small group of early Saxon pottery, including a decorated sherd which is only the second find of such material in Oxford, and the small assemblage of late Saxon material included rare regional and continental imports. The medieval assemblage, particularly that dating to the later part of the period, is truly remarkable, and offers an unrivalled insight into the use of pottery in an Oxford college of the period, particularly in the areas of food preparation and consumption. Vessels such as dripping dishes, mugs, cups and drinking jugs are present in what appear to be unusually large quantities, as is pottery associated with lighting, specifically lamps. A number of unusual decorated sherds are present, including a vessel with a fragment of an inscription that appears to be the name of the college; the fact that it was made while the clay was still wet indicates that the potters of Brill in Buckinghamshire were making pots to order specifically for the college. This is one of the very few pieces of archaeological evidence that we have for this practice, and it has major implications for our understanding of the manufacture and marketing of medieval pottery.

⁶³ Salter, *Survey*, SE(186); Percy Manning, 'Sport and Pastime in Stuart Oxford', in H.E. Salter (ed.), *Surveys and Tokens* (O.H.S. lxxv, 1920), 83-135; Jeremy Potter, *Tennis and Oxford* (1994), 77-81.
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Methodology

The pottery was initially bulk-sorted and recorded on a computer using DBase IV software. The material from each context was recorded by number and weight of sherds per fabric type, with featureless body sherds of the same fabric counted, weighed and recorded as one database entry. Feature sherds such as rims, bases and lugs were individually recorded, with individual codes used for the various types. Decorated sherds were similarly treated. In the case of the rimsherds, the form, diameter in mm. and the percentage remaining of the original complete circumference was all recorded. This figure was summed for each fabric type to obtain the estimated vessel equivalent (EVE). Terminology and standards follow the guidelines of the Medieval Pottery Research Group.⁶⁴ The statistical analyses follow the recommendations of Orton.⁶⁵

Fabric

The pottery was recorded utilising the coding system and chronology of the Oxfordshire County type-series.⁶⁶ The 'F' prefixed numerical codes are those used in the database, as follows:

- F100. OXR: St Neot's Ware type T1(1), 850-1100. 90 sherds, 1,013 g., EVE = 1.09.
- F205. OXZ: Stamford ware, 850-1150. 6 sherds, 51 g., EVE = 0.24.
- F102. OXBQ: Flemish Greyware, 10th to 11th century. 1 sherd, 58 g., EVE = 0.09.
- F200. OXAC: Cotswold-type ware, 975-1350. 928 sherds, 15,100 g., EVE = 9.68.
- F202. OXBF: North-East Wiltshire Ware, 1050 - 1400. 518 sherds, 7,457g., EVE = 2.96.
- F300. OXY: Medieval Oxford ware, 1075 - 1350. 1703 sherds, 24,923 g., EVE = 16.18.
- F330. OXBK: Medieval Shelly Coarseware, 1100-1350. 2 sherds, 99 g., EVE = 0.24.
- F352. OXAM: Brill-Boarstall ware, 1200 - 1600. 2,318 sherds, 63,236 g., EVE = 33.33.
- F456. OXBG: Surrey Whiteware. Mid 13th to mid 15th century. 47 sherds, 1,343 g., EVE = 0.47.
- F329. OX68: Potterspury ware, late 13th to 17th century. 2 sherds, 55 g., EVE = 0.11.
- F403. OXBN: Tudor Green Ware, late 14th century to c.1500. 146 sherds, 1,267 g., EVE = 2.81.
- F404. OXCL: Cistercian ware, 1475-1700. 14 sherds, 156 g., EVE = 0.09.
- F410. OXAM: Brill-Boarstall 'Tudor Green' wares, 1475-1600. 52 sherds, 403 g., EVE = 1.56.
- F405. OXST: Rhenish Stoneware, 1480 - 1700. 122 sherds, 2,121 g., EVE = 1.37.
- F451. OXFH: Border wares, 1550 - 1700. 1 sherd, 20 g.
- F425. OXDR: Red Earthenwares, 1550+. 41 sherds, 1,869 g.
- F412. OXRESWL: Polychrome Slipware, 17th century. 2 sherds, 106 g.
- F417. OXCE: Tin-glazed Earthenware, 1613 - 1800. 6 sherds, 123 g.
- F443. OXFM: Staffordshire White-glazed English Stoneware, 1730 - 1800. 1 sherd, 11 g.
- F418. CRM: Creamware, mid 18th to early 19th century. 3 sherds, 13 g.
- F1000. WHEW: mass-produced white earthenwares, 19th to 20th century. 90 sherds, 1,509 g.

The following wares, not included in the Oxford type-series, were also noted:

- F104. Thetford-type ware, 1 sherd, 23 g., EVE = 0.11.
- F348. Low Countries Redware, 2 sherds, 833 g., EVE = 0.07.

⁶⁴ *Guide to the classification of medieval ceramic forms* (Medieval Pottery Research Group Occasional Paper 1, 1998); *Minimum standards for the processing, recording, analysis and publication of post-Roman ceramics* (Medieval Pottery Research Group Occasional Paper 2, 2001).

⁶⁵ C. Orton, 'Minimum standards in statistics and sampling', *Medieval Ceramics*, 22-23 (1998-9), 135-7. All statistical analyses were carried out using a DBase package written by the present author, which interrogated the original or subsidiary databases, with some of the final calculations made with an electronic calculator.

⁶⁶ M. Mellor, 'A summary of the key assemblages. A study of pottery, clay pipes, glass and other finds from fourteen pits, dating from the 16th to the 19th century', in T.G. Hassall, C.E. Halpin and M. Mellor, 'Excavations at St Ebbe's', *Oxoniensia*, xlix (1984), 181-219; M. Mellor, 'Oxford pottery: a synthesis of middle and late Saxon, medieval and early post-medieval pottery in the Oxford region', *Oxoniensia*, lix (1994), 17-217.

A small assemblage of early/middle Saxon handmade wares was also noted (four sherds, 73 g., EVE = 0.05). This included an incised sherd which is almost certainly of early Saxon date. A single sherd (5 g.) of Romano-British material was also present.

Pottery occurrence (Tables 7 and 8)

The pottery occurrence per site phase is shown in Table 7. It shows that there were large amounts of pottery deposited in each of the medieval phases, but that the largest groups came from Phases 3, 6, and 7. Table 8 shows the pottery occurrence by fabric type per site phase. The pattern is very much what one would expect from a site in Oxford. Oxford ware (fabric OXY) is the dominant ware until the introduction of Brill-Boarstall ware, which then comprises by far the biggest proportion of each phase assemblage, until Phase 8. It is curious that the minor medieval wares all drop quite sharply as a proportion of the assemblage in Phase 4, but then increase in Phase 5. This appears to be due to a high degree of residuality in the later medieval phases (see below).

TABLE 7. POTTERY OCCURRENCE PER PHASE BY NUMBER AND WEIGHT OF SHERDS AND EVE, ALL FABRICS (INCLUDING RESIDUAL MATERIAL), PHASED CONTEXTS ONLY

Site Phase	No Sherds	Wt. Sherds	EVE
2	649	9605	6.29
3	1509	26864	17.44
4	515	9492	6.35
5	691	10863	5.76
6	1409	36856	21.46
7	918	19872	10.60
8	103	1684	0

TABLE 8. POTTERY OCCURRENCE PER SITE PHASE BY FABRIC TYPE, EXPRESSED AS A PERCENTAGE OF THE WEIGHT PER PHASE, MAJOR FABRICS ONLY

Fabric	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
F100	2.8%	0.8%	0.7%	1.8%	0.6%	< 0.1%	0
F200	37.9%	20.9%	14.8%	19.0%	4.4%	1.4%	0
F202	6.2%	13.9%	5.5%	9.1%	3.2%	0.5%	0.5%
F300	51.5%	29.3%	23.9%	33.7%	8.6%	2.3%	0
F352	1.0%	34.8%	54.7%	35.7%	73.9%	77.9%	4.3%
F356	—	< 0.1%	0.5%	0.6%	2.9%	0.6%	0
F403	—	—	—	—	2.1%	2.5%	0.4%
F404	—	—	—	—	0.3%	0.3%	0
F405	—	—	—	—	0.7%	9.1%	0
F410	—	—	—	—	0.7%	0.5%	0
F425	—	—	—	—	—	3.9%	43.1%
Other post-med	—	—	—	—	—	1.0%	51.7%
Phase Total	9,605g	26,864g	9,492g	10,863g	36,856g	19,872g	1,684g

Fragmentation analysis and cross-fits (Table 9)

Table 9 shows the mean sherd weight per phase of the major fabrics, with very little obvious sign of residuality, even with the fabric types that are obviously residual. For example, the mean sherd weight of most of the medieval wares in site Phase 7, when they were all residual, shows little difference to the values from the medieval phases, when they were current. A total of fourteen cross-fits were noted, offering some evidence of redeposition at the site, particularly in relation to Phase 6. A number of cross-fits between site Phase 3 and 5 contexts support the conclusion that much of the medieval pottery in the latter is indeed residual. A list of cross-fits can be found in the project archive.

TABLE 9. MEAN SHERD WEIGHT PER PHASE, MAJOR FABRICS

Phase	OXR	OXAC	OXBF	OXY	OXAM	OXBG	OXBN	OXAM TG	OXDR
2	13.3g	14.3g	15.6g	15.2g	9.7g	—	—	—	—
3	10.6g	18.5g	14.0g	15.3g	23.5g	10.0g*	—	—	—
4	8.9g	17.2g	15.8g	11.3g	27.2g	22.0g	—	—	—
5	10.2g	15.3g	20.1g	12.5g	20.0g	61.0g*	—	—	—
6	16.9g	17.1g	11.7g	14.9g	33.1g	31.7g	9.1g	8.4g	—
7	3.0g*	15.2g	16.0g	16.3g	24.5g	17.6g	8.7g	5.1g	30.7g
8	0	0	8.0g*	0	36.0g**	0	2.3g	0	10.2g

*one sherd; **two sherds

Vessel types (Fig. 11; Table 10)

Table 10 shows the vessel occurrence in EVE per site phase. In Phase 2, jars are dominant, with bowls and jugs making up the rest of the assemblage. As the period progresses, during Phases 3 and 4, jugs became far more common, as is typical of medieval assemblages generally. From Phase 6 onwards, however, the range of vessels increases greatly, and while this is not unusual for late medieval pottery assemblages, the large proportions of what are usually minor wares (that is, other than jars, bowls and jugs) is unusual, and reflects the fact that pottery consumption at the site is quite different from that of a more usual domestic assemblage.

Phase 4 covers the period of Merton College's acquisition of the site, and the occurrence of vessel types shows a marked change which probably reflects this, with lamps comprising 8% of the pottery. Lamps are usually noted in small quantities at medieval sites in Oxford but are unusual in such large numbers. It seems likely that the unusually high consumption of lamps here is a reflection of large-scale use by the inhabitants of the college. Lamps have relatively wide bases, and would have been considerably more stable than candles, thus decreasing the considerable risk of fire.

It is also of note that lamps are considerably less well-represented at this site during Phases 6 and 7, when cooking and drinking pottery become much more common. It is not suggested that lamps were used less; the amount of pottery from Phases 6 and 7 is much larger than that in the preceding phase. The actual number of lamp fragments in each phase is broadly the same, but other new vessel types were even more numerous, indicating that the area of the college which is under investigation here saw a change of use after Phase 5.

The large number of lamps is most likely evidence of the lighting regime at the college, the lamps being used by the inhabitants as the main source of light, suggesting that up until Phase 5, the refuse disposed of in the pits here was simply the everyday domestic refuse. From Phase 6 onwards, the relatively large proportions of cooking, serving and drinking pottery suggest that it also became the dumping area for kitchen waste.

The most striking aspect of the Phase 6 and 7 assemblages is the large number of dripping dishes. These vessels, which were used to catch the fat from spit-roasting meat, often occur in small quantities at medieval sites in Oxford, but are unprecedented in the quantities seen at the present site. They indicate that meat was being consumed in far greater quantities than at a normal domestic site, although how this breaks down as a 'per head' value for the inhabitants of the college is unknown.

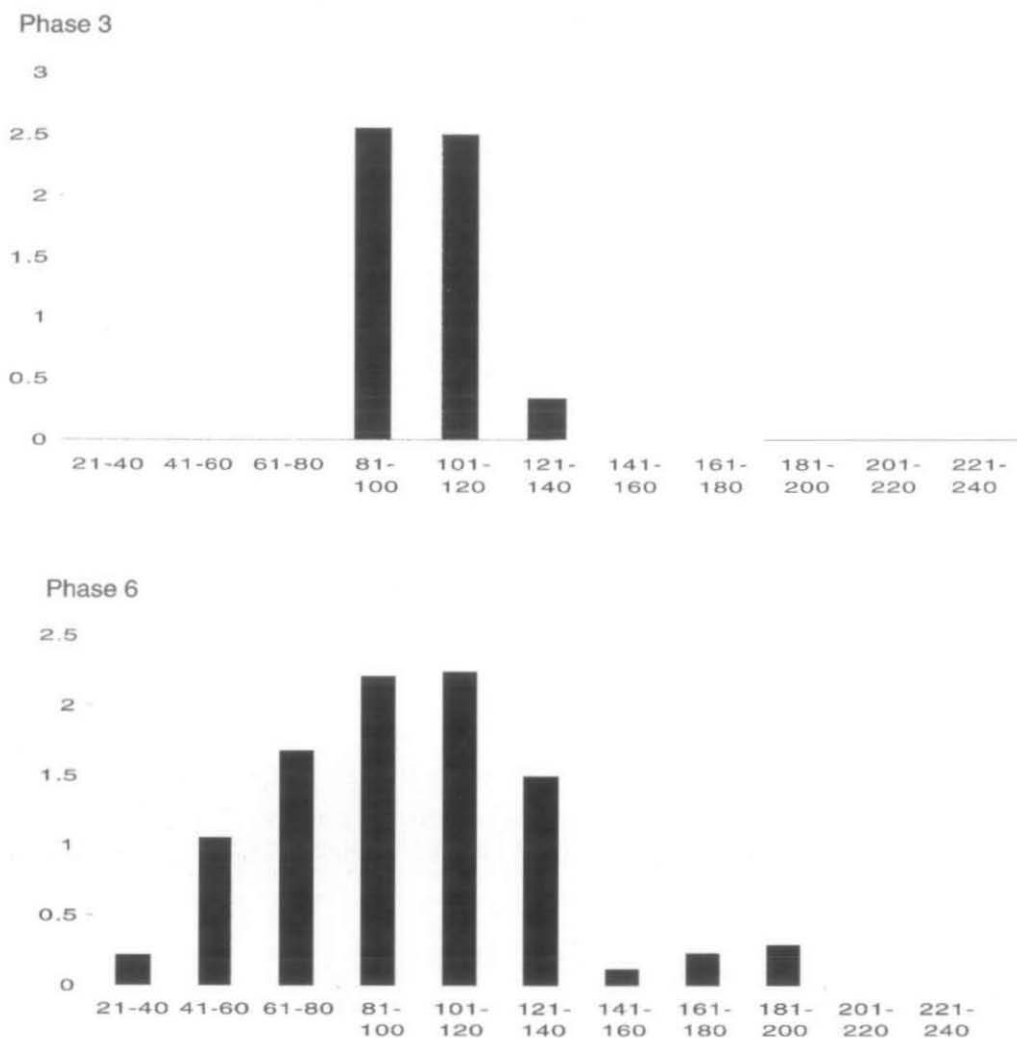


Fig. 11. Comparison of Brill Boarstall ware jug rim diameters, phases 3 and 6

Phase 6 produced fragments of twelve such vessels, along with seven handles from other vessels. Mugs and cups are also well represented, comprising over 11% of the assemblage in Phase 6 and 22% in Phase 7; there are also an unusually large number of lids in Phase 6 assemblages.⁶⁷ All the vessel types occur at other sites but not in these quantities. Lids were absent from the Lincoln College assemblage, and while cups made up most of the 15th-century assemblage at that site, there was very little pottery of that date, and the data are most likely skewed by the presence of a near-complete vessel.

⁶⁷ P. Blinkhorn, 'The Pottery', in Z. Kamash et al., op. cit. note 56, 232-40.

TABLE 10. VESSEL OCCURRENCE PER PHASE, EXPRESSED AS A PERCENTAGE OF THE EVE PER PHASE, INCLUDING ALL SUB-PHASES

	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7
Jars	91.7%	61.4%	38.9%	56.1%	30.1%	4.2%
Bowls	7.2%	5.5%	4.1%	4.6%	12.5%	10.4%
Jugs	1.1%	32.4%	45.7%	36.4%	41.6%	58.0%
Lids	0	0	0	0	2.3%	0
Cups	0	0	0	0	10.1%	11.4%
Pipkin	0	0	3.3%	0	0	0
Lamps	0	0.7%	8.0%	2.9%	1.1%	4.7%
Mugs	0	0	0	0	0.8%	11.3%
Bottles	0	0	0	0	1.4%	0
Other*	0	0	0	0	DD x12	DD x2
Phase Total	6.24	17.39	6.35	5.88	21.46	10.60

*DD = Dripping Dish. These vessels are asymmetrical and cannot be recorded by EVE. The entries refer to the number of vessels noted. Handles from at least 5 other vessels were noted in phase 5 contexts.

It is likely that a number of the late medieval OXAM jugs at this site are miniature drinking vessels rather than the larger serving vessels. Certainly, some complete drinking jugs occurred in site Phase 7 contexts (e.g. Fig. 17 Nos. 41-2), and it is likely that incomplete examples, represented only by rims, are present. However, the bare mean rim diameter data for Brill-Boarstall jugs (below) does not show this, and the value actually gets larger during Phase 6, and that for Phase 7 is no different to the earlier phases.

Mean rim diameter of OXAM jugs:

Site Phase 3: 109.5 mm.

Site Phase 4: 106.0 mm.

Site Phase 5: 104.0 mm.

Site Phase 6: 117.4 mm.

Site Phase 7: 107.6 mm.

It seems however that there is some distortion of the data due to the presence of two different sizes of jug in the later medieval phases, one type with a very small diameter, and the other very large. Medieval jugs invariably have a unimodal rim diameter distribution in the earlier medieval period, usually around 120-140 mm.

This is borne out by comparison of the OXAM jug rim diameter occurrence from site Phases 3 and 6 (Fig. 11). The vessels from site Phase 3 have a very limited size range, with the vast majority of the vessels in the 81 – 120 mm. category. The pattern for site Phase 6 is very different. The rim diameters range from 40 – 200 mm., with a secondary peak at the larger end of the distribution. The larger vessels are actually two-handled cauldrons or jars (see Fig. 16 No. 39), possibly imitating contemporary Dutch vessels, or possibly cisterns, although only a single OXAM bung-hole was noted from the whole site, from a site Phase 7 context.

The data therefore show that drinking jugs make up a fairly significant proportion of the site Phase 6 jug assemblage. It seems likely, from the evidence from site Phase 3, that OXAM jugs with a rim diameter of 80 mm. or less are drinking vessels, whilst those above are the more usual serving vessels.

What is also perhaps of significance is that the Lincoln College excavations were located within and around the late medieval kitchen, but very little pottery occurred; when combined with the evidence from this site, it would appear that the kitchens in late medieval colleges at Oxford were relatively clean places, with a rigorous refuse disposal policy which saw most of the rubbish deposited in pits in the yards.

The Assemblage

Early/Middle Saxon

A small assemblage of early/middle Saxon hand-built pottery (4 sherds, 73 g., EVE = 0.05) was noted, although all the sherds were redeposited in later contexts. The following fabrics were noted:

F1: Sparse to moderate sub-rounded quartz up to 1 mm., rare subrounded calcareous material up to 0.5mm. 1 sherd, 47 g, EVE = 0.

F2: Fine, slightly sandy fabric with few visible inclusions. 2 sherds, 23 g EVE = 0.05.

F3: Moderate to dense chaff voids up to 5 mm. 1 sherd, 3 g., EVE = 0.

The presence of decorated early Saxon pottery is of some significance, despite the small assemblage size. Such material is a rare find in central Oxford. The first group of pottery of this period to be discovered in the city came from a ditch at St Ebbe's⁶⁸ and included three stamped sherds of probable 6th-century date. The site also produced small groups of other redeposited hand-built early/middle Saxon material. A small number of organic tempered early/middle Saxon sherds were noted during the excavations in the cloister of St Frideswide's church, and 21 sherds were noted at recent excavations at Oxford Castle.⁶⁹

One of the sherds from the present site is a rimsherd from a jar with fragments of incised lines at the neck carination (Fig. 12 No. 1). Such pottery is almost certainly of early Saxon (5th- to 6th-century) date, as the Anglo-Saxons generally stopped decorating pottery after that time. Another of the sherds has what appears to be a post-firing hole drilled through the body (Fig. 12 No. 2). This could indicate a reuse as a spindlewhorl or the like, although the sherd has not otherwise been altered, and a number of other uses are possible. The other sherds comprise a fragment of a thick base sherd in fabric 1, and a small bodysherd in fabric 3.

Illustrations (Fig. 12)

No. 1 ES1: Context 1604, site Phase 2, F2. Rim from small jar with incised lines below the rim. Uniform dark grey fabric with smoothed surfaces.

No. 2 ES2: Context 1442, site Phase 3, F2. Sherd from neck of a jar with a fragment of a drilled hole. Uniform dark grey fabric.

Late Saxon

The bulk of the late Saxon/Saxo-Norman pottery was redeposited in later contexts. For example, just 266 g. of St Neot's ware (fabric OXR) was deposited in site Phase 2 contexts. This represents around 25% of the assemblage (by weight), and since the site phase covers the 11th to early 13 century, some of that is likely to be residual, as St Neot's ware fell from use in Oxford around the middle of the 11th century. This suggests that any 11th-century deposits which are left represent only a fraction of the original.

The assemblage is generally what would be expected from Oxford, comprising mainly St Neot's ware, along with a small amount of Stamford ware, but two other sherds are worthy of note. A rim of a Flemish Greyware storage jar (Fig. 12 no. 3) was noted in context 1602, datable to site Phase 2 and

⁶⁸ M. Mellor, 'Pottery', in T.G. Hassall et al. op. cit. note 9, 181-219.

⁶⁹ M. Mellor, 'Pottery', in C. Scull, 'Excavations in the cloister of St. Frideswide's Priory, 1985', *Oxoniensia*, liii (1988), 33-8; P. Blinkhorn, 'Post-Roman pottery' in A. Norton, 'Oxford Castle: Post-excavation assessment and research design', unpubl. MS (Oxford Archaeology, 2003).

Early Saxon



Late Saxon



Phase 3

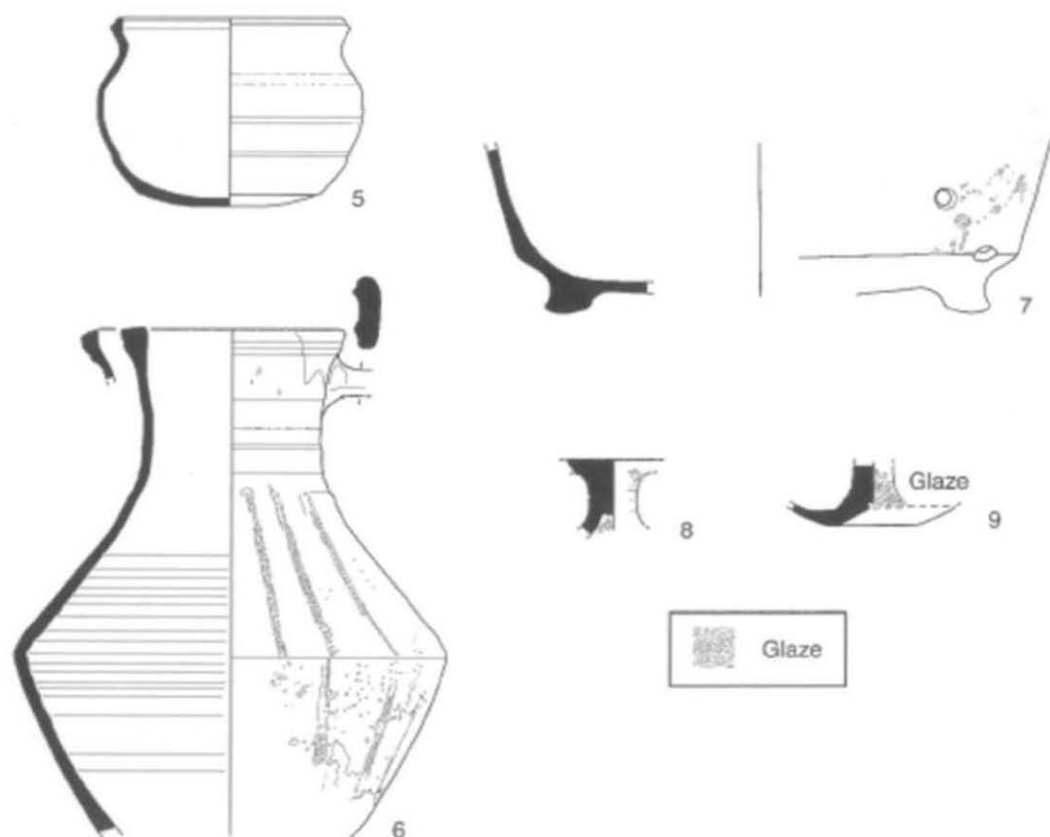


Fig. 12. Pottery: early Saxon; late Saxon; phase 3 Nos 5-9

likely therefore to be stratified. Such pottery is well-known in the ports of eastern England, such as Norwich, Ipswich and London, but is a rare find at inland sites. The material has occurred here before, however. Rims from smaller jars of this type were noted at St Ebbe's and The Cornmarket.⁷⁰ Their presence shows that Oxford was important enough in the 11th century to be attracting trade from quite distant places, although it is likely that the vessel arrived via London, probably as a container for traded goods.

A rimsherd from a Thetford ware jar was also present. This material is also a rare find in Oxford. Two sherds were noted at the Lincoln College site, and eight sherds were noted at Oxford Castle, but otherwise very little pottery of this type has been noted in Oxford, and the city may represent the western edge of its distribution. This again shows evidence of Oxford's role in long-distance trade in the late Saxon period.

Illustrations (Fig. 12)

No. 3 LS1: Context 1602, site Phase 2, F102. Rimsherd from a large jar. Pale grey fabric with dark grey surfaces.

No. 4 LS2: Context 1382, site Phase 5, F104. Rimsherd from small jar. Uniform dark grey fabric.

Medieval

Site Phase 3 (early-mid 13th century): This phase starts in the early part of the 13th century, just after the introduction of Brill-Boarstall ware, and broadly corresponds with the period immediately before the acquisition of the site by the first Warden of Merton, Master Peter of Abingdon, in the early 1270s. The assemblage from this phase is large and well-preserved (1,509 sherds, 26,864 g., EVE = 17.44), but is generally in keeping with other domestic sites of the period in the city. Certainly, there is no clue from the ceramic that it is a site with anything other than ordinary status. Fragments from two OXAM lamps were noted (Fig. 12 Nos. 8 and 9), but these are occasional finds at many sites of the period in Oxford.

It is an assemblage typical of the period in the city (see Table 8), being dominated by Brill-Boarstall ware (OXAM), along with large quantities of Cotswolds-type ware (OXAC), Oxford ware (OXY) and East Wiltshire ware (OXBF). A single sherd of Surrey Whiteware (OXBG) and another of shelly ware from Northamptonshire or Bedfordshire (OXBK) are the only other wares present, residual pottery aside. Both types have been noted at other sites in the city. The vessel forms (Table 10) comprise mainly jars, with jugs making up around a third of the assemblage, along with a small quantity of bowls and two very small fragments of OXAM lamps. Again, this is unremarkable for the period in Oxford, although the base of the tripod pitcher with two fairly large holes drilled through it (Fig. 12 No. 7) is somewhat unusual. The sherd is burnt internally, but the area of burning encompasses the edge of the sherd, showing that it happened after breakage.

Some of the pottery shows very obvious signs of having been heated. A small OXY jar from context 1126 is thickly sooted on the outer surface and heavily limescaled on the inner (Fig. 12 No. 5). It has obviously been used for heating water.

Illustrations (Figs. 12-13)

No. 5 MR9. Context 1126, OXY. Near-complete small jar. Uniform dark grey fabric, smoke-blackened on outer surface, heavily limescaled on the inner.

No. 6 MR10. Context 1039, OXAM. Largely complete upper part of biconical jug. Orange-buff fabric, vertical applied rouletted strips alternating in body clay and dark brown slip. Copper-speckled glaze over all.

No. 7 MR12: Context 1126, OXY. Fragment of base of tripod pitcher. Grey fabric with buff surfaces, patchy, thin yellow glaze on the outer surface. Two large drilled holes.

No. 8 MR20. Context 1431, OXAM. Fragment from stem of a lamp. Orange-pink fabric with a paler core. Splashes of copper-spotted orange glaze.

⁷⁰ M. Mellor op. cit. note 66, 201.

No. 9 MR19: Context 1431, OXAM. Fragment from base of a lamp. Orange-pink fabric with a grey core. Variegated, glossy yellow and green glaze over the upper surfaces.

No. 10 MR13: Contexts 1039 and 1061, OXAM. Large fragment of base and body of biconical jug. Buff fabric with darker surfaces. Diagonal rouletted applied strips in the body clay above the carination, zig-zag pattern in red slip below it. Glossy, copper-green glaze over all, mainly above the carination.

Site Phase 4 (mid 13th - mid 14th century): This phase roughly encompasses the first century of Merton College's existence. It is a relatively small assemblage considering the length of the phase, and shows little difference from the material from the pre-college phase in terms of its general composition. Brill-Boarstall wares (OXAM) became even more dominant, making up over half of the assemblage by weight, with the other major wares in decline. Jugs also become more common, presumably reflecting the increase in the consumption of Brill pottery, but, as noted above, lamps make up 8% of the assemblage (by EVE), and this does not take into account fragments of bases and stems, two of which were noted. This relatively high consumption of lamps is the first clue from the pottery that the site was different from the normal domestic character of much of the archaeology of Oxford at that time.

A partial pipkin/skillet was also noted (Fig. 14 No. 12). Such vessels were used in a similar way to the modern small saucepan or milk-pan. They were not necessarily used in kitchens; there are medieval manuscript illustrations which show them being heated on portable stoves in bedrooms, such as the Bodleian Library's 14th-century *Romance of Alexander*.⁷¹ The vessel from the present site has clearly been heated, as the base is heavily sooted, and flakes have spalled from the lower body.

The lamps aside, the assemblage is fairly typical of the pottery of the period in Oxford. The unglazed wares (OXY, OXAC, OXBF) comprise largely jars and bowls, with no reconstructable or unusual pieces, with the rest of the assemblage comprising Brill lamps and highly-decorated jugs, apart from two small sherds of Surrey Whitewares and some residual St Neot's ware.

It would appear therefore that the pottery from this phase represents the everyday domestic pottery in use in the college, rather than the specialist cooking pottery seen in the later phases. Relatively large numbers of lamps reflect the lighting regime in use, with the skillet perhaps a personal item for preparing or re-heating food in areas away from the main kitchen.

Illustrations (Figs. 13-14)

No. 11 MR14: Context 1371, OXAM. Upper part of highly-decorated jug. Buff fabric with orange-pink outer surface. Rouletted and plain applied strip decoration in body clay and reddish-brown slip.

No. 12 MR15. Contexts 1361 and 1368. Three non-joining fragments of a skillet. Pale orange fabric with a clear internal glaze, outer lower body and base-pad heavily scorched and sooted, with some spalling.

No. 13 MR16. Contexts 1359, 1361 and 1371. Upper part of highly-decorated jug. Buff fabric with orange-pink outer surface. Vertical applied strips in reddish-brown and white slip.

No. 14 MR17: Context 1362, OXAM. Lamp. Buff fabric with grey core. Very glossy copper-speckled green glaze over most of the surfaces.

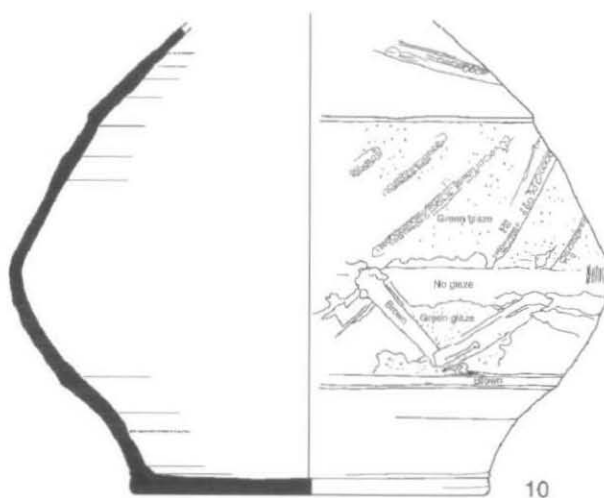
No. 15 MR18: Context 1363, OXAM. Lamp. Buff fabric with grey core. Green glaze with copper spotting covering most of the visible surfaces.

No. 16 MR21. Context 1364, OXAM. Lamp. Orange fabric with a paler core. Glossy copper-speckled green glaze over most of vessel.

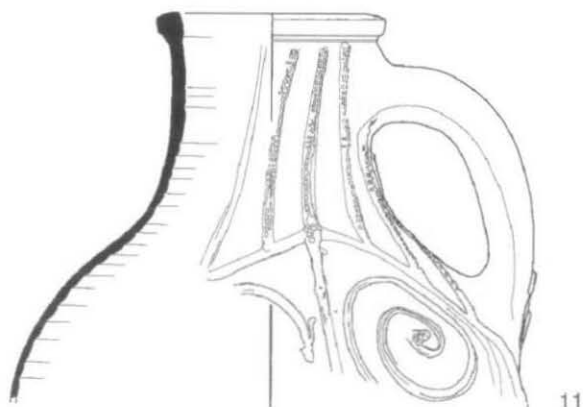
Site Phase 5 (mid-late 14th century): This assemblage is of a similar size to that of the preceding phase, but the range of fabrics and vessel sizes shows some differences. The dominant fabric is still OXAM, although this decreases to just over 35% of the assemblage owing to an increase in the representation

⁷¹ Reproduced in M.R. McCarthy and C.M. Brooks, *Medieval pottery in Britain AD 900-1600* (Leicester University Press, 1988), fig. 48.

Phase 3



Phase 4



0 250 mm

Fig. 13. Pottery: phase 3 No. 10; phase 4 No. 11

of minor wares, particularly OXY. It is highly likely that all the earlier medieval wares (OXAC, OXBF and OXY) are redeposited in this phase, even though they are slightly more common. Fabric OXR, St. Neots ware, is definitely residual by this time, but shows an increase of around 150% from the previous phase, representing the largest proportion of a phase assemblage except Phase 2, when it was still current. Very few other pottery types were noted, with one sherd each of Potterspury ware, Dutch Redware and Surrey Whiteware present.

The residual wares aside, OXAM jugs are the main vessel type, with fewer lamps (2.9% of the assemblage). However, four more vessels were only represented by stems or bases, so the apparent drop may well be a result of the vagaries of archaeological sampling. This phase also sees the introduction of OXAM jars and bowls, with one rim from each type present. Some of the jugs are considerably less highly decorated than before, with many having no applied decoration and restricted glaze (eg Fig. 14 No. 17). Mellor saw this as a 15th- to 16th-century trait,⁷² but the evidence from this site suggests it may have started a little earlier, as there are no 'Tudor Green' wares from this phase, suggesting an end date before the 15th century.

Illustrations (Fig. 14)

No. 17 MR5: Contexts 965, and 1217, fabric OXAM. Tall jug. Grey fabric with pale core. Band of apple green glaze just above the waist.

No. 18 MR22. Context 919, OXAM. Lamp. Buff fabric with dark green, streaky, copper-rich glaze.

No. 19 MR23. Context 1115, OXAM. Lamp. Buff fabric with dark green, streaky, copper-rich glaze.

No. 20 MR24. Context 1383, OXAM. Lamp. Buff fabric with dark green, copper-rich glaze.

No. 21 MR25. Context 1571, OXAM. Lamp. Buff fabric with grey core. Dark green, streaky, copper-rich glaze.

No. 22 MR26. Context 1138, OXAM. Bowl rim. Buff fabric with a somewhat over-fired green glaze on the inner surface.

Site Phase 6 (late 14th – mid 16th century): This phase sees a considerable change from the preceding one, in both the range of fabric types and the range of vessel forms. It is the largest group of pottery from the site, comprising nearly 37 kg. (EVE = 21.46) of material. Around 15% of the assemblage consists of residual earlier medieval wares, but Brill-Boarstall wares are by far the dominant type, making up nearly 74% of the assemblage by weight. Surrey Whitewares are also reasonably well-represented (2.9%), along with both Surrey and Brill 'Tudor Green' types, Cistercian ware and German Stonewares. Potterspury ware and Dutch Redware are represented by a single sherd each.

The range of vessel types is considerably more varied. Jugs, including drinking jugs (Fig. 16 No. 34), are still the most common, making up 41.6% of the assemblage. Some of these, such as the drinking jug, have very restricted glazing which is, as noted above, typical of the 15th- and early 16th-century products of the industry. One jug had a probable maker's- or batch-mark incised near the rim (see below).

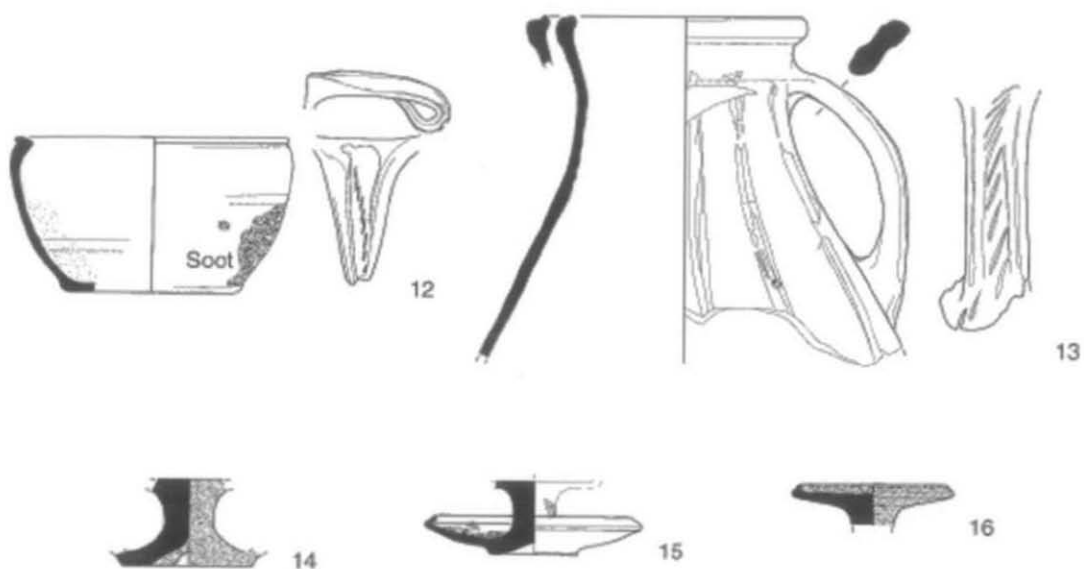
Bowls increase in occurrence quite noticeably, making up 12.5% of the group. Most of these are Brill-Boarstall types (for example Fig. 15 Nos. 25-6) which, as noted above, were only introduced in the mid-late 14th century. Jars are considerably less common, at just over 30% of the assemblage, with the rest of the group made up of lids (2.3%), cups and mugs (10.9%), bottles (1.4%), lamps (1.1%) and fragments of at least twelve dripping dishes. The EVE of the last-named vessels cannot be measured as they are asymmetrical. This phase also sees the first OXAM vessels with bifid rims (for example Fig. 16 No. 33). These are typically late 14th- to 15th-century introductions.⁷³ Two bifid Surrey Whiteware rims were also noted from this phase. They have a similar chronology to the OXAM examples.⁷⁴

⁷² M. Mellor, 'Oxford pottery: a synthesis of middle and late Saxon, medieval and early post-medieval pottery in the Oxford region', *Oxoniensia*, lix (1994), 132.

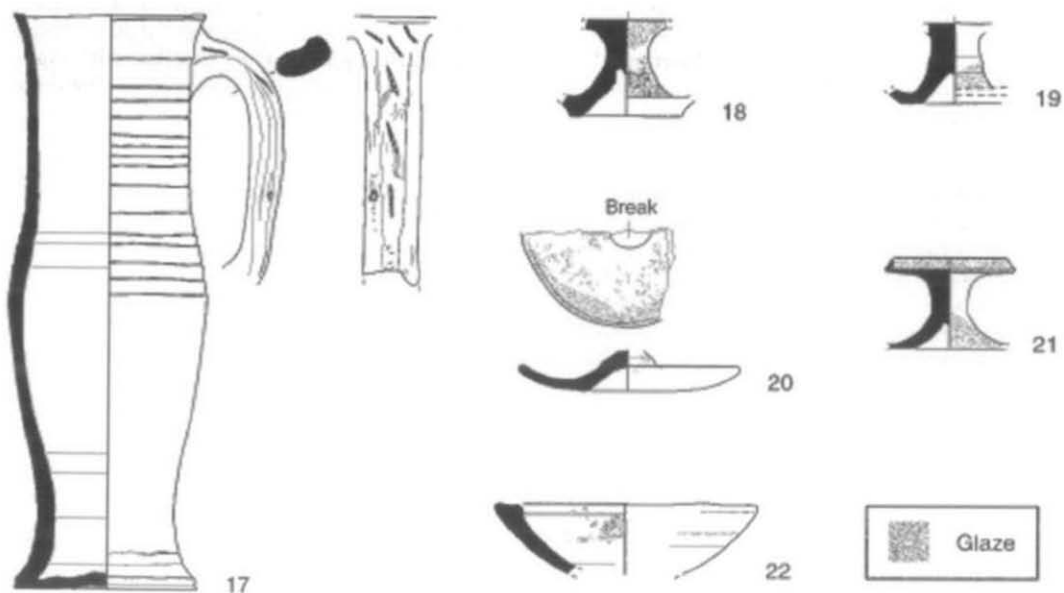
⁷³ *Ibid.*, fig. 52 nos. 32 and 33.

⁷⁴ J. Pearce and A. Vince, *A dated type-series of London medieval pottery. Part 4: Surrey Whitewares* (London and Middlesex Archaeological Society Special Paper 10, 1988), 85.

Phase 4



Phase 5



0 250 mm

A number of the OXAM minor vessel types are represented by non rim-sherds, such as the base and body of two bottles or drinking jugs (for example Fig. 15 No. 27), a stem of an unusually large lamp (Fig. 15 No. 28) and 7 fragments of others (for example Fig. 15 Nos. 30-31), three dripping dish handles, one of which is a Surrey Whiteware type (e.g. Fig. 16 No. 32), and three lids, one of which has a drilled knob (Fig. 16 Nos 35-7). A fragment of a base-sherd with somewhat unusual multiple piercings through the base may be from a sieve or colander (Fig. 16 No. 38).

This phase sees the first occurrence of 'Tudor Green' in the sequence, with both the Surrey/Hampshire and Brill Boarstall types present. German Stonewares and Cistercian wares also occur. The Surrey/Hampshire 'Tudor Green' assemblage is fairly typical of such pottery, comprising almost entirely lobed cups, although the base of a baluster jug was also present. One item also worthy of comment is a fragment of a probable jug or mug from context 1020 (late 15th century), which has part of a modelled face (Fig. 15 No. 29). This is an extremely rare find. A fragment of a vessel with such decoration was noted at Ludgershall in Buckinghamshire, but that was a Brill-Boarstall type whereas the sherd from this site is a Surrey/Hampshire type with white fabric. There are few parallels. A Kingston-type drinking-horn with a modelled face is known from London and 'Tudor Green' baluster jugs with anthropomorphic decoration are known.⁷⁵

The Brill-Boarstall 'Tudor Green' assemblage has a similar general composition, although small bowls are represented as well and cups/mugs. The German Stoneware and Cistercian ware entirely comprises drinking pottery. All the vessels of this type are too fragmentary to merit illustration.

This assemblage is certainly of some interest, comprising mainly vessels associated with the preparation and consumption of food and drink. Pottery which provides evidence of mass catering in medieval institutions is very rare. As noted above, the excavations in and around the kitchen at Lincoln College produced very little pottery actually used there, but a large collection of broadly contemporary late medieval tablewares were noted at Eynsham Abbey in Oxfordshire.⁷⁶ The assemblages from Eynsham were from near the kitchen blocks, but it was not possible to relate them directly through cross-joins. There are some similarities with the Merton assemblage, but also some differences. The most notable difference is that Eynsham produced a relatively large number of small, shallow OXAM skillets,⁷⁷ a vessel type that was entirely absent from the assemblage here. OXAM bottles were also considerably more common,⁷⁸ whereas lamps were very rare, with just one fragment of one vessel noted.⁷⁹ Fragments of 11 dripping dishes were also noted, and mugs and cups were also well-represented. The abbey also produced fragments of a chafing dish and Martincamp flasks, vessels which were again not present at Merton. The range of fabrics was broadly similar, although Surrey/Hampshire 'Tudor Green' wares were very rare at Eynsham, and there were also a few late medieval Spanish vessels present.

It would appear then that the major differences in the two assemblages were that lamps were not found at Eynsham, with the monks presumably using candles as illumination, and that the small skillets common at Eynsham were absent from the assemblage at Merton. They were perhaps used as drinking pottery, or as receptacles for small portions of foodstuffs. Certainly, none of the Eynsham vessels showed any evidence of heating.

Eynsham also produced a mid 13th- to 14th-century pottery aquamanile.⁸⁰ Such vessels were used as containers for water for washing hands between courses at the formal table. The lack of such vessels at Merton may be for a number of reasons, although it seems most likely that metal vessels were probably in use here, as they were in the wealthier households and institutions of the period.

⁷⁵ For Ludgershall, P. Blinkhorn, 'Late 15th-century kiln waste from Ludgershall, Buckinghamshire', *Medieval Ceramics* (forthcoming); for the Kingston-type drinking horn, J. Pearce and A. Vince op. cit. fig. 100.87 and pl. 29; for the 'Tudor Green' jugs, *ibid.*, pl. 37.

⁷⁶ P. Blinkhorn, 'The Pottery', in A. Hardy, A. Dodd and G.D. Keevill, *Aelfric's Abbey: excavations at Eynsham Abbey, Oxfordshire, 1989-92* (Oxford Archaeology Thames Valley Landscapes Monograph 16, 2003).

⁷⁷ *Ibid.*, fig. 7.20 nos. 167-174.

⁷⁸ *Ibid.*, fig. 7.18 nos. 137-143.

⁷⁹ *Ibid.*, table 7.22.

⁸⁰ *Ibid.*, fig. 7.10.

Illustrations (Figs. 15-16)

- No. 23 MR3: Context 1225, fabric OXAM. Near-complete dripping dish. Pale orange fabric, copper-speckled pale green glaze on inner surface. Base on side opposite handle is scorched and sooted.
- No. 24 MR4: Context 1225, fabric OXAM. Near-complete dripping dish. Brick-red fabric, copper-speckled orange glaze on inner surface. Base on side opposite handle is scorched and sooted.
- No. 25 MR6: Context 1071, fabric OXAM. Full profile of large pancheon. Uniform orange-pink fabric, thin yellow-green glaze on the inner surface of the base-pad.
- No. 26 MR7: Context 1071, fabric OXAM. Full profile of large pancheon. Uniform orange-pink fabric, glossy yellow glaze on the inner surface.
- No. 27 MR27: Context 1027, OXAM. Lower body and base of a bottle. Reddish orange fabric with a bib of glossy green glaze and other patches and splashes.
- No. 28 MR28: Context 888, OXAM. Lamp. Buff fabric with glossy apple-green glaze.
- No. 29 MR29: Context 1020, OXBN. Bodysherd with part of modelled face. White fabric with glossy copper-green glaze on both surfaces.
- No. 30 MR30: Context 1098, OXAM. Fragment of lamp. Buff-pink fabric with pale green, copper-spotted glaze.
- No. 31 MR31: Context 1099, OXAM. Fragment of lamp. Buff-pink fabric with orange, copper-spotted glaze.
- No. 32 MR34: Context 1071, OXBG. Dripping dish handle. Buff fabric with grey core, splashes and runs of bright green glaze.
- No. 33 MR35: Context 1479, OXAM. Bifid jar rim. Buff fabric with grey core, bright green glaze on both surfaces.
- No. 34 MR36: Context 1184, OXAM. Upper part of drinking jug. Reddish-orange fabric with darker surfaces. Bib of yellowish-green glaze on upper body on opposite side to handle scar.
- No. 35 MR38: Context 981, OXAM. Fragment of lid with a hole drilled through the knob. Light grey fabric with brown upper surface, patches of very thin, copper-spotted orange glaze.
- No. 36 MR39: Context 1158, OXAM. Full profile of lid. Uniform brick-red fabric.
- No. 37 MR40: Context 1187, OXAM. Full profile of lid. Orange-brown fabric with grey upper surface. Very thin and patch clear glaze.
- No. 38 MR44: Context 1002, OXAM. Base sherd with multiple piercings. Uniform pink fabric with traces of clear glaze on the outer surface of the body.
- No. 39 MR45: Context 1073, OXAM. Rim and handle from two-handled jar or cauldron. Pale orange fabric with darker surfaces. Thin orange glaze with occasional copper spots on both surfaces.
- No. 40 MR46: Context 1185, OXAM. Full profile of small jar with drilled holes in shoulder. Thick dark brown residue on both surfaces.

Site Phase 7 (mid 16th – mid 18th century): This phase sees the end of the medieval tradition. The assemblage is still large (19,872 g., EVE = 10.6), with OXAM the major ware (77.9%), although it is likely that at least some of the Brill-Boarstall assemblage is residual. Redwares make up the majority of the post-medieval assemblage (3.9%), but are, unusually for the period, uncommon, suggesting that pottery deposition largely halted not long after the middle of the 16th century. Other post-medieval wares only make up 1.0% of the assemblage, which further confirms this.

The most notable aspect of the range of vessel forms present is that jars are relatively scarce, making up just 4.1% of the assemblage. Conversely, jugs are more common, comprising 58% of vessels, but perhaps the most striking feature is that nearly 23% of the assemblage consists of drinking pottery in the form of cups and mugs in 'Tudor Green', Cistercian ware and German Stonewares. Brill-Boarstall

Phase 6

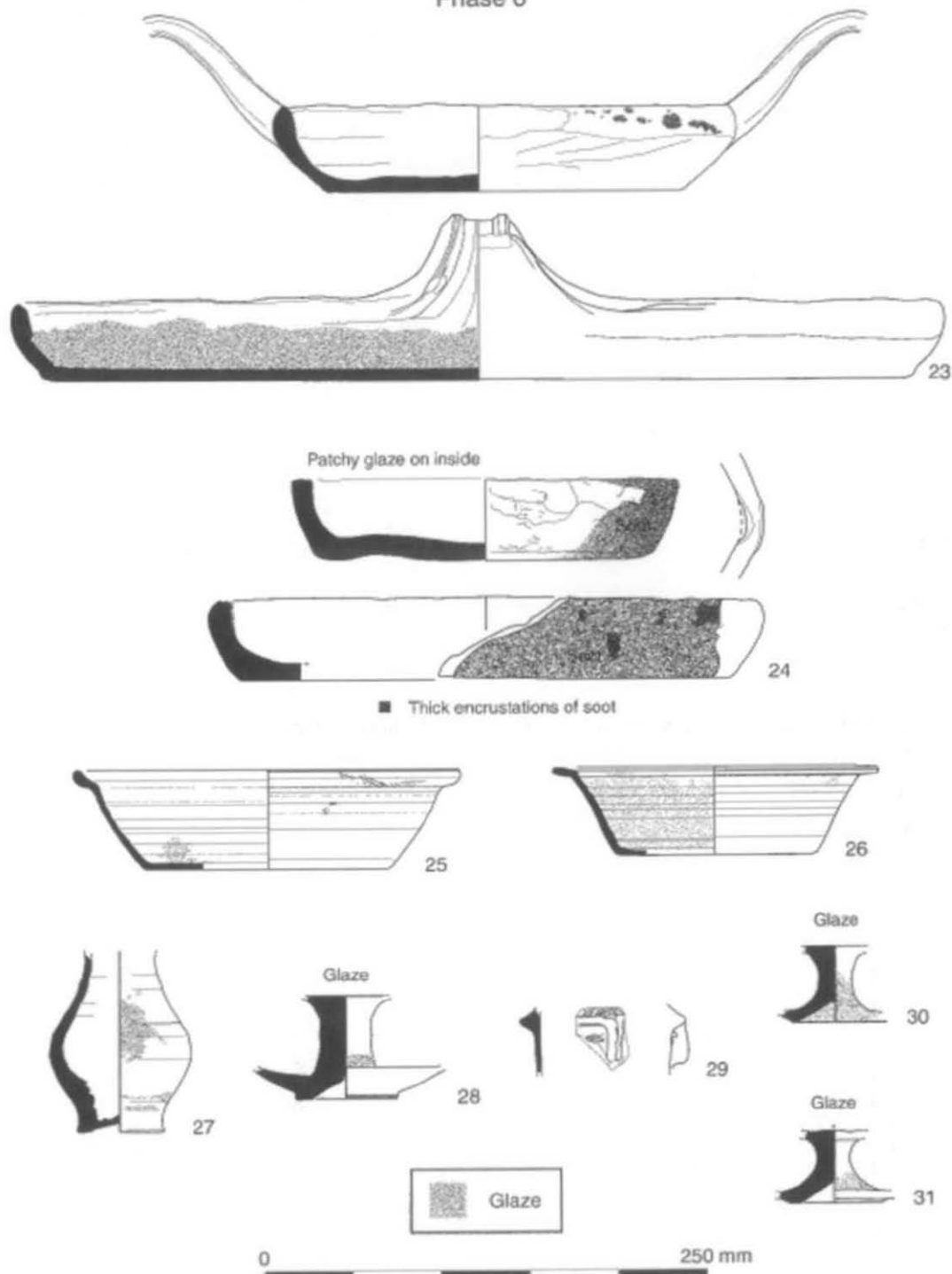


Fig. 15. Pottery: phase 6 Nos. 23-31

Phase 6

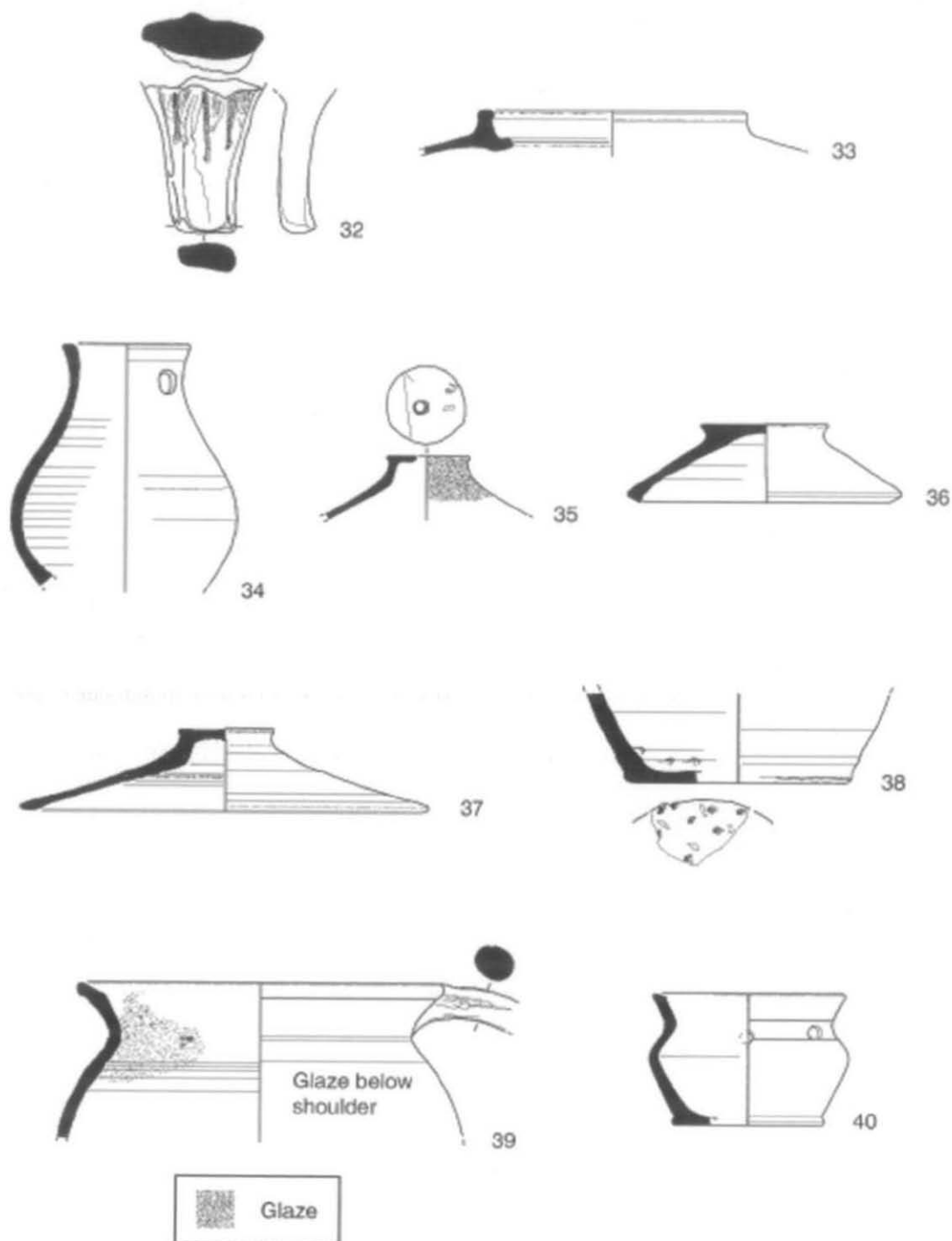


Fig. 16. Pottery: phase 6 Nos. 32-40
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drinking jugs (for example Fig. 17 Nos 41-2; Plate XVIII) are also present, so the actual figure relating to drinking pottery is higher than the bare data suggests. Certainly, just over 50% of the jugs (by EVE) have a rim diameter of less than 100 mm. When added to the data for cups and mugs, this would suggest that around half the pottery from this phase is related to the consumption of drink. The OXAM jugs are, as is typical of the period, largely undecorated, with minimal glazing (for example Fig. 17 No. 43).

The bowl assemblage again comprises fairly large pancheons (Fig. 17 No. 44). All the 'normal' Brill bowl rims are in the range 280 – 499 mm., although smaller OXAM 'Tudor Green' vessels are also present. The Surrey/Hampshire 'Tudor Green' assemblage again consisted mainly of lobed cups, although the base and body of a globular jug was also present (Fig. 18 No. 45).

OXAM lamps are also well-represented; one of the most complete examples from the whole site was noted in context 1044 (Fig. 18 No. 47). It is likely to be redeposited, as it occurred with a sherd of white salt-glazed stoneware. This is also worthy of comment. It appears to be the fragment of a plate with part of an inscription on the base, the letters 'Jo...' being present (Fig. 18 No. 48). Inscribed stonewares are not unknown from Oxford; a number occurred at St Ebbe's.⁸¹ Most were on brown-dipped tankards, although a white tea bowl with an inscription was noted.

Two remarkable sherds of pottery came from this phase at Merton College. The first was a fragment of an OXAM jug with a freehand inscription which suggests that the potters at Brill may have been making vessels to order for the college (see below). The second is a fragment of a OXAM jug rim (Fig. 18 No. 46) with a modelled, near life-size eye and eyebrow. This appears to be unique, and may be an example of a special commission from the Brill potters, as has been suggested in the case of other vessels, by Mellor.⁸²

Illustrations (Figs. 17-18; Plate XVIII)

No. 41 and Plate XVIII: MR1 Context 1209, fabric OXAM. Complete drinking jug. Buff fabric with a 'bib' of copper-speckled green glaze on upper body on the opposite side to the handle.

No. 42 and Plate XVIII: MR2 Context 1262, fabric OXAM. Complete drinking jug. Orange fabric with a 'bib' of copper-speckled green glaze on upper body on the opposite side to the handle.

No. 43 MR8: Context 1209, fabric OXAM. Near-complete jug. Grey fabric with a buff core. 'Bib' of copper-speckled, glossy variegated purple and green glaze on upper body on the opposite side to the handle.

No. 44 MR11. Context 1092, OXAM. Full profile of pancheon. Pale orange fabric with buff surfaces. Glossy yellow glaze on the inner surface.

No. 45 MR37. Context 1029, OXBN. Base and body of jug. White fabric with glossy, streaky green glaze, mainly above waist carination but also runs, splashes and patches on the lower body and base.

No. 46 MR41. Context 1141, OXAM. Jug rim with modelled eye and eyebrow. Buff fabric with grey core, dark green glossy glaze on both surfaces.

No. 47 MR42. Context 1044, OXAM. Lamp. Orange-pink fabric with glossy olive green glaze on the upper surfaces.

No. 48 MR43. Context 1044, OXFM. Base of plate with fragment of inscription on the underside. Uniform white fabric.

Two sherds with lettering

An inscribed sherd (Fig. 18 No. 49; Plate XIX), from a medieval Brill-Boarstall jug, was also present in a Phase 7 (early 16th- to 18th-century) context. The fabric and glaze suggests that it is most likely of 15th- to early 16th-century date. The inscription was incomplete, but the letters '...rton' or '...nton'

⁸¹ M. Mellor, 'A summary of the key assemblages', in T.G. Hassall et al. op. cit. note 66, figs. 26, 28 and 29.

⁸² M. Mellor op. cit. note 72, 121-2.

Phase 7

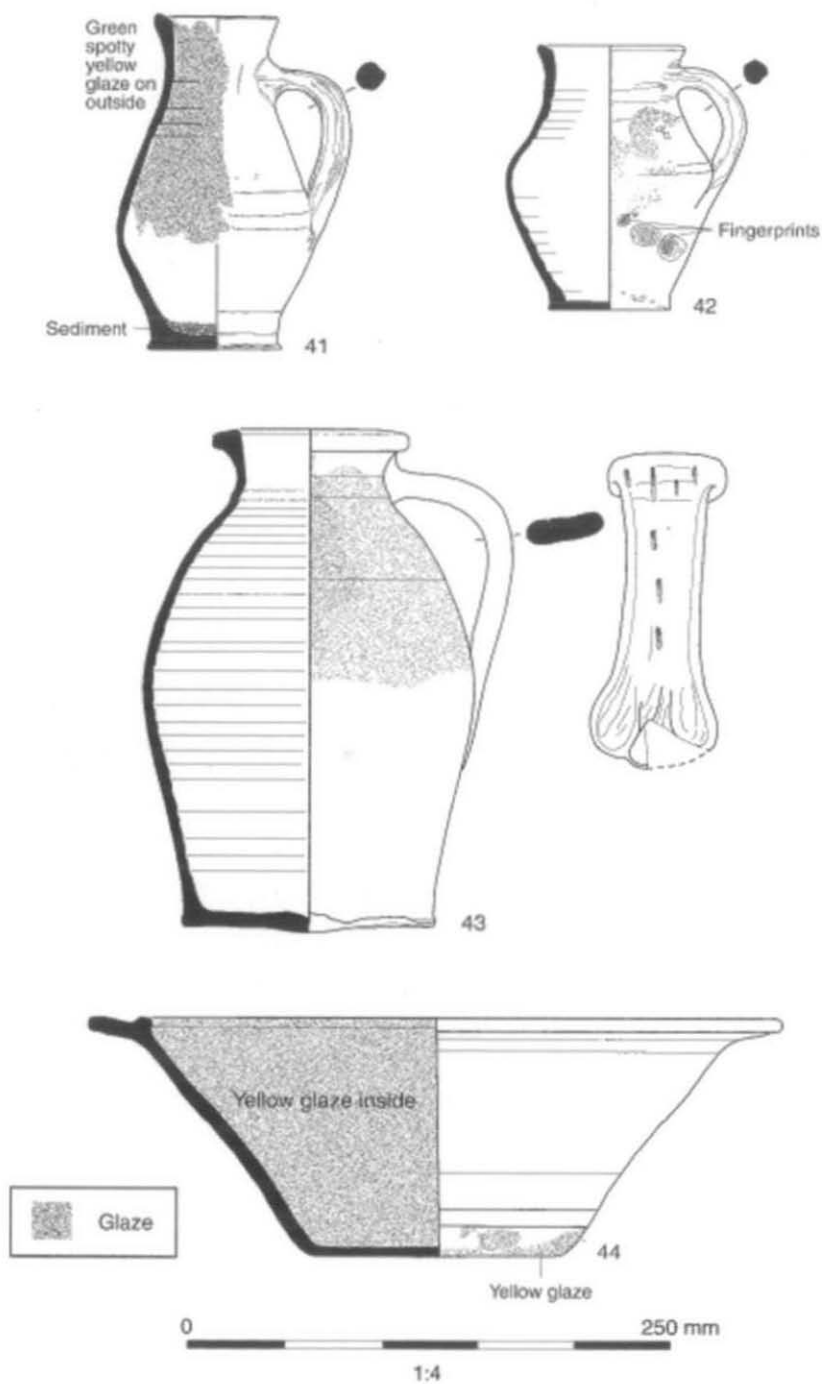


Fig. 17. Pottery: phase 7 Nos. 41-44

Phase 7

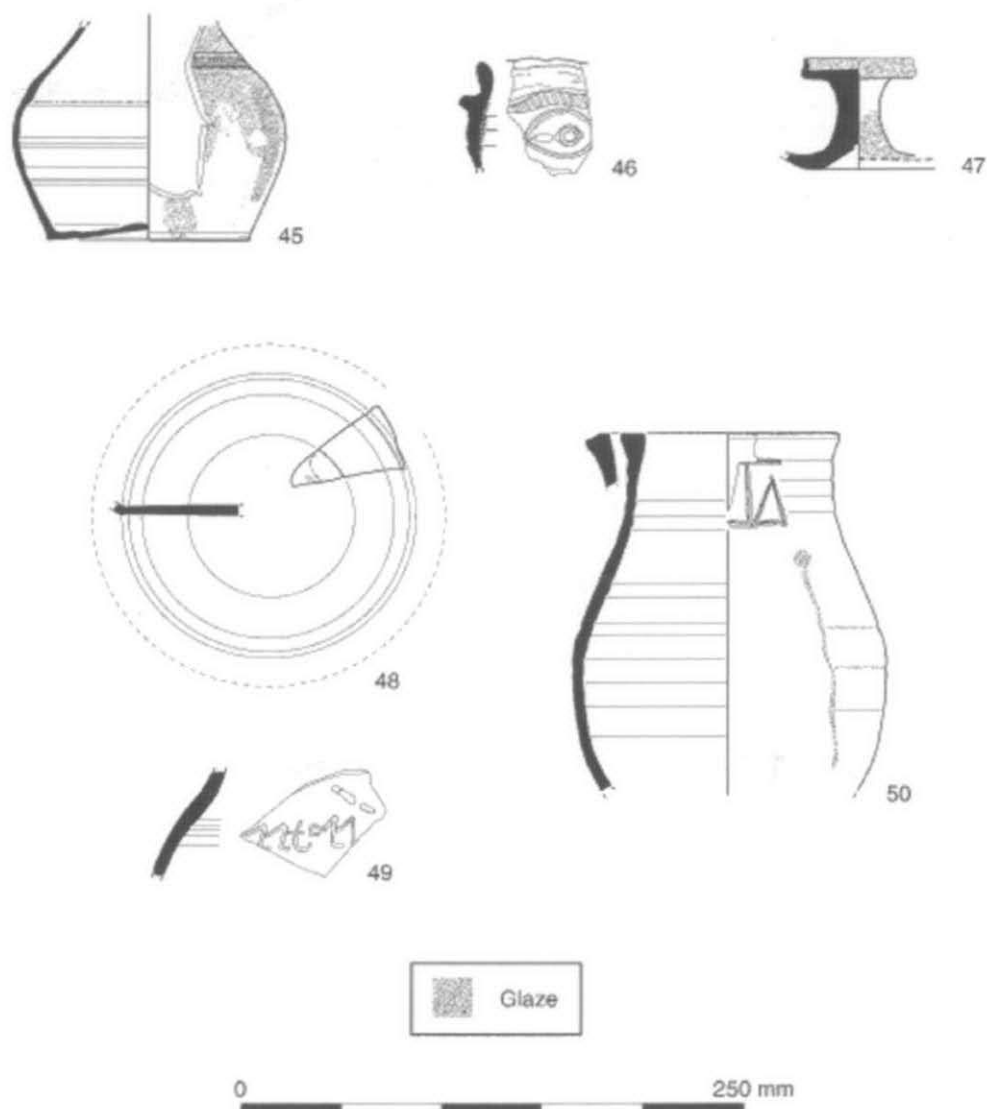


Fig. 18. Pottery: phase 7 Nos. 45-50

survived, suggesting strongly that the original inscription read 'Merton'. The inscription was covered by green glaze, indicating that it had been incised whilst the clay was still wet. In terms of medieval ceramics, this is a highly significant find, for it suggests that the potters at Brill were making batches of pots to order for the college. Mellor has suggested that some of the more highly decorated Brill vessels in Oxford were the subject of special commissions from the potters;⁸³ the presence of this inscribed sherd suggests that at least one of the colleges was ordering pots directly, rather than simply buying them from a market when needed.

Medieval jugs with inscriptions are extremely rare. A number of examples with roller-stamped lettering are known from sites in the south midlands. A small sherd with a fragment of a roller-stamped inscription is known from field-walking at Flore near Northampton.⁸⁴ It appears to have been part of a vessel which is the same as a 15th-century example from Coventry. The latter appears to have the same inscription, and, almost certainly, was made by the same potter. Dunning's overview of medieval jugs with lettering illustrates how rare such vessels are.⁸⁵ He noted an inscribed jug handle from Abthorpe near Towcester in Northants,⁸⁶ dated to the late 14th – 15th century, and the Coventry vessel noted above. Vessels with free-hand inscriptions are similarly unusual. Dunning noted a vessel from Spilsby in Lincs, with a free-hand inscription, also dated to the 15th century, and recently, a sherd with an indecipherable inscription was noted amongst a group of mid-late 15th-century kiln waste at Stanion in Northants.⁸⁷

Further afield, a jug with a largely incomprehensible inscription, taken to be part of the alphabet, is known from St. Bartholomew's Hospital in Rye, Sussex, and a sherd of a probable 13th- to 14th-century jug from Glastonbury in Somerset had the partial remains of an inscription (the letters ...ASOT...) in a band beneath the rim. Blake's overview of medieval inscribed pottery notes only one further example, a medieval jar from Norwich with the name 'ADAM' and the letters VE ?RM.⁸⁸

Another inscribed vessel was noted at Merton College, from a site Phase 6 context, in this case a jug from context 1179 with a capital 'N' or perhaps a Roman numeral 'IV' incised deeply into the fabric post-firing (Fig. 18 No. 50). Medieval vessels with inscriptions such as these are perhaps more common than those forming words or sentences. For example, a Brill-Boarstall jug with a Roman numeral 'II' incised in the neck before firing is known from Oxford, and a Brill vessel with an incised pattern executed post-firing and said to represent a key is known from Northampton Castle.⁸⁹ A further vessel with graffiti incised post-firing around the bottom of the jug occurred at Eynsham Abbey.⁹⁰

Illustrations (Fig. 18; Plate XIX)

No. 49 and Plate XIX. MR47 Context 1209, OXAM. Bodysherd with inscription. Pale orange fabric with buff surfaces, glossy, mottled pale orange and green glaze on outer surface.

No. 50 MR48. Context 1179, OXAM. Rim and body of jug with inscribed mark on the neck. Pale orange fabric with buff surfaces. Bib of glossy orange-yellow glaze on shoulder beneath the lip.

⁸³ Ibid.

⁸⁴ P. Blinkhorn and B. Dix, 'A sherd of medieval pottery with a roller-stamped inscription from Flore, Northamptonshire', *Northamptonshire Archaeology*, 24 (1992), 107-8.

⁸⁵ G.C. Dunning, 'Late medieval jugs with lettering', *Medieval Archaeology*, 11 (1967), 233-42.

⁸⁶ Ibid., fig. 67.

⁸⁷ Ibid., fig. 70; P. Blinkhorn, 'A group of medieval kiln waste from Stanion, Northants', *Northamptonshire Archaeology* (forthcoming).

⁸⁸ K.J. Barton, *Medieval Sussex Pottery*, Phillimore and Co. (1979), fig. 2, o; O. Kent, 'A late medieval jug with lettering from Glastonbury Abbey', *Medieval Archaeology*, 39 (1995), 176-8; H. Blake, 'Sex, magic and Dr Gerald Dunning', *Medieval Ceramics* 9 (1985), 5-20; S. Jennings, *Eighteen centuries of pottery from Norwich* (East Anglian Archaeology Report No. 13, 1981), fig. 16.

⁸⁹ M. Mellor op. cit. note 72, fig. 64 no. 1; *ibid.* 131-2.

⁹⁰ P. Blinkhorn op. cit. note 76.

COINS AND JETTONS

Five coins were recovered from the excavations and preliminary identifications were made by Nicholas Mayhew of the Ashmolean Museum. Four were medieval and comprised a silver short-cross penny of Henry III (in circulation up to 1247), a silver penny of one of the first two Edwards (struck before 1330 and probably in circulation into the 15th century), a London Groat (1350-1500) and a continental imitation of a coin of Edward I (probably struck around 1300 and in circulation until 1400). The coins were all either unstratified or redeposited in later contexts.

THE JETTONS by EDMUND SIMONS

The excavations produced 14 copper alloy jettons and one lead token ranging in date from the late 14th to the mid 16th century. The jetton (from the French *jeter* to throw) is a counter used in mechanical calculation, carried out on a counting table (counter or abacus) that worked in much the same way as the sliding bead type of abacus. The jettons were laid out on flat tables, either on cloths (exchequer cloths) or on marked tables (counters). These were divided into rows usually representing thousands, hundreds, pounds (a sum of money used only in accounting), shillings and pence. The jettons were used as markers to represent units of money and/or goods. Several methods can be used to carry out the calculations, most commonly by laying out the jettons to represent the number required, and then adding or subtracting, multiplying or dividing them. The result of the calculation would usually be obtained by counting the remaining jettons.⁹¹

TABLE 11. MERTON COLLEGE JETTONS

SF No.	Context	Identification	Date range
192	1141	Nuremberg 'Venus Penny'	1540s-60s
178	1092	Nuremberg 'Venus Penny'	1540s-60s
27	878	Anonymous issue Nuremberg Rose and Orb jetton	1500-1550?
24	872	Anonymous issue Nuremberg Rose and Orb jetton	1500-1550?
196	1154	French (Tournai?) stock jetton	1380-1490
189	1134	French (Tournai?) stock jetton	1380-1490
158	1073	French (Tournai?) stock jetton	1380-1490
195	1158	French (Tournai?) stock jetton	1380-1490
152	919	French (Tournai?) stock jetton	1380-1490
193	1141	French (Tournai?) stock jetton	1380-1490
187	1141	French (Tournai?) stock jetton	1380-1490
147	1020	Louis XII Possibly Tournai?	1497-1521
91	950	Louis XII Possibly Tournai?	1497-1521
236	1479	English single sided lead token	Mid 14th century
16	786	Savoy Jetton with arms of France Modern quartered with bar	Late 14th century

⁹¹ Several methods of calculation are shown in F.P. Barnard, *The casting counter and the counting board* (1916), 120 and the method used in England by the royal Exchequer is described in T. Berry, *Medieval English Jettons* (1970), 15.

The function of jettons is often misunderstood and they can easily be confused with coins and with lead, pewter and copper alloy tokens and medals. This is not to say that jettons were not occasionally used in lieu of money, or as tokens for carrying out work, or perhaps as 'truck money' to be exchanged for goods and services, or as gambling tokens. Throughout their early history, however, the evidence indicates that the overwhelming function of the jetton was as an integral part in the abacus or manual calculator and that it was primarily for this purpose that they were made and exported in such huge numbers.

At Merton College, the treasury or muniment room was put up between 1288 and 1291, and the Bursar's accounts for the first half of 1291 make several references to the purchase of wood and nails, and the wages of a carpenter, for making a *mensa computor*, or counting table.⁹² Although none of the jettons found in the excavations is as early as this, it seems beyond doubt that they would have been used in the calculation of the college's accounts on its counting table during the 15th century.

Table 11 lists the jettons found in the excavations. Ten are medieval examples, all originating in France. They were manufactured between c.1380 and 1521 and are of a standard type. The issue of these decorative jettons was controlled by the French crown but they were made in massive amounts for export and soon replaced earlier English types to become the most common late medieval type. It is possible that some of these jettons belonged to the same set or 'cast'. A cast of jettons would contain at least one hundred (not necessarily identical) pieces; this was regarded as being the minimum amount required for carrying out complicated calculations. The presence of so many jettons of such similar date together may suggest that some came from the same cast. The disposal of the jettons in pits may suggest that they were lost during day to day work. Jettons were cheap mass produced items and any lost examples could be quickly replaced.

By the mid 16th century jetton production had largely switched to Nuremberg. These jettons were exported all over Europe in massive numbers and are a common find on both urban and rural sites. The excavations recovered two standard Rose and Orb type jettons by an anonymous maker and two so-called 'Venus pennies'. Although the Rose and Orb types are slightly earlier in date, both will have been in use in the mid 16th century. It is highly likely that these jettons were once again part of a cast for accountancy use. By the end of the 16th century however there is a suggestion that jettons were increasingly being used as tokens in gambling games. Such games were certainly not unknown in the Middle Ages but after the Reformation their popularity increased dramatically and gaming houses were opened in many towns and cities. It is possible therefore that these later jettons relate not to college accountancy but to less respectable pursuits.

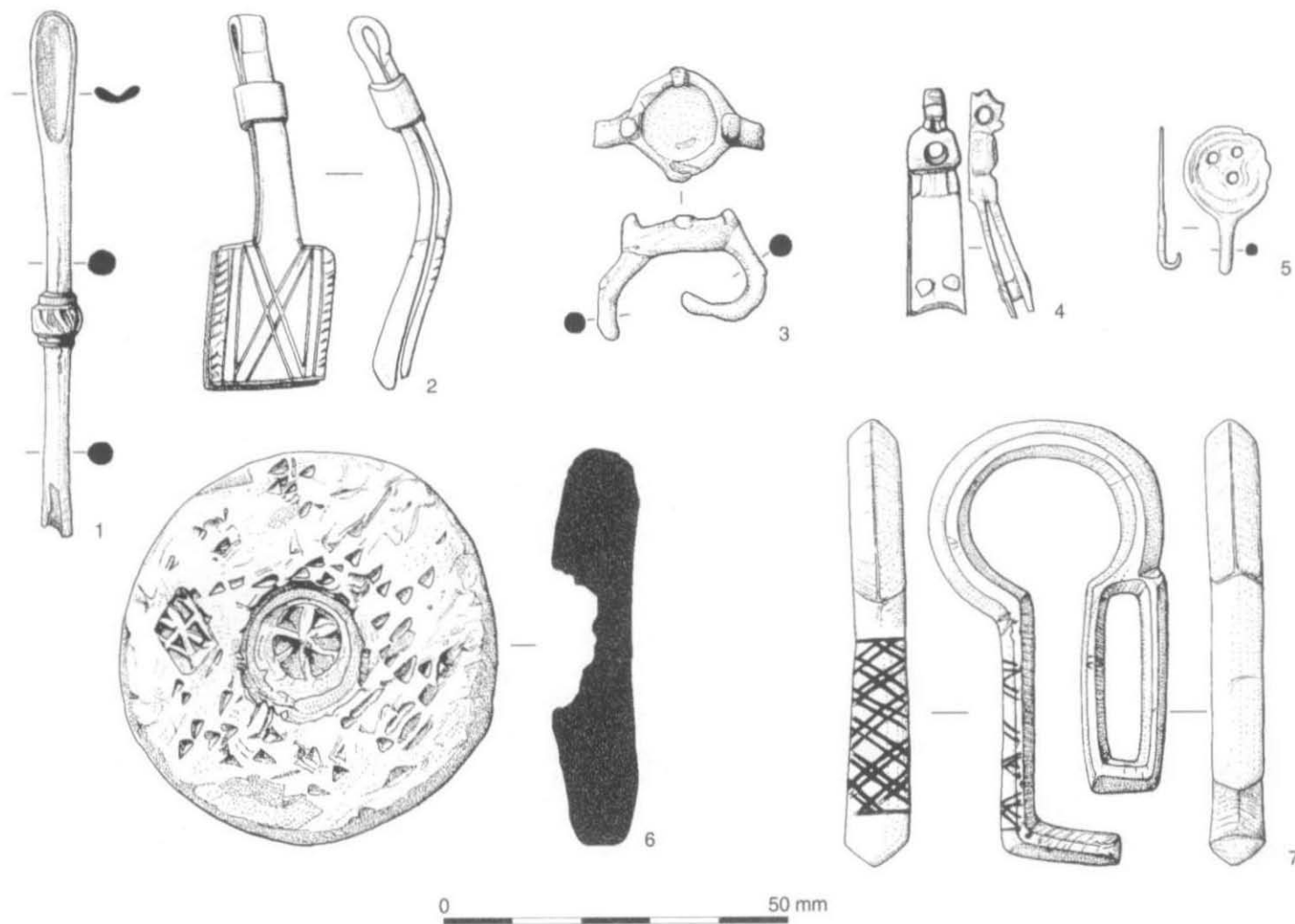
METAL AND BONE OBJECTS by LEIGH ALLEN

Introduction

A total of 311 metal objects and 9 bone objects were recovered from the archaeological investigations. The metalwork assemblage comprises 107 copper alloy objects, 192 iron objects and 11 lead objects, but this includes a number of miscellaneous and unidentifiable fragments which have been listed in archive but are not considered further in the present report. The entire assemblage has been x-rayed in order to aid identification. Identifiable finds comprise 52 copper alloy objects, 31 iron objects (excluding 120 nails) and 4 lead objects. These include a very small number of personal objects and toiletry equipment, domestic items, lock furniture, horse-gear, tools and structural metalwork (excluding nails). There is also an interesting group of material associated with books and writing. The assemblage is discussed in chronological order and a selection of the more important objects are illustrated in Figs. 19 and 20 and Plates XV and XVI. A full catalogue can be found in the project archive.

Most of the finds came from contexts of Phases 6 and 7 dating to the late medieval and post-medieval periods. There are a very small number of fragmentary objects from the earliest phases (Phases 2 and 3) and only one of these is broadly datable. Phase 4 objects are mostly from upper fills of garderobe 1047 and garderobe pit 1369 associated with the northern hall; those from the upper fills of the garderobe pit post-date the demolition of the hall, but those from the garderobe pit are thought to

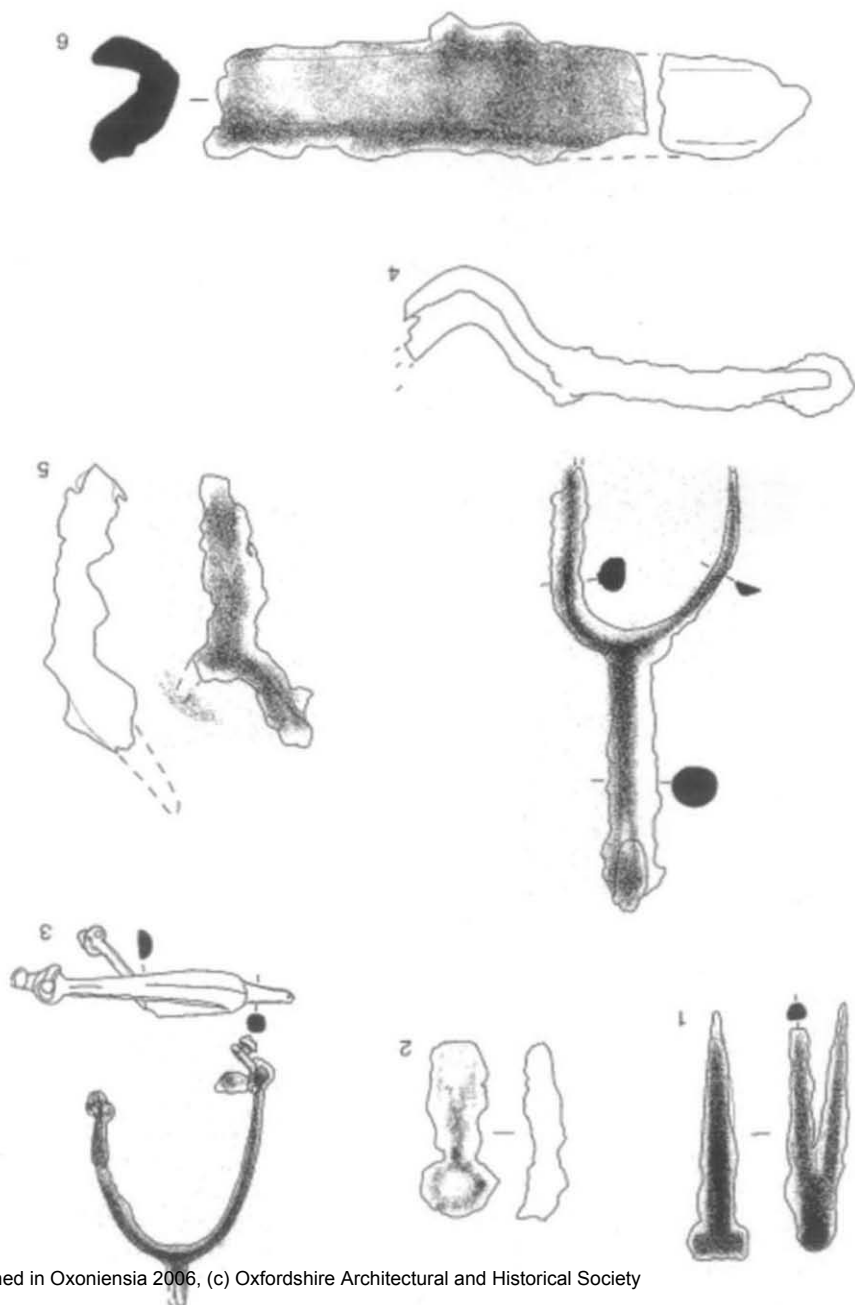
⁹² R. Highfield *op. cit.*, 62-3; *ibid.* No. 32, the Account of Walter Cuddington 13 Jan 1291-20 July 1291, MR 4054.



1:1
Fig. 19. Objects of copper alloy and lead

Fig. 20. Objects of iron

0 100 mm
1:3



be contemporary with its mid 13th- to mid 14th-century period of use. In Phases 5 and 6 large pits thought to contain waste imported from the main college site across the road produced a concentration of objects associated with books and writing; particularly notable are the bone styli and the copper alloy page holder. In Phases 6 and 7 the majority of the objects derived from backfill, dump deposits and made ground, which probably accounts for their rather poor and fragmentary condition. All the items of horse-gear including spurs, harness fittings and a curry comb, were recovered from Phase 7 contexts and relate to the use of the area as a stable yard. But in general the contexts appear mixed, with finds from all functional categories appearing in most of the later phases across the site. There is a distinct lack of personal objects and nothing that could be described as high status. Structural metalwork (with the exception of nails) is also unusually scarce for a site known to have contained a number of substantial buildings, and there are no items associated with windows, doors or lighting. This suggests that such material was disposed of elsewhere, or perhaps more probably that it was carefully reclaimed for reuse in subsequent building.

Phase 2 (11th to early 13th Century)

The earliest features to produce metal finds on the site are two pits, one in the northern area (1551) and the other in the southern area (1477). A fragment from a padlock key was recovered from context 1429, the upper fill of pit 1477. Only the expanded bit with a cross-shaped perforation and a short section of the stem survive. This form of key with the bit and the stem in line dates to the 11th-13th century.⁹³ The key would originally have had a white metal coating to improve its appearance and prevent rusting. A fragment from a possible hoe or malt-rake (SF 257) was recovered from context 1541, upper fill of pit 1551. The object has a rectangular-sectioned tang with a large fragment of flat iron sheet attached. A similar fragment was recovered from St Ebbe's, Oxford from a later context,⁹⁴ but the form of the object is similar and would not necessarily have changed over time.

Phase 3 (early to mid 13th Century)

A blade fragment from a whittle tang knife was recovered from context 1254, the upper fill of pit 1253, together with a fragment from a bone implement. The fragment is a highly polished section from a tibia (probably sheep); it tapers along its length but is incomplete, with the lower part of the shank missing. The upper end has an angled perforation through one side and a deep groove around the top edge as if it has been suspended from a cord. A small buckle plate fragment (SF 248) was recovered from context 1431, primary fill of pit 1213. It is from a simple rectangular folded plate, recessed for the frame and with two perforations at the lower end for attachment to the strap.

Phase 4 (mid 13th to mid 14th Century)

The objects recovered from Phase 4 derive from the upper fills of garderobe 1309, garderobe pit 1369 and from robber trench 1106. Two lace tags were recovered from contexts 1050 and 1190, the upper fills of the garderobe. Both are incomplete but are of a slightly tapering form with a perforation for a transverse rivet at the top. This type of tag is mainly 15th-century in date. The upper fills of the garderobe pit produced an ear-scoop, a fragment from a pair of scissors (context 1364) and two keys (context 1368). The ear-scoop (SF 228; Fig. 19 No. 1) is all that remains of a double-ended toiletry implement that would have had a set of tweezers at the other end. These have unfortunately broken off just below the point where they split into two arms. The implement is formed from a narrow strip of sheeting cut to a rounded shape at one end to form the scoop and split at the other end to form the tweezers. The sheeting was then formed into a tube and in this case it has a decorated reinforcing ring soldered into place at the centre to secure the tube and hide the seam. A similar example from Billingsgate Lorry Park, London, was recovered from a 14th- to 15th-century context.⁹⁵ The scissor

⁹³ I.H. Goodall, 'Locks and keys', in M. Biddle, *Object and economy in medieval Winchester*, Winchester Studies 7ii: Artefacts from medieval Winchester (1990), type C, 1022-1024, fig. 324.

⁹⁴ I.H. Goodall, 'Iron objects', in T.G. Hassall et al. op. cit. note 9, 224-29, fig. 36 no. 33.

⁹⁵ G. Egan and F. Pritchard, *Medieval finds from excavations in London: 3. Dress accessories c.1150 - c.1450*, (1991), 380-83, fig. 253 no. 1773.

fragment comprises one arm with a tiny section of the ring bow attached. Scissors were introduced in the medieval period but initially they were less popular than shears, becoming more popular in the 16th and 17th centuries.⁹⁶ The two keys from context 1368 are both designed for use with mounted locks, but they represent two different forms. The first has an oval bow and a slender solid stem that projects beyond the bit, and the ward pattern is symmetrical. This type of key is common in the late medieval period and continued in use into the post-medieval period. The second key has a circular bow, and a hollow stem, with the end of the stem and the bit in line. This type of key appears sporadically in medieval and later contexts, but iron examples tend to be post-medieval in date.⁹⁷ A writing lead was recovered from context 1118, the primary fill of robber trench 1106. It is pointed at one end and spatulate at the other. At Winchester similar leads have been categorised as class II and are dated to the 13th-14th century.⁹⁸

Phase 5 (mid to late 14th Century)

The small assemblage from Phase 5 derives from pits in the northern and southern areas of the site and includes a number of notable objects associated with books and writing. In the northern area context 1217, the primary fill of pit 1215, produced two bone styli (SF 210 and 211 (Plate XV)) and a further incomplete object that may be a stylus or a bone pin (SF 212). The styli, formerly identified as parchment pricklers, are now believed to be writing implements for use with wax tablets.⁹⁹ These neatly turned objects are frequently found in scholastic and ecclesiastical establishments such as the Greyfriars, Oxford, Eynsham Abbey and in large numbers from Battle Abbey.¹⁰⁰ All the examples have spherical heads with varying numbers of collars below. The circular sectioned shanks taper to a rounded end in which is inserted a copper alloy point. In SF 210 this point still survives, but SF 211 has only the groove surviving where the point would have been inserted. Styli are late medieval in date and possibly continue in use into the post-medieval period. The bone pin (SF 212) is highly polished with a spherical head and was probably a hair pin. Context 1056, the upper fill of pit 1055, produced an incomplete needle (SF 144) with the upper part of the eye missing. Pits 1135, 1381 and 1355 in the southern area produced a finger ring, a page holder and a fragment from a pair of scissors. The page holder or clip (SF 245; Fig. 19 No. 2; Plate XVI) from context 1474, fill of pit 1135, is complete and resembles a pair of tweezers except that the terminals are expanded into large square plates decorated with incised grooves and punched triangles. The narrow arms are ringed by a sliding clasp. They are believed to have functioned much like a modern bulldog clip, keeping pages together. They have a wide distribution and are found on both secular and ecclesiastical sites.¹⁰¹ The finger ring (SF 242; Fig. 19 No. 3) recovered from context 1470, fill of pit 1381, has a simple hoop affixed to a circular bezel with four (incomplete) claws; the setting itself is missing. A similar example from London (Billingsgate Lorry Park) was recovered from a 14th-to 15th-century context.¹⁰²

Phase 6 (late 14th to mid 16th Century)

A larger assemblage of material was recovered from this phase from groups of inter-cutting pits across the northern and southern areas of the site, many of which contained deposits of domestic refuse. A rim fragment (SF 237) from a cast copper alloy vessel, probably a platter, came from pit 1221. Two more

⁹⁶ I. H. Goodall, 'Iron scissors', in S. Margeson, *Norwich Households: the medieval and post-medieval finds from Norwich survey excavations 1971-1978* (East Anglian Archaeology Report No. 58, 1993), 135-6.

⁹⁷ I. H. Goodall op. cit. note 93, 1007.

⁹⁸ M. Biddle and M. Brown, 'Writing leads', in M. Biddle, op. cit. note 93, 735-38, fig. 212.

⁹⁹ G. Egan, *Medieval finds from excavations in London: 6. The medieval household daily living c.1150 - c.1450* (1998), 272.

¹⁰⁰ G. Egan, 'Bone, ivory and antler objects', in T. G. Hassall et al., op. cit. note 9, 231, fig. 66; L. Allen, 'Writing equipment', in A. Hardy et al., op. cit. note 76, 263-5, fig. 266; J. Geddes, 'The small finds', in *Battle Abbey: the eastern range and the excavations of 1978-80* (Historic Buildings and Monuments Commission for England Archaeological Report No. 2, 1985), 149-51, fig. 45.

¹⁰¹ M. Biddle and D. Hinton, 'Book clasps and page holder', in M. Biddle, op. cit. note 93, 756; P. Ottaway and N. Rogers, *Craft, industry and everyday life: finds from medieval York* (York Archaeological Trust AY17/15, 2002), 2936.

¹⁰² G. Egan and F. Pritchard, op. cit. note 95, 328-9, fig. 216 no. 1619.

styli (SF 188 and SF 238, Plate XV) were recovered from pits 1162 and 1415. They are identical in form to those recovered from Phase 5 contexts (see above), although SF 238 is rather more elaborate, with a collar decorated with regularly spaced notches. SF 238 still has the copper alloy point *in situ*. A lace tag of tapering form with a perforation for a transverse rivet came from pit 1413.

In the centre of the site another group of large intercutting pits, interpreted as rubbish pits, produced a large variety of objects. A small lead pan weight came from pit 1375, with a thickened rim and one face covered with a fine grid of cross-hatched lines.¹⁰³ To the west pit 1197 produced a pair of dividers and a horseshoe fragment from primary fill 1225 and a fragmentary knife handle from upper fill 1222. The dividers are identical in design to modern day dividers; a similar pair were recovered from Battle Abbey and a more elaborate pair from the Sackler Library, Oxford.¹⁰⁴ It is thought that they were used to mark out lines or decoration on parchment or paper. The horseshoe fragment is of late medieval or post-medieval type; the knife handle fragments (SF 217) are from a scale tang knife with copper alloy rivets and shoulder plate, and a row of tin pins decorating the handle. Scale tang knives were first introduced in the 13th century.

A small cross-pane hammerhead and a bone toggle were recovered from the primary fill of the recut of pit 1197. The toggle is a pig metapodial with a circular perforation through the centre, with slight indications of wear. It is possible that this object is a buzz bone, a rudimentary form of musical instrument. A cord would have been threaded through the perforation, formed into a figure of eight shape and twisted until tight. As the cord was released it untwisted causing the bone to rotate and emit a low humming noise. Examples are commonly found on medieval sites. The upper fills of this re-cut pit produced a fragment of a scale tang knife, a hinge pivot (one of the very few structural objects from the site), the fifth and final stylus from upper fill 1071 and a key and a complete lace tag from fill 1073. The stylus (SF 148, Plate XV) is of the same form as those recovered from previous phases; the shank of this example appears to have been cut longitudinally, perhaps in an attempt to rework it after it had broken. The lace tag (SF 170) is the same form as the previous examples, tapering and with a transverse perforation for a rivet. The key (SF 155) has a circular bow, a moulded stem and an elaborate rectangular bit in line with the stem; a similar style of key from Battle Abbey was recovered from a 14th-15th century context.¹⁰⁵

To the south, pit 1016 produced a book clasp, a looped staple, a wall hook, a fragment from the blade tip of a large implement (possibly a scythe or a sickle), a complete late medieval or post-medieval horseshoe and a knife. The book clasp (SF 118; Fig. 19 No. 4) from context 1017 comprises a hinged double-sided plate and a cast loop. The loop has a central perforation and the back is flat; below is another loop terminal at 90 degrees to the first with a grooved outer edge. They would have been used on book covers together with a strap and pin mount to keep the book closed.¹⁰⁶ The wall hook from context 1020 has a long shank that would have been driven into timber or masonry joints. The knife fragment from context 1027 is very damaged, and only a short section of the blade and the tang survives. The blade does appear to have been welded and bears a cutler's mark in the shape of a five-pointed star. A dump layer in this same area (context 886) produced a possible arrowhead; it is very corroded and the blades have broken off, but it appears to be socketed.

In the northern part of the site a group of inter-cutting pits including pits 1107 and 985 produced a hooked tag, a fragment of a scale tang knife handle with a copper alloy end plate and rivet, and a key. The hooked tag (SF 172; Fig. 19 No. 5) is circular and is decorated with incised concentric circles and three perforations. Used to secure light clothing these tags were popular in the early medieval period and saw a revival in the later medieval period. The key has an oval bow and slender solid stem that projects beyond the bit; the bit is damaged but would have been symmetrical. This type of key is common in the late medieval period and continued in use into the post-medieval period. It is identical

¹⁰³ G. Egan, *op. cit.* note 99, 163.

¹⁰⁴ J. Geddes, *op. cit.* note 100, 171, fig. 57 no. 37; L. Allen, 'Metal objects and worked bone', in D. Poore and D.R.P. Wilkinson, *Beaumont Palace and the Whitefriars: excavations at the Sackler Library, Beaumont Street, Oxford* (Oxford Archaeological Unit Occasional Paper No. 9, 2001), 58-60, fig. 18 no. 6.

¹⁰⁵ J. Geddes, *op. cit.* note 100, 166, fig. 55 no. 11.

¹⁰⁶ G. Egan, *op. cit.* note 99, 277-80, fig. 214 no. 919.

to SF 117 recovered from context 1012, the construction cut for a north-south boundary wall. A pin and two lace tags were recovered from a domestic refuse layer 926. The fine wire pin (SF 95) has a spiral wound head and was probably used to secure light clothing or head-dress. In the later medieval and post-medieval periods they are found in large numbers often associated with lace tags and loop fasteners. Both lace tags (SF 94 and 96) from this context are incomplete.

Phase 7 (mid 16th to mid 18th Century)

Features dating to the 16th-17th centuries produced the largest number of metal objects from the site, including a large group of items associated with horse-gear. All the spurs from the site were recovered from this phase as well as a harness fitting and a curry comb used for grooming horses. This phase also produced the largest number of lace tags and pins. The majority of the finds from this phase derive either from contexts associated with the back filling of a stone-lined pit (939) and drain (997) in the centre of the site, or from layers of made ground or dumps of domestic waste. An awl and a hinge plate were recovered from the upper fills (950 and 938) of the stone lined pit. The awl is small and incomplete, tapering to a point at each end; it could have been used to pierce holes in leather. The small hinge-plate (SF 81), with a pintle and two rivet holes, is identical to an example recovered from Battle Abbey and could have been used on a small chest or cupboard.¹⁰⁷ A spur, a bell, a mount and two knives were recovered from further backfills of the pit. The rowel spur (SF 41; Fig. 20 No. 3) from context 902 is reasonably complete although the rowel itself is missing. Small and of slender construction, the spur has a very short neck that projects slightly downwards and D-section arms which terminate in figure of eight shaped terminals. Through the end of one of these terminals there are two hooked studs for attachment to leather straps. Spurs saw a revival in the 17th century, initially as a fashion item. By the end of the century they became smaller and more functional, and straight arms predominate in this later form.¹⁰⁸ The bell (SF 66) comprises the lower half of a sheet metal bell (SF 66). The hemisphere has two circular perforations through it and a flared rim where it joined the upper half. This type of bell was often used on harness and the collars of hunting dogs or as a personal dress accessory.¹⁰⁹ A small cross-shaped mount from context 910, decorated with rows of punched triangles, could have been used on belts or harness. The two knives from contexts 878 and 902 are very fragmentary; only the later is datable as it has an expanded bolster where the tang meets the blade. Bolsters were first introduced in the 16th century and are particularly common in the 17th century.¹¹⁰

To the west of the stone-lined pit and drain were layers of made ground (885 and 901) which produced a lead weight, a thimble, a strainer and a writing lead. The weight (SF 33; Fig. 19 No. 6) is circular and has a punched motif in the shape of a stylised 6-petalled flower in the centre of the upper face and a smaller flower inside a trapezoidal indentation just off centre. There are various other peck marks over the surface, probably made to reduce the lead to an exact weight, in this case 8 oz. The stylised flowers may also be an identification mark.¹¹¹ The writing lead is identical to the one recovered from context 1118 (see above), pointed at one end and spatulate at the other. At Winchester similar leads are dated to the 13th-14th century.¹¹² The thimble (SF 37) is straight-sided with hand-applied indentations and two incised grooves at the rim. The strainer (SF 35) is slightly dished and has crudely made perforations through it; it looks like a watering can rose, although a similar example Swan Lane, London is identified as a drain filter probably because of its crude form.¹¹³

To the east of the stone-lined pit and drain, the primary fill of large rectangular pit 1142 produced a spur and a mount. The rowel spur (SF 183; Fig. 20 No. 4) has a long neck with an intact rowel box and the rowel still *in situ*. The D-section arms curve downwards to fit below the wearer's ankle. Terminals at the end of the arms have broken off, but one associated fragment may be from a figure of

¹⁰⁷ J. Geddes, op. cit. note 100, 162, fig. 51 no. 73.

¹⁰⁸ B. Ellis, 'Spurs', in M. Biddle, op. cit. note 93, 1038.

¹⁰⁹ G. Egan and F. Pritchard, op. cit. note 95, 337.

¹¹⁰ I.H. Goodall, 'Knives', in M. Biddle, op. cit. note 93, 939.

¹¹¹ G. Egan, op. cit. note 99, 311-9, fig. 234 no. 1007 showing an indented crown, and fig. 237 no. 1015 showing punched rectangles and crosses.

¹¹² M. Biddle and M. Brown, op. cit. note 86, 735-8, fig. 212.

¹¹³ G. Egan, op. cit. 158, fig. 127 no. 440.

eight shaped terminal. Spurs with long necks were popular in the 15th century, complementing the fashion for exaggerated points in shoes; they continued in popularity until the middle of the 16th century when demand increased for more functional items.¹¹⁴ A large circular domed mount (SF 186) with a circular perforation at the centre for a separate rivet is probably more suited to the decoration of horse harness (because of its size) than to the ornamentation of personal dress.

Pit 1142 was overlain by a layer of domestic waste which extended over the south-eastern area of the site. Hollows in this layer (1035 and 1053) produced more items of horse gear including another set of spurs, a curry comb and a harness fitting. Other finds recovered from the hollows comprise a vessel fragment, a scissor blade and 2 knives. The rowel spurs from context 1053 are extremely corroded; only the neck, part of the rowel box and the rowel itself survive (Fig. 20 No. 5). SF 140, also from context 1053, is the main body section from a curry comb (Fig. 20 No. 6). Very corroded and damaged, it consists of a sheet of iron curved longitudinally with teeth along one edge. The handle is missing but there are traces of the rivets that would have attached it to the comb. Curry combs were used to groom horses, and this semi-cylindrical form is probably 15th- to 16th-century in date.¹¹⁵ The harness fitting (SF 133; Fig. 19 No. 7) from context 1035 is a very robust object similar in shape to a Jew's harp, with a looped head and a diamond-shaped section. The end of one arm is bent at 90 degrees; the other has a wide slot through it. Although its exact function is not known it could have been used to secure two straps of different widths or thickness or even to join a strap and a chain. The remaining objects recovered from the hollows include a shoe buckle, a fragment from a sheet metal vessel with a folded and beaten rim, the corroded arm from a pair of scissors, and two very corroded whittle tang knives of indeterminate date.

Many of the contexts from Phase 7 produced lace tags, pins and loop fasteners. Two forms of lace tag are represented. The first is the same as previous examples recovered from Phases 4 and 6. The second is cylindrical with the edges folding inwards along the seam; this type is slightly later than the first and predominates in the 16th and 17th centuries.¹¹⁶ The pins are generally fine wire pins with spiral wound heads used to secure light clothing and head dress. The one exception is a larger example with a globular head (SF 42) recovered from context 910 and probably suited for use with more robust material or as a hair pin. Two loop fasteners (SF 63 and SF 97), also believed to have been used to secure light clothing in the post-medieval period,¹¹⁷ were recovered from contexts 956 and 878.

Phase 8 (mid 18th to 20th Century)

A single irregularly shaped body fragment from a cast metal vessel (probably a platter) was recovered from context 887, the base of a rectangular feature in the south-west corner of the site.

Nails

A total of 120 nails were recovered from the site. The majority (78) are from Phases 6 and 7, with much smaller quantities recovered from the earlier phases.

Notable finds from the unphased contexts

The arm from a pair of tweezers (SF 229) was recovered from unphased context 1054. The tweezers are formed from a single strip of sheet that has been folded in two. It has a simple loop at the top decorated with transverse grooves and is similar to an example from the Sackler Library, Oxford.¹¹⁸ A nearly complete pair of scissors (SF 225) have circular bows and long tapering blades very similar to a pair recovered from Battle Abbey.¹¹⁹ Finally, a hook with an incomplete loop, possibly a bag hook, was recovered from context 977, a rubble and refuse spread. This type of hook could have been used to move sacks and bales around.¹²⁰

¹¹⁴ B. Ellis, *op. cit.* note 108, 1038, fig. 3861 no. 3869.

¹¹⁵ J. Clark, *Medieval finds from excavations in London: 6. The medieval horse and its equipment c.1150 - c.1450* (1995), 162.

¹¹⁶ S. Margeson, *op. cit.* note 96, 22.

¹¹⁷ *Ibid.* 20, fig. 10 nos. 98-101.

¹¹⁸ L. Allen, *op. cit.* note 104, 58-9, fig. 18 no. 5.

¹¹⁹ J. Geddes, *op. cit.* note 100, 170, fig. 57 no. 30.

¹²⁰ S. Margeson, *op. cit.* note 96, 140, fig. 105 no. 949.

*Catalogue of illustrated finds*Figure 19

- No. 1 Ear-scoop, copper alloy, incomplete. SF 228, Ph. 4, ctx 1364, L:74mm
 No. 2 Page holder, copper alloy, complete, SF 245, Ph. 5, ctx 1474, L:55mm
 No. 3 Finger ring, copper alloy, incomplete, SF 242, Ph. 5, ctx 1470, L:24mm
 No. 4 Book clasp, copper alloy, complete, SF118, Ph. 6, ctx 1017, L:31mm
 No. 5 Hooked tag, copper alloy, complete, SF 172, Ph. 6, ctx 1099, L:21mm
 No. 6 Weight, lead, complete. SF 33, Ph. 7, ctx 885, L:53mm
 No. 7 Harness fitting, copper alloy, complete. Ph. 7, SF 133, ctx 1035, L:62mm

Figure 20

- No. 1 Dividers, iron, complete, SF-, Ph. 6, ctx 1225, L:97mm
 No. 2 Key, iron, incomplete, SF 155, Ph. 6, ctx 1073, L:65mm
 No. 3 Spur, iron, incomplete. SF 41, Ph. 7, ctx 909, L:103mm
 No. 4 Spur, iron, incomplete. SF 183, Ph. 7, ctx 1141, L:178mm
 No. 5 Spur, iron incomplete. SF -, Ph. 7, ctx 1053, L:105mm
 No. 6 Curry comb, iron, incomplete. SF 140, Ph. 7, ctx 1053, L:172mm

Plate XV (left to right)

- Stylus, bone, incomplete, SF 211, Ph. 5, ctx 1217, L: 55mm
 Stylus, bone, incomplete. SF148, Ph. 6, ctx 1071, L:82mm
 Stylus, bone, complete. SF 188, Ph. 6, ctx 1147, L: 80mm
 Stylus, bone, incomplete, SF 238, Ph. 6, ctx 1416, L: 84mm

THE GLASS by RACHEL TYSON (Fig. 21)

Over 400 fragments of vessel and window glass were recovered from contexts dating between the 13th and 19th centuries (Phases 3 to 8). The medieval glass included some vessels of considerable interest, particularly a decorated emerald green high-lead glass beaker of the 13th or early 14th century, with one other imported decorated vessel and some locally made utilitarian vessels. A few fragments of early post-medieval glass show continuing high quality tablewares. Finds from the later post-medieval period comprise unexceptional bottle and glass fragments, which have been catalogued for archive but are not considered further in the present report.

The Medieval Glass

Fragments of a decorated emerald green beaker recovered from the primary fill of a garderobe pit are of considerable interest (fill 1371 of garderobe pit 1369, Phase 4; SF 233; Fig. 21 No. 1). Not only is this the first known instance of medieval glass tableware from Oxford, but it is one of two recently excavated examples of the first green high-lead glass found in Britain. High-lead glass vessels of this style were only recognised as medieval in 1987, and analysis of European finds showed a content of between approximately 54% and 84% of lead oxide, averaging c.70%, a surprisingly high quantity (modern lead crystal contains c.30-35% lead oxide).¹²¹ The lead makes the glass more refractive and considerably brings down the melting point, making production easier. This group is concentrated in a band from Britain across the Low Countries to Germany. Most examples are a distinctive bright yellow, often with yellow, blue or green applied decoration, and this is the case with the previous thirty or so vessels identified in Britain, with just two opaque red examples. A number of green vessels have been excavated in the Low Countries and Germany, but this vessel and one from Gresham Street in the City of London (pers. comm. Geoff Egan) are the first known in Britain.

¹²¹ K.H. Wedepohl, I. Krueger and G. Hartmann, 'Medieval lead glass from northwestern Europe', *Journal of Glass Studies*, 37 (1995), 76.

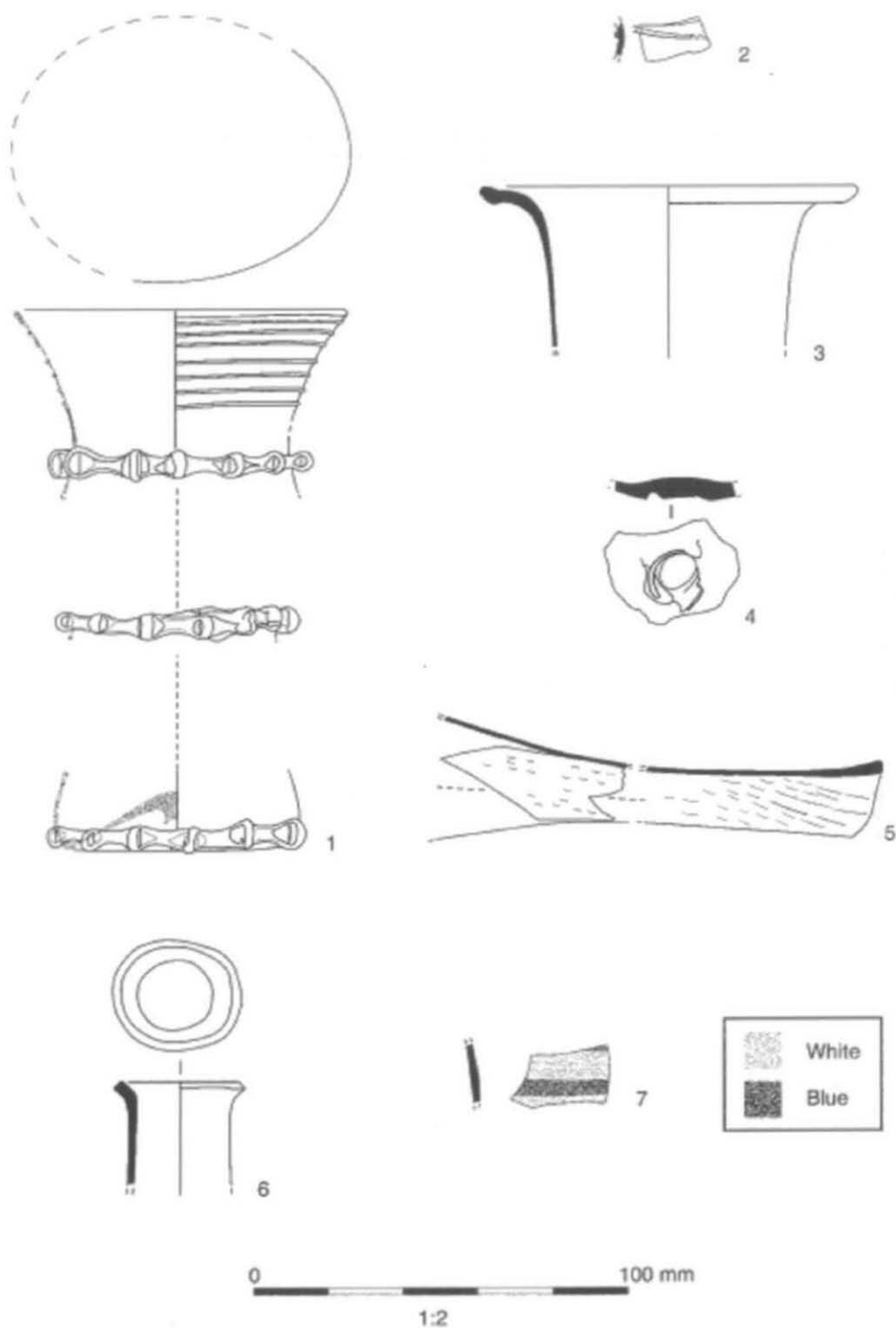


Fig. 21. Glass vessels

High-lead glass objects dating between the 9th and 13th centuries are known to have been produced in Europe, including Britain, and vessels were made in other regions at various times, including Russia between the 11th and 13th centuries.¹²² It is not known whether there was a direct link between these industries and the vessels of the particular style to which the Merton College beaker belongs. High-lead glass vessels may have been made in Europe as early as the 12th century. One of the chapters added in French probably in the 12th or 13th century to Eraclius' 10th-century treatise *De coloribus et artibus Romanorum* describes how to make green lead glass, specifically referring to vessels rather than objects.¹²³ However we have no knowledge of what form these took. Excavated examples of high-lead stemmed goblets, beakers, jugs and possible bowls decorated in a similar style to the Merton College beaker have been dated to the 13th century (including stratigraphic dates from the first half of the century), and were possibly still being made in the 14th century. No production sites have yet been identified, but lead isotope analysis shows that vessels excavated in Germany, the Netherlands and England contain lead from Germany, although a possibility remains that further workshops existed elsewhere.¹²⁴

X-ray fluorescence analysis of the Merton College vessel by Roger Wilkes of English Heritage confirms that it is high-lead glass, although at the lower end of the range, with an average of 54wt% lead oxide. It is coloured, like other green high-lead glass, with copper oxide, with a small amount of zinc present.

Although the Merton College beaker has been fragmented into nearly one hundred small fragments, most of the major parts exist to suggest its original form. It had an everted rim of rather irregular diameter, probably c.90 mm, with a thin applied spiralling trail of six or seven turns from the rim edge downwards. There were at least two thick horizontal trails tooled to form a deeply 'pinched' or pincer pattern around the body, and another of these trails around the base edge. The base was kicked and had a very prominent pontil mark on the underside where the glassblower's rod held the vessel while it was being shaped.

No closely comparable vessels exist, which is not particularly surprising as high-lead glass is a relatively small class consisting largely of unique vessels. A green beaker from Deventer in Holland has a similar profile, with thick plain horizontal yellow trails around the body and base edge, and a green goblet from Maastricht has a bowl with everted rim and thin concentric trails below, and a thicker pincer trail below zigzagging decoration on the body of the bowl, on a flared pedestal stem.¹²⁵ The green fragments from Gresham Street in London appear to come from a goblet with trailing below the everted bowl rim, also on a flared stem (pers. comm. Geoff Egan). Beakers of yellow high-lead glass with plain and pincer/trailing trails have been found in England.¹²⁶ This beaker is a valuable addition to the high-lead glass repertoire.

Another fragment of imported medieval tableware is a colourless fragment with an applied blue trail from context 1168, SF 207 (Fig. 21 No. 2). Although very small to be certain, the profile suggests that it comes from an 'S-shaped' bowl. There is furnace site evidence for the production of such bowls from four late 13th/14th-century sites in southern France, although similar styles may have also been made in Italy. A number have been found in England, with notable groups from Southampton and Nottingham.¹²⁷ Many have a horizontal blue trail where the bowl curves inwards towards the base, with a variety of designs using blue trailing and sometimes small colourless prunts below, and a tooled base ring. While the exact function of bowls of this date is unclear, their decoration associates them with other tablewares. Open bowls seem to have been more associated with a Mediterranean than a northwestern European culture.

¹²² R. Tyson, 'Medieval high lead glass table vessels', *Datasheet* 21 (1996), Finds Research Group 700-1700, Lincoln, 1.

¹²³ M. Merrifield (ed.), *Original treatises on the art of painting* (New York, 1967), 216.

¹²⁴ K.H. Wedepohl et al. op. cit.; I. Krueger, 'Research in medieval glass: where are we standing now?', *Annales du 13e congrès de l'association internationale pour l'histoire du verre* (1996), 279.

¹²⁵ E. Baumgartner and I. Krueger, *Phönix aus Sand und Asche: Glas des Mittelalters* (1988), Munich, 163 no. 120 and 167 no. 130.

¹²⁶ For example at Nottingham and Kirkstall Abbey; R. Tyson, *Medieval Glass Vessels found in England, c.A.D. 1200-1500* (Council for British Archaeology Research Report 121, 2000), 78, 82-3.

¹²⁷ *Ibid.* 104, 106-9.

A number of urinal fragments are probably also contemporary with these tablewares. Urinals, or uroscopy vessels, had a wide rim and bulbous body with a convex base, made of greenish glass blown as thinly as possible to give a good view of the colour and consistency of the urine. The contents were examined to monitor and diagnose health, a practice central to medieval medicine.¹²⁸ Urinals were made in the same form from at least as early as the 13th century up to the end of the 16th or early 17th century, so cannot be dated any more precisely than by their context. Rim/neck and base fragments were recovered from Phase 3 (Fig. 21 Nos. 3 and 4), while a base came from the same context as the high-lead glass (ctx 1371), and another from ctx 949 in Phase 5, with three more convex bases from Phase 6 (ctxs 981 and 1417), representing a minimum of six vessels. However, vessels with everted rims and/or convex bases were also, although less commonly, used for distilling or other utilitarian purposes. A convex base could be confused with the domed head of an alembic, and this is relevant here since a possible piece of alembic also came from context 981.

Tubing fragments recovered from contexts 981 and 1082 (SF 149, Fig. 21 No. 5) are very likely to come from alembics, the upper part of the distilling set, which sometimes combined ceramic and glass vessels. Distilling was used to prepare medicines, liqueurs and other herbal and craft household preparations, and small-scale domestic distilling was usual in relatively wealthy medieval households.¹²⁹ Alchemy was less common, but was a high-status philosophical pursuit at this date, supported by some of the aristocracy and monasteries, although some remained suspicious of it. Although the documentary evidence establishes that glass distilling equipment was in use by the 14th century in England, datable physical evidence has only been found from the 15th century onwards.

Three fragments of cobalt blue glass with vertical fluting may be late medieval in date (ctx 878, Phase 7). The technique of 'fluting' or mould-blown vertical ribs which were then free-blown out of the mould, and the use of cobalt blue glass, was popular on Venetian-style vessels, including bowls and hollow flaring goblet stems from the second half of the 15th century,¹³⁰ continuing into the 16th and 17th centuries.

The rims and necks of two green forest glass flasks or bottles from Phase 7 (ctxs 878 & 891; Fig. 21 No. 6) are also borderline medieval/early post-medieval. The slightly everted rims have not been completely smoothed where the rim has been sheared off, but are crude and irregular, indicating a utilitarian function. Green flasks with this type of rim were produced in England between the late 13th and 17th centuries.

The early Post-Medieval glass

A few vessel fragments can be dated to the early post-medieval period. These include a late 16th-/early 17th-century colourless *vetro a fili* fragment with opaque white and blue bands (ctx 945, SF 87; Fig. 21 No. 7). Although possibly from Venice itself, where various highly decorative vessel forms were originally produced, it is perhaps more likely to come from a northern European *façon de venise* workshop such as the southern Netherlands. While the vessel form cannot be derived from this fragment, the most common occurrence of this style was on cylindrical beakers, found at a number of high-status sites in England including Nonsuch Palace.¹³³

Window glass

Five fragments of window glass from Phases 6 and 7 are probably medieval or early post-medieval on account of their thickness (up to 5 mm.) and having roughly grozed edges (ctxs 902, 910, 926, 1177, 1544). Two of these have more than one of their original grozed edges, indicating their quarry shape; one suggesting a rectangular (ctx. 1177) and one a diamond-shaped or triangular quarry (ctx. 910). Although heavily weathered, they all appear to be pale greenish with no indications of painted decoration.

¹²⁸ Ibid. 149-53.

¹²⁹ Ibid. 168-72.

¹³⁰ H. Tait, *The golden age of Venetian glass* (1979), pls. 2-5, p. 38 no. 28.

¹³¹ R. Tyson, op. cit., 156-8; H. Willmott, *Early post-medieval vessel glass in England c.1500-1670* (Council for British Archaeology Research Report 132, 2002), 79-82.

¹³² H. Tait, op. cit., 50, pl. 12 no. 123.

¹³³ H. Willmott, op. cit., 40, type 1.8.

Interpretation

The glass provides evidence for high-status dining in the 13th or early 14th centuries. Medieval glass tableware has only been found on sites with some degree of wealth and status, particularly at this date including wealthy, aristocratic or royal urban sites, castles and palaces and monastic sites, where glass tableware was probably restricted to the abbot's table or guest house. It is notable that this is the first medieval glass tableware found in Oxford, although this is more likely to be a chance result of excavation rather than an indication that it was not enjoyed by medieval Oxford society. Nevertheless, the green high-lead glass beaker is particularly unusual. The probable bowl fragment is also high-status although less rare. These two decorated medieval vessels provide evidence for glass imports, probably coming from Germany and southern France or Italy.

While the dating of the utilitarian green English forest glass vessels is less precise, uroscopy was almost certainly being practised here at the same time, which would be expected in a household of this status following contemporary medical practices. Even though less costly than glass tablewares and not intended to impress, the use of urinals seems to have been restricted to higher-status sites. Some distilling and the use of glass flasks was also occurring in the late medieval or early post-medieval period.

Venetian-style vessels show the continuation of prosperity in the use of glass vessels in the 15th or 16th centuries. However, the later glass assemblage is very ordinary, being dominated by wine bottles and plain window glass.

Illustrated vessels (Fig. 21)

No. 1: Emerald green high-lead glass beaker fragments decorated with plain and tooled trails. 13th or early 14th century. Ctx 1371. SF 233.

No. 2: Colourless glass fragment with applied blue trail, probably from an S-shaped bowl. Late 13th or 14th century. Ctx 1168. SF 207.

No. 3: Rim/neck fragments of pale green glass urinal. 13th to 17th century. Ctx 1196. SF 199.

No. 4: Convex base fragment of pale green glass urinal. 13th to 17th century. Ctx 1204.

No. 5: Pale green glass tubing fragments, probably from alembics. ?15th century. Ctx 1082. SF 149.

No. 6: Pale green glass flask neck. Medieval/early post-medieval. Ctx 878.

No. 7: Colourless glass *vetro a fili* fragment with opaque white and blue bands. Late 16th-early 17th century. Ctx 945. SF 87.

CERAMIC BUILDING MATERIALS by JOHN COTTER

Introduction

The composition of the assemblage is summarised in Table 12. All material is of medieval and post-medieval date, mainly the former. The substantial collection of ridge tiles is of some importance and may include pieces pre-dating the acquisition of the site by Merton College. There are also many fragments of decorated floor tile.

An assessment of the building materials was carried out by Terence Smith and the present report draws freely upon the findings of this earlier report and largely adheres to its recommendations.¹³⁴ A smaller additional assemblage of 54 fragments of stone and slate roofing materials and one paving stone is also reported on here.

¹³⁴ T.P. Smith, 'Building materials', in Oxford Archaeology, 'Post-excavation assessment', 50-57. Some very minor categories of building materials (stone rubble, flints, wall plaster) have been excluded from the present report in order to keep the emphasis on ceramic building materials and kindred roofing materials. Half a dozen pieces, tentatively identified during the assessment stage as early types of glazed gutter tile and curved tile, have subsequently been discounted as pieces of ridge tile or pottery. Similarly, another 10 pieces tentatively identified as early types of roofing tile and shouldered peg tile have been discounted as either plain roofing tile or ridge tile, while two possible Roman bricks have been re-identified as post-medieval.

TABLE 12. TYPES AND QUANTITIES OF CERAMIC BUILDING MATERIALS

Type	No. Frags	Weight (g.)
Floor tile	74	10179
Ridge tile	112	11215
Flat roof tile	1186	74125
Brick	36	7701
Modern Drainpipe	3	199
Uncertain	40	1200
Total	1451	104619

Methodology

The material (mostly unwashed) was initially recorded per context by type and by fragment count together with comments on any pieces of interest. Measurements were made of all complete surviving dimensions. Subsequent to this, context weights were recorded and selected categories of material cleaned, weighed and analysed in more detail. Full details remain with the site archive. Following Smith's recommendations the present report concentrates on those categories of building material judged to be the most significant (especially the ridge and floor tiles). Flat roof tiles — which comprise the bulk of the assemblage — have been treated in a more summary fashion. Fabric analysis (see below) has only been attempted for significant items and not for the assemblage as a whole.

Where possible ridge, floor, and some roof tile fabrics have been related to the established medieval tile fabric series for the Oxford region first devised for the Hamel site, Oxford and to the related reference collection housed by Oxford Archaeology which extends the original series.¹³⁵ The Hamel report (though unfortunately in microfiche) remains one of the most detailed studies of building materials (including roof tiles) from a medieval site in Oxford. Other important published assemblages from the city are detailed below (see floor tiles).

Floor tiles (Fig. 22; Plates XX-XXII)

Introduction

Overall the floor tile assemblage is in a poor and quite fragmentary state but there is a fair degree of variation. Around half a dozen tiles are nearly complete (including cut triangular and plain tiles), while another half dozen are about half complete, and the smallest pieces (down to c.30 mm. across) are in some cases little more than large chippings. Most examples are also worn from lifetime use and sometimes, in addition, abraded by post-depositional disturbance. In a few rare instances the surfaces are surprisingly fresh and unworn — as in the case of a decorated cut triangular tile (Plate XX T3) — which was designed to fit flush against the wall and hence in a relatively sheltered position. Another split corner fragment (Plate XXII T19) is so pristine that one suspects it may have been accidentally broken on delivery or during the laying process and almost immediately discarded. Most tiles however fared less well and show varying degrees of surface wear from centuries of human tread, ranging from fairly worn to those that have lost all glaze and decoration or show only vestiges of these.

Several types of tile are present and these can be grouped or classified according to various attributes including fabric, source, date, production technique, decoration, thickness and dimension. Several of these attributes are interrelated. However, the assemblage is neither large enough nor well enough preserved to support detailed statistical analysis, and the present account will largely concentrate upon the decorated floor tiles and their local parallels and significance.¹³⁶

¹³⁵ S. Robinson, 'The tile', in N. Palmer, op. cit. note 11, 196, microfiche 2.D09-D14.

¹³⁶ Other details remain in archive. A fairly traditional broad approach to classification has been followed though without the need to assign too many layers of rigid classification to what is a fairly small assemblage.

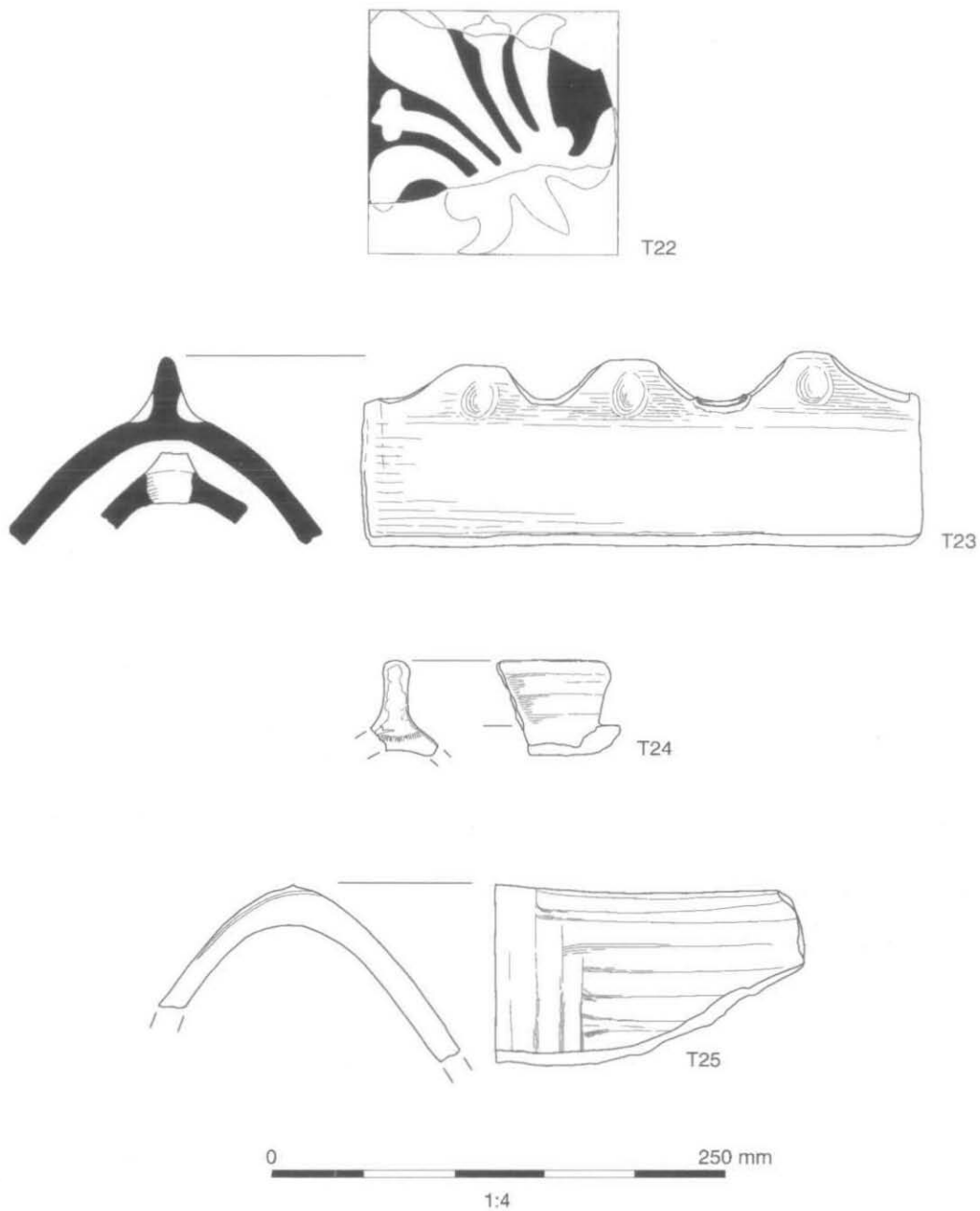


Fig. 22. Floor tile T22; roof tile T23-25

Decorated medieval floor tiles from the Oxfordshire and Buckinghamshire region have been the study of two detailed and, by now, classic reports, the first by Loyd Haberly and the second by Christopher Hohler.¹³⁷ References to tiles in Haberly's catalogue are usually abbreviated 'LH' followed by the catalogue number in Roman numerals (e.g. LH XLIX). Other important published assemblages of ceramic building materials, and particularly decorated floor tiles, from Oxford include those from the Dominican Priory (Blackfriars), St Frideswide's Priory (Oxford Cathedral), St Ebbe's (Greyfriars) (Mellor 1989), and more recently from Beaumont Palace (Whitefriars).¹³⁸

Loyd Haberly (1937) lists Merton College as one of the many places where he gathered data for his survey of floor tiles, though he sometimes included drawings from sketchbooks of tile designs by local Victorian antiquaries. His comments are sometimes a little obscure and eccentric to modern eyes but clearly he considered the medieval floor tiles from Merton Library to have been re-laid using tiles plundered from local monasteries at the Dissolution. The present author examined these floors in order to verify Haberly's observations and, if possible, to relate the excavated tile designs to those still *in situ* within the college. His descriptions were generally found to be trustworthy. Haberly illustrates four 'printed' floor tile designs from Merton College Library (LH CIL, CL-II) showing poorly executed or jumbled letters of the alphabet interspersed with hares or rabbits within a larger roundel (each part of a four tile pattern). He describes these as belonging to a puzzling and incomplete series and mocks that they are unfit for a lofty academic institution such as Merton College: 'Possibly the 17th-century builder who laid the library floor had inherited them from a 16th-century ancestor who bought the spoils of Rewley Abbey!' He adds that one of the tiles (LH CL) 'was drawn by Manning as a Rewley tile'. Clearly he knew of the entry in the Merton accounts for 1623 which lists the purchase of 2,300 tiles for the re-flooring of Merton Library, but which says nothing more than this. The link with Rewley Abbey appears to be its own conjecture.¹³⁹ The extant library floor, though defective in places, is of one 'build', laid throughout with re-used smallish Penn/Chiltern tiles (mainly 110mm. square) which would now be dated to c. 1300-1380. No 'alphabet' tiles were recognised from the excavations discussed here – though there are only a few in the library itself – nor from recent excavations at Rewley Abbey. A few Merton and New College-type tiles illustrated by Haberly are however paralleled by material in the present assemblage (see below). Hohler also has scattered references to Merton College.

The possibility that at least some of the decorated floor tiles from the excavations may be re-laid and re-deposited material robbed from local monasteries after the Dissolution is a very real one, although Merton's own medieval chapel and perhaps other official areas would have required flooring before this date. None of the excavated tiles was recovered from an *in situ* tiled floor so they are all effectively residual, to varying degrees, as the site phasing information makes clear. The bulk of the tiles are residual in 15th- to mid 16th-century (Phase 6) and mid 16th- to mid 18th-century (Phase 7) contexts, mainly from the backfills of large pits and stone-lined garderobes or drains. A single small fragment of probable Flemish floor tile is attributed to a Phase 4 (mid 13th- to mid 14th-century) robber trench fill (1111), but this is probably best dismissed as intrusive as the date is rather too early for Flemish tiles. By fragment count 39% of tiles came from Phase 6 pit digging and occupation and 54% from Phase 7 features including 21 fragments (28%) from the backfill of stone-lined pit 939. Three per cent came from modern (Phase 8) features and the remaining 4% from the dubious Phase 4 context and unstratified contexts. Phases 6 and 7 produced a mixture of tiles of various date but with a higher incidence of 13th- to 14th-century inlaid 'Wessex-type' tiles, including some of the more complete examples, in Phase 6. One may therefore be dealing with a mixture of material, some of it original to the medieval college, some of it scavenged from local monastic houses after the Dissolution, all of it subsequently discarded as useless rubble across the road from the main college buildings.

¹³⁷ L. Haberly, *Mediaeval English Paving Tiles* (1937); C. Hohler, 'Medieval paving tiles in Buckinghamshire', *Records of Buckinghamshire*, 14 (1942), parts 1 and 2, 1-49, 99-131.

¹³⁸ G. Lambrick and M. Mellor, 'The Tiles', in G. Lambrick, op. cit. note 21, 177-87; J. Green, 'Medieval floor-tiles from St. Frideswide's Priory', *Oxoniensia*, liii (1988), 103-114; M. Mellor, 'Tiles' in T.G. Hassall et al., op. cit. note 9, 248-55; K. Atherton and N. Mitchell, 'Ceramic building material', in D. Poore and D.R.P. Wilkinson, op. cit. note 104, 69-74.

¹³⁹ A. Bott, *Merton College: A short history of the buildings* (1993), 20; J. Cotter, 'A commentary on the source and local context of the floor tiles', in J. Munby et al. op. cit. note 13.

Description

Decorated medieval floor tiles from Oxford are generally of two main types, or traditions, reflecting two main source areas and two successive chronological periods. Designs from the earlier tradition were inherited by the later tradition but were increasingly debased with the passing of time. Also the technology of tile manufacture changed from 'inlaid' to 'printed' designs in ways that are still not fully understood.

Inlaid tiles of 'stabbed Wessex' type (Plates XX-XXI T1-T13): Floor tiles of the earlier (inlaid) tradition are known as the 'stabbed Wessex' type. These have a fairly uniform orange or brick-red sandy fabric of relatively fine-medium coarseness, usually with a grey core (Oxford tile Fabric IIIB). They derive part of their name from the distinctive deep circular stabbing or keying on their undersides, although not every example displays this feature. Compared to later tiles the designs in contrasting white slip are unusually deeply inlaid (up to 5 mm. deep) into a previously stamped design or pattern and the whole design is generally more detailed and more carefully executed than those of later tiles. Many other, more subtle, differences also distinguish the earlier from the later tiles (for example size, thickness and pattern subject matter), but these distinctions are rather more subjective. The main production period of 'stabbed Wessex' tiles is thought to have been c.1280-1330 (arguably from c.1250). No kilns producing the 'stabbed Wessex' tiles have yet been discovered in the region but the similarity of the sandy brick-red fabric to medieval pottery believed to have been produced in the Newbury-Reading area of Berkshire strongly suggests a source in this area.¹⁴⁰

Tiles of the 'stabbed Wessex' tradition tend to form the majority of decorated floor tiles excavated from monastic sites in Oxford, most probably reflecting the fact that the late 13th and early 14th century was a major period of ecclesiastical building or renewal in the city. They are fairly common from the Merton College site but seem to occur in roughly equal quantities to the later 'printed' type. Most of the identifiable 'stabbed Wessex' designs are common ones in the Oxford area (see catalogue below).

'Printed' tiles of Penn or Chiltern type (Plates XXI-XXII T14-22; Fig. 22): Floor tiles of the later tradition found in Oxford are described as 'printed' owing to the thinness of the white slip designs which wear off much more easily than the earlier 'inlaid' tiles. They are also un-stabbed or unkeyed on the reverse. 'Printed' tiles tend to have a paler-firing fabric than the 'stabbed Wessex' tiles. This is generally light orange or pink-buff in colour and has more visible coarse inclusions – mostly hard red-brown clay pellets or 'grog', red iron oxide and sometimes thin streaks of cream or pinkish marly clay – but relatively little quartz sand giving a smoother matrix texture. Oxford Fabric IIIC is a hard grog-tempered fabric thought to originate from the Nettlebed area of south-east Oxfordshire while Fabric IVB is sandier and probably comes from the Penn or Chiltern factories in Buckinghamshire.¹⁴¹ Printed tiles are mainly datable to c. 1330-1380,¹⁴² with some limited output as late as the 15th century. They are also fairly common from the Merton College site.

Plain English tiles (not illustrated): Six fragments, possibly representing the same number of tiles, are covered with a plain black or dark brown glaze. These are all within the 20-22 mm. thickness range apart from one slightly dubious example (Flemish?). One example (context 1225), complete but very worn, has the dimensions 110 x 110 x 22 mm. Another (context 950) has been pre-cut to a rectangular shape measuring 101 x 51 x 21 mm. The orange-buff fabric and dimensions of these are consistent with the printed Penn/Chiltern tiles and they are probably from the same source. One other more unusual tile (context 1035) in a pale orange-buff fabric is covered with a white slip under a bright green glaze and has been pre-cut to a small square quarter-tile measuring 53 x 53 x 24 mm. This probably has a similar source to the plain tiles and would perhaps have been used as a filler for small repairs or awkward corners.

¹⁴⁰ G. Lambrick and M. Mellor, *op. cit.* note 138, 185-6.

¹⁴¹ *Ibid.* 178, 186.

¹⁴² J. Green, *op. cit.* note 138, 109.

Possible Flemish tiles (not illustrated): At least 16 fragments of much thicker tiles with a fine silty orange or brown fabric are likely to be late medieval imports from Flanders (mainly 14th-15th century). These are either plain with a clear (brown) glaze, or a dark green glaze. Most examples are very worn and some have completely lost their glaze. It is not always possible to distinguish the more coarsely tempered examples (especially if worn) from thicker possible Penn/Chiltern plain tiles. Thicknesses range from 19-37 mm. with most examples falling between 27 and 33 mm. Flemish tiles often have an over-all white slip under the glaze (usually clear) thus making them look white. Black or dark green glazed tiles were often laid in combination with white tiles or plain tiles to give a chequerboard pattern. However no definite examples of white-slipped Flemish tiles were noted here. One fairly definite Flemish tile fragment (context 872) does, however, have traces of ?painted white slip decoration under a clear glaze and thus represents an additional type of decorated floor tile (see also T22).

Catalogue

A total of 36 fragments of floor tile were decorated with designs in white slip (almost half the excavated floor tile assemblage), though not all of these can be identified. All the decorated floor tiles with identifiable (and possibly identifiable) designs are listed below together with comments on their local (mainly Oxford) parallels and other points worthy of note. Each of the listed 23 items (total 27 fragments) probably represents an individual tile, but because some of the smaller fragments with related designs (T8-13) may come from the same tiles this number should be reduced to a minimum of 20 tiles with identifiable designs. These, coincidentally, represent a minimum of 10 tiles each for both the inlaid ('stabbed Wessex') and printed (Penn/Chiltern) types. There are, however, several other pieces with traces of unidentifiable designs, some of which undoubtedly represent additional tiles. The list of parallels is by no means exhaustive. Most have also been illustrated in photographic form. All the 'stabbed Wessex' tiles from Merton are actually stabbed except in one or two cases (specified) where the pieces are too small to show this detail. Dimensions given are only for complete sides and thicknesses.

Plate XX:

T1. Context (980) Phase 6. SF 109-110. 'Stabbed Wessex' type. From a four tile design with large central quatrefoil within studded roundel with smaller circles in corner. Matches LH XXV. Size 140 mm. x 139 mm. x 18 mm. thick. Two joining corner fragments. Fairly fresh. This and variant LH XXIV is one of the most popular designs in the Oxford area. Also known from St Ebbe's (Greyfriars) where 7 examples noted and Oxford Cathedral. Hohler W38-39.

T2. Context (1035) Phase 7. SF 134. 'Stabbed Wessex' type. Large pointed quatrefoil within concave-sided square or lozenge. Matches LH XXVI. Half tile fragment. Length 135 mm. x 18 mm. thick. Heavily worn. Design also known from Oxford Cathedral and several other Oxford sites.

T3. Context (981) Phase 6. SF 161 'Stabbed Wessex' type. Central rosette within concave-sided square or lozenge with other half-rosettes at edges. Matches LH XLIX. Cut triangular tile, almost complete. Uncut side length 135 mm. x 21 mm. thick. Very fresh. A fairly common Oxford design. Also known from St Ebbe's (Greyfriars) where 11 examples noted.

T4. Context (956) Phase 7. SF 104. 'Stabbed Wessex' type. Very worn corner fragment showing tip of fleur de lys. Matches Hohler W9, fleur powdered with trefoils. 21 mm. thick. Also known from Blackfriars and Oxford Cathedral. Variant of LH LXXXII and LIII.

T5. Context (1069) Phase 6. SF 145. 'Stabbed Wessex' type. Fragment with trace of edge. Matches LH LXI, double-headed eagle in a cusped frame with quatrefoils in outer angles. Unusually thick, 29 mm. No stabbing apparent. Very worn. Also known from Oxford Cathedral and Oseney Abbey. Hohler W7 similar.

T6. Context (923) Phase 6. SF 130. 'Stabbed Wessex' type. Corner fragment. Matches LH XXII, from a four tile design with large central quatrefoil with frilly internal details and frilly corner fillers (as fragment here). 22 mm. thick. Very worn. Also known from Oxford Cathedral and Oseney Abbey.

T7. Context (1053) Phase 7. SF 136. 'Stabbed Wessex' type. Corner fragment from a cut triangular tile. Design uncertain, possibly similar to T6. 16 mm. thick. Slightly worn.

Plate XXI:

T8. Context (1073) Phase 6. SF 159. 'Stabbed Wessex' type. Corner fragment. 19 mm. thick. Worn. This and the similar designs seen in T9 and T10 (all possibly from separate tiles) uncertain but include studded bands common to a number of LH four tile designs (see T1 and T11).

T9. Context (1005) Phase 6. No SF no. 'Stabbed Wessex' type. Corner fragment. 18 mm. thick. Worn. See T8.

T10. Context (1143) Phase 6. No SF no. 'Stabbed Wessex' type. Edge fragment. 18 mm. thick. Worn. See T8.

T11. Context (1053) Phase 7. SF 138. 'Stabbed Wessex' type. 20 mm. thick. Edge fragment. This and the similar designs seen in edge fragments T12 and T13 uncertain but include elements of a four tile design with central floral motif and curved parallel lines similar to T1 (see also T8 and LH XXIV-XXV). Worn.

T12. Context (1073) Phase 6. SF 159. 'Stabbed Wessex' type. Edge fragment. 20 mm. thick. See T11. Worn.

T13. Context (1020) Phase 6. SF 119. 'Stabbed Wessex' type. Edge fragment. 21 mm. thick. See T11. Worn.

T14. Context (1092) Phase 7. SF 181. Printed Penn/Chiltern type. Half tile fragment. Matches LH CVII. Gyronny design. Length 105 mm. x 22 mm. thick. Worn. Orange fabric with coarse grog and fine streaks of white marl. Haberly says Merton Library has a four-and-a-quarter inch variant of this design and Queen's College has an apparently late version over six inches square. LH CCXXIX from Oseney Abbey is also similar. Also known from Blackfriars.

T15. Context (1177) Phase 6. SF 198. Printed Penn/Chiltern type. Near-complete tile. This and T16 apparently identical. Central octafoil rosette or daisy within interlaced circle or guilloche with smaller encircled half-rosettes at sides and circles in corners, single pellets fillers near each corner in space between circles. Designed to be seen alongside identical tiles. A common Penn/Chiltern design with many variants known. Hohler's P63 is best match. P62 and P64 also very similar. Several varieties of all of these known from Windsor Castle, Wallingford Castle and Binfield (Berks.). No identical match published from Oxford. Haberly however illustrates a similar five-petalled variant in LH CXLII and mentions that Merton Library has an eight-petalled variant of this without corner flowers. Possibly he may be describing tiles with exactly the same design as T15 and T16 here. 111 mm. x 108 mm. x 20 mm. thick. 2 joining fragments (now 3). Light orange fabric with coarse grog up to 10mm across. Very worn.

T16. Context (1179) Phase 6. SF 209. Printed Penn/Chiltern type. Complete tile as T15. Hohler P63. 110 mm. x 106 mm. x 21 mm. thick. Fabric as T15 but more reduced. Very worn. 3 joining fragments.

T16A (not illustrated). Context (956) Phase 7. SF 106. Printed Penn/Chiltern type. Corner fragment probably with design as T15 and T16. Hohler P63. 22 mm. thick. Pink-buff fabric, very coarse grog. Very worn.

Plate XXII:

T17. Context (929) Unphased. SF 84. Printed Penn/Chiltern type. Corner fragment shown here alongside matching corner design of T18. Appears to be a variant or hybrid of Hohler's P44 and P45 part of a range of similar designs with a central fleur de lys and circles in corners enclosing various rosette designs. Designed to be seen alongside similar tiles. T17 apparently different in having alternating corner designs with cogged inner circle in one corner enclosing small rosette, and plain circle in other corner probably enclosing a larger rosette or daisy. Hohler P50 also has alternating corners. Haberly illustrates a related (non-alternating) tile design from New College and Merton Library in LH LXXVIII and another from Oxford Cathedral in LH IC. 22 mm. thick. Pink fabric. Fairly worn.

T18. Context (1053) Phase 7. SF 135. Printed Penn/Chiltern type. Corner fragment. See T17 (shown with). 22 mm. thick. Pink with white marl streaks. Fairly worn.

T19. Context (1053) Phase 7. SF 137. Printed Penn/Chiltern type. Corner fragment. Design as T17 and T18. Split horizontally (15 mm. + thick). Pink fabric. Fresh, unworn with no traces of mortar.

T20. Context (956) Phase 7. SF 100. Printed Penn/Chiltern type? Corner fragment. Complete design uncertain but related to T17-19 with quarter rosette within circle and identical to corner design of New College and Merton Library tile LH LXXVIII. 22 mm. thick. Dull orange-brown fabric, some grog (Fabric IIIC Nettlebed?) with few green specks in the glaze. Slightly worn.

T21. Context (972) Phase 7. SF 105. Printed Penn/Chiltern type or derivative? Corner fragment from a four tile design. Similar to LH CCLIX from Queen's College which shows the rebus of Robert Langton, a benefactor of the college who died 1501. Langton's has a corner quatrefoil and stylised fleur de lys filler within a circle. Haberly (1937, 295) adds that a fragment of this tile is also in the floor of Merton College Library. 22 mm. thick. Pink with white marl streaks. Very worn.

Fig. 22 and Plate XXII:

T22. Context (981) Phase 6. SF 162. Printed Penn/Chiltern type? Around half a tile including one corner. The style, size and thickness of this tile are quite different from any other tile from the excavations. The design shows a large fleur de lys with extra sprigs with trefoil terminals. The sprays or feathers spring from a broad cross-bar and, unusually, the base of the fleur appears to fan out along the sides of the tile instead of coming to a simple point or trefoil terminal as is more usual, although it may have a very expanded trefoil terminal. No exact match in the region. Hohler's E2 is closest in having the extra sprigs but is clumsier and lacks a cross-bar. E2 is a product of the 13th-century 'Westminster tiler' and thus is too early to be closely related to the tile here. Hohler's P42 is similar in having the cross-bar but lacks the extra sprigs and flamboyant base. The latter occurs in several Buckinghamshire churches. Length 138 mm. x 34 mm. thick. Sharply bevelled sides. The fabric is a good match with Oxford tile Fabric IIIC with a possible source in the Nettlebed area, south-east Oxfordshire. Dull orange-brown silty fabric with moderate red-brown grog up to 8mm across, rare flint and chalk. There is a slight possibility however that it could be an unusual imported Flemish tile.

Roof tiles (Fig. 22; Plate XXII)

The number and weight of identifiable ridge tile fragments are shown in Table 12. Other less diagnostic pieces of ridge tile (body sherds and some edges) will unavoidably have been recorded as plain roofing tile. None of the ridge tiles preserves its complete dimensions although a few pieces are quite large and fresh - representing perhaps up to a quarter or a third of the estimated original length. Most pieces are considerably smaller and weathered/worn. All but a few fragments are from types of crested ridge tiles.

Ridge tiles of the Oxford region have been the subject of a number of reports including a pioneering piece of work by Jope which is still substantially sound.¹⁴³ Other reports have been cited above in connection with decorated floor tiles. The most recent of these, dealing with Beaumont Palace (Whitefriars), Oxford, has a useful typology which is followed here.¹⁴⁴ The assemblage from Merton College largely conforms to what is known of ridge tiles in the city although it does add a few new observations and one new type. It has not been considered necessary to illustrate fragments which are better paralleled in existing publications. However Jope's useful drawing of a complete early ridge tile has been adapted and reproduced here (Fig. 22 T23) and two new or better examples of unusual ridge tile types have been illustrated. Fuller details of the assemblage remain in archive. It has not been possible to quantify the types of ridge tile in much detail nor to relate every example to the Oxford tile fabric series, although this has been attempted for the more distinctive, earlier, Type A ridge tiles.

¹⁴³ E.M. Jope, 'The development of pottery ridge tiles in the Oxford region', *Oxoniensia*, xvi (1951), 86-7.

¹⁴⁴ K. Atherton and N. Mitchell, *op. cit.* note 138.

Type A ridge tiles (Fig. 22 T23)

These are in Fabric IB, a distinctive shelly limestone-tempered fabric. There are 26 fragments present in this fabric comprising 23% of the ridge tile assemblage, although this total includes both plain and crested parts of the ridge tile. These have orange-brown to grey-brown surfaces and a grey core. Most examples have a patchy, flaky, light green or brownish-green glaze which is applied only to the area below the crests. Some examples are unglazed. Type A ridge tiles have the crests or spurs separately attached and, in most cases, shaped by the fingers to a lug with a rounded, a sub-triangular or a sub-square profile – depending on the length of the crests required. The spurs are distinctively thumbled at the base on either side to secure them to the tile; this can be light or very deep. In several cases the crests have subsequently become detached thus making their method of attachment obvious. For the most part the crests appear to have been smoothed or squared-off using the side of the finger but in two cases this was done with a knife, although the distinction is not always obvious here. These may represent a later transitional type. The complete tile from Deddington Castle illustrated by Jope (Fig. 22 T23 here) has only three crests and a single round finial or ventilation hole and is around 306 mm. long.¹⁴⁵ A longer incomplete tile from St Ebbe's has four surviving crests but no evidence of a hole and is at least 336mm long.¹⁴⁶ Finial or ventilation holes seem to be fairly common on this type of tile. Five examples (contexts 927, 937, 1184, 1460 and 1544), including three end fragments, with evidence of holes are present in the assemblage here. On the three end fragments, as on the Deddington Castle tile, the holes are located between the first and second crests from the end. No evidence of actual finials in this fabric has yet been found.

Type A ridge tiles are dated by Jope to the early 13th century although it now seems more likely they continued in production throughout the century. The almost complete tile from St Ebbe's is from a 14th-century context with a high number of discarded roof tiles, although it may have been quite old when discarded. The source of Type A ridge tiles is uncertain although the fabric contains inclusions of calcareous gravel similar to a number of late Saxon and medieval pottery types from Gloucestershire, north-east Wiltshire and north-west Oxfordshire (OXAC, OXAQ and OXBB).¹⁴⁷ Minety ware (OXBB) from north-east Wiltshire superficially looks the most similar as it also has a greenish glaze. This type was in use in Oxford by the start of the 13th century and continued in production until the 16th century. However this source seems too distant for heavy commodities such as ridge tiles. A more local source in north-west Oxfordshire therefore seems more likely.¹⁴⁸

Other ridge tiles (Fig. 22 T24-T25)

The remainder of the ridge tile assemblage is in sand-tempered fabrics although the amount of sand tempering varies considerably. Many examples are glazed with a clear, brownish or green glaze. These glazes are of a visibly better quality and coverage than that on Type A tiles. Most examples occur in a very sandy coarse oxidised orange or orange-grey fabric with a clear, brownish, almost black or a greenish glaze. This fabric is comparable to the predominant plain roof tile fabric from Oxford (Fabric IIIB) which is also similar to the fabric of the 'stabbed Wessex' floor tiles (see above) suggesting a source (or more likely several sources) to the south of Oxford and a start date in the late 13th century. A few other oxidised orange-brown and orange-buff tiles have a finer smoother fabric and a correspondingly smoother glaze. These broadly match Oxford Tile Fabrics IIIC and IVA with a possible source in the Nettlebed area of south-east Oxfordshire and also sandy orange Fabric IVB with a source in the Penn/Chiltern area of Buckinghamshire. These last three fabrics were probably introduced during the 14th century. Around half a dozen fragments, including crested and plain types, have a pale buff to cream fine sandy fabric with a clear or copper-stained green glaze. These correspond with Fabric IIIA with a probable source in the Brill area, also in Buckinghamshire and a similar introduction date.

¹⁴⁵ After Jope op. cit., fig. 21.1.

¹⁴⁶ M. Mellor, op. cit. note 138, fig. 77.1.

¹⁴⁷ M. Mellor, op. cit. note 72, 96-100.

¹⁴⁸ M. Mellor, op. cit. note 138, 249.

Type B tiles have knife-cut triangular crests cut from a thick continuous applied strip, which form a 'cockscomb' crest. At least 16 such crested fragments were identified including end fragments. These have been adequately illustrated elsewhere.¹⁴⁹ This was probably the commonest type of crested ridge tile in medieval Oxford, although plain ridge tiles may have been commoner (see Type E below). Type B tiles are believed to have gradually replaced Type A tiles from the late 13th century onwards.¹⁵⁰ They probably continued in production throughout the late medieval period and into the early post-medieval period alongside types with no crests at all. They occur most commonly in sandy oxidised Fabric IIIB.

Type C ridge tiles are a fairly rare type with applied trapezium-shaped crests. These were first identified from the Beaumont Palace site where four detached crests were identified and conjectured to be from a new type of ridge tile.¹⁵¹ The single example identified from Merton College (Fig. 22 T24) is still attached to part of the ridge tile and thus provides useful confirmation for the earlier identification. The Merton College example (context 1205) is in a fine reduced light grey sandy fabric with brownish margins and a glossy over-all reduced greenish glaze. The abundant orange-pink rounded quartz in the fabric has some resemblance to Fabric IIIA with a possible Brill source, although this is uncertain because of the reduction firing. The ends of the trapezoid are clearly knife-cut but on one end the cut extends almost right through the tile and the cut or break, which has roughened surfaces lower down, is covered with glaze. This may well have caused the tile to break at this point of weakness soon after attachment to the roof (the piece is quite fresh). Alternatively, but perhaps less likely this cut marks the original end of the tile. The fabric, glaze and manufacturing technique of the Merton College piece were compared to the Beaumont Palace piece and found to be identical.

Type D is a fairly rare type of ridge tile not previously assigned to a type. This has a sharp or angled apex, apparently without crests (Fig. 22 T25). Six fragments of this type, possibly representing as many tiles, have been identified. They have a sandy orange or brownish fabric similar to the majority of crested Type B tiles, though not always as coarse. The illustrated piece (context 1134) has a uniform dark green copper-flecked glaze and a brown sandy fabric superficially similar to the illustrated trapezoid Type C (Fig. 22 T24), though slightly coarser. Other examples have a clear, brown or almost black glaze. This was also thought to be a new type but a collection of four similar 'plain ridge tile' fragments from The Hamel in Fabric IIIB are described as all having a definite ridge with an angle of 120-130 degrees and thick brown glazes.¹⁵²

Type E, plain curved ridge tiles, usually occur in most ridge tile assemblages from the city but seem not to have been assigned to a type because they lack spurs. One also needs a large enough fragment to be sure that this is the case. Some fragments from the present assemblage are large enough to suggest that they are of this type. Most are in the majority sandy oxidised Fabric IIIB either unglazed or with a clear or brown glaze. One larger fragment (context 931) has a hard brown fabric with a patchy greenish glaze which seems related to the limestone-tempered Fabric IB (see type A tiles above) but has only sparse calcareous inclusions and much more quartz sand. It may be a development of this earlier fabric. Plain ridge tiles are described from The Hamel including an almost complete example which was at least 340 mm. long.¹⁵³

Individual ridge tiles, like other types of roof furniture, could have remained in use for centuries. Their presence in deposits in any quantity is more likely to date the destruction or re-roofing of old buildings rather than their construction. The site phasing places the bulk of ridge tile fragments in the late medieval and early post-medieval periods with 44% from pit contexts of Phase 6 (late 14th to mid 16th century) and 27% from Phase 7 (mid 16th to mid 18th century). This suggests that these two phases witnessed a good deal of building demolition or re-roofing, mostly perhaps in the main college buildings across the road. Phase 2 (11th to early 13th century) produced 1%; Phase 3 (early to mid 13th century) 6%; Phase 4 (mid 13th to mid 14th century) 4%; Phase 5 (mid to late 14th century) 16% and

¹⁴⁹ *Ibid.*, fig. 77.4; Jope, *op. cit.* note 143, fig. 21.6-8.

¹⁵⁰ K. Atherton and N. Mitchell, *op. cit.* note 138, 72-3.

¹⁵¹ *Ibid.*, fig. 20.3-4.

¹⁵² S. Robinson, *op. cit.* note 135, microfiche 2.D12.

¹⁵³ *Ibid.*, fig. 36.5.

unphased contexts 2%. The anomalous early fragment in Phase 2 is from the top of a pit fill (context 1491) and possibly represents slumped Phase 3 material. It is a brown glazed piece in a sandy red fabric. The seven fragments from Phase 3 are also mostly in a red sandy fabric with brown or black glaze although one fragment is from a limestone-tempered Type A tile (context 1176) and the remaining fragment is the single example of a Type C ridge tile with trapezium-shaped crests (context 1205 fill of pit 1198). The very similar Type C example from Beaumont Palace was thought to be a late medieval development but the dating from Merton College now appears to place the origin of this type in the 13th century. Phase 4, mid 13th to mid 14th century, includes two examples of angled Type D tiles and while no definite Type A tiles were recovered there are fragments of glazed limestone-tempered tile (context 1011) recorded as flat roof tile but which now seem more likely to be from the sides of Type A ridge tiles. Four fragments of Type A tiles occur in Phase 4 but the bulk of this type was residual in later contexts. Phase 6 included a few fragments of buff or pale-firing green glazed (?Brill) tiles.

Flat roof tile (Plate XXII T26-T28)

As might be expected this is the most abundant category of ceramic building material from the site with 1,186 fragments (74,125 g.) identified. However this total almost certainly includes some fragments from the flat tile-like sides of ridge tiles which could not always be distinguished, although they tend to be thicker. A few fragments initially, but only tentatively, identified as 'early' (i.e. early-mid 12th-century) types of flat roof tile, such as shouldered 'peg tiles' and tapered 'peg tiles' have, on re-examination, proved to be either parts of ridge tiles or simply broken tiles. There now seem to be no convincing examples of any of these 'early' types. The side of one medieval roof tile however (context 975) has a broad crescent-shaped indent or cut-away (max. 12 mm. deep) along its sole surviving side which has either been crudely knife-cut or simply squashed and then smoothed. It is impossible however to say whether this was intentional or what its purpose might have been. Apart from this, where it is possible to determine the original form of the roof tiles, all the tiles appear to be of fairly standard flat rectangular form with two circular nail (or peg) holes near their upper end. Full details of the assemblage are held in the archive database.

Flat roof tiles of plain rectangular form are now known from later 12th-century contexts and documentary evidence in several English town and cities including London, Canterbury and Eynsham Abbey, Oxfordshire.¹⁵⁴ Once established the form remained virtually unchanged right up to the 19th century. Other, more complex types of early roof tile such as shouldered 'peg' tiles, flanged tiles and curved tiles, are known from early to mid 12th-century contexts in London but these types were short-lived.¹⁵⁵

All the tiles are in a fragmentary state; this includes many large fragments and many more small fragments. Most examples show evidence of mortar. None of the roof tiles preserves all its original dimensions. No full lengths are preserved but two full widths of 170 mm. and 193 mm. have survived. Thicknesses vary from 9-20 mm. with tiles in the 13-15 mm. range being most numerous (at The Hamel 13 mm. was the average thickness). Thicker tiles in the 16-20 mm. range are not uncommon and this may be an indication of earlier dating – perhaps late 12th- to 13th-century. The maximum thickness recorded for definite flat roof tiles (with evidence of circular nail holes) was 20 mm. and although there are a few pieces thicker than this these lack evidence of nail holes and could be fragments of ridge tile.

A substantial number of roof tile fragments show some degree of glazing varying from a patchy 'splash' glaze to a much more extensive and even application of 'cover' glaze. Mostly, as is usual, this is on the lower half or two thirds of the tile where it served as water-proofing; the upper part would have been shielded by an overlapping tile. Clear, brown, greenish-brown and black glazes are common with extensive copper-flecked green glazes on just a few tiles. Although the number of glazed fragments was not quantified in detail, glazed tile fragments were noted in 49 out of a total 198 contexts containing

¹⁵⁴ T.P. Smith, 'London's earliest medieval roofing tiles: a comparative study', *Medieval Ceramics*, 22-23 (1998-9), 66-71; M. Horton, 'The floor tiles', in M. Hicks and A. Hicks (eds.), *St. Gregory's Priory, Northgate, Canterbury Excavations 1988-1991* (The Archaeology of Canterbury New Series ii, 2001), 189, 193; N. Mitchell, 'The floor and roof tile', in A. Hardy et al., op. cit. note 76, 214.

¹⁵⁵ T.P. Smith, op. cit.

roof tile – or roughly a quarter of all contexts. Glazing is considered to be characteristic of medieval roof tiles (mainly 13th to 16th century) although the character of the assemblage as a whole suggests that most examples are of medieval date even if they were reused or are residual in post-medieval contexts. Very few obvious post-medieval roof tiles were noted although the conservatism of the local tilemaking tradition and the reuse of old tiles can make this distinction difficult.

Fabrics have not been studied in detail but most examples have an orange-red or orange-brown fabric containing abundant quartz sand typical of the predominant roof tile fabric on Oxford sites. This, like the predominant ridge tile fabric, corresponds to Oxford tile Fabric IIIB with a presumed source to the south of the city. Other tiles have less abundant quartz and sparse or moderate inclusions of chalk or limestone suggesting other possible sources. A few dozen fragments with abundant rounded inclusions of shelly limestone (Fabric IB) may well be misidentified pieces from the flat sides of ridge tiles (see above); none of these shows evidence of circular nail holes. At least 50 tile fragments are in a distinctive cream or yellow fabric with a fairly low (fine) sand content, rare to moderate fine limestone or chalk inclusions and sparse coarse inclusions of red-brown iron oxide (Plate XXII T26). Most examples are quite thick (16–20 mm.) including examples with nail holes, and several have a patchy clear glaze. This fabric corresponds to Oxford tile Fabric VIIA which is dated on Oxford sites, including the Greyfriars, from at least the mid 13th century onwards and may be primarily a 13th- to early 14th-century type.¹⁵⁶ The presence of these cream-coloured tiles in ten 13th- to mid 14th-century (Phase 3 and 4) contexts at Merton College confirms this early dating. The source is unknown but presumed to be fairly local.

A few tiles in the assemblage are over-fired or warped. One or two have probably been burnt. The edge of one early-looking (13th-century) glazed tile shows most of a clear dog paw print (Plate XXII T27, context 1206). One other 13th-century piece (Plate XXII T28, context 1075) has apparently been chipped around the nail hole – perhaps to form a weight or a gaming piece?

Roof tiles occur from Phase 2 through to Phase 8 and are particularly abundant in Phases 3 to 7. The early occurrence of 26 fragments of roof tile from 7 contexts in Phase 2, dated to the 11th and 12th centuries, deserves closer attention. These are mostly from pit fills and two layers. The layers (1244 and 1245) also produced sherds of Brill-Boarstall ware, which extends the upper date bracket for this phase to the late 12th or early 13th century, which is compatible with the introduction of flat roof tiles elsewhere, although one cannot rule out the possibility of some contamination from Phase 3 (early to mid 13th century). None of the Phase 2 roof tiles is glazed although a single ridge tile fragment from one of these contexts is (context 1491). Three examples have round nail holes.

Other materials

Brick

Thirty six fragments of brick (7,701 g.) were recovered, nearly all from Phase 7 (mid 16th- to mid 18th-century features) although three fragments came from Phase 6 contexts (late 14th to mid 16th century). None preserves its complete dimensions. Only 3 bricks preserve breadth dimensions (103–113 mm.) and 15 bricks have measurable thicknesses (33–53 mm.). All but one example have a red or orange-red fabric, the exception being light brownish-buff. Full details remain in archive. All the bricks are relatively thin, which generally suggests a late medieval or more likely a Tudor date. The two thinnest examples (33 and 34 mm.) may be paving bricks; these, perhaps significantly, came from Phase 6. The other Phase 6 example is a thicker corner fragment (43 mm.) and is noticeably wider than the rest (135 mm.+) and worn on one surface strongly suggesting it is also a paving brick or quarry tile (context 909). The remainder was much more fragmentary. The paucity of brick from the excavations suggests that brick only played a minor role in the late medieval and post-medieval fabric of the college buildings.

Drainpipe

Three fragments (199 g.) of modern salt-glazed stoneware drainpipe, presumably intrusive, were present in layer 921, otherwise assigned to Phase 6.

Uncertain

Forty, mostly small, fragments of ceramic building material could not safely be ascribed to any of the above forms.

Stone roof tile and miscellaneous stone objects

A total of 48 pieces of stone roof tile (8,427 g.) were recovered of which 11 pieces (23%) came from a 13th- or 14th-century levelling layer (context 1003, datable only to Phases 3, 4 or 5). Also sometimes referred to as stone slates these are in an attractive yellowish or pale grey shelly limestone and quite roughly hewn. Traditionally, Stonesfield slate from north-west Oxfordshire, was commonly used but several other sources in the Cotswolds area were also exploited in medieval times.¹⁵⁷ The Merton Rolls record deliveries of slate in 1307 and 1311, in the last instance possibly taken from an old house on the college property at Cuxham.¹⁵⁸ Examples still extant on pre-Victorian buildings in and around Oxford show these were commonly roughly rectangular and of very varying size with a gradation from large tiles at the bottom (eaves) to much smaller tiles at the top, all within the same roof. Sub-triangular tiles (or rectangular tiles with a tapered upper end) with a single nail hole near the apex, are also fairly common. All of these types appear to be represented in the present assemblage though all in a fragmentary state. No full dimensions are preserved though one example survives to a maximum length of 260 mm.

They were fixed to the roof using nails and a number of tiles preserve these circular nail holes which are all around 10mm in diameter. In two cases there is a pair of holes placed 23 mm. and 145 mm. apart centre-to-centre. In the first case it may be that a single hole was knocked through in the wrong position and the error was corrected. In the second case there is no doubt that the pair of holes was intentional.

Stone roof tile was recovered from Phase 2 through to Phase 7 reflecting their long history of use. The two fragments from Phase 2 have round nail holes. These were from a pit fill (context 1541) and were associated with three pieces of flat ceramic roof tile suggesting a late 12th- or early 13th-century date. Despite its traditional nature, and despite the preponderance of stone buildings in pre-Victorian Oxford, fragments of stone roof tiles are greatly outnumbered by flat ceramic roof tiles on this site with stone roof tiles accounting for just under 4% of their combined total. It could be, however, that stone roof tiles were more durable and more often re-used than their more fragile ceramic equivalents, and, perhaps, that smaller fragments of stone roof tile are less easily recognised and were not as consistently recovered as ceramic ones. None the less, they were clearly less common here.

Four pieces (24 g.) of real grey slate, in the modern sense, were recovered from three contexts. These are thin (2-3 mm. thick) and not dissimilar to fairly modern purplish-grey slate. One of the pieces is from the Phase 4 backfill of the demolished southern hall with undercroft (context 1132) and the other three pieces are from Phase 6 contexts (1130, a well, and 1172, a pit fill). In all three cases the slate may well be intrusive. Although roofing is the most likely use, other uses are possible (perhaps even writing slates). Two joining fragments (491g.) of paving stone or flagstone were recovered from pit fill 1098 (Phase 6). This is 35 mm. thick and in a grey shelly limestone which shows marked surface wear on one side.

Conclusions

The assemblage is a useful addition to our knowledge of building materials from Oxford and while it largely confirms the picture seen on other Oxford sites, it adds new details to the established typologies and provides some useful dating information for the local use of ceramic roof and ridge tiles. Most comparable published assemblages of similar size from Oxford are from monastic sites. The scale and purpose of the college were different from the contemporary monasteries and priories of the town, but there are nevertheless clear similarities and the sites present a similar range of material. The main difference however is the considerably smaller collection of floor tiles from Merton (around 5% of the CBM assemblage); this is comparable to the proportion of floor tile recovered at The Hamel, a site occupied by artisan housing (7% of CBM).¹⁵⁹ In both cases there is some evidence that decorated floor

¹⁵⁶ N. Mitchell, *op. cit.*, 213; M. Mellor, *op. cit.* note 138, 250.

¹⁵⁷ W.J. Arkell, *Oxford Stone* (London, 1947).

¹⁵⁸ *Ibid.* 130.

¹⁵⁹ S. Robinson, *op. cit.* note 135.

tiles were obtained from local monasteries after the Dissolution, though Merton probably had at least some tiled floors before this date. In both cases the reduced need for ceremonial areas, compared to religious houses, may be a large part of the explanation. Merton may have been largely floored with stone flagstones (still *in situ*?) or wooden floorboards which have since been replaced. As the bulk of Merton's medieval floor tiles are residual in 16th- and 17th-century (Phase 7) features this may indicate a re-flooring programme in some part of the college at this date. Haberly suggested the library floor at Merton was relaid in the 17th century with tiles from local monasteries (including Rewley Abbey?). The Phase 7 dumps of worn and broken floor tile could therefore represent a mixture of original college tiles and perhaps the discarded dross from a few cartloads of old monastic tiles delivered to the college and sorted on site.

The ridge tile and roof tile assemblages provide useful confirmation for a late 12th- or early 13th-century introduction date for the local use of these types of roofing material (Phase 2). The presence of red-firing sandy Fabric IIIB ridge tiles in Phase 2, and again alongside limestone-tempered Fabric IB (Type A) ridge tiles in Phase 3 (mid 13th to mid 14th century), may suggest that red-firing Type B crested ridge tiles are just as early as the limestone-tempered Type A ridge tiles and that Jope's dating for these types is in need of revision. Stone slates were also present in these phases but their relative scarcity in all phases suggests that the college buildings were predominantly roofed with ceramic tiles. There is a strong likelihood that some of the roofing materials from Phases 2 and 3 pre-date the college's acquisition of the property and therefore most probably came from the late Norman stone townhouse that the college took over around this time.

Illustrated roof tile

Fig. 22:

T23. Ridge tile. Complete Type A example from Deddington Castle (after Jope 1951, fig. 21.1). Length 306mm.

T24. Ridge tile. Type C trapezium-shaped. Context 1205. Phase 3.

T25. Ridge tile. Type D angled type. Context 1134. Phase 7.

Plate XXII:

T26. Roof tile. Corner fragment in cream-coloured Fabric VIIA with circular nail hole and splashes of clear glaze. Thickness 20mm. 13th to early 14th century? Context 975. Phase 5.

T27. Roof tile. Edge fragment showing dog paw print. 13th century. Context 1206. Phase 3.

T28. Roof tile fragment. Deliberately chipped around nail hole to form a weight or counter? 16mm thick. Fabric VIIB (pink)? 13th century. Context 1075. Phase 3.

WORKED STONE by JULIAN MUNBY

Various minor pieces of worked stone were found, of late medieval or post-medieval date, but their lack of context makes it difficult to know if they relate to buildings on the site, or came as waste materials from building work on the college. Only two items were of significance, since they relate to the late 12th century Transitional style windows recorded on the main house in 1750. Both are illustrated in Pl. XI.

- I. Oolitic limestone fragment of tympanum above a double window, with an outer roll moulding forming an overall semi-circular arch, and a concentric inner roll which divides to form the head of one of the inner lights and leaving a pelta-shaped tympanum. There is no trace of any ornament in the centre, such as that depicted in Green's view, or on the piece from St Ebbe's (see appendix). The inner arch has a quirk and part roll round its edge, but what was most likely a round profile has been cut back to form a pointed arch, cutting through the chamfer (the inside has tooling that looks secondary).

- II. Oolitic limestone section probably of a similar window surround, with an outer roll and broad inner chamfer, and the flat face between the mouldings tapering towards the bottom. Alternatively, this could have been a hood mould fitting a window of dimensions similar to piece I described above. A prominent hood mould is shown in Green's view of 1750, but there would be no need for it to taper.

THE ENVIRONMENTAL EVIDENCE

FISH REMAINS by REBECCA NICHOLSON (Tables 13-15)

Introduction

The fish remains discussed here were recovered by hand, but predominantly from selected soil samples taken during the excavations in 2002. Of the 85 bulk soil samples, 68 were processed and 11 were selected for sorting and analysis of the fish remains. All samples were floated to 250µm and the residues sieved to 500µm at Oxford Archaeology; of the selected samples all residues >2mm. were fully sorted but the <2mm fractions were scanned and a proportion sorted if fish remains were observed. Table 13 gives details of the sorted samples.

TABLE 13. SAMPLES INCLUDED IN THE FISH BONE ANALYSIS

Phase	Sample	Context	Interv- ention	Volume (l)	Interpretation	Fraction Sorted
2	73	1557	1476	18	Pit fill	100% (excl. flot)
2	75	1587	1588	20	Cessy Pit fill	100% (excl. flot)
3	33	1176	1173	20	Pit fill (excl. flot)	100% >2 mm., 1% < 2mm.
3	9	1061	1040	20	Pit fill	100% (excl. flot)
4	42	1262	1308	18	Garderobe fill	100% (excl. flot)
5	62	1542	1135	15	Pit fill	>10 mm., >4 mm., >2 mm. only
6	64	1544	1107	20	Pit fill	100%
6	80	1225	1197	20	Pit fill	100% (excl. flot)
6	65	1426	1221	18	Pit fill	100% >2 mm., 1% <2 mm. (excl. flot)
7	16	1092	1092	20	Layer/spread	100% (incl. flot)
7	29	1141	1142	40	Domestic rubbish/ Pit fill	100% (incl. flot)

Results

The residues from the sorted samples produced in excess of 1000 identified fish bones from a range of taxa. Fish bone preservation was generally extremely good, with both bones and scales recovered from many samples, but the remains were not evenly spread across all phases. Of the sampled features, pit fills consistently contained fish remains while context 1092 (sample 16), a spread of domestic rubbish and shells from Phase 7, was particularly rich in fish bone. Context 1262 (sample 42), the primary fill of garderobe 1309 (dated to Phase 4) also contained abundant fish remains from a range of taxa. Despite the cessy component present in several features and deposits across the site, there was relatively little evidence of chewed or digested bones in the assemblage, which if present would have been consistent with an origin in faeces. In most samples a small proportion of the bones were burnt, indicating a component of kitchen waste and/or rubbish disposal.

Identifications (Tables 14 and 15)

Bones and scales were identified to species, or other taxonomic level where appropriate. Over 1000 bones were considered identifiable to family or species level, but this number excluded bones such as those of the branchial arch and fins, which are difficult to speciate. Where possible, fish size has been reconstructed by comparison with reference specimens of known length and weight. Full details are available in spreadsheet format with the site archive: where sizes are indicated for gadid fish (fish of the cod family, Gadidae) the following sizes apply: tiny (under 0.2 m. length), small (0.2-0.4 m.), medium (0.4-0.7 m.), large (0.7-1 m.), extra-large (over 1 m.). For flatfishes, pike, salmonids, gurnard and sea bream: tiny (under 0.15 m.), small (0.15-0.3 m.) medium (0.3-0.5 m.), large (over 0.5 m.).

TABLE 14. HAND COLLECTED FISH BONE BY PHASE

SPECIES	3	5	6	7	8	Un-phased	Grand Total
<i>Conger conger</i> (Conger eel)	1	1	2				4
<i>Salmo salar</i> (Salmon)			1				1
<i>Abramis brama</i> (Bream)					1		1
Gadidae (Cod family)			1				1
<i>Gadus morhua</i> (Cod)			7				7
<i>Molva molva</i> (Ling)	1					1	2
<i>Esox lucius</i> (Pike)				1			1
Unidentified	1						1
Grand Total	3	1	11	1	1	1	18

Herring (*Clupea harengus*) and eel (*Anguilla anguilla*) were the most commonly represented fish in all periods, but particularly in Phase 7 these species were augmented by a range of other fish including flatfishes (especially Pleuronectidae, a family which includes plaice, flounder and dab), sea bream(s) (Sparidae), salmonids (Salmonidae), gadids (Gadidae) gurnards (Triglidae) and conger eel (*Conger conger*), as well as freshwater fishes: cyprinids (Cyprinidae) and pike (*Esox lucius*). Large, medium-sized, small and tiny fish were present; unsurprisingly the hand collected assemblage comprised only a few bones from larger individuals.

Phase 2, 11th to early 13th century: late Saxon and Norman occupation

The small assemblage from this phase included only 112 identified bones, from pit fill contexts 1557 and 1587. Almost all of the remains were from herring, but also identified was a single dace (*Leuciscus leuciscus*) pharyngeal bone, one tiny pike vertebra, three eel vertebrae and one small gadid vertebra, along with an unidentified cyprinid pharyngeal tooth.

TABLE 15. FISH REMAINS FROM THE SIEVED SAMPLES, BY PHASE

SPECIES	2	3	4	5	6	7	Grand Total
<i>Raja clavata</i> (Ray)						1	1
<i>Anguilla anguilla</i> (Eel)	3	5	3		5	132	148
<i>Conger conger</i> (Conger eel)						3	3
Anguillidae (Eel family)					1	4	4
<i>Clupea harengus</i> (Herring)	105	40		2	8	53	208
<i>Sardina pilchardus</i> (Pilchard)		1					1
Clupeidae (Herring family)		9	10		5	377	401
<i>Salmo salar</i> (Salmon)						9	9
<i>Salmo trutta</i> (Brown/Sea Trout)					1		1
Salmonidae (Salmon family)						1	1
<i>Rutilus rutilus</i> (Roach)						1	1
<i>Leuciscus leuciscus</i> (Dace)						1	1
<i>Leuciscus cephalus</i> (Chub)						1	1
<i>Gobio gobio</i> (Gudgeon)		2					2
Cyprinidae (Cyprinid family)	2	1			2	6	11
<i>Gadus morhua</i> (Cod)		4		2		10	16
<i>Melanogrammus aeglefinus</i> (Haddock)						8	8
<i>Merlangius merlangus</i> (Whiting)		319				7	326
<i>Molva molva</i> (Ling)						5	5
Gadidae (Cod family)		1	2		1	19	23
<i>Esox lucius</i> (Pike)		1	2		1	9	13
<i>cf. Anarchias lupus</i> (Wolf fish)		1				1	1
Sparidae (Sea Bream family)					6	6	12
<i>Trigla lucerna</i> (Tub gurnard)				1	1	2	4
Triglidae (Gurnard family)					1	1	2
<i>Pleuronectes platessa</i> (Plaice)					2	2	4
<i>Pleuronectes platessa</i> / <i>Platychthys flesus</i> (Plaice/Flounder)						1	1
<i>Limanda limanda</i> (Dab)							
Pleuronectidae (Right-sided Flatfish)					9	9	18
Flatfish nfi.			2		1	4	7
Unidentified	16	262		11	100	554	943
Grand Total	128	650	13	15	126	1225	2157

Phase 3, early to mid 13th century: construction of back range and occupation deposits

The Phase 3 assemblage was dominated by bones from herring and, particularly, from whiting (*Merluccius merluccius*). Several bones from cod (*Gadus morhua*), eel, cyprinid (including gudgeon *Gobio gobio*) and small pike bones were also identified. Additionally, a large conger eel (*Conger conger*) premaxilla and a ling (*Molva molva*) cleithrum were hand collected; the latter is likely to have derived from a dried and salted fish (stockfish and similar products), since ling are generally found in the North Sea. Wolf fish (*Anarchias lupus*) was identified from a single tooth. Most bones derived from pit fill 1176 (sample 33) and possible cess pit fill 1061 (sample 9).

Phase 4, mid 13th to mid 14th century: site remodelling, demolition of back range and construction of northern building

Of the 790 bone fragments, 455 were identifiable to taxon. Most derived from sample 42 (context 1262, the primary fill of garderobe 1309) and were from a range of taxa including herring and herring/sprat, eel, small and medium-large pike, conger eel, gadids (including cod, whiting, ling and haddock – *Melanogrammus aeglefinus*), flatfish including plaice (*Pleuronectes platessa*) and small cyprinids including roach (*Rutilus rutilus*). Again, the single bone from ling – a caudal vertebra – is likely to have come from a dried and salted fish, and the same is likely for the large cod bones – all were from close to the caudal fin and represent elements usually left in a dried product. Several herring and eel bones from context 1262 appeared distorted in a manner consistent with chewing/digestion.¹⁶⁰

Phase 5, mid to late 14th century: college pit digging and occupation; demolition of northern building

Only 5 identifiable bones were recovered, from large cod, conger eel and herring.

Phase 6, late 14th to mid 16th century: college pit digging and occupation

Thirty seven bones were identified from this phase, 11 from the hand-collected assemblage. Large cod, conger eel and salmon as well as herring, eel, tub gurnard (*Trigla lucerna*), tiny cyprinids, pike and small flatfish were recorded. In this phase, head elements from large cod were present with one caudal vertebra exhibiting a cut to the lateral aspect while a supracleithrum exhibited extra bone growth, suggestive of localised infection.

Phase 7, mid 16th to mid 18th century features

This phase included large assemblages of fish remains from context 1092, a layer of domestic waste, and context 1141, the primary fill of a pit, both from early Phase 7.

Herring and eels were common in these deposits, as were small cyprinids including dace and chub (*Leuciscus cephalus*), pike (including both mature and small individuals), large and small gadids (including cod, whiting, haddock and ling) and small-medium flatfish including plaice and dab (*Limanda limanda*). Salmon (*Salmo salar*), small trout (*Salmo trutta*), sea bream (Sparidae, probably red sea bream *Pagellus bogaraveo*), thornback ray (*Raja clavata*), conger eel and gurnards (including tub gurnard) were represented by one – several bones. Numerous sea bream scales were also recovered from the flots of sample 16 (context 1092).

Phase 8, 18th to 20th century features

A single bream (*Abramis brama*) preopercular was identified. No sample residues from this phase were considered.

Discussion

Oxford is situated about as far away from the sea as possible in Britain. The presence of fresh marine fish remains would therefore attest to the establishment of effective and speedy trade links with the coast. While some of the fish may have been procured in a preserved form (herrings in particular are

¹⁶⁰ A. Wheeler and A.K.G. Jones, *Fishes* (Cambridge, 1999).

likely to have been salted, pickled in brine 'white herrings', or smoked 'red herrings'), the smaller flatfishes, sea bream and gurnards are all likely to have been brought to the town as fresh fish, as must have been the oysters and other marine molluscs represented by their shells. Oxford had a busy fish market in the stalls below the Gildhall in St Aldate's (then Fish Street); the town was surrounded by freshwater fisheries, amongst which was Merton College's own one at Holywell, which included eels.¹⁶¹

It is often not straightforward to distinguish preserved from fresh fish, since the preservation processes leave no mark on the bones. Only where clear patterns of butchery can be established is it possible to identify a stored product. Large assemblages of whitefish bones dominated by appendicular (e.g. cleithrum, supracleithrum, post-temporal) and vertebral elements are likely to represent dried and/or salted fish such as the widely traded 'stockfish'. The preservation of whole fish by pickling or smoking is almost impossible to demonstrate from bones alone, although a preponderance of bones from the gill region may indicate elements removed during large-scale gutting.¹⁶²

Dated to the early to mid 13th century, pit fill 1176 (sample 33) was notably rich in fish bones, particularly from whiting (319 identified bones, from a minimum of 3 fish). Whittings can be preserved by salting and/or drying, as was also common for larger gadid (cod family) fish. They can, of course, also be consumed fresh, but in this sample the lack of head bones apart from the cleithrum and supracleithrum indicates stored fish. Whiting is an inshore species found ubiquitously around British shores and has been the subject of local fisheries in many areas. It is also likely that in most cases ling was brought into Oxford as a dried product, since ling are found in the North Sea, and with cod were widely traded as dried fish during the medieval period and beyond. Ling was also identified in medieval deposits at St Thomas's Street in Oxford.¹⁶³

Both herring and eel are common in medieval assemblages. They were relatively cheap, and commonly, but by no means only, eaten by the poorer sections of society. In general, herrings were replaced as the most popular (or available) fish in the later medieval period with the rise of the cod fishing industry and the subsequent trade in whitefish. Records from Southampton show that in the 15th century barrels of pickled herrings were regularly transported from Southampton to Winchester during the months between October and April.¹⁶⁴ Eels may have been caught locally in rivers and streams, along with roach, bream, dace and pike; in most cases these fish were under 30 cm. in length, and often under 20 cm. Pike of this size are usually recorded as 'pickerel' in extant records, while these tiny cyprinids were probably included with other small freshwater fish in the term 'minnows'.¹⁶⁵ In many cases, the freshwater fish represented in the samples were very immature specimens and would have been as cheap as herrings.¹⁶⁶ Bones from both herring and eels are often found at inland sites of this period such as Eynsham Abbey and Worcester.¹⁶⁷

Conclusion

The identification of a range of marine fish in all periods represented at Merton attests to successful trade links with the coast. The source of this trade is not clear, but appears unlikely to be from the south-west, since assemblages from Devon and Cornwall tend to include bones from hake (*Merluccius*

¹⁶¹ Highfield, op. cit. note 22, 320.

¹⁶² See, for example, I. Enghoff, 'A medieval herring industry in Denmark – the importance of herring in eastern Denmark', *Archaeofauna*, 5 (1996), 43–7.

¹⁶³ R. Wilson and A. Locker, 'The animal bones', in A. Hardy, op. cit. note 20, 258–60.

¹⁶⁴ B.D.M. Bunyard, *Brokage book of Southampton Vol. 1. 1439–40* (Southampton Record Society, 1941), cited in J. Coy, 'Medieval records versus excavation results – examples from southern England', *Archaeofauna*, 5 (1996), 55–63.

¹⁶⁵ C.J. Bond, 'Monastic fishponds', in M. Aston (ed.), *Medieval fish, fisheries and fishponds in England* (BAR 182 (i), 1988), 69–112; C. Dyer, *Everyday life in medieval England* (1994), 106.

¹⁶⁶ C. Dyer, 'The consumption of freshwater fish in medieval England', in M. Aston (ed.), *Medieval fish, fisheries and fishponds in England* (BAR 182 (ii), 1988), 27–38.

¹⁶⁷ K. Ayers, A. Locker and D. Serjeantson, 'Phases 2f–4a: the medieval abbey: food consumption and production', in A. Hardy et al. op. cit. note 76; R.A. Nicholson and S. Scott, 'The animal remains', in H. Dalwood and R. Edwards (eds.), *Excavations at Deansway, Worcester 1988–1989. Romano-British small town to late medieval city* (Council for British Archaeology Research Report 139, 2004), 506–34.

merluccius) and often pilchard (*Sardina pilchardus*). If transport was via water rather than land, fish may have reached Oxford from the London markets. At Eynsham, smelt identified by Alison Locker in Phase 3e,¹⁶⁸ may also suggest trade links with London, as smelt are frequently found in the lower reaches of the Thames. In the later centuries, the freshwater fish are likely to have been caught in the college's own fisheries.

It is difficult to compare the significance of fish between phases at Merton because the number of selected samples varied between phases, and is relatively small. However, some very general observations can be made. In general, for British inland sites, fish remains are less abundant in the later medieval period when compared with the centuries preceding the Reformation. However, at Merton both sample richness and the range of fish taxa are greatest in deposits dating to the 16th to 17th centuries, although at this time the site was used for stabling. It would seem likely that the fish remains from the phase 7 pits represent a component of the general college rubbish at least a proportion of which may be re-deposited medieval material dug up from earlier layers, as evidenced by the ceramics and other finds from the fills. The relative decline in the proportion of herring and increased range of marine species in these later deposits is consistent with an increased trade in fresh fish from the coast in the later medieval and post-medieval centuries, a conclusion in keeping with the fish assemblages from Eynsham Abbey.

ANIMAL BONE by FAY WORLEY and EMMA-JAYNE EVANS (Tables 16 and 17)

A total of 7096 animal bones (weighing 108,926 g.) were hand-collected from the site, from which a sample of just over 10% was recorded in full to assess the potential of the assemblage for further analysis.¹⁶⁹ Subsequently a total of 4833 fragments (weighing 87,918 g.) of hand-collected animal bone were selected for full recording and analysis. This represents a sample of 68% (by fragment count) of the total. Bone from contexts thought likely to be mixed through redeposition or intrusion, and bone from 18th-century and later contexts, was not included in the analysis. The assemblage was not divided equally between Phases 2 to 7 but was biased towards Phase 2-3 and 6-7 activity (see Table 16).

In addition to the hand collected material, 2934 fragments (weighing 2,651g.) of animal bone from the residues of 11 wet-sieved samples were recorded (Table 17). The samples were from two Phase 2 pit fills, two Phase 3 pit fills, the fill of a Phase 4 stone-lined garderobe pit, the fill of a Phase 5 pit, two Phase 6 pit fills and a Phase 7 garderobe fill and spread of domestic waste. The inclusion of material recovered by sieving was designed to increase the representation of smaller bones in the sample, especially those of birds and fish. The hand collected animal bone was recorded by E.-J. Evans and the bone from samples by F. Worley. Fish bone was separated from the other faunal remains and analysed by R. Nicholson and is presented in a separate report.

A complete record of the faunal assemblage can be found with the site archive, documented in a Microsoft Access database, together with the full report which has been summarised for publication here.

Methodology

Standard OA methodology was used for analyses, as detailed in the archive bone report. Where appropriate, sheep and goat bone were differentiated using published criteria.¹⁷⁰ Bone fusion, tooth eruption and mandibular tooth attrition were recorded and interpreted following Grant,¹⁷¹

¹⁶⁸ K. Ayres et al. op. cit. 364.

¹⁶⁹ E.-J. Evans, 'Animal bone', in OA op. cit. note 18, 78-80.

¹⁷⁰ J. Boessneck, 'Osteological differences in sheep (*Ovis aries* Linné) and goat (*Capra hircus* Linné)', in D. Brothwell and E. Higgs (eds.), *Science and archaeology* (1969), 331-358; S. Hillson, *Teeth* (Cambridge manuals in archaeology, 1986), 101; W. Prummel, and H.-J. Frisch, 1986 'A guide for the distinction of species, sex and body size in bones of sheep and goat', *Journal of Archaeological Science*, xiii (1986), 567-77.

¹⁷¹ A. Grant, 'The use of tooth wear as a guide to the age of domestic ungulates', in B. Wilson, C. Grigson and S. Payne (eds.), *Ageing and sexing animal bones from archaeological sites* (BAR 109, 1982), 91-108.

TABLE 16. TAXA IDENTIFIED IN HAND COLLECTED ANIMAL BONE ASSEMBLAGE QUANTIFIED BY NUMBER OF SPECIMENS

Taxon		Phase						Total
		2	3	4	5	6	7	
Large mammals	Cattle	182	140	13	52	144	111	642
	Horse	9	7	1	4	7		28
	Fallow deer		3		1		4	8
	Red deer		1		1			2
	Large mammal	141	384	14	125	497	179	1340
	Total	332	535	28	183	648	294	2020
Medium mammals	Pig	32	48	5	16	68	23	192
	Sheep/goat	101	90	10	51	162	245	659
	Sheep	7	8		2	1	1	19
	Goat	2	3					5
	Dog		4		1	2	3	10
	Roe deer		1	1		2	1	5
	Medium mammal	142	107	13	99	290	211	862
	Total	284	261	29	169	525	484	1752
Small mammals	Cat		1		4	4	5	14
	Hare	4	1			1		6
	Rabbit					140	5	145
	Small mammal	1						1
	Total	5	2	-	4	145	10	166
Micro fauna	Black rat	2						2
	Total	2	-	-	-	-	-	2
Birds	Corvid		1				1	2
	Crow				1	1	1	3
	Domestic fowl	9	15	5	24	121	30	204
	Duck	1				8	1	10
	Goose	3	18	2	6	23	6	58
	Grey heron				1	1		2
	Mallard		2			3	2	7
	Pigeon				1			1
	Raven					1		1
	Swan					1		1
	Thrush					2		2
	Wood pigeon						1	1
	Bird	5	5		9	64	13	96
	Total	18	41	7	42	225	55	388
Unidentified	Unidentified	31	85	26	40	115	208	505
Total		672	924	90	438	1658	1051	4833
Total weight		22,686 g.14,929 g. 1,326 g. 7,864 g. 27,416 g.13,697 g. 87,918 g.						

TABLE 17. TAXA IDENTIFIED IN SIEVED RESIDUES ASSEMBLAGE QUANTIFIED BY NUMBER OF SPECIMENS

Taxon		Phase						Total
		2	3	4	5	6	7	
Large mammal	Cattle	4			1	1	6	12
	Possible cattle?						1	1
	Large mammal	13	73		6	19	96	207
	Total large mammal	17	73	-	7	20	103	220
Medium mammal	Pig	3					20	23
	Sheep/goat	2	1		1	1	7	12
	Roe deer	1						1
	Medium mammal	20	647		19	31	311	1028
	Total medium mammal	26	648	-	20	32	338	1064
Small mammal	Cat					1		1
	Cat/dog						3	3
	Hare						1	1
	Lagomorph						7	7
	Rabbit					2	35	37
	Small mammal	2	7			5	31	45
	Total small mammal	2	7	-	-	8	77	94
Micro fauna	Mouse						2	2
	Vole	1				1	1	3
	Vole size	3	2				10	15
	Frog/toad	67	1	1			1	70
	Micro-fauna	129	1				13	143
	Total micro-fauna	200	4	1	-	1	27	233
Bird	Crow						3	3
	Domestic fowl	1					19	20
	Possible domestic fowl						1	1
	Duck						7	7
	Possible duck						1	1
	Goose				2		10	12
	Possible goose						1	1
	Passerine		2					2
	Possible small passerine						1	1
	Starling size		3					3
	Turdus sp.						1	1
	Large bird						1	1
	Medium bird		14			1	39	54
	Small bird		7			3	8	18
	Bird	3	4	2		1	55	65
	Total bird	4	30	2	2	5	147	190
Unidentified	Small mammal/bird	79	4			6	56	145
	Medium mammal/bird	9						9
	Medium /large mammal						4	4
	Unidentified	19	197	26		88	645	975
	Total unidentified	107	201	26	-	94	705	1133
Total		356	963	29	29	160	1397	2934
Total weight		408 g.	257 g.	1 g.	150 g.	220 g.	1,615 g.	2,651 g.

Habermehl¹⁷² and Silver¹⁷³ to provide an estimation of age-at-death. Elements for which bone fusion was complete and which survived in suitable condition were measured following the conventions of von den Driesch.¹⁷⁴ The condition of the bone fragments was graded on a five point scale based on Lyman.¹⁷⁵ Fragmentation was recorded using published bone zone systems¹⁷⁶ and counts of fresh (recent) breaks. Each fragment was weighed. The weight of fragments less than 1 g. was recorded as 0 g.

Results

Condition of the assemblage

The majority of analysed bone fragments from all phases were in very good to good condition with up to 12% fragments from each phase graded as fair condition. There is very little evidence of animal scavenging, with animal gnaw marks identified on only 22 of the 7767 fragments, representing 0.1% of the total fragments in any phase. Where damage from animal gnawing was identified, the majority had been inflicted by carnivores, probably dogs or foxes. Only three fragments showed evidence of having been gnawed by rodents. The scarcity of evidence of gnawing and condition of bone fragments suggests that the assemblage was quickly buried or covered after deposition and was not accessible to scavenging animals. The condition of the bone suggests that there was little post-depositional disturbance to the bones and the proportion of fragments displaying recent breaks is low (2.9%). The favourable preservation conditions allowed the recognition of butchery marks including knife cuts, saws marks and chopped bones. Butchery marks were identified on 897 bone fragments. Butchery evidence is summarised here but discussed in detail in the archive report.

Domestic mammals

Cattle, sheep/goat and pig were identified in all phases and are the most prevalent mammalian taxa in the assemblage. Cattle and sheep were consistently the dominant species, together representing 19% to 43% of the hand collected assemblage. In 11th- to 13th-century deposits cattle were the prevalent species, but their importance declined in favour of sheep/goat during the following centuries. During the 13th to 15th centuries cattle and sheep/goat occurred in similar abundance, but from the 16th century onwards sheep/goat bones significantly outnumber cattle bone fragments. Pig varies between 2% and 6% of the hand collected assemblage of each phase, being most prevalent in Phase 3 (early to mid 13th-century) deposits. Horse was identified in 11th/12th- to mid 16th-century deposits and dog from the 13th century onwards.

Cattle: All regions of cattle carcasses were present on site throughout all periods but there is a general emphasis on meat bearing elements, particularly from Phase 5 (late 14th to mid 16th century) onwards. The 11th- to early 13th-century (Phase 2) cattle bone assemblage is dominated by 68 horncore fragments, including 64 horn cores or horncore fragments from the fill of pit 1588, 15 of which bore cut marks. The remaining four horncores were recovered from the fills of three further pits. Although other cattle skeletal elements were recovered from pit 1588 the prevalence of horncores suggests that some horn working activity was taking place in the vicinity.

Pelves, femora and horncores dominate the 13th- to mid 14th-century cattle bone assemblage (Phases 3 and 4), with the other major long bones also well represented. Phalanges are more frequent in these phases than any other. The Phase 5 (late 14th- to mid 16th-century) cattle bone assemblage is

¹⁷² K.-H. Habermehl, *Die Altersbestimmung bei Haus- und Labortieren* (2nd ed., 1975), 177.

¹⁷³ I. Silver, 'The ageing of domestic animals', in D. Brothwell and E. Higgs (eds.), *op. cit.* note 170, 283-302.

¹⁷⁴ A. von den Driesch, *A guide to the measurement of animal bones from archaeological sites* (Peabody Mus. Bull. 1, 1976).

¹⁷⁵ R. Lyman, *Vertebrate taphonomy* (Cambridge manuals in archaeology, 1996), 355.

¹⁷⁶ A. Cohen and D. Serjeantson, *A manual for the identification of bird bones from archaeological sites* (1996); D. Serjeantson, 'The animal bones', in E. Needham and T. Spence (eds.) *Refuse and disposal at Area 16 east, Runnymede: Runnymede Bridge research excavations, Volume 2* (1996).

dominated by humerus, radius, pelvis and femur fragments, and to a lesser extent tibiae and metatarsals. Ribs are also frequent in this assemblage (but may be underrepresented elsewhere, as included in the large mammal rather than cattle class). This element distribution strongly supports an interpretation of the assemblage as meat consumption waste. Major long bones and pelves continue to be important in the 16th and 17th centuries.

Age-at-death could be estimated for 20 cattle mandibles and 314 cattle long bone epiphyses. The 11th- to 13th-century cattle bone assemblages included animals ranging from 8-18 months old at death to senile individuals. The 14th-century and later cattle remains suggested an emphasis on younger animals, although adult individuals were still represented. This suggests a preference for younger meat and may indicate a more expensive diet in these phases. The only neonatal cattle bone was identified in the Phase 7 assemblage.

Sheep or goats: Sheep or goats were present in all phases of the animal bone assemblage. Individuals identified as sheep were also present in Phases 3 to 7 and goats were identified in Phases 2 and 3. Two goat horncores were recovered from Phase 2 pit 1588 together with 34 fragments of sheep/goat bone from a minimum of five individuals. Scapula, humerus, radius and innominate fragments dominated the assemblage. No femurs or foot bones were identified. Goat horncores were also recovered from three Phase 3 features (pit 1063, well 1451 and wall 940). Sheep and sheep or goat elements were also found in pit 1063 and well 1451. In addition, elements identified as sheep rather than goat were found in three Phase 2 pits (1567, 1576 and 1605), five further Phase 3 features (levelling layer 1003, pits 1156, 1173, 1191 and 1282), two Phase 5 features (backfill of robber trench 933 and layer 1103), Phase 6 pit 1479 and Phase 7 pit 881. Pit 881 contained a sheep metacarpal together with 140 fragments of sheep or goat bone from a minimum of 16 individuals. Element representation included all regions of the skeleton with an emphasis on humeri, radii and innominates. Very few cranial or foot elements were represented and 32% of fragments bore butchery marks suggesting that the bones represent consumption waste.

There were very few bones from sheep or goat feet (carpals, tarsals and phalanges). Although this may be in part due to a hand-collection bias, it may also be taken to indicate that partially prepared carcasses were brought to the site. The Phase 5 (mid to late 14th century) sheep or goat assemblage had an emphasis on limb elements, particularly the pelvis and tibia although relatively few femora were identified. The late 14th- to 18th-century (Phases 6 and 7) sheep/goat assemblage had a strong emphasis on the meat rich regions such as the proximal limbs. This element representation suggests that the assemblage represents consumption waste.

Age-at-death could be estimated from 17 sheep or goat mandibles and 427 long bone epiphyses. In the 11th to early 13th centuries, the sheep/goats were killed at a range of ages suggesting a mixed use husbandry system and the consumption of lamb and mutton, with many animals not killed until over 8 years old. A similar range of ages is indicated by the 13th- to mid 14th-century assemblage. Very little tooth based age-at-death data is available for the later stages of activity due to the under-representation of cranial elements in the assemblage but the evidence available suggests that from the late 14th century onwards, sheep or goats continued to be killed as older lambs and adults. Young lambs were also identified; two neonatal fragments were found in the Phase 6 assemblage and one in the Phase 7 assemblage. A higher proportion of neonatal pig bones was recovered in the assemblage suggesting that the rarity of sheep or goat neonates is not due to taphonomic loss. In the later phases of activity the occupants of the site were eating mutton and, occasionally, lamb.

Pigs (and wild boar): Pig bones were less common than sheep or goats, cattle and domestic fowls in the complete assemblage. They represent 2-4% of the total assemblage for each period. As pork can easily be preserved and is often eaten filleted, pork may have been eaten more frequently than the scarcity of pig bones suggests. The element representation for pig bones suggests an under-representation of foot elements for all periods and an under-representation of cranial elements in Phases 5 and 6 (mid 14th to mid 16th centuries). Fore limb and particularly hind limb elements were slightly over-represented in all periods, becoming more pronounced in the later phases (5-7). This element representation suggests that the pig bones were table or kitchen waste.

No wild boar bones were noted during analysis but metric data suggest that at least one wild boar was represented in the assemblage. The diaphysis of a young porcine ulna (proximal and distal epiphyses unfused) recovered from the primary fill of Phase 6 pit 1155 had a length of 224 mm., much

too large for a domestic pig. The ulna articulated with a radius (fused proximal, unfused distal). The timings of epiphyseal closure in wild boar are problematical.¹⁷⁷ Taking the timing of closure in domestic pigs as a rough approximation indicated that the animal was aged around 1 to 3.5 years old at death. Three further porcine bones (a scapula from Phase 2 and tibiae from Phases 3 and 6) were also within the size range for wild boar recorded by Magnell;¹⁷⁸ however, each of these elements was towards the smallest recorded sizes for wild boar and may be domestic pigs.

Age-at-death could be estimated for 13 pig mandibles and 116 long bone epiphyses. Tooth attrition evidence indicated that pigs were most often killed as immature individuals throughout the 11th to mid 16th centuries with some juvenile to adult individuals also slaughtered. Bone fusion evidence suggests that very few animals survived to an age of over 3.5 years. A greater frequency of pig neonates were identified than neonates of any other taxon. One neonate was recovered from Phase 5, four neonatal bones from Phase 6 and seven neonatal fragments and four foetal or neonatal fragments from Phase 7.

Horses: Horse bones were recovered in small numbers from 11th- to mid 16th-century deposits. A total of fourteen horse elements were measured. These measurements indicated that one Phase 2 individual stood at nearly 14 hands and a Phase 6 horse stood at nearly 15 hands; typical heights for horses of these periods.¹⁷⁹

Dogs and cats: Dog remains represent a minimum of one individual in each of Phases 3, 5, 6 and 7, with one to four elements represented in each phase. Dog remains from Phases 5 and 6 were measured and a withers height of 44.8 cm could be calculated¹⁸⁰ for the Phase 6 individual. Bone fusion could be assessed for five dog elements. The 13th-century (Phase 3) remains came from an individual aged less than 6 months old, the later 14th-century (Phase 5) individual died aged over 13 to 18 months old, the Phase 6 individual was older than 9 to 10 months and the Phase 7 individual was less than 8 months old when it died.

A total of fifteen cat bones were recorded, with a further three elements identified as cat or dog. The cat bones were found in 13th- to 18th-century deposits. No articulated groups of bones were identified. All cat bones were complete allowing their age to be determined; the majority died before they were a year old.

It is likely that the dog and cat bones represent animals that lived in and around the college whose remains were deposited with general refuse. The cats may have been pets or used to control rodents. Micro-faunal remains indicate the presence of voles, rats and mice in the area.

Wild mammals (excluding microfauna)

The assemblage contained the bones of deer (red, roe and fallow), rabbits and hares. While the deer and hare were hunted species, the rabbits may have been semi-domestic species raised on estate warrens.¹⁸¹ No wild boars were noted during the analysis of the animal bone. However, metric data suggests that at least one boar may be present (see pigs, above). This individual was probably raised in a game park as the wild population had become extinct in the 13th century.¹⁸²

¹⁷⁷ O. Magnell, *Tracking Wild Boar and Hunters. Osteology of Wild Boar in Mesolithic Scandinavia*, Acta Archaeologica Lundensia Series in 80, 51 (2005), 43.

¹⁷⁸ O. Magnell, 'The body size of wild boar during the Mesolithic in southern Scandinavia', *Acta Theriologica*, 49 (2004), 113-130.

¹⁷⁹ J. Rackham, 'Appendix: skeletal evidence of medieval horses from London sites' in J. Clark (ed.), op. cit. note 115, 169-70.

¹⁸⁰ Following Harcourt, 'The dog in prehistoric and early historic Britain', *Journal of Archaeological Sciences*, i (1974), 151.

¹⁸¹ D. Yaldon, *The History of British Mammals* (1999), 159-60, suggests that the first rabbit warrens began in the 12th century and were found on most estates by the early 17th century.

¹⁸² Ibid. 168.

Deer: Roe deer elements were recovered in small numbers from all phases except Phase 5. Red deer bones were recovered from the Phase 3 and 5 assemblages (13th and 14th century). Fallow deer occur in the assemblage from the 13th century onwards.¹⁸³ With the exception of one 13th-century fallow deer antler fragment, deer remains comprised appendicular elements only. The presence of post-cranial deer remains indicates the consumption of venison and that hunting took place, although not necessarily by the occupants of Merton College. However, as just over half the deer remains are from non-meaty elements (antler, metapodials and a phalanx), the deer bones recovered may represent waste from domestic preparation of hunted carcasses rather than table refuse.

The only Phase 2 deer bone is a roe radius recovered from 1587; the same pit fill contained butchered horse bone and a large number of cattle horn cores. Phase 3 and 4 (13th- to early 14th-century) deer remains comprised a roe deer metatarsal and scapula, fallow deer antler, metatarsal and phalanx and a red deer femur. The fallow deer phalanx had been gnawed (probably by a dog) on its distal end. Three deer bones had been butchered. The fallow deer proximal metatarsal had been split longitudinally, possibly to access the bone marrow. The roe deer scapula and metatarsal had also been butchered with cut and scrape marks indicating that they had been disarticulated. Phase 5 (later 14th-century) deer remains comprise a red deer humerus and a fallow deer metatarsal. The shaft of the metatarsal had been sawn through just inferior to the articulation, indicating a different method of dividing the carcass to the careful knife cuts employed for the 13th-century roe deer. This is also the only evidence of the use of a saw in butchering deer remains. Phase 6 (late 14th- to mid 16th-century) deer bones comprise roe deer left tibia and metatarsal, recovered from different contexts. Phase 7 deer remains comprised the distal end of a roe deer left humerus which had been chopped through the mid diaphysis. Fallow deer was represented by two fragments of left metatarsal a right humerus and right metacarpal. The metatarsal fragments may be from the same element which had been chopped through its shaft.

Rabbits and hares: Hare bones are an infrequent component of the archaeofaunal assemblage, occurring in Phase 2, 3 and Phase 6 contexts with only one to four specimens in each phase. Identified hare elements include two tibiae, four metapodials and a scapula. Rabbit bones are found only in Phase 6 and 7 deposits in 12 features. The majority (NISP = 120) of rabbit bones come from two virtually complete skeletons from the fill of Phase 6 pit 1010. One skeleton is of an adult and the second is a juvenile (unfused proximal humeri and ulna, unfused femora and proximal tibiae, fusing distal tibiae). The individuals were probably complete when deposited and show no signs of having been butchered. It is unlikely that they are table or kitchen waste although it has been suggested that juvenile rabbit was a delicacy.¹⁸⁴ A femur from a third individual was found in fill 1025 of the same pit.

A second Phase 6 pit (1155) contained numerous rabbit remains; two left pelves, a left femur and left tibia, four right femora, a right humerus and three metapodials. These remains were divided between four contexts. A left and a right femur were from a neonatal individual. The frequency of hind limb bones suggests that they represent table waste although it should be noted that this may be a bias of hand-collection as no sieved remains from this pit were analysed. Butchery marks were identified on one rabbit femur from this context which had cut marks on its diaphysis, supporting the interpretation of use as meat. The remaining rabbit deposits comprise only one or two elements found in each of four pit fills and the stone lining of well 976.

Small numbers of 16th- to 18th-century rabbit bones were found in layer 885 and fill 945/956 of a robber cut. Large assemblages were found in the fill of pit 1142 and a spread of domestic refuse 1092. In both these contexts all rabbit bones were recovered from sieved residues. The pit contained the remains of at least three individuals including tibiae, scapulae, an ulna, metapodials and a phalanx. The refuse spread included diverse elements from at least two individuals, based on different sized femora. No cranial elements were recognised.

¹⁸³ N. Sykes, 'The impact of the Normans on hunting practices in England' in C. Woolgar, D. Serjeantson and T. Waldron (eds.), *Food in Medieval England: History and Archaeology* (2006) suggests that fallow deer were introduced into England in the late 11th century.

¹⁸⁴ D. Yaldon, *op. cit.* 158.

Birds

Bird bones make up a total of only 7% (NISP) of the total animal bone assemblage (8% of the hand-collected assemblage and 6% of the sieved assemblage). Their frequency varies by phase. The most common bird taxa in all phases are the domestic species, domestic fowl and goose (presumed domestic). Several wild species are also represented in small numbers in most phases. In addition to goose, anseriformes include duck in Phases 2, 3 and 7, mallard in Phases 3, 6 and 7 and swan in Phase 6. Columbiformes (wood pigeon and pigeon) were identified in Phases 5 and 7. Sykes¹⁸⁵ notes that during the medieval period swans and pigeons became semi-domestic but cannot easily be distinguished from their wild counterparts in archaeofaunal assemblages. Corvids were found in Phases 3, 5, 6 and 7 including crow and raven bones. Thrush was identified in Phases 6 and 7. Grey heron was identified in Phases 5 and 6.

Although domestic fowl bones were found in all phases, they are most common in Phase 6 deposits where they account for 7% of all bone fragments and 53% of all bird bones. The most frequently identified domestic fowl bones from Phase 6 deposits are long bones. This may indicate that the deposits contain table waste from previously dressed carcasses or may just reflect identification bias with fewer axial elements and foot and distal wing bones being recovered and identified to species.

Micro-fauna

Micro-faunal taxa were recovered from eight contexts; seven samples and one hand collected context. Taxa identified include micro mammals (vole, black rat, mouse) and frog or toad. The majority of the micro-faunal remains recovered were found on their own or with one other micro-faunal specimen. Only two contexts contained a significant volume of remains. A sample from a Phase 7 spread of domestic refuse contained 18 microfauna specimens, predominantly mouse or vole, and a sample from Phase 2 pit fill 1587 contained 200 fragments, the majority of identified specimens being frog or toad, although some vole and mouse/vole were also recovered. The 67 frog/toad specimens from context 1587 included elements from most regions of the skeleton and represented a minimum of four individuals of three different sizes.

Voles are predominantly grassland species. Their presence in Phase 2 and Phase 6 deposits indicates the presence of grassland in the vicinity, although they may have been brought into the town by resident cats. Conversely the presence of black rat in Phase 2 is an indicator of an urban environment. Although present in late Roman urban contexts in Britain, black rats appear largely to have died out in the Anglo-Saxon period and to have been reintroduced with the Anglo-Scandinavian traders into the north of England and into London in the late 10th century.¹⁸⁶ The black rat from Merton College probably dated to the late 11th to 12th century, and, as such, may be the earliest evidence for black rats in Oxford. The only other early evidence comes from a 12th-century bone from St Ebbe's,¹⁸⁷ a late 12th- to early 13th-century possible black rat tibia from St Aldate's¹⁸⁸ and a 13th-century probable black rat bone from The Hamel.¹⁸⁹ Very few other early black rat bones have been found in the Oxford region.¹⁹⁰

¹⁸⁵ N. Sykes, 'The dynamics of status symbols: wildfowl exploitation in England AD 410-1550', *The Archaeological Journal*, clxi (2004), 84.

¹⁸⁶ P. Armitage, B. West and K. Steedman, 'New evidence of Black Rat in Roman London', *The London Archaeologist*, iv (1984), 375-83.

¹⁸⁷ B. Wilson, A. Locker and B. Marples, 'Medieval animal bones and marine shells from Church Street (Site A) and other sites in St. Ebbe's, Oxford', in T. Hassall et al. op. cit. note 9, Fiche M V A2.

¹⁸⁸ B.J. Marples, 'Animal bones', in B. Durham, 'Archaeological Investigations in St. Aldates, Oxford' *Oxoniensia*, xlii (1977).

¹⁸⁹ B. Wilson, 'Animal bone and shell', in N. Palmer, op. cit. note 11, Fiche M E04-F11.

¹⁹⁰ Two 12th -14th-century probable black rat bones were found at Banbury Castle, a 13th century probable black rat humerus was found at Stert Street in Abingdon and two mid 13th century black rat bones were found at Copt Hey, Tetsworth Oxon: B. Wilson, 'The animal bones' in K.A. Rodwell, 'Excavations on the site of Banbury Castle, 1973-4' *Oxoniensia*, xli (1976), 144-7; B. Wilson, 'The mammal bones and other environmental records' in M. Parrington, 'Excavations at Stert Street, Abingdon, Oxon' *Oxoniensia*, xlii (1979), 16-21; J. Pernetta, 'The animal bones' in M. Robinson 'Excavations at Copt Hay, Tetsworth, Oxon' *Oxoniensia*, xxxviii (1973), 112-14.

Evidence for butchering technology: domestic mammals and birds¹⁹¹

The butchering technique for cattle, sheep, goat and pig carcasses evident from the animal bone assemblage was dominated by the use of heavy chops for carcass division, but also involved the use of knives to skin,¹⁹² decapitate, disarticulate and remove meat from the carcass. This is consistent with contemporary cleaver dominated butchery techniques.¹⁹³ Finer knife butchery was more common on medium sized mammals (sheep, goats and pigs) than cattle. In line with being the most prevalent taxon identified in the Merton College faunal assemblage, cattle specimens exhibited the highest number of butchery marks of any taxon (40% of cattle bone fragments). Butchery marks were identified on 30% of sheep or goat bones and only 7% of pig bones.

The butchery mark evidence indicates that from the 11th century onwards cattle carcasses were divided into left and right sides,¹⁹⁴ an action which would have required the carcass to be hanging whilst it was butchered rather than laid on a table or the floor, and indicates that butchery was probably practised by professional butchers working in butchery premises or with specialist equipment.¹⁹⁵ Further evidence of a standardised butchery technique, and therefore the use of professional or specialist butchers, can be found in the Phase 5 (later 14th-century) sheep or goat bone assemblage; of the 18 butchered sheep or goat bones, 9 were tibiae and 5 were innominates which had all been chopped in a consistent manner.

In addition to disarticulating and portioning the carcass, the butchery marks include evidence for tertiary butchery,¹⁹⁶ the utilisation of head meat from cattle¹⁹⁷ and pigs,¹⁹⁸ and evidence for the utilisation of cattle and sheep bone marrow.

Evidence of butchery marks on horse bones

Phase 2 deposits included three butchered horse bones, a tibia, a metacarpal and a humerus, which had been chopped through their diaphyses. These bones were all recovered from contexts containing butchered horncores. Horse carcasses may have been used to provide meat to feed other animals, or possibly for industrial activities involving the bone marrow. A Phase 6 horse lateral metapodial had cut marks circling the proximal articulation suggesting disarticulation of the carcass just above the foot or possibly skinning, the metapodial and foot being left with the hide.

Bird butchery

Butchery evidence indicates that birds were sometimes disarticulated using fine knife cuts and that their feet were sometimes chopped off. Butchery marks were identified on six domestic fowl bones, four goose bones, two duck bones and 16 indeterminate bird bones. Cut marks on a Phase 6 goose femoral

¹⁹¹ A more detailed account of butchery marks identified on bones of each taxon can be found with the site archive.

¹⁹² Cattle and sheep or goats only. Pig carcasses need not be skinned prior to consumption.

¹⁹³ N. Sykes, 'From *Cu* and *Sceap* to *Beffe* and *Motton*: the management, distribution and consumption of cattle and sheep, AD 410-1550' in C. Woolgar and D. Serjeantson (eds.), 'Food in Medieval England: History and Archaeology' (forthcoming).

¹⁹⁴ Sheep or goat carcasses were similarly divided from the 13th century and pig carcasses from the 14th century.

¹⁹⁵ N. Sykes op.cit. note 193; A. Grant, 'Some observations of butchery in England from the Iron Age to the Medieval period' in J.-D. Vigne (ed.), *La Découp et le Partage du Corps à Travers Le Temps et L'Espace* (1987), 53-8.

¹⁹⁶ Defined as the removal or filleting of meat for consumption.

¹⁹⁷ An 11th to 12th century cattle skull had been split sagittally, probably to access the brain or portion the head meat. A 13th century cattle mandible had been chopped through its diastema either during preparation of the cheek meat or in order to access the mandibular bone marrow: see D. Landon, 'Patterning and interpretation of butchery marks', *Historical Archaeology*, xxx (1996), 69-70.

¹⁹⁸ An 11th to 12th century pig cranium had been chopped transversely towards the posterior zygomatic, presumably to access the brain. Two 13th century pig mandibles were butchered, one with a chop on its coronoid process and the second had cut marks on the lateral aspect of the mandibular ramus. These butchery marks probably result from disarticulation of the mandible and possibly removal of the cheek meat.

head indicated that the leg was disarticulated from the hip and suggest preparation of poultry dishes rather than roast whole birds as it is not necessary to use a knife to dismember cooked bird carcasses.

Phase summaries and discussion

Phase 2 (11th to early 13th century)

The Saxo-Norman animal bone assemblage suggests the utilisation of cattle, horse, sheep, goats, pigs, domestic fowl, ducks, geese, hares and roe deer and indicates the presence of black rats, voles and amphibians in the area. There is no evidence that the rodents scavenged the animal bones, suggesting that the pits were quickly covered after being filled.

Pit 1588 contained 64 cattle horncores and horncore fragments along with other cattle, horse, goat, sheep/goat, pig, roe deer, domestic fowl, goose and micro-faunal remains. The prevalence of horncores in this feature suggests that hornworking took place in the vicinity. Horse bones from this feature had also been butchered, possibly to utilise the bone marrow or to create food for dogs, as horses were not commonly eaten. The combination of species and elements in this pit suggests that it may relate to an industrial use such as hornworking and marrow fat extraction. A small assemblage of nine 12th- to 13th-century fragments of sheep or goat and cattle bone were excavated from Merton College in 1970.¹⁹⁹ These add no further information to the knowledge of the faunal economy. Excavations at Logic Lane, along the route of Kybald Street, produced an assemblage of approximately 440 bone fragments from 11th- to 12th-century pits.²⁰⁰ The Logic Lane assemblage includes a similar range of species to the Merton bones but probably represents domestic refuse rather than craft or industrial activities.

Phases 3 and 4 (13th and early 14th century)

The animal bone assemblage suggests the utilisation of cattle, horse, sheep, goats, pigs, dogs, red, roe and fallow deer, cats, hare, domestic fowl, geese, mallards, corvids and passerine sized birds, and the presence of micro-fauna including micro-mammals and amphibians. These remains probably represent the animals eaten by the occupants of the buildings on the site and their hunting, working or domestic animals.

Phases 5 and 6 (late 14th to mid 16th centuries)

The animal bone assemblage represents college occupation debris. It indicates the utilisation or presence of cattle, horse, sheep, sheep/goats, pigs, dogs, cats, wild boar, red, roe and fallow deer, hare, rabbits, voles, domestic fowl, ducks, geese, crows, grey heron, pigeons, ravens, swans and thrushes.

As one might expect for kitchen and consumption waste from the college, the element distribution for cattle, sheep/goats and pigs indicates an emphasis on the disposal of meat bearing elements, particularly in Phase 6. From this period onwards age-at-death data suggest the consumption of younger cattle, lamb, mutton (although younger meat than in previous phases) and neonatal and older, but not very old, pigs. Rabbit bones from Phase 6 deposits include two virtually complete skeletons which may be intrusive and a pit containing several limb elements, one of which had been butchered. These do most likely represent table waste.

These deposits contain a particularly rich variety of bird remains including a swan ulna, two grey heron tarso-metatarsals and a range of bones from small birds. These taxa can be seen to indicate an elite or urban diet at Merton. Previous research has found that passerine and small bird consumption was restricted to upper social levels²⁰¹ and the consumption of herons and swans was restricted by law in the later medieval period.²⁰² In the 12th to mid 14th century swans had been semi-domesticated and are often found in urban assemblages and less often in elite and religious houses.²⁰³ Conversely, grey

¹⁹⁹ T.G. Hassall, 'Excavations in Merton College, Oxford, 1970', *Oxonienia*, xxxvi (1971), 34-48.

²⁰⁰ J.W. Banks, 'The animal remains', in F. Radcliffe, op. cit. note 2, 64.

²⁰¹ D. Serjeantson, 'A dainty dish: consumption of small birds in late Medieval England', in H. Buitenhuis and W. Prummel (eds.), *Animals and Man in the Past* (2001), 263-74.

²⁰² Ibid.

²⁰³ N. Sykes, op. cit. note 185.

heron is only found in elite or religious house archaeofaunal assemblages during the mid 14th to mid 16th centuries, whereas it had previously occasionally been an attribute of urban assemblages.²⁰⁴ The presence of herons in the assemblage indicates that falconry was practised.²⁰⁵ Grey heron is found in both Phases 5 and 6, but in each phase specimens are restricted to a single tarso-metatarsus, an element with very little meat value. The presence of these bones suggests that the contexts contain food preparation waste rather than consumption waste, although if the birds were roasted whole the lower legs may have been removed during consumption.

Not all the assemblage represents food waste from the college. The Phase 6 assemblage also includes evidence for skinning or disarticulating horses.

Phase 7 (mid 16th to mid 18th centuries)

The animal bone assemblage includes the remains of cattle, sheep, sheep/goat, pig, dog, cat, fallow deer, roe deer, rabbit, domestic fowl, goose, duck (including mallard), corvid (including crow) and wood pigeon. The element representation of cattle, sheep/goat and pig remains continues to favour meat-rich limb bones suggesting that the deposits represent consumption and table waste.

Conclusion

The Phase 2 animal bone assemblage relates to pre-college activity and seems to be debris from industrial activities rather than kitchen and table refuse. The assemblage recovered from pit 1588 includes a high proportion of horncores together with other animal bones, including butchered horse bones. This pit probably contained the debris from hornworking and marrow extraction. The assemblage also contains probably the earliest evidence for black rats in Oxford. The later animal bone offers a rare opportunity to investigate the diet of a medieval college in Oxford through the animal bone debris deposited in a series of pits. The assemblage indicates that while the domestic species (cattle, sheep, goat and pig) were dominant and probably represented the most common meats eaten at the college, wild species were also consumed. The presence of wild species also indicates that hunting and falconry were practised, although probably sometimes on managed estates. Meat from domestic taxa would probably have been bought from specialist markets and traders in the town.²⁰⁶ This is supported by evidence for butchery marks in the assemblage which indicate a standardised practice and the use of specialised premises. Evidence that the technology was often cleaver dominated and involved splitting the carcass into halves is consistent with other sites of the period.²⁰⁷

Overall, the species identified in the assemblage indicate a higher status diet with evidence of prestigious foods such as game mammals, swan and heron. The frequency of taxa can be compared to other contemporary site types to investigate the relative status of the Merton College diet. The proportion of wild to domestic mammals (number of specimens) suggests that the 13th- to 14th-century diet at Merton was similar to that observed at contemporary rural, urban and religious house sites, with much less meat from game mammals consumed than at elite sites.²⁰⁸ The proportion of domestic birds in the assemblage is low compared with contemporary sites, falling below the percentages suggested for rural sites in the 11th century and around the range expected for rural and urban sites in the 12th to 16th centuries.²⁰⁹ However, the proportion of wild birds in the hand-collected assemblage (1% Phases 2 and 3, 3% Phase 5 and 5% Phase 6) is indicative of an increasingly elite economy.²¹⁰ It should perhaps not be surprising that the evidence from Merton does not fit comfortably within the pattern of animal exploitation identified at other contemporary site types due to its unusual status as an early college and student residence.

²⁰⁴ Ibid.

²⁰⁵ U. Albarella and R. Thomas, 'They dined on crane: bird consumption, wild fowling and status in medieval England', *Acta zoologica cracoviensia*, xlv (2002), 23-38.

²⁰⁶ N. Sykes, op. cit. note 193.

²⁰⁷ Ibid.

²⁰⁸ N. Sykes, 'Hunting for the Anglo-Normans: Zooarchaeological Evidence for Medieval Identity', in A. Pluskowski (ed.), *Just Skin and Bones? New Perspectives on Human-Animal Relations in the Historic Past* (2005), 71-78; N. Sykes, op. cit. note 185.

²⁰⁹ N. Sykes, op. cit. note 185.

²¹⁰ following N. Sykes, *ibid.*

CHARRED AND WATERLOGGED PLANT REMAINS by RUTH PELLING (Tables 18-21)

Introduction

The excavations included a sampling programme for the recovery of charred and waterlogged plant macrofossils. Bulk samples were taken from features spanning the full sequence of deposits, resulting in 85 samples ranging from 11th- or 12th-century pit fills to a 19th-century well. Samples ranging in size from 1 to 40 litres were processed by water flotation and flots collected onto 250 μ m. mesh sieves. Samples in which organic material appeared to be predominantly charred were allowed to air dry slowly before being packed for assessment and analysis. Samples in which botanical material was believed to be waterlogged were kept wet. Following a detailed assessment of 20 flots and the scanning of the remaining flots at Oxford Archaeology, 14 charred samples and three waterlogged samples were submitted for sorting and full analysis.

TABLE 18. BOTANICAL SAMPLES INCLUDED IN THE ANALYSIS

Phase	Sample	Context	Feature	Volume (l)	Sample Type	Interpretation	Fraction Sorted
2	11	1077	1078	1	Waterlogged	Pit fill	4 tsp fine fraction
2	40	1251	1251	9	Charred	Burnt deposit	100%
2	43	1275	1276	19	Charred	Pit fill	100%
2	44	1312	1315	13	Charred	Stone-lined pit	100%
2	73	1557	1476	18	Charred	Pit fill	100%
2	77	1590	1581	10	Charred	Pit fill	100ml of 450ml flot
3	51	1485	1483	10	Waterlogged	Pit fill	7/8 medium, 1/4 fine
3	33	1176	1173	18	Charred	Pit fill	100%
3	36	1211	1173	20	Charred	Pit fill	100%
3	67	1500	1483	15	Charred	Pit fill	100%
4	42	1262	1309	18	Charred	fill of garderobe	100%
4	47	1361	1369	18	Charred	fill of latrine pit	100%
4	48	1371	1369	20	Charred	fill of latrine pit	100%
4	46	1373	1369	6	Charred	fill of latrine pit	100%
5	62	1542	1135	15	Charred	Pit fill	100%
6	35	1214	1221	1	Waterlogged	Pit fill	100%
6	49	1434	1144	1	Waterlogged	Pit fill	100%
6	41	1187	1144	1	Charred	Pit fill	1/4 flot

TABLE 19. PROPORTIONS OF GERMINATED TO NON-GERMINATED GRAIN IN SAMPLE 77

	Total	Germinated	Non-germinated	Ratio of germinated to non-germinated
<i>Hordeum vulgare</i> (Barley)	548	236	312	1:1.3
<i>Secale cereale</i> (Rye) + <i>Triticum</i> sp. (Wheat)	17	15	2	8.5:1
<i>Avena</i> sp. (Oats)	447	261	186	1.4:1
Total	1012	512	500	1.02:1

Methodology

Samples were sorted at Oxford Archaeology North and the sorted material submitted to the author for identification. The samples selected are listed in Table 18. In most cases 100% of the flots was sorted. Flots were first put through a stack of sieves and each sieve fraction sorted for seeds, chaff and other identifiable and quantifiable plant remains. Where flots were very large or rich, or in the case of waterlogged deposits where seeds were absent or exceedingly rare in one or more sieve sizes, only a fraction of the deposit was sorted. Identification of plant remains was made on the basis of morphological criteria and by reference to modern comparative material held by the author and by Professor Mark Robinson at the Oxford University Museum. The results are displayed in Tables 20 and 21 below.²¹¹ All the charred flots also contained non-charred material, generally assumed to be dried-out waterlogged material but also occasionally including calcium phosphate mineralised remains. Non-charred items in the 'charred samples' are detailed at the end of the 'charred' table. Quantification is made on the basis of seed, nutlet, fruit etc. unless otherwise stated. Seeds or nut shell present in fragments are quantified on the basis of number of fragments and the estimated minimum number of individuals (MNI).

Discussion

Phase 2: 11th- to early 13th-century pits

Five charred and one waterlogged sample were analysed from Phase 2 features (pits fills, a burnt deposit and a structure fill). Very occasional poorly preserved non-charred seeds were present. The remains were dominated by tough-seeded species such as *Sambucus nigra* (elder) and *Ficus carica* (fig) which may have survived in semi-dry conditions when other species had decomposed. With the exception of sample 77 the preservation of the charred remains also tended to be poor, the grain being highly 'clinkered' and honeycombed, suggestive of burning at high temperatures. The poor preservation is reflected in the high number of unidentifiable grain as well as large quantities of unquantifiable grain fragments. The preservation of material in waterlogged sample 11 tended to be better, although the range of species was fairly limited, dominated by tough seeded fruit remains. Sample 77 (context 1590), taken from a pit fill, produced a particularly grain-rich flots with evidence for possible malting. Ten litres of deposit produced a 450 ml. flots, of which 100 ml. was sorted producing 1709 grains. The paucity of weed seeds and chaff suggests this assemblage represents processed grain. The weed seeds present were dominated by large-seeded species such as cf. *Lolium temulentum* (rye grass), *Bromus* subsect *Eubromus* (brome grass) and *Lithospermum arvensis* (corn gromwell) which stayed with the grain through the various sieving and threshing stages.

Grain of *Hordeum vulgare* (barley) and *Avena* sp. (oats) dominate the sample, with occasional grain of *Triticum* sp. (wheat) and *Secale cereale* (rye) presumably present as weeds or contaminants. Of those grains identified, approximately half show clear signs of germination, with a slightly higher ratio of germinated to non-germinated oat grains than barley. The numbers and proportions of germinated grain are detailed in Table 19. In addition, 112 detached embryo sprouts were counted. Such a high proportion of germinated grain would suggest deliberate sprouting for malt rather than an accidentally damaged crop. The fact that a number of the *Triticum* sp. and *Secale cereale* grain are also germinated suggests they were weeds of the *Hordeum vulgare*/*Avena* sp. crop rather than the result of post-depositional mixing. The occurrence of such a pure assemblage of *Hordeum vulgare* and *Avena* together suggests that a mixed crop or dredge (drage) is represented. The *Hordeum* represented appears to be the two-rowed variety *Hordeum vulgare* subsp. *distichum* which produces only one fertile spikelet per rachis node.

²¹¹ Nomenclature and taxonomic order follows A.R. Clapham, T.G. Tutin and D.M. Moore, *Flora of the British Isles*, 3rd edition (Cambridge, 1989).

TABLE 20. THE WATERLOGGED BOTANICAL SAMPLES

	Sample		11	51	35	49
	Phase		2	3	6	6
Waterlogged Plants		Habitat				
<i>Caltha palustris</i>	Kingcup, Marsh Marigold	M	-	-	-	5
<i>Ranunculus acris/repens/bulbosus</i>	Buttercup	Gd	-	75	16	434
<i>Ranunculus</i> cf. <i>flammula</i>	Lesser Spearwort	M	-	-	-	1
<i>Papaver rhoeas/dubium</i>	Field/Long-headed Poppy	A	-	1	-	-
<i>Papaver somniferum</i>	Opium poppy	A/C	-	1	-	-
<i>Brassica</i> sp. cf cultivated (mni)	Cabbage, Kale, Turnip etc	C	-	18	-	-
cf. <i>Brassica/Sinapis</i> sp. fragment.		A	-	-	-	1
<i>Brassica nigra</i>	Black Mustard	C/R/W	-	2	-	-
<i>Silene dioica</i>	Red Campion	R	-	-	-	2
<i>Agrostemma githago</i>	Corn Cockle	A	76/8	1	-	1
<i>Cerastium</i> sp.	Mouse-eared Chickweed	A/R	-	1	-	-
<i>Stellaria</i> sp.	Chickweed/Stichwort	A/R	-	1	-	-
cf. <i>Stellaria graminea</i>	Lesser Stichwort	G	-	-	-	1
<i>Chenopodium album</i>	Fat Hen	A/R	-	5	1	2
<i>Atriplex</i> sp.	Orache	A/R	-	2	-	1
<i>Tillia platyphyllos</i>	Large-leaved Lime	F	-	6	-	-
<i>Acer campestre</i>	Field Maple	F/S	-	1	-	-
<i>Vitis vinifera</i>	Grape, immature seed	C	-	2	-	-
<i>Vitis vinifera</i>	Grape	C	3	-	-	-
<i>Rubus fruticosus</i>	Bramble, Blackberry etc	R/F	169	1	-	-
<i>Rubus idaeus</i>	Raspberry	C/F	-	7	-	-
<i>Rubus</i> sp. frag	Bramble/Raspberry etc	R/C	-	-	-	1
<i>Rubus</i> sp.	Bramble/Raspberry etc	R/C	-	1	-	-
<i>Prunus domestica</i> subsp. <i>domestica</i>	Plum	C/S	5	9	-	-
<i>Prunus domestica</i> subsp. <i>insititia</i>	Bullace, damson, greengage	C/S	-	1	-	-
<i>Prunus</i> sp.	Plum/Sloe etc fragments	C/F/S	4	-	-	-
<i>Prunus avium</i>	Cherry	C	-	5	-	-
<i>Prunus cerasus/avium</i>	Dwarf Cherry/Cherry	C/F/S	2	-	-	-
<i>Prunus cerasus/avium</i> type frags	Dwarf Cherry/Cherry	C/F/S	2	-	-	-
<i>Crataegus monogyna</i>	Hawthorn	F/S	-	1	-	-
cf. <i>Pyrus communis</i>	Pear	C/H	5	-	-	-
<i>Pyrus communis/Malus sylvestris</i>	Pear/Apple	C/H	26	-	-	-
<i>Umbelliferae</i> , large seeded			-	1	-	-
<i>Conium maculatum</i>	Hemlock	R/Fd	-	-	-	17
<i>Polygonum aviculare</i>	Knotgrass	R/A	-	3	-	1
<i>Polygonum persicaria</i>	Red Shank, Persicaria	R/A	-	3	1	0

<i>Rumex</i> sp.	Docks	R/A	-	3	-	55
<i>Rumex acetosella</i>	Sheep's Sorrel	G/A	-	1	-	-
<i>Rumex obtusifolius</i>	Broad-leaved Dock	R	-	1	-	-
<i>Urtica dioica</i>	Common, Stinging Nettle	A/R	-	1	-	-
<i>Humulus lupulus</i>	Hop	C/S	-	5	-	-
<i>Cannabis sativa</i> (mni)	Hemp/Cannabis	C	-	64	-	-
<i>Ficus carica</i>	Fig	C	-	4	-	-
<i>Juglans regia</i> (frags/min)	Walnut	C	-	2/1	-	-
<i>Betula</i> sp. Seed	Birch	F/S	-	1	-	-
<i>Corylus avellana</i> (frags/mni)	Hazel nut shell	F/S	-	10/3	-	-
<i>Fagus sylvatica</i>	Beech, nut frag	F/S	-	1	-	-
<i>Salix</i> sp. seed pod	Willow		-	2	-	-
<i>Calluna vulgaris</i> leaf shoot	Heather, Ling	H	-	5	-	-
cf. <i>Anagalis arvensis</i>	cf. Scarlet Pimpernel	A/R	-	-	-	1
<i>Solanum nigrum</i>	Black Nightshade	R	-	2	-	-
cf. <i>Solanum nigrum</i>	Black Nightshade	R	6	-	-	-
<i>Rhianthus</i> cf. <i>minor</i>	Yellow Rattle	G d	-	1	-	-
cf. <i>Scrophularia</i> sp.	Figwort	S/M	-	6	-	-
Labiata, large seeded			-	-	-	1
<i>Prunella vulgaris</i>	Selfheal	G	-	2	-	-
<i>Ballota nigra</i>	Black Horehound	R	-	2	-	-
<i>Plantago major</i>	Plantain	R	-	281	-	-
<i>Sambucus nigra</i>	Elder	R/S	3	175	-	-
<i>Senecio aquaticus</i>	Marsh Ragwort	M/G	-	1	-	-
<i>Centaurea cyanus</i>	Cornflower	A	-	-	-	6
Compositae, small seeded			-	3	-	-
<i>Lenotodon</i> sp.	Hawkbit	G	-	-	-	1
<i>Picris hieracioides</i>	Hawkleaved Ox-Tongue	G	-	-	-	1
<i>Sonchus asper</i>	Spiny Milk- or Sow- Thistle	A/R	-	2	-	-
<i>Taraxacum</i> sp.	Dandelion	A/R	-	3	-	-
<i>Eleocharis palustris</i>	Common Spikerush	M/G d	-	1	-	3
<i>Carex</i> sp. 3 sided	Sedge		-	1	2	0
<i>Carex</i> sp. 2 sided	Sedge		-	-	1	0
Gramineae large seeded	Grass		-	-	-	1
Gramineae, small seeded	Grass		-	2	-	-
Cerealina indet, culm node			4	2	3	1
Cerealina indet, rachis node			-	-	-	2
Query seeds	??		-	8	-	-
Indet			-	9	-	1
Large indet nut frags			-	10	-	-

Charred Items

<i>Triticum aestivum/turgidum</i>	grain	1	-	-	-
cf. <i>Avena</i> sp.	grain	1	-	-	-
<i>Chenopodium album</i>	Fat Hen	1	-	-	-
<i>Brassica</i> other		-	1	-	-
Fish scale		-	++	-	-
Small fly pupare		-	-	-	2
Large fly pupare		-	-	-	1 (frag)

Key

- M – Marshy places, incl fens, streamsides, wet ditches
 F – Woods
 R – Ruderal/Waste places
 A – Arable weed
 C – Cultivated
 G – Grassland
 H – Heath/Moorland
 S – Scrub/Hedgerows
 d – damp or wet ground

The remaining charred samples from Phase 2 were also grain rich, grain forming between 71% and 97% of the charred assemblage. The numbers of grain involved were large for samples 43 and 73, both taken from pit fills. The assemblage from the burnt deposit (sample 40) and the stone-lined pit 1315 (44) produced much smaller assemblages. Chaff was present in samples 43 and 73 only. Charred weeds form between 8 and 20% of the assemblages. The large proportion of grain in these samples would again suggest processed crops are represented. Occasional un-charred seeds were present in the samples including 28 seeds of *Papaver rhoeas/dubium* (poppy) in sample 73 which may have derived from a seed head, and tough-seeded species such as *Rubus fruticosus* (blackberry/bramble), *Ficus carica* (fig) and *Sambucus nigra* (elder).

The poor preservation in these samples is reflected in the high number of unidentified grain. *Secale cereale* (rye) was positively identified by grain and rachis, while free-threshing *Triticum aestivum/turgidum* (bread/rivet wheat), *Hordeum vulgare* (barley) and *Avena* sp. (oats) were also present. Occasional poorly preserved pulses and fragments of *Corylus avellana* (hazel) nut shell were also identified. Weed seeds were limited and included large-seeded weeds of cornfield such as *Agrostemma githago* (corn cockle), *Centaurea cyanus* (cornflower), *Lolium temulentum* and *Bromus* subsect *Eubromus*, species which form seed heads or capsules such as *Anthemis cotula* (stinking mayweed) or climbing/twining species such as *Vicia/Lathyrus* sp. (vetch/tare) or *Galium aparine* (goosegrass).

One waterlogged sample was sorted from Phase 2, taken from a pit (sample 11, context 1077). The flot produced large-seeded items only. Four teaspoons of the small fraction (250 µm. – 1 mm.) were sorted and produced no seeds, so the remainder of the fraction was left unsorted. The assemblage is dominated by fruit remains including *Vitis vinifera* (grape), *Rubus fruticosus* (bramble/blackberry), *Prunus domestica* subsp. *domestica* (plum), *Prunus cerasus/avium* (cherry) and several seeds of *Pyrus communis* (pear) or *Pyrus communis/Malus sylvestris* (pear/apple). In the absence of positively identified apple it is likely that pear is the fruit represented. The deposit does not have the characteristics of sewage type deposits in that bran and small-seeded fruits like wild strawberry or fig are entirely absent. Possibly a store of fruit or fruit processing waste is represented.

TABLE 21. BOTANICAL CHARRED SAMPLES PHASES 2-3

		Sample	40	43	44	73	77	33	36	67
		Phase	2	2	2	2	2	3	3	3
		Date	C11/12	C11/12	C11/12	C11/12	C11/12	C13	C13	C13
Charred										
Grain	Habitat									
<i>Hordeum vulgare</i>	Barley, hulled grain		—	—	—	1	57	1	—	—
<i>Hordeum vulgare</i>	Barley, hulled cf. asymmetric grain		—	—	—	—	4	—	—	—
<i>Hordeum vulgare</i>	Barley, hulled straight grain		—	—	—	—	206	—	—	2
<i>Hordeum vulgare</i>	Barley, indet grain		6	7	1	19	45	1	1	2
<i>Hordeum vulgare</i>	Barley, hulled germinated grain		—	—	—	—	39	—	—	—
<i>Hordeum vulgare</i>	Barley, hulled straight, germinated grain		—	—	—	—	116	—	—	—
<i>Hordeum vulgare</i>	Barley, straight, germinated grain		—	—	—	—	20	—	—	—
<i>Hordeum vulgare</i>	Barley, indet germinated grain		3	—	—	—	61	—	—	—
<i>Triticum aestivum/turgidum</i>	Breat/Rivet wheat		11	29	4	16	7	63	6	1
<i>Triticum</i> sp.	Wheat		12	35	1	15	2	39	—	—
cf. <i>Triticum</i> sp.	cf. Wheat		—	—	2	—	—	—	—	—
<i>Triticum aestivum/turgidum</i>	Breat/Rivet wheat, germinated grain		—	—	—	—	2	—	—	—
<i>Secale cereale</i>	Rye		—	4	—	4	—	6	—	—
<i>Secale cereale/Triticum</i> sp.	Rye/Wheat		—	18	—	7	—	16	5	—
cf. <i>Secale cereale</i>	cf. Rye		—	—	1	—	6	—	—	—
<i>Avena</i> sp.	Oats		11	26	7	6	154	13	—	6
cf. <i>Avena</i> sp.	cf. Oats, grain		—	—	3	—	32	—	—	—
<i>Avena</i> sp.	Oats, germinated grain		4	—	—	—	249	—	—	—
cf. <i>Avena</i> sp.	cf. Oats, germinated grain		—	—	—	—	12	—	—	—
Cerealia indet	Indeterminate grain		11	351	9	126	697	277	43	10
			470	28	194	1709	416	55	21	

Chaff

<i>Triticum aestivum</i>	Bread type wheat, rachis	-	-	-	-	-	5	-	-
<i>Triticum</i> cf. <i>turgidum</i>	cf. Rivet wheat rachis	-	-	-	-	-	1	-	-
<i>Triticum aestivum/turgidum</i>	Bread/Rivet wheat rachis	-	-	-	-	-	4	-	-
<i>Triticum aestivum/turgidum</i>	Bread/Rivet wheat basal rachis	-	-	-	-	-	-	4	-
<i>Secale cereale</i>	Rye rachis	-	2	-	2	-	8	1	-
cf. <i>Avena</i> sp.	cf. oats, floret base	-	-	-	-	14	-	-	-
Cerealina indet	Rachis	-	-	-	-	-	6	-	-
Cerealina indet	Culm node	-	-	-	-	-	17	1	-
Cerealina indet	Sprouted embryo/coleoptile	-	-	-	1	109	-	-	1
<i>Hordeum vulgare</i>	Barley, detached coleoptile	-	-	-	-	3	-	-	-
Total Chaff (excluding coleoptiles)		0	2	0	2	14	24	5	0

Other economic species

<i>Vicia/Pisum</i> sp.	Bean/Vetch/Pea (>4mm.)	2	2	-	1	-	9	-	-
<i>Vicia/Lathyrus/Pisum</i> sp.	Small vetch/pea (2-4mm.)	-	1	-	-	-	8	-	-
Indet nut/fruit frags		-	2	-	-	-	-	-	-
<i>Corylus avellana</i>	Hazel nut (frag/mni)	3/1	7/1	6/1	2	-	-	-	-
Total other economic plants		3	6	1	3	0	17	0	0

Weeds/Wild

<i>Silene</i> sp.	Campion/Catchfly	A/R	-	-	-	-	2	-	-
<i>Agrostemma githago</i>	Corn cockle (frag/mni)	A	-	1	-	-	4	-	-
<i>Stellaria media</i>	Chickweed	A/R	-	-	-	-	-	1	-
<i>Spergula arvensis</i>	Corn Spurrey	A/R	-	-	-	-	-	-	1
<i>Chenopodium album</i>	Fat Hen	A/R	-	-	-	-	17	-	-
<i>Atriplex</i> sp.	Orache	A/R	-	1	-	-	1	-	-
<i>Malva sylvestris</i>	Common Mallow	R	-	-	-	-	-	1	-
<i>Medicago/Trifolium</i> sp.	Medick/Trefoil, Clover	G	1	-	-	1	-	11	-

Umbelliferae indet			-	-	1	1	-	-	-	-
<i>Rumex</i> sp.	Docks	A/R	5	1	1	-	-	3	1	-
Polygonaceae			1	-	-	-	-	1	1	-
<i>Lithospermum arvense</i>	Corn Gromwell, Silica	A	-	-	-	-	2	2	1	-
Labiatae			1	-	-	-	-	-	-	-
<i>Plantago lanceolata/media</i>	Ribwort/Hoary Plantain	G/R	-	-	-	-	-	-	-	1
<i>Galium aparine</i>	Goosegrass/Cleavers	A/R	1	-	-	-	-	2	-	-
<i>Galium</i> sp.	Bedstraw/Cleavers		1	-	-	-	-	-	-	-
<i>Valerianella dentata</i>	Narrow fruited Cornsalad	A	-	-	-	-	1	-	-	-
<i>Anthemis cotula</i>	Stinking Mayweed	A	-	-	-	1	-	-	-	-
<i>Centaurea cyanus</i>	Cornflower	A	-	-	-	4	3	7	-	-
<i>Centaurea</i> sp.	Cornflower/Knapweed	A/G/R	-	-	-	2	4	4	-	-
<i>Carex</i> sp. 3 sided	Sedge	d	-	-	-	2	-	-	1	-
<i>Carex</i> sp. 2 sided	Sedge	d	-	-	-	-	-	1	-	-
Cyperaceae			-	-	-	-	-	-	2	-
cf. <i>Lolium temulentum</i>	Rye-grass	R/A	2	-	-	-	18	2	-	-
<i>Bromus</i> subsect <i>Eubromus</i>	Brome grass	A/G	-	-	-	1	3	5	-	-
cf. <i>Bromus</i> sp.	Brome grass		-	-	1	-	-	-	-	-
Gramineae	Grass 2-4mm.		-	-	-	2	-	-	-	-
Gramineae	Grass >4mm.		-	2	-	-	22	1	-	1
Gramineae	Grass <2mm.		-	-	-	-	2	1	-	-
Indet			-	-	4	-	-	8	-	-
Indet			1	-	-	1	3	-	-	-
Total Charred Weeds			16	8	10	20	84	68	11	3

Waterlogged/mineralised

Economic

cf. <i>Prunus spinosa/avium</i>	Sloe/Cherry mineralised		-	-	-	-	-	-	-	1
<i>Ficus carica</i>	Fig		-	-	-	1	-	-	-	-

Weed/Wild

<i>Ranunculus</i> subgen										
<i>Batrachium</i>	Crowfoot	W	-	-	-	1	-	-	-	-
<i>Papaver rhoeas/dubium</i>	Field/Long-headed Poppy	A	-	-	-	28	-	-	-	-
<i>Chelidonium majus</i>	Greater Celandine	R/S	2	-	-	-	-	2	-	-
<i>Rubus fruticosus/idaeus</i>	Blackberry, Bramble/Raspberry	R/S	-	2	-	-	-	2	-	1
Umbelliferae	indet		-	-	-	-	-	1	-	-
<i>Conium maculatum</i>	Hemlock	R/F/d	-	-	-	-	-	3	1	-
<i>Urtica dioica</i>	Common, Stinging Nettle	A/R	-	-	-	-	-	1	-	-
<i>Galium</i> sp.	Goosegrass/Bedstraw		-	1	-	-	-	-	-	-
Labiatae large			2	-	-	-	-	-	-	-
Labiatae			-	-	-	2	-	7	-	-
<i>Sambucus nigra</i>	Elder	R	-	1	2	4	3	10	5	8
<i>Carex</i> A 3 sided	Sedge	G/M	-	-	-	-	-	1	-	-
Indet			-	-	-	-	-	2	-	-
Indet	mineralised seed		1	-	-	-	-	-	-	-

TABLE 21 CONT. BOTANICAL CHARRED SAMPLES PHASES 4-7

		Sample	46	47	48	42	62	41
		Phase	4	4	4	4	5	6
		Date	C13-14	C13-14	C13-14	C13-14	C14	C14-16
Charred								
Grain	Habitat							
<i>Hordeum vulgare</i>	Barley, hulled grain		1	-	2	-	-	-
<i>Hordeum vulgare</i>	Barley, indet grain		-	1	-	-	-	-
<i>Triticum aestivum/turgidum</i>	Bread/Rivet wheat		-	-	1	-	1	1
<i>Triticum</i> sp.	Wheat		1	1	1	-	-	-
<i>Secale cereale</i>	Rye		1	-	-	-	-	-
<i>Secale cereale/Triticum</i> sp.	Rye/Wheat		-	-	1	-	-	-
<i>Avena</i> sp.	Oats		1	-	3	-	-	-
Cerealia indet	Indeterminate grain		6	9	2	1	10	
	Total Grain		10	11	10	1	11	1
Chaff								
Cerealia indet	Culm node		1	-	-	-	-	-
	Total Chaff (excluding coleoptiles)		0	0	0	0	0	0
Other economic species								
<i>Vicia/Pisum</i> sp.	Bean/Vetch/Pea (>4mm.)		-	-	1	-	-	-
Indet nut/fruit frags			-	-	-	-	7	-
<i>Corylus avellana</i>	Hazel nut (frag/mni)		-	-	-	-	2/1	-
	Total other economic plants		0	0	1	0	8	0
Weeds/Wild								
<i>Chenopodium album</i>	Fat Hen	A/R	-	-	-	-	2	-
<i>Vicia/Lathyrus</i> sp.	Vetch/Vetchling/Tare <2.5mm.	G	5	-	-	-	-	-
<i>Medicago/Trifolium</i> sp.	Medick/Trefoil, Clover	G	-	1	-	-	-	-
<i>Rumex</i> sp.	Docks	A/R	1	-	-	-	1	-

Labiatae			-	1	-	-	-	-
cf. <i>Bromus</i> sp.	Brome grass		-	-	-	-	1	-
Gramineae	Grass 2-4mm.		-	-	2	-	-	-
Gramineae	Grass >4mm.		-	2	-	-	-	-
Indet			-	1	-	-	2	-
Total Charred Weeds			6	5	2	0	6	0
Waterlogged/mineralized								
Economic								
<i>Cerealia</i> indet culm nodes	indeterminate culm nodes		-	-	-	-	-	12
<i>Linum usitatissimum</i>	Flax/Linseed, capsule frag		-	-	1	-	-	-
cf. <i>Vitis vinifera</i>	Grape		-	-	1	-	-	-
<i>Prunus</i> cf. <i>domestica</i>	Plum/Bullace (v shrivelled)		-	-	1	-	-	-
<i>Prunus spinosa/avium</i>	Sloe/Cherry, mineralised		-	-	1	-	-	-
<i>Prunus</i> sp.	dried waterlogged - v shrivelled		-	-	1	-	-	-
cf <i>Prunus</i> sp.	mineralised stone, v poor pres		-	-	-	1	-	-
cf. <i>Malus/Pyrus</i> sp.	Apple/pear, mineralised		1	-	-	-	-	-
<i>Ficus carica</i>	Fig		-	69	70	10	35	-
Weed/Wild								
<i>Caltha palustris</i>	Kingcup, Marsh Marigold	M	-	-	-	-	-	1
<i>Ranunculus acris/repens/bulbosus</i>	Buttercup	dG	-	-	-	-	29	167
<i>Ranunculus</i> subgen <i>Batrachium</i>	Crowfoot	W	-	-	-	-	1	-
<i>Papaver rhoeas/dubium</i>	Field/Long-headed Poppy	A	1	-	1	-	-	-
Cruciferae			-	-	1	-	1	-
<i>Brassica/Sinapis</i> sp.	Brassica, Cabbage etc	A/R/C	-	-	-	-	-	1
<i>Silene dioica</i>	Red Campion	R	-	-	1	-	1	9
<i>Agrostemma galega</i>	Gold Cockle	A	-	-	-	-	-	-
					31/3	-	-	-

<i>Stellaria media</i>	Chickweed	A/R	-	-	-	-	1	-
Caryophyllaceae			-	-	-	-	1	-
<i>Spergula arvensis</i>	Corn Spurrey	A/R	-	-	-	-	1	-
<i>Chenopodium album</i>	Fat Hen	A/R	-	-	2	-	-	7
<i>Atriplex</i> sp.	Orache	A/R	-	-	1	-	1	-
<i>Rubus fruticosus/idaeus</i>	Blackberry, Bramble/Raspberry	R/S	-	-	11	3	-	-
<i>Fragaria vesca</i>	Wild Strawberry	F/S/G	-	-	143	6	6	-
Umbelliferae	indet		-	-	-	-	1	-
<i>Conium maculatum</i>	Hemlock	R/F/d	-	-	-	-	3	-
<i>Polygonum aviculare</i>	Knotgrass	R/A	-	-	-	-	1	1
<i>Polygonum persicaria</i>	Red Shank, Persicaria	R/A	-	-	-	-	-	5
Polygonaceae			-	-	-	-	2	-
<i>Rumex</i> sp.	Docks	R/A	-	-	1	-	9	12
<i>Rumex acetosella</i> gp	Sheep's Sorrel	G/A	-	-	-	-	3	1
<i>Urtica dioica</i>	Common, Stinging Nettle	A/R	-	-	-	-	17	-
<i>Urtica urens</i>	Small Nettle	R/S/F/G	-	-	-	-	1	-
<i>Corylus avellana</i>	Hazel nut	S/C	-	-	-	-	17/3	-
<i>Galium aparine</i>	Goosegrass, Cleavers	A/R	-	-	-	-	-	1
<i>Hyoscyamus niger</i>	Henbane	R	-	-	1	-	-	-
<i>Solanum</i> cf. <i>nigrum</i>	Black Nightshade	R	-	-	-	-	2	-
Labiatae large			-	-	-	-	1	-
Labiatae			-	-	1	-	-	-
<i>Sambucus nigra</i>	Elder	R	5	4	14	1	21	-
<i>Anthemis cotula</i>	Stinking Mayweed	A	-	-	-	-	-	3
<i>Chrysanthemum segetum</i>	Corn Marigold	A	-	-	-	-	-	1
<i>Centaurea cyanus</i>	Cornflower	A	-	-	-	-	-	6
<i>Centaurea</i> sp	Cornflower/Knapweed	A/G/R	-	-	-	-	-	1
<i>Asperula cynodactylus</i>	Asperula		-	-	1	-	-	1

<i>Sonchus asper</i>	Spiny Milk- or Sow-Thistle	A/R	-	-	-	-	-	1
<i>Juncus</i> sp.	Rush	M/G	-	9	1	-	-	-
<i>Eleocharis palustris</i>	Common Spikerush	M/G	-	-	-	-	-	13
<i>Carex</i> A 3 sided	Sedge	G/M	-	-	1	-	45	-
<i>Carex</i> B 3 sided	Sedge		-	-	-	-	21	-
<i>Carex</i> spp. 3 sided	Sedge		-	1	-	-	35	-
<i>Carex</i> spp. 2 sided	Sedge		-	-	1	-	10	-
Indet			1	-	1	-	5	2
Indet	mineralised seed		-	-	1	-	-	-
Small fly pupae			2	-	-	-	-	-

Key

M – Marshy places, incl fens, streamsides, wet ditches

F – Woods

R – Ruderal/Waste places

A – Arable weed

C – Cultivated

G – Grassland

H – Heath/Moorland

S – Scrub/Hedgerows

d – damp or wet ground

Phase 3

Four samples were sorted from Phase 3 pit fills associated with the construction of the stone house: one particularly seed-rich waterlogged deposit (sample 51) and three charred samples (samples 33, 36 and 67).

Sample 33 produced a large seed-rich flot, while samples 36 and 67 produced much more modest quantities of seeds and chaff. All three charred assemblages were grain-rich, with grain forming 77 to 87.5% of the assemblage. Chaff was absent from sample 67 and formed less than 10% of the remaining flots. Weeds formed 12.5 to 15% of the assemblages and tended to be dominated by large-seeded species (*Lolium temulentum*, *Bromus* subsect *Eubromus*, *Centuarea cyanus*,) or twining/climbing species (*Galium aparine*, *Vicia/Lathyrus* sp.). Occasional pulses were present in sample 33. As with the Phase 2 samples, processed grain appears to be represented. Similarly the preservation of cereal remains tended to be poor, reflected in the large number of unidentifiable grain. *Triticum* sp., *Secale cereale* (rye), *Avena* sp. (oats) and *Hordeum vulgare* (barley) were identified. The presence of *Triticum aestivum* (bread type wheat) is confirmed by well preserved rachis while a single example of *Triticum turgidum* (rivet wheat) was also tentatively identified on the basis of rachis.

The waterlogged sample 51 produced a remarkable assemblage of economic species, weed seeds and seeds of tree species. Some evidence for hay is provided by the presence of grassland species and particularly *Rhianthus minor* (yellow rattle) a characteristic species of damp meadows. *Calluna vulgaris* (heather) may have been collected from heath land and brought into the town for animal bedding, building material, grazing and so on. The range of ruderal and arable weed species is typical for urban deposits on calcareous and circum-neutral soils. The economic species and particularly the tree species are of greatest interest and suggest deliberate garden planting at the site.

The deposit is particularly unusual in the range of tree species represented, which includes *Tillia platyphyllos* (large-leaved lime), *Acer campestre* (field maple), *Betula* sp. (birch), *Fagus sylvatica* (beech) and *Salix* sp. (willow). *Salix* sp. (willow) may have occurred naturally as a shrub or tree on the floodplain towards the rivers. The other species, while all occurring naturally on calcareous soils in southern Britain, are rare in an urban environment and are not commonly recorded from contemporary sites. It is possible that some or all the species represent deliberately planted ornamental trees. Orchard planting is suggested by the range of fruit remains which include *Vitis vinifera* (grape), *Prunus domestica* subsp. *domestica* (plum), *Prunus domestica* subsp. *insilitia* (bullace, damson, greengage), *Prunus avium* (cherry) and *Juglans regia* (walnut), all of which could have successfully produced edible fruit. *Ficus carica* (fig) is likely to have been imported. The remaining fruits and nuts could have been cultivated in a garden or collected from the wild and include *Rubus fruticosus* (bramble, blackberry etc), *Rubus idaeus* (raspberry), and *Corylus avellana* (hazel).

Three possible medicinal species are also represented in the sample: *Papaver somniferum* (opium poppy), although this may represent a weed species or an ornamental, *Humulus lupulus* (hops) and *Cannabis sativa* (hemp or cannabis). These last two species were commonly grown for fibre in the past but the presence of their seeds suggests that they were the intended crop. The *Cannabis sativa* seeds were all broken or shattered as if they had been briefly pounded to deliberately break them up, possibly for a medicinal use. The broken fragments may have been deliberately discarded once the oil had been extracted. Cannabis was grown widely as both a fibre and medicinal crop in Britain until early in the 20th century. *Humulus lupulus* is best known as a flavouring for beer. It is not known for certain when this custom began but there is evidence for its trade in the form of a cargo of hops from a 10th-century boat at Graveney, and it is known to have been used to flavour beer in 9th-century French monasteries.²¹² Similar deposits of *Cannabis sativa* were recovered from a 13th- to 14th-century pit at St Thomas's St., Oxford and from the 15th-century drains at the Dominican priory, Oxford, in both cases interpreted as derived from a physic or herb garden.²¹³

²¹² G. Wilson, 'Plant remains from the Graveney Boat and the early history of *Humulus lupulus* in Western Europe', *New Phytologist*, 75 (1975), 627-58.

²¹³ M. Robinson, 'Macroscopic plant remains', in A. Hardy op. cit. note 20; M. Robinson, 'Plant and invertebrate remains from the priory drains', in G. Lambrick op. cit. note 21, 196-201.

Finally, two species of *Brassica* are represented in the sample: *Brassica nigra* (black mustard) and another large-seeded cultivated species (cabbage, kale, turnip etc.). The seeds of any of the *Brassica* species can be used as a mustard-type condiment so the presence of seeds does not necessarily suggest vegetables that have bolted.

Phase 4: demolition of back range and construction of northern building

One sample was examined from the primary fill, 1262, of garderobe 1309. The sample (sample 42) produced a single unidentifiable charred cereal grain and a limited range of non-charred fruit remains. A possible *Prunus* sp. stone was preserved by calcium phosphate mineralisation as would be expected from a garderobe or cess-pit type deposit. The seeds of *Rubus fruticosus/idaeus* (bramble/raspberry), *Fragaria vesca* (wild strawberry), *Ficus carica* (fig) and *Sambucus nigra* (elder) are particularly robust and might be expected to survive in an uncharred state for some time. All would be characteristic of sewage waste. The limited range of material present would suggest that waterlogged conditions did not prevail in the garderobe for any length of time and mineralisation was only partial.

Three charred assemblages were analysed from the stone-lined garderobe pit (feature 1369). The charred assemblages were limited in all three samples consisting of few grains, a single culm node in sample 46, one unidentified legume in sample 47 and occasional weed seeds. Hulled *Hordeum vulgare* (barley), free-threshing *Triticum* sp. (wheat), *Secale cereale* (rye) and *Avena* sp. (oats) were identified. Weed seeds were dominated by grasses and *Vicia/Lathyrus* sp. (vetch/tare).

Non-charred seeds were more numerous in each sample, particularly sample 48. Occasional seeds were clearly mineralised by calcium phosphate replacement while others may represent waterlogged material which had been allowed to dry out post processing or in the recent past. Calcium phosphate mineralisation is particularly characteristic of cess pit type deposits.²¹⁴ Several fruit species were represented, in particular *Fragaria vesca* (wild strawberry) and *Ficus carica* (fig) both of which produce numerous and robust seeds. Other fruits identified included *Vitis vinifera* (grape), *Prunus* cf. *domestica* (plum/bullace etc), cf. *Malus/Pyrus* (apple/pear), and *Rubus fruticosus/idaeus* (bramble/raspberry). A fragment of *Linum usitatissimum* (flax) capsule was also identified. The preservation and the range of fruits represented would be consistent with sewage type deposits, further supported by broken fragments of *Agrostemma githago* (corn cockle), a common cornfield weed, which may have been ground and consumed with bread. The absence of bran fragment is not surprising given the deposit was dry. Bran may have decomposed rapidly once the deposit dried out. The remaining species represented are common in urban ruderal sites, including *Hyoscyamus niger* (henbane) and *Sambucus nigra* (elder) or derive from damp and/or grassland habitats.

Phase 5: later 14th- century pits

Only one sample was analysed from Phase 5, a charred assemblage from a pit fill (sample 62). Charred remains were limited consisting of 11 grains, only one of which was identifiable as *Triticum aestivum/turgidum*, nut shell fragments including *Corylus avellana* (hazel) and six weed seeds, all of which were common arable or ruderal species (*Chenopodium album*, *Rumex* sp., *Bromus* subsect *Eubromus*). A much greater number of non-charred seeds were identified all of which are likely to be waterlogged seeds which have been allowed to dry out. The preservation was reasonably good suggesting that the deposit was still at least partially waterlogged at the time of excavation. The assemblage is dominated by seeds of *Ranunculus acris/repens/bulbosus* (buttercup) and various *Carex* spp. (sedges), presumably derived from local damp grassland. Also common were seeds of *Ficus carica* (fig), *Urtica dioica* (stinging nettle) and *Sambucus nigra* (elder), the last two common ruderal species. The *Ficus carica*, *Fragaria vesca* (wild strawberry) and *Corylus avellana* (hazel nut) presumably represent food debris. Other ruderal species form the bulk of the remaining species including *Conium maculatum* (hemlock) which is particularly characteristic of damp middens. While some food waste is represented this assemblage is characteristic of mixed urban habitats.

²¹⁴ F. J. Green, 'Phosphate mineralisation in seeds from archaeological sites', *Journal of Archaeological Science*, 6 (1979), 279-84.

Phase 6: college pit digging

Three samples were analysed from Phase 6, two from pit 1144 (samples 41 and 49) and one from pit 1221 (sample 35). One sample from 1144 was processed as a charred sample although it produced one charred grain only. All three samples produced waterlogged material. The range of material present in pit 1144 is far greater than in sample 35 and this is likely to reflect preservation conditions, waterlogging being more complete in pit 1144. Sample 49 included small masses of straw fragments and possible animal dung.

Both samples from pit 1144 were dominated by seeds of *Ranunculus acris/repens/bulbosus*. The seeds were not identified to species although both *R. acris* and *R. bulbosus* were noted to be present. These buttercup species are characteristic of damp grassland or meadow habitats. Seeds of *Conium maculatum* (hemlock) were numerous in sample 49, while *Rumex* sp. was numerous in both samples. *C. maculatum* is characteristic of ruderal habitats and is particularly associated with damp middens or rubbish tips. It is likely to have been particularly common in damp medieval urban deposits. A poisonous plant, it also has medicinal uses. *Rumex* sp. (docks) are also characteristic of ruderal habitats and such a large number is likely to represent a seed head or cluster. Other species of damp meadows include *Caltha palustris* (kingcup or marsh marigold) and *Ranunculus flammula* while *Eleocharis palustris* (common spikerush) and *Carex* sp. may also have derived from wetter parts of meadows. Further grassland species of dryer ground include *Stellaria graminea*, *Rumex acetosella* gp. (sheep's sorrel), *Centaurea* sp., *Leontodon* sp. and *Picris hieracioides*, all of which could have been growing locally on circum-neutral soils although *R. acetosella* shows a preference for acidic soils. A similar range of species was recovered from sample 49 although also with quantifiable culm nodes and slightly more arable species including *Anthemis cotula* (stinking mayweed) and *Centaurea cyanus* (cornflower). These samples may include hay or stable waste including the straw fragments and culm nodes. The meadow and grassland seeds derived from hay or from animal dung if animals had been allowed to graze in the meadow. Species such as *Conium maculatum* may have colonised dumped stable waste after deposition in a midden or pit.

A much more limited flora in sample 35 was dominated by seeds of *Ranunculus acris/repens/bulbosus*. The only other species present were of *Carex* spp. (sedges) and two ruderal species, *Chenopodium album* and *Polygonum persicaria*, and three culm nodes.

Conclusions

The botanical remains from the site at Merton College provide a fascinating insight into possible diet in the early life of the college as well as possible evidence for garden planting. A background of ruderal plant species is present throughout the sequence as might be expected in an urban environment. The use of meadow resources is also suggested which includes possible stable waste from a Phase 6 pit (samples 41 and 49) and possible hay in a Phase 3 deposit (sample 51).

The charred assemblages suggest grain was always brought into the site in a fully processed state. The arable weeds represented are typical of medieval cornfields and tend to be the larger-seeded species or those that form seed heads and are likely to have stayed with the grain through the various processing stages. Of particular interest is the evidence for possible malting activity from a Phase 2 pit (feature 1581). The deposit suggests that a mixed deposit of two-rowed barley and oats was malted, presumably cultivated together as a drage. Markham recommends that oats should be added to the barley for beer only when the barley is found to be 'wanting',²¹⁵ although as oats and barley were commonly cultivated as a drage this process might have been widespread. A similar deposit of germinated two-row barley and oats was recovered from West Cotton, Northamptonshire in association with a mill.²¹⁶ A mixed deposit containing germinated oats and barley was also interpreted as evidence for the use of a drage in malting from an undated test pit at Reading Oracle, also thought to be associated with a mill.²¹⁷ Two row barley is generally considered more suitable for brewing as the grain tends to have a lower protein content and high starch content.²¹⁸

²¹⁵ Gervase Markham, *A way to get wealth*, 1st edn. (London, 1615), 15.

²¹⁶ G. Campbell, 'The preliminary results from Anglo-Saxon West Cotton and Raunds', in J. Rackham, *Environment and economy in Anglo-Saxon England: a review of recent work on the environmental archaeology of rural and urban Anglo-Saxon settlements in England* (Council for British Archaeology Research Report 89, 1994).

²¹⁷ R. Pelling, 'The plant remains', in B. Ford, D. Poore, R. Shaffrey and D. Wilkinson, 'Excavations at the Oracle site, Reading, Berkshire' (Oxford Archaeology Thames Valley Landscapes monograph, in preparation).

²¹⁸ J. Percival, *Wheat in Great Britain* (London, 1934).

Fruit remains are particularly well represented throughout the deposits studied as they tend to be in medieval urban sites. One Phase 3 pit sample (pit feature 1483, sample 51) produced a particularly large quantity of fruit remains. This sample is perhaps more interesting for its suggestion of deliberate tree planting. It is possible that fruits were being cultivated locally in an orchard garden, while cannabis and hops may have been cultivated alongside other medicinal plants in a physic or herb garden and vegetable plants. The presence of hops is interesting given the evidence for malting in the previous phase although no association can be drawn between the two samples. While cereals may have been brought into the town from the surrounding countryside it is interesting to suggest that fruits and vegetables were cultivated within the town.

APPENDIX:

A. BUILDING SURVEY – ROSEY WHEELER

A building survey, although not commissioned as part of the archaeological work, was undertaken by Rosey Wheeler, then of Oxford Archaeology, using rectified photography. This concentrated on the structures at the rear of the property, although the stables had been demolished prior to the commencement of work. The building record is held with the site archive, and a summary of the findings is given below.

The Western Boundary wall

This ancient boundary of the college property on the west is a high stone wall of several phases, some of it clearly contemporary with the great stone house (and was probably present in the 16th century even though it is not shown on Agas' map). The eastern boundary, for long an internal boundary between parts of the college landholding, is less significant. On Loggan's map of 1675, both east and west walls were in place, and there was a small building at the north end of the stable yard. By the time of Isaac Taylor's map of 1750 buildings had been erected along part of both the walls, but the east side of the yard was altered when the new tennis court was built in 1798, though a small stable survived to its south, as shown on the large-scale OS town plan of 1878, which is the first detailed plan to show all the buildings.

The west boundary wall was built on infilled rubbish pits and occasionally gravel, with one relieving arch to give it necessary support; it was generally built in coursed rubble, but was partially rebuilt with courses of limestone blocks and rubble beside the range of brick stables.

The Stables

It would seem that Peter of Abingdon's house was fairly early converted into a stable (at least on the ground floor) to accommodate the Warden's horses. It is not clear how the ground floor was arranged previous to this conversion, but from the presence of the two doors, it appears to have been divided into two, as it currently exists. In addition, there are two small, but wide windows with wooden frames, on the south elevation, suitable for stables (and possibly made by infilling earlier openings). A fireplace is present in the east room, which may have also have been a tack room, and its wall to the entry passage is a light timber frame with brick infill, perhaps of the early 19th century. Malchair's drawing of the stable yard in 1775 shows a door at first-floor level,²¹⁹ possibly indicating that the first floor had been converted to a hay loft; he also depicts a drain, which may well have led down into the soak-away that was found during the excavation. The first floor now has three windows with concrete lintels, and the ground floor two windows with timber lintels that have been added after 1775.

²¹⁹ Colin Harrison, *John Malchair of Oxford* (1998), 77-8 (20).

College records give an outline of the later history of the stables: an upper hayloft with stalls beneath was made next to the groom's dwelling in 1738, and there were a total of six stalls. In 1790 the two western stalls were partitioned off, a new door made, and a tack room; the blocked door and two round-headed doors in the stable north wall presumably date from this occasion. In 1868, three stables, presumably in the main building, were converted into two loose boxes. The last Warden to ride died in 1903, the upper floor was made into accommodation, and a decade later bicycle stands were made in the yard.²²⁰

The row of brick and stone buildings along the west boundary wall were, at the time of demolition, three garages and bicycle sheds, but had presumably been stables. Various features were present on the wall, including rows of inset timbers for shelves, panelling, or other fittings; the southern of the three had two tethering rings mounted onto wooden blocks. The OS map of 1878 shows a further building at the south end of the west, possibly a tack room, of which there survived a brick flue at the first-floor, where a small stove would have been attached, possibly for the groom. The buildings on the east side of the yard were marked as stables on a college property plan of c.1930, but had subsequently been removed.

The North Cottage (Plate XXIII A-B)

This structure was visible in the boundary walls at the north-west corner of the yard, and evidently formed a two-storey cottage. It was first shown, apparently as a lean-to structure, on Loggan's map of 1675, but may be earlier than this. When surveyed it consisted of a timber frame, with jowled posts surviving at both north and south corners on the first floor. This indicates that the roof could have had a normal gable built on a tie beam, and not a lean-to as suggested by Loggan's map. The wall plates for the ground floor and first floor appeared to be contemporary, together with the stud-work. The joists of the first floor were chamfered on the upper surfaces, suggesting that they were re-used. There was a fireplace on the north wall at first floor, constructed of limestone rubble and bricks (possibly from a later phase), which would have joined to a brick chimney-stack. A chamfered timber protruding from the east side of the fireplace at the top may have helped support a mantelpiece. The line of the flue could be traced down to the ground floor where the outline of a blocked fireplace survived.

There were two windows on the north wall, which would have looked out onto Kybald Street. The ground floor window was recessed into the wall, with a wooden lintel across the top of the opening. There was no trace of a doorway into Kybald Street, and from Loggan's map, it appears that access would have been gained from the stable yard, suggesting that it was possibly the home of the stable-hand. Later, however, a door was added to the east of the cottage, onto Kybald Street. The scar of a flight of stairs is visible, that would have led from this front door, up to the east end of the first floor. It appears that the cottage was extended eastwards, possibly right to the east side of the tenement, as shown on Taylor's map of 1750. This may have been an extension, contemporary with the building of Grove House.

Later still, by the time of the 1878 OS town plan the building seems to have been split up into three units: There was the cottage structure to the west, a structure in the east corner, and a narrow corridor by the front door connecting them. At this point, the ground floor of the cottage and the eastern structure may have been converted into stables and the front door would have been an access to an apartment on the first floor of the cottage. Last of all, a facing layer of concrete blocks was applied on the west wall of the cottage; the top of which slanted down to the south, showing that once more a lean-to roof existed.

²²⁰ I.R.L. Highfield, *op. cit.* note 48, 71-6; Alan Bott, *op. cit.* note 48, 63-70.

B – STONE HOUSES IN OXFORD by JULIAN MUNBY

Stone houses occur in Oxford property documents from the 1190s onwards, which may be significant but is also the time from when documentation increases.²²¹ They occur across Oxford, with no particular concentration.²²² The examples which are known from remains or visual records are as follows:²²³

1. **Merton Stables** SE(186)

Surviving structure, and as recorded by James Green in his views of Oxford halls in c.1750 (Bodleian, Gough Oxon 50) and reproduced by Skelton in *Oxonia Antiqua Restaurata* (1823).

2. **Frewin Hall** NW(83)

The high-status undercroft of 12th-century date survives from a stone-built urban 'manor house' set in its own plot of land away from the main streets.²²⁴

3. **Setretons** NW(49)

The 12th-century stone undercroft under the Clarendon centre, surveyed and excavated in 1950s, and reopened in 1983, had remains of a stone house above it recorded by Pantin prior to demolition.²²⁵ Property records describe a 'cellar and solar' here in 1195 & 1198 (one with a horsemill in the cellar).

4. **Hertford College** NE(?)

A collection of Norman voussoirs in the Principal's Lodgings at Hertford was illustrated by Skelton, in *Oxonia Antiqua Restaurata* Pl. 93, and came from an otherwise unidentified house on the site. An account of these items is given by R.T. Gunther, in discussing some similar stones drawn by J.C. Buckler that were found in Magdalen College and may be related.²²⁶

5. **St Ebbe's Street** SW(77)

Herbert Hurst illustrated an elaborate window head and spandrel from a house in St Ebbe's.²²⁷ This was photographed by Taunt, and deposited in the museum of historic stonework in the Town Hall, where it was catalogued by Howard and New,²²⁸ but was more recently disposed of in circumstances that have never been revealed. The location was adjacent to the 'great stone house' (*magnam domum lapideam*) in which the Franciscan friars stayed on their first arrival in Oxford.²²⁹

6. **Billing Hall, Castle Street** SW(156)

A drawing by James Green in his collection of views of Oxford halls in c.1750 (Bodleian, Gough Oxon 50 f.20) shows an unidentified house with a Norman window. It was reproduced by Skelton in *Oxonia Antiqua Restaurata* (1823, Vol. II, pl. 157) as 'Hall, name

²²¹ See J. Munby, '12th and 13th-century houses' in Dodd (ed.), op. cit. note 4, 60-1.

²²² Salter, *Survey*, N(113) in 1195; NE(36) in 1198, (44) in 1259, (162) in 1255; NW(56) in 1190x98; SE(216) in 1220, (131) in 1228, (187) in 1246, and SW(77) in 1241.

²²³ At the time of going to press another example of an arched window head has been found on the site at the back of the Ashmolean Museum, N(98) [OXASH06, context 662].

²²⁴ W.J. Blair, 'Frewin Hall, Oxford', *Oxoniensia*, xliii (1978), 48-99.

²²⁵ E.M. Jope and W.A. Pantin, 'The Clarendon Hotel', *Oxoniensia*, xxiii (1958), 106-12.

²²⁶ *Cartulary of the Hospital of St John*, ed. H. E. Salter (O. H. S. lxvi, lxxiii, lxxix, 1914-1916), iii, 430-2.

²²⁷ Bodleian MS Top Oxon c.312, 54.

²²⁸ Typescript list in OAHS Library.

²²⁹ *Cartulary of the Hospital of St John*, ii, 218 (720).

unknown'. The building can now be identified from a drawing of the same house made in August 1783 by John Malchair, during the course of its demolition, and another made by his pupil the Revd George Markham of Christ Church, both identified as being 'Bylling Hall'.²³⁰ This was a house in Castle Street, infamous for an episode of necromancy. When Green drew the house the right-hand side remained, and in 1783 this had just been demolished.

7. Chequers Inn, High Street SE(11)

A stone window with two lights, central column and an outer arch above, with a central decorative element of indistinct form, not dissimilar from the Merton [1] and St Ebbe's [5] examples, was illustrated by John Aubrey in the manuscript of his unpublished account of the development of English architecture, *Chronologia Architectonica*.²³¹ Described as being 'A windowe at the Checquer-Inne in Oxford, heretofore Kempe-hall', it is not in the late medieval timber-framed part at the front, and must have been at the back.

8. Lower Gildhall, St Aldates SE(131)

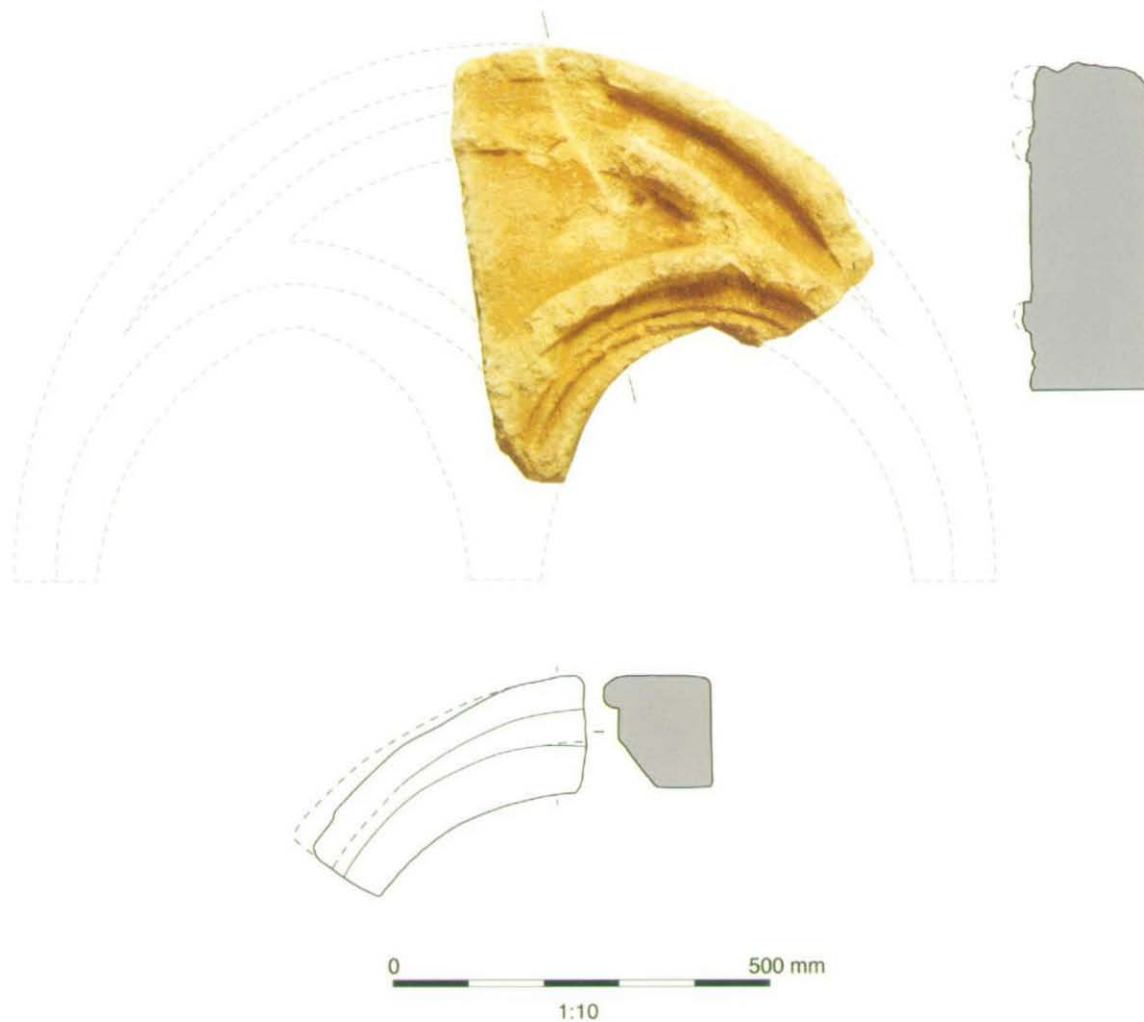
The Lower Gildhall, formerly the house of David the Jew, stood on the south side of the Gildhall (on the present Town Hall site), and was for long a private house before passing into the town's ownership. The building was drawn by James Green shortly before its demolition in 1750, who showed a large stone house, with arched lintels clearly shown above the doors and windows. These may be no more than relieving arches, but could equally be the blocked openings of round-headed windows and doors.

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²³⁰ Malchair drawing sold at Messrs Sotheby, 15 June 2000, Lot 210 (part), 'Bylling Hall 13 August 1783', 29 x 22 cm; the other 'Bylling Hall in Butcher Row', 32 x 20 cm., now in private collection.

²³¹ H.M. Colvin, 'John Aubrey's *Chronologia Architectonica*', reprinted in *Essays in English Architectural History* (1999), 206-16, fig. 171 (Bodleian, MS Top. Gen. c.25, f.155).



Published in Oxoniensia 2006, (c) Oxfordshire Architectural and Historical Society
 18th Century Oxford: The City and its Buildings, 1650-1850. A view of No. 4a Merton St. (Merton College Fig. 5), and possibly from the same windows. [Merton p. 223]



Plate XII. View (looking west) of the early 13th-century back range under excavation. The excavator is working on the surviving floor. The west wall of the building can be seen to the top. The stone-lined garderobe can be seen top right, with the upstanding remains of the north wall next to it. [Merton p. 224]



Plate XIII. Relieving arch 1596, carrying the western boundary wall of the yard across earlier pits.
[Merton p. 226]



Plate XVII. View (looking south) of the stone-lined well (foreground) first constructed in phase 6 (late 14th to mid 16th century) and (background) stone-lined pit 939, constructed in phase 7 (mid 16th to mid 18th century). [Merton p. 246]

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Plate XIV. View of the foundations of the phase 4 building on Kybald St; an earlier pit has been dug out, to allow the foundations to be taken down to the underlying gravel. [Merton p. 237]



Plate XV. Bone styli from the college rubbish pits of phases 5 and 6 (late 14th to mid 16th century); left to right SF 211, 148, 188, 238. [Merton p. 243]



Plate XVI. A page-holder from a college rubbish pit of phase 5 (late 14th century). [Merton p. 246]

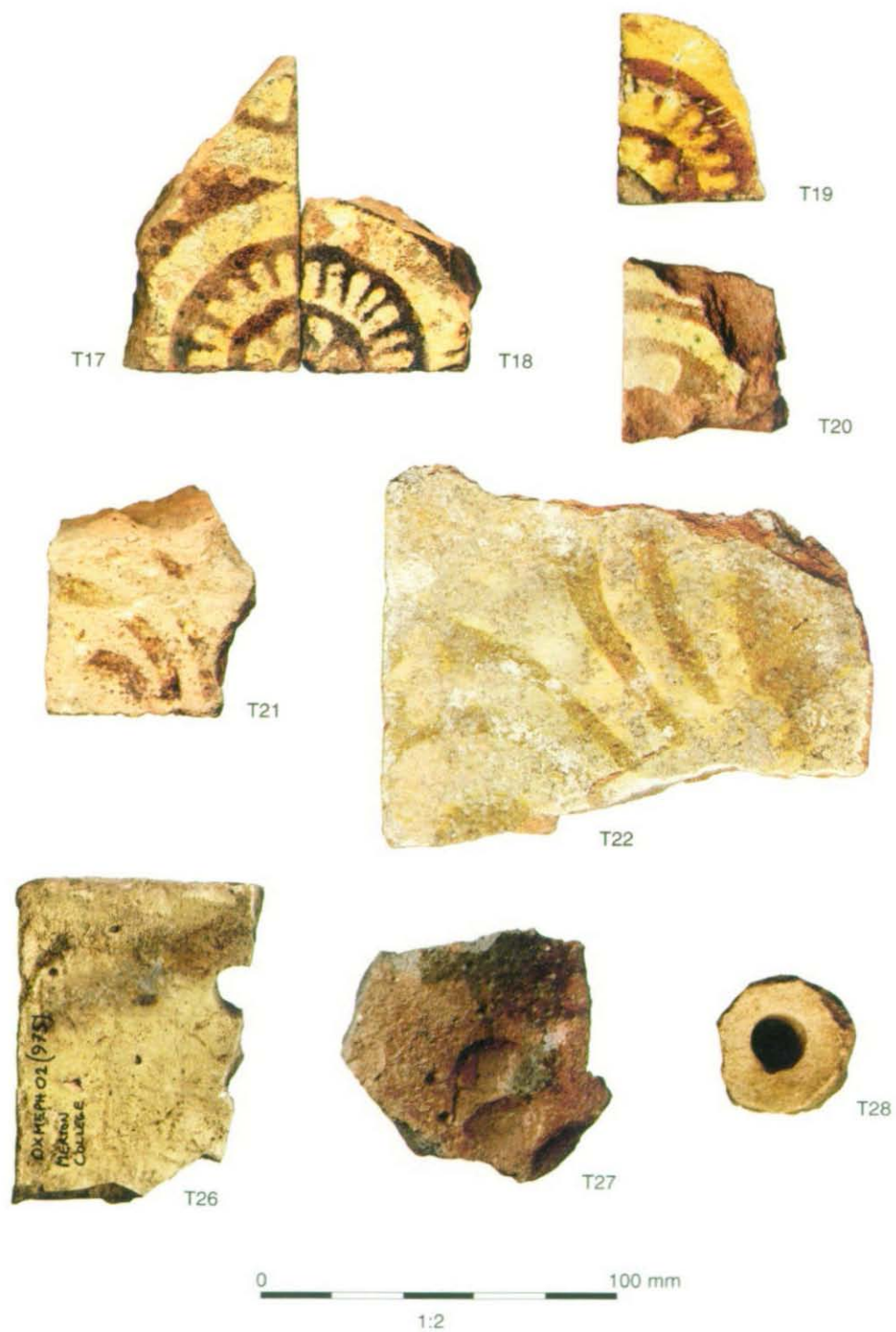


Plate XXII. Decorated floor tile Nos. T17-T22; roof tile T26-T28. [Merton p.293]

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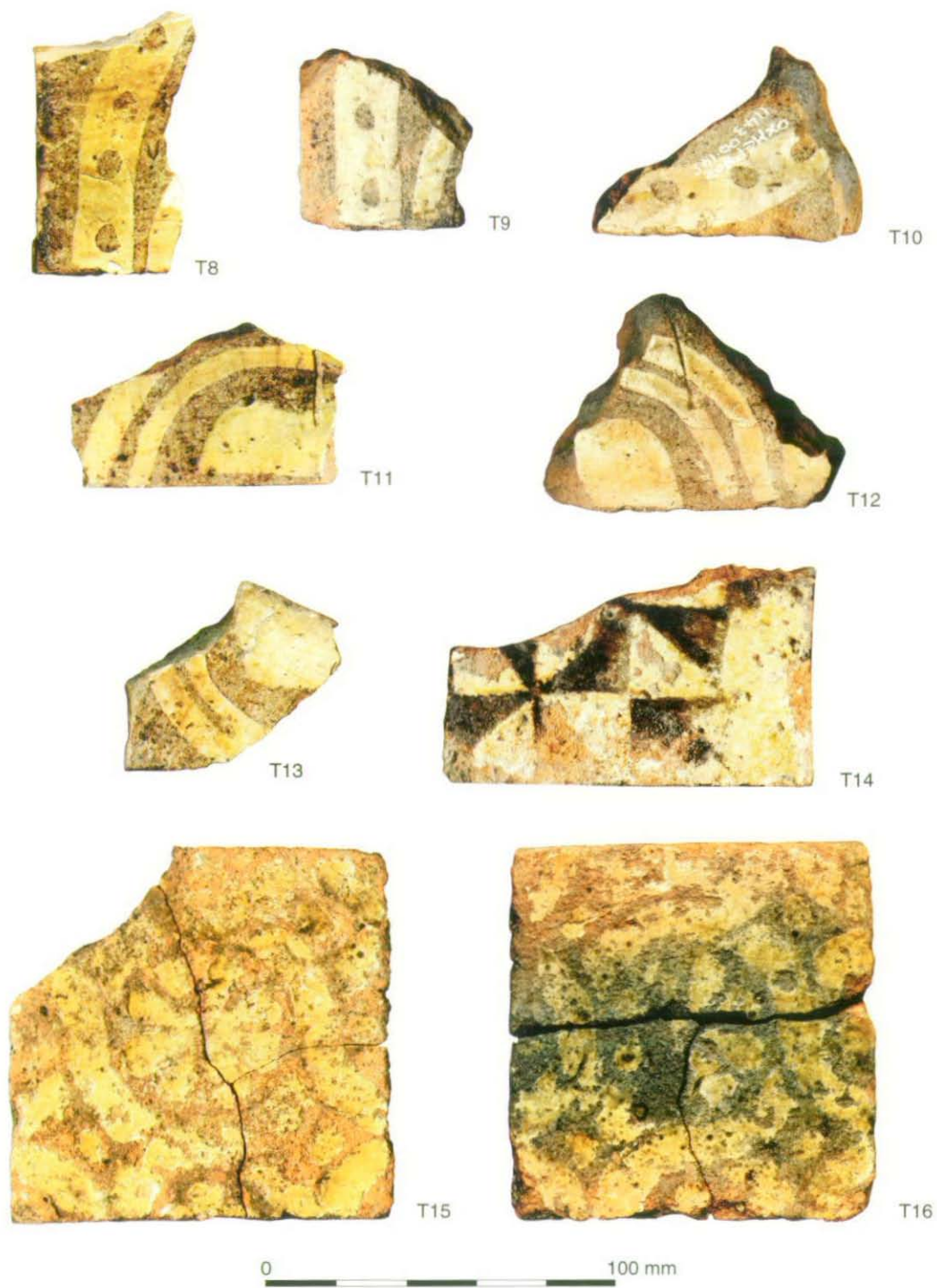


Plate XXI. Decorated floor tile Nos. T8-T16. [Merton p. 293]

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0 100 mm

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Plate XX. Decorated floor tile Nos. T1-T7. [Merton p. 293]



Plate XVIII. Two complete drinking jugs in Brill Boarstall 'Tudor Green' ware. [Merton p. 275]



Plate XIX. A sherd from a jug in Brill Boarstall 'Tudor Green' ware with what may be the name of the college inscribed on it. [Merton p. 275]

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Plate XXIII. Standing remains of north cottage. [Merton p. 339]
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