Artefactual evidence

Worked flint

by Philippa Bradley

A total of eight pieces of worked flint and eight pieces of burnt unworked flint (weighing 72 g) was recovered from the excavations. None of the material came from prehistoric contexts and apart from a post-medieval gun flint from context 625 (Phase 5) there were no diagnostic pieces. However, a Neolithic or Bronze Age date for this material is likely given its general appearance.

The flint from the excavations at the Sackler Library provides additional evidence for prehistoric activity beneath Oxford. A few pieces of worked flint were recovered from Bronze Age barrows at the University Science Area and St Michael's Street (Bradley 1996a, 55, 59), although most of this material came from the upper fills of the barrow ditches or unstratified contexts. Other flint from the City includes Neolithic and Bronze Age material from Logic Lane (Radcliffe 1961/2, 43), Christ Church (Case 1961/2, 33) and Holywell Ford (Bradley 1996b, 286).

Pottery

by Paul Blinkhorn

Introduction

The post-Roman pottery assemblage comprised 2,698 sherds with a total weight of 72,702 g. This includes 18 sherds (175g) of Iron Age and Romano-British material (see Booth below). The minimum number of vessels (MNV)[2] by summation of surviving rimsherd circumference (early modern and later pottery not included), was 8.00. A table showing the pottery occurrence by number and weight of sherds per context by ware type is shown in Appendix 1 (Table 15).

A notable ceramic find was four sherds of middle Saxon Ipswich ware, which although redeposited, are the first definite ceramic evidence of middle Saxon trade from the environs of the city of Oxford. Otherwise, the assemblage is somewhat fragmentary, and the wares and vessels are, in the main, all types which are well-known in the region. There is also good evidence for a considerable amount of redeposition of ceramic during the 16th century and later, presumably due to extensive, post-Dissolution stone-robbing having taken place.

Fabrics

For types which have previously been noted in Oxford the chronology and 'OX-' prefixed coding system of the Oxfordshire County type-series (Mellor 1994) has been used. The 'F' numbers allow cross-referencing to Appendix 1, Table 15.

F95: *Ipswich ware*. Sandy, middle Saxon wheel-turned ware (Hurst 1976; Blinkhorn forthcoming a), *c* AD 720-850. 4 sherds, 65 g, MNV = 0.

F200: OXAC: *Cotswold-type ware*. Limestone-gritted ware, *c* AD 975-1350. 324 sherds, 2,939 g, MNV = 1.96.

F202: OXBF: *South-West Oxfordshire ware*. Flint and limestone gritted ware. *c* mid 11th – early 13th century. 11 sherds, 95 g, MNV = 0.

F205: *Stamford ware*. Wheel-thrown sandy ware, often glazed, *c* AD 850-1150 (Kilmurry 1980). 2 sherds, 15 g, MNV = 0.

F300: OXY: *Medieval Oxford ware*. Sandy ware, glazed and unglazed, *c* AD 1075 – 1350. 472 sherds, 3731 g, MNV = 3.03.

F352: OXAM: *Brill/Boarstall ware*. Sandy ware, glazed and unglazed, *c* AD 1200 – 1600. 328 sherds, 4,979 g, MNV = 3.01.

[2] MNV is calculated by adding up the percentage completeness of all rimsherds and then dividing by 100; this gives a figure for the smallest number of pots which could make up the assemblage.

F404: *Cistercian ware. c* AD 1470-1550. Hard, smooth fabric, usually brick-red, but can be paler or browner. Vessels are inevitably covered with a thick, glossy, purplish-black or brown glaze. Few visible inclusions, except for occasional quartz grains Range of vessel forms somewhat specialized, and usually very thin-walled (*c* 2 mm). Rare white slip decoration. 11 sherds, 153 g, MNV = 0.

F405: *Frechen Stoneware.* Hard grey stoneware fabric produced at the eponymous Rhineland centre (Gaimster 1997). Characterized by a mottled brown salt-glaze. AD 1550-1700. 31 sherds, 548 g, MNV = 0.

F406: *Tudor Green wares.* Green-glazed whitewares produced at several centres in the south of England, such as Farnborough Hill, Hants (McCarthy and Brooks 1988, 450). *c* AD 1380-1500. 17 sherds, 125 g, MNV = 0.

F407: *Langerwehe Stonewares.* Extremely hard, dark grey fabric, although a few vessels are known in a creamy-buff (eg. Jennings 1981, 109). Earliest imports into London *c* AD 1350 (Gaimster 1997, 84). 2 sherds, 37 g, MNV = 0.

F408: OXAP *Overfired Brill/Boarstall 'proto-stoneware'.* Very hard, brown or purple version of OXAM. Such vessels can be as early as the 13th century (Mellor 1994, 117), although this ware did not occur in pre-Dissolution contexts at Eynsham Abbey (Blinkhorn and Jeffries, in press). 4 sherds, 41 g, MNV = 0.

F410: *Brill/Boarstall 'Tudor Green' type ware.* Later medieval copies of Tudor Green tablewares (Mellor 1994, 118). The fabric is a very fine version of the standard OXAM, but with fewer inclusions. Sherds from The Hamel in Oxford were dated to the third quarter of the 15th century (Mellor 1980, 179). 8 sherds, 53 g, MNV = 0.

F413: *Westerwald Stonewares.* Hard, dense white fabric, usually decorated with cobalt blue slip. Later examples can have manganese purple slip. Common in London by *c* AD 1630 (Gaimster 1997, 86), and still in production today. 1 sherd, 15 g, MNV = 0.

F417: *Tin-Glazed Earthenwares. c* AD 1550-1700. Fine white earthenware, occasionally pinkish or yellowish core. Thick white tin glaze, with painted cobalt blue decoration, occasionally manganese purple and ochre. Rare inscriptions. Glaze tends to flake away from surface of body clay. 13 sherds, 137 g, MNV = 0.

F418: *Creamwares.* Cream-coloured earthenware, made from the same calcinated flint clay as Staffordshire white salt-glazed stonewares (Jennings 1981, 227), although Creamwares were fired at a different temperature and have a lead glaze. First made in the 1740s (Mellor 1984, 217). 8 sherds, 16 g.

F425: *Red Earthenwares.* Orange or red sandy fabric, green or orange glaze, provenanced to the post-medieval kilns at Brill. Well represented at St Ebbe's in the mid to late 17th century (Mellor 1984, Fiche III, E3), but also occurred in the immediate post-Dissolution phase at Eynsham Abbey (Blinkhorn and Jeffries, in press). 63 sherds, 1,803 g, MNV = 0.

F428: *Chinese Porcelain:* Hard, slightly translucent white fabric with a clear glaze, often with hand-painted polychrome decoration. Known in Europe from the 13th century, but did not become common until the 16th century (Whitehouse 1972, 63). 3 sherds, 81 g.

F429: *London Stoneware.* Off-white to buff, hard, slightly micaceous fabric, manufactured at John Dwight's Fulham kilns (Crossley 1990, 266). Datable to *c* 1680 plus. 1 sherd, 18 g.

F446: *Staffordshire Slipware.* AD 1680-1750. Fine cream fabric with white slip and pale yellow lead glaze, commonest decoration is feathered dark brown trailed slip.

Chiefly press-moulded flat wares, although small bowls and mugs etc are known. 3 sherds, 87 g.
F451: *Border Wares*. Generic term for the late 15th/early 16th century pottery industry of the Hampshire/Surrey border area (Pearce 1992). The range of fabrics comprised fine, sandy whitewares with an off-white to buff fabric and with yellow, green olive or brown glaze, and fine redwares with clear green to olive or brown glaze (*ibid.*, 1). The manufacture of whitewares ceased during the 18th century. Produced a wide range of late medieval and early post-medieval vessel types. 1 sherd, 36 g, MNV = 0.

F456: *Surrey Whiteware*. Sandy glazed whitewares. This category encompasses the Kingston, Cheam and Coarse Border ware traditions (Pearce and Vince, 1988). These sherds are all Kingston type, and can be broadly dated AD 1250 – 1450. 5 sherds, 17 g, MNV = 0.

A total of 23 sherds (353 g) of Romano-British pottery and 1,346 sherds (57,308 g) of 19th century and later wares were also noted, and are commented on below.

Illustrations (Figure 15)

IW1: Context 106. Ipswich ware. Base from sherd of small jar. Uniform grey fabric.

OXY1: 601, 663, 698, 705. OXY. Internally glazed jar. Grey fabric with buff inner surface; areas of poor-quality, sage-green glaze on the inner rim, body and base-pad. Patches of sooting and burning on both surfaces.

OXY2: 926, OXY. Bodysherd from pitcher. Pale grey fabric with dark grey inner surface and pale salmon-pink outer. Thick yellow-brown glaze.

CO1: 208. OXAC. Rimsherd from a jar. Grey fabric with orange surfaces.

CO2: 2122. OXAC. Curfew handle fragment. Grey fabric with orange-brown surfaces. Inner surface has flaked away, but the exposed fabric is sooted, suggesting a long period of use.

BB1: 2064, OXAM. Upper part of jug. Hard, brick-red fabric with thick, glossy dark green glaze on the upper body and handle. Inner surfaces has patches of a brick red glaze and limescaling.

BB1: 2106, 2110, 2122, 2123. OXAM. Drinking bowl/skillet. Orange-pink fabric with glossy yellow-green glaze on the inner surface, patches and runs on the outer. Position of glaze drips suggests that the vessel was fired on its side.

BB2: 1203. OXY. Internally glazed bowl; light grey fabric with buff surfaces, thin green glaze on the inner surface. Outer surface has several patches of very thick sooting.

BB3: 747. OXAM. 'Double shell' lamp fragment. Orange fabric with glossy green, copper-spotted glaze on the upper surface.

BB4: 766. OXAM. Base of bottle. Soft orange-pink fabric.

CW1: 611. Cistercian ware cup/tyg base. Hard, brick-red fabric with even covering of glossy, purplish-black glaze on all surfaces except the base-pad.

CW2: 610 & 751. Base and body from a Cistercian ware cup/tyg. As CW1.

RW1: 415 and 684. Base and body from a Red Earthenware vessel. Red sandy fabric with an even covering of orange glaze.

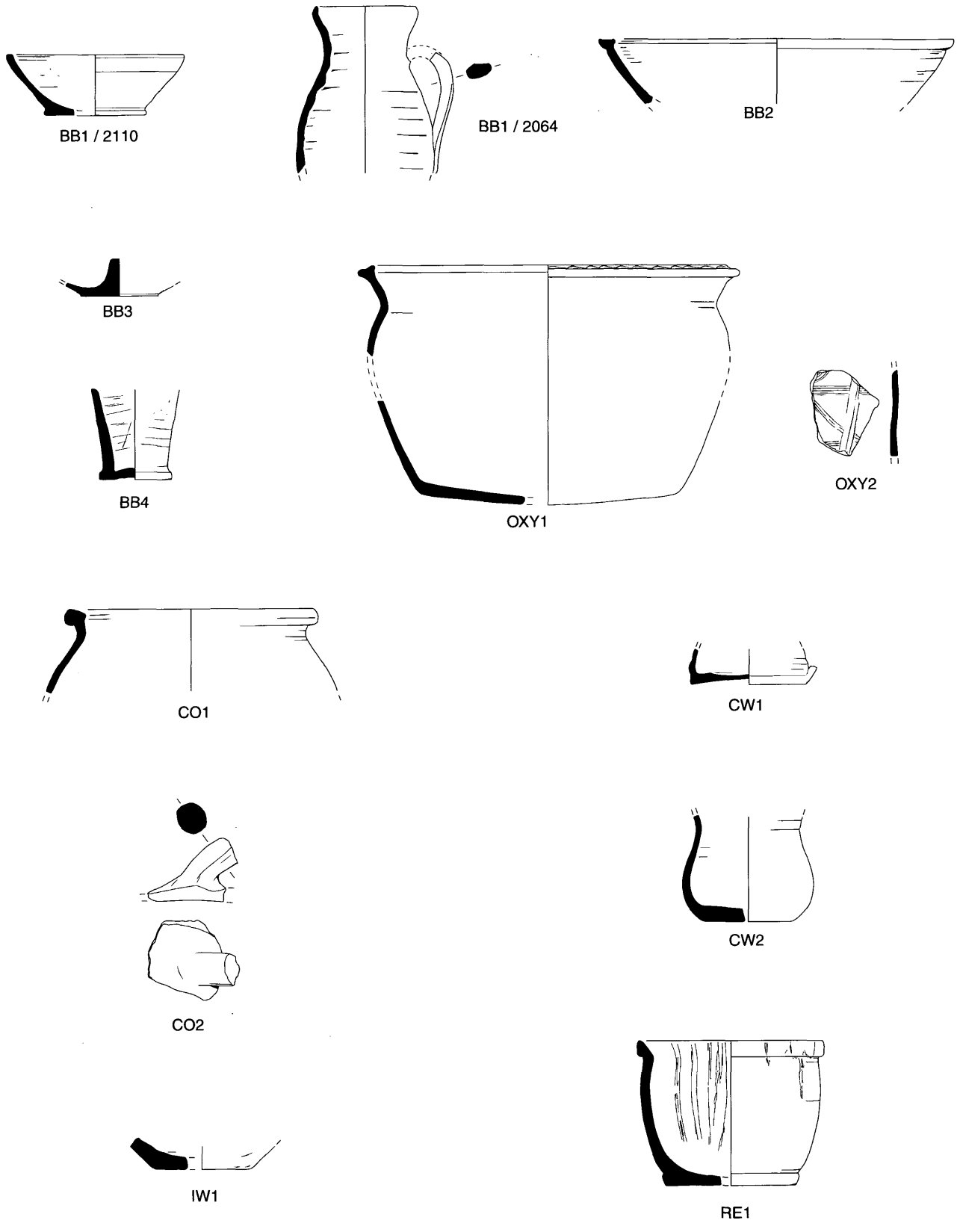

Figure 15: The medieval and post-medieval pottery

Chronology

Summary

The Romano-British material apart, the earliest pottery from the site was four sherds of middle Saxon Ipswich ware; the ware is datable to AD 720-850 (Blinkhorn forthcoming a). Other than these, there is no evidence for occupation before the mid-11th century. The pottery of mid-11th century date comprises mainly small groups of small sherds, suggesting that they are largely the result of secondary deposition, and perhaps represent the by-product of manuring (the nearby late Saxon *burh* being the most obvious source). Significant quantities of pottery were deposited from the later 11th or 12th centuries onwards, and continued unabated until the 19th century, apart from something of a hiatus during the 18th century.

Ceramic phasing

The Saxo-Norman and later pottery assemblages can be divided into broad chronological phase-groups, based on the dating of the major wares present, as shown in Table 1.

Table 1: Pottery occurrence by number and weight of phased sherds (in g) and MNV, all fabrics

Ceramic Phase	No. Sherds	Wt. Sherds (g)	MNV
Iron Age and Romano British	18	175	-
?M-L11thC	9	66	0.07
L11/12thC	384	2,788	1.65
13thC	124	1,311	0.69
14th/15thC	271	3,745	3.34
16thC	312	3,926	2.02
17thC	167	2,061	0.23
18thC	20	182	-
19thC	1,393	58,448	-
Total	2,698	72,702	8.0

Reliability of deposits

As can clearly be seen in Table 2, there was considerable redeposition of medieval pottery at this site during the 16th century, presumably as a result of post-Dissolution stone-robbing. The data show that OXAC and OXY increase as a proportion of the assemblage during that time, despite the fact that they had long since fallen from use, whereas OXAM, which was still current, declines, indicating that pottery was no longer being consumed at the site. Other than this, however, the three main wares show a pattern of occurrence which is typical of contemporary sites in Oxford (Mellor 1994).

Table 2: Pottery occurrences by MNV per fabric per medieval ceramic phase, expressed as a percentage of the medieval assemblage per phase

Ceramic Phase	OXAC	OXY	OXAM	Total MNV
L11/12thC	46.7%	53.3%	-	1.65
13thC	36.2%	63.8%	0	0.69
14th/15thC	11.4%	18.9%	69.8%	3.34
16thC	16.8%	49.5%	33.7%	2.20
Total MNV	1.111	1.855	1.035	

Iron Age and Roman (P Booth)

Three Iron Age and 15 Roman sherds (43 g and 132 g respectively) were

recovered in the excavations. All were redeposited in contexts of Phase 2 or later. The average sherd weight, however, while fairly low (9.7 g) is more indicative of derivation from settlement relatively close by than, for example, of material distributed some way from occupation sites, such as in manuring scatters. The relatively unabraded character of most of the sherds is also consistent with this.

The Iron Age sherds were in shell and calcareous grit (2 sherds) and sand and shell-tempered fabrics (1 small rim sherd), unremarkable in the region. The Roman pottery comprised a single flake of Central Gaulish samian ware, two Oxford white ware mortarium sherds and a variety of local coarse wares, mostly reduced. The mortarium sherds were both rims of Young (1977) type M22, dated AD 240-400. Other rim sherds were generally not very closely datable, though jars assignable broadly to both early and later Roman periods were present (one of each) and bowl and dish forms R60 (possibly) and R64 (more certainly) were also represented, both dated late 1st-2nd century (Young 1977). Overall the material is typical of what might be expected as 'background noise' on the Oxford gravel terraces.

Mid-Saxon

The four sherds of Ipswich ware found were all redeposited in later contexts, distributed evenly across the site. Two sherds were found in the centre of the site, in pits of Sub-phase 2.1; one sherd was found in Pit 662 of Phase 4, in the south-western corner of the site; and the final sherd was found in a post-medieval ploughsoil in the north-western corner of the site (see Archaeological Summary). For a discussion of the Ipswich ware, see below, The assemblage in its context.

Saxo-Norman

A single small sherd of unstratified late Saxon St Neots (OXR) ware was noted. Such wares were in use in Oxford by the middle of the tenth century, and dominant by the end of the second quarter of the 11th. However, they had largely been replaced by Cotswolds wares (OXAC) by the time Oxford Castle was built c AD 1071 (Mellor 1994, 57). The paucity of St Neots ware at this site would therefore indicate that the earliest late Saxon activity dates to around the mid-11th century. This chronology is further supported by the complete absence of late Saxon Oxford Shelly ware (OXB). Finds from the town indicate that OXB had largely fallen from use by AD 1020, and was no longer in production by the 1040s (*ibid.*, 41).

Cotswolds ware was first produced in the late 9th century, and the earliest known find in Oxford dates to the early 10th century (*ibid.* 51). However, it did not become common in the city until after the mid 11th century, and was in decline by the mid 12th.

Two small sherds of glazed Stamford ware were redeposited in later contexts. This was made in the eponymous Lincolnshire town from the later 9th to the mid/late 12th century, although glazed wares did not become common until the 11th century (Kilmurry 1980, fig. 28). They are likely to be contemporary with the earliest activity at this site, and are probably the result of the same depositional systems as the other contemporary material.

Early medieval

There were many contexts that produced both OXAC and OXY, which, residuality notwithstanding, indicates that occupation at the site did not start much before the beginning of the 12th century at the earliest, but before c AD 1150. As noted above, Oxford ware (OXY) was introduced during the later 11th century, and had superseded OXAC by the mid-12th century. The fact that both wares occur together here suggests that the features containing such assemblages date to that period. However, the fragmentation analysis (below) cannot be used

to confirm this, as the effects of redeposition have resulted in the best-preserved earlier medieval wares occurring in contexts which date to after the end of their currency.

Later medieval and post medieval

On the rest of the ceramic evidence, activity continued throughout the medieval period into the early post-medieval period (see Table 2, above). There is no suggestion of a hiatus during the high medieval period, with Brill/Boarstall vessels of 13th-, 14th- and 15th-century types all being noted. During the 16th century, the fragmentation analysis indicates that there was considerable redeposition of earlier pottery, which is entirely consistent with the widespread post-Dissolution stone-robbing which appears to have taken place at this site.

There seems to be have been a decline in the 17th century, and 45% (by weight) of the pottery from contexts of that date were medieval or earlier, including a single sherd each of Romano-British and Ipswich ware, indicating considerable residuality, perhaps during the major phase of stone-robbing at the site.

18th-19th centuries (D Brown)

There was little activity during the 18th century, but large quantities of 19th-century pottery, such as Ironstone china were recovered from Phase 5. Four groups, from the four stone-lined features used to dump rubbish from each of the four properties, were examined to evaluate the potential for further study. Only thirteen sherds were recovered from the feature at No. 34, including three from a Wedgwood black basalt-type teapot, a late mocha-type ware bowl and bits of willow pattern and white refined earthenware. Five sherds came from No. 35 with willow-pattern, white refined earthenware and a flower pot rim. The group from No. 36 includes six fragments of an Art Nouveau tea-cup (Context 696), the latest obviously datable piece from these features. There is much willow pattern, including a small chamber pot, plates and dishes with white refined earthenware and flower pot fragments. The feature at No. 37 produced the largest group, from two contexts that are linked by two cross-fitting willow pattern dishes. More willow pattern saucers, plates, dishes, bowls and jugs are represented, mainly in context 625. Both contexts 625 and 626 contained complete stoneware blacking bottles, while a stoneware ink bottle came from context 625. Other wares include much white refined earthenware, and some late lead-glazed earthenware. Context 626 also produced the base of a very large stoneware jar.

There are no pieces that link separate features although they all have the same character in terms of the range of material and the degree of fragmentation. The date of deposition for all these groups is likely to be post 1870 at the earliest and most probably 20th century. Even the largest of these four groups is too small to warrant further examination. Although it is possible to reconstruct several vessels, this material must represent a tiny fraction of the pottery used within the Beaumont Street households.

The assemblage in its context

Middle Saxon

As noted above, the Sackler Library development has produced the first finds of middle Saxon Ipswich ware pottery from the city of Oxford, and represents an interesting addition to the small but significant number of findspots of the material from the Thames Valley.

Such pottery, which was manufactured exclusively in the eponymous Suffolk *wic*, has a chronology at sites outside East Anglia of AD 720-mid 9th century (Blinkhorn forthcoming a). The material has by far the widest distribution of any native pottery type of the period, occurring across eastern England from York to

Kent, with the river valleys of the south-east midlands showing the greatest penetration of the ware inland. High-status sites within its distribution invariably produce finds of the ware, but it cannot be taken as an automatic indicator of high status, although arguably the further the location of the findspot from the production centre, the more likely that the site was once of high status. Despite the fact that the sherds from this site are redeposited, they are unabraded, indicating that there was middle Saxon activity in the vicinity with a degree of involvement in the burgeoning trade network of the period. The significance (or lack of it) of the Oxford sherds is perhaps best illustrated by the fact that the other known findspots in the Thames Valley upstream from *Lundenwic* are Old Windsor, Berks, a Saxon royal estate centre (Wilson and Hurst 1958, 183-5), Lake End Road, Bucks, a possible mid-Saxon meeting site (Blinkhorn forthcoming b), Eynsham Abbey, Oxon. (Blinkhorn and Jeffries in press), and Yarnton, Oxon. (Blinkhorn forthcoming c), a probable agrarian estate. This group of sites covers the whole range of known middle Saxon settlement sites in the region, and shows that the presence of Ipswich ware is not necessarily indicative of high status.

Finds of mid-Saxon pottery in Oxford are extremely rare. Wheel thrown, possibly imported blackwares of eighth- or ninth-century date were noted at the river crossing at St Aldate's (Haldon 1977, 138), possibly associated with the Minster of St Frideswide's, but handmade pottery is extremely scarce. This may be due to a lack of activity in and around the area, but could also be due to the fact that there is good evidence from both Yarnton and Eynsham (see above) of a hiatus in the use of handmade pottery in the region during the 8th century. This has been also suggested in the past by Mellor (1994, 37).

Saxo-Norman and medieval

The range of medieval pottery from the site was, despite its royal connections, generally unremarkable; with the exception of the Cotswolds-type curfew fragment, the range of fabrics and forms is typical of the pottery of the city, and occurs at most medieval sites irrespective of status.

The data in Table 3 demonstrate a pattern of vessel use which is worthy of comment. Generally, jars tend to form a smaller proportion of pottery assemblages from the later 13th century onwards, primarily due to the increasing availability of metal cooking vessels at that time (Moorhouse 1987, vii). Whilst this is the case, the low proportion of jugs in the 13th-century assemblage may be significant. It has been shown that at peasant hamlets such as West Cotton in Northamptonshire, Brill/Boarstall pottery was primarily used as a tableware, although functional suitability, specifically the relatively small size of the vessels when compared to those of more local industries, and not status, was the reason (Blinkhorn 1998-9). However, it would be expected that at higher-status sites, metal and glass rather than pottery would have been used at the table, particularly on formal occasions, as pottery was generally a cheap, low-status material throughout the medieval period (Brown 1997). Thus, the paucity of jugs in 13th-century contexts at this site may be evidence that it was of the highest status at that time, although with caveats; MNV is calculated from rimsherds, and none were present in 13th-century contexts at the Sackler Library site. However, bodysherds from such vessels were noted in assemblages of that date, so the lack of jug rims may simply be a result of a relatively small sample size.

The range of vessels from the 14th and 15th centuries is comparable with those from sites in the region such as Eynsham Abbey (Blinkhorn and Jeffries in press) and the town of Oxford itself. As with the earlier material, the evidence is inconclusive with regard to site status, as there appears to be little qualitative difference between the pottery from secular and non-secular sites of the period in the region.

Table 3: Pottery vessel types, expressed as a percentage of each ceramic phase assemblage by MNV

Ceramic Phase	Jars	Bowls	Jugs	Total MNV	Other
L11/12thC	96.7%	3.3%	0	1.65	-
13thC	100%	0	0	0.69	-
14th/15thC	39.5%	32.6%	27.8%	2.91	Curfew, bottles, dripping dish, pedestal lamp*
Total MNV	2.362	0.359	0.81	5.25	

* one rimsherd only from this phase

The Brill/Boarstall drinking bowl (Fig. 15. BB2) is very similar to a vessel from the southern area domestic buildings of the Dominican Priory at Oxford, dated there to the 14th century (Mellor 1976, fig. 10). Also, a relatively large number of small skillets, of a similar form to the bowls but with a handle, occurred at Eynsham Abbey; the Dominican Priory bowl was found in association with such a handle (*ibid.*, 213). Other vessels from the Sackler Library site, such as bottles and dripping dishes, were common at Eynsham Abbey. Relatively large numbers of such vessels also occurred at Rewley Abbey (Mellor 1994, 118), so they may be indicative of non-secular sites when occurring in quantity. However, a similar range of vessel types was also in use at secular sites in Oxford. For example, the 14th-century pottery assemblages from the excavations at St Aldate's in Oxford included fragments of bottles, skillets, lobed cups and dripping dishes (Haldon 1977).

The Brill/Boarstall 'double shell' lamp (Fig. 15. BB3) and the Cotswolds ware curfew fragment are both rare finds and have few parallels (cf. Mellor 1994, fig. 13. 12-13; fig. 54.18-22 for the lamps). Only two fragments of curfews of this type have previously been noted from Oxford, where the range of Cotswolds vessel types tends to be rather more limited than elsewhere (*ibid.*, 45). One was an unstratified find from Church Street, the other from St Aldate's and dated to the first half of the twelfth century (Mellor 1994, 162). The pedestal or 'double shell lamps' are one of the earliest products of the Brill/Boarstall industry known in Oxford. Examples occurred in an early/mid 13th-century context at The Hamel, and in 13th-century or later contexts from St John's, Church Street and Radcliffe Square. The Sackler Library vessel was the only pottery from its context (747, Phase 5), and cannot be accurately dated.

Fragmentation Analysis

The fragmentation data in Tables 4 and 5 demonstrate the degree of redeposition at the site. The mean sherd weights and rim fragmentation values for OXAC and OXY are considerably lower during the phases in which they were current than in the sixteenth century, when they had generally fallen from use. The data for OXAM show a fairly consistent mean sherd weight throughout the medieval period, although the mean rim fragmentation (ie the percentage complete) falls dramatically during the sixteenth century, perhaps further reflecting disturbance and redeposition during the demolition and robbing of the Friary in the post-Dissolution period.

Table 4: Rim fragmentation, expressed as the mean percentage complete per major medieval ware type per phase

Ceramic Phase	OXAC	OXY	OXAM
L11/12thC	5.1%	6.8%	-
13thC	25%*	8.8%	0
14th/15thC	12.5%**	6.3%	14.6%
16thC	13.7%**	10.0%	7.6%

* one rimsherd only from this phase

** four rimsherds only from this phase

Table 5: Mean sherd weight (in g) per major medieval ware type per phase

Ceramic Phase	OXAC	OXY	OXAM
L11/12thC	7.3	7.1	-
13thC	13.4	7.2	11.9
14th/15thC	10.9	9.7	18.0
16thC	9.8	10.6	12.4

Cross-fits

Several cross-fitting sherds were noted, as follows:

601(Ph 0)=663(Ph 5)=698(Ph 0)=705(Ph 2.1) Internally glazed OXY jar (Fig. 15. OXY1).
2106(Ph 4)=2110(Ph 4)=2122(Ph 4)=2123(Ph 4) OXAM 'drinking bowl' (Fig. 15. BB2).
610(Ph 5)=611 (Ph 0) German Stoneware ?mug.
610(Ph 5)=751(Ph 2) Cistercian ware cup/tyg. (Fig. 15. CW2)

The majority of the cross-fits came from broadly contemporary contexts, with the exception of the OXY jar. All these do however reinforce the fact that there was considerable disturbance of the site during the 16th century. The drinking bowl is dated to the 14th century, but such forms had a long life-span. Examples of such a date are known from Oxford, but similar vessels of 16th-century date also occur in the city (Mellor 1994, 177).

Window glass

by Cecily Cropper

Introduction

The assemblage comprised a total of 712 fragments, reduced through cross-matching to a maximum of 474 fragments. Of this total, 83% could definitely be said to be painted and 14% to be unpainted. The remaining percentage could not be said to be one or the other through reasons of either extreme weathering or through concretion of the surrounding soil matrix. Of the plain glass, 26% was from the 19th to 20th centuries and associated with the properties at 34-37 Beaumont Street.

Despite the paucity of diagnostic fragments, glass associated with the Royal Palace was identified, indicating painted windows which were both figural and of a geometric Grisaille typical of the 13th century. The bulk of the assemblage indicated two main glazing campaigns during the White Friars' occupation of the site, one most likely to be of a very early 15th-century date in the style of Thomas of Oxford, a glazier based in Oxford and active at this time. The second is of a later 15th-century set of windows. Both would have depicted large figures surrounded by an architectural canopy with inscriptions.

Preservation

Most of the medieval glass had undergone strain-cracking (loss of glassy state) through depositional weathering, rendering the majority of fragments opaque and fragile. Some had notable pitting on the reverse side due to atmospheric weathering, indicating a substantial amount of time *in situ* prior to deposition. Of fragments dated to the Palace period 16% show established pitting, but this percentage decreases to 5% of fragments attributed to the Friary. This would appear to indicate that the Friary retained the Palace glazing rather than replace any. The later 15th-century glass had undergone oxide-staining, retaining some translucency but rendering the painted surface unstable.

Palette

Due to the overall opacity of the fragments few colours were able to be determined. Green is represented in a small (un-illustrated) 12th/13th-century

border piece (SF 624, Ctx. 691, Phase 5) and the complete fragment of drapery (Fig. 16 a, No. 3). Of the later glass one fragment had a blue core (SF 742, Ctx. 952, Phase 4) and one fragment of drapery (Fig. 16 b, No. 39) appeared to be of amber glass. One other undiagnostic fragment (SF 717, Ctx. 732, Phase 4) is possibly of a red streaky glass. The main colour where visible was a green-tint or 'forest green'. It was also impossible in most cases to say that silver stain was used although this was evident on some of the translucent later 15th-century fragments of near colourless glass.

Manufacture

The evidence points predominantly towards the crown glass production method although it is probable that some of the earlier medieval glass was made by the cylinder method. Both techniques were used simultaneously within the glass-making trade during the 14th century, the main source for the south being the industry of the Surrey-Sussex Weald, yielding good quality glass that was highly regarded (Charleston 1984a, 39-40). Some of the late 14th/early 15th-century crown glass includes pieces from near the thicker bulls-eye, showing unevenness in thickness; the later 15th-century assemblage contains several edge pieces of fine quality crown glass.

There was no evidence of waste or cullet from glass cutting. Although this does not preclude the possibility of a workshop within the complex it is more likely that the panels were made elsewhere and brought in ready to be placed within the window apertures. If the 15th-century glass is the work of Thomas of Oxford and his workshop at New College, Oxford (see below) then this would certainly be the case.

Plain Glazing

It is hard to gauge the amount of plain glazing from the medieval buildings, as some plain fragments may be part of larger painted pieces, or plain pieces within a painted window. However, approximately 30% of the assemblage attributed to the Palace were unpainted fragments, a significantly larger proportion than that associated with the Friary (3%). This suggests that there was a greater amount of plain glazing, whether solely plain or as a surround to painted glass, within the Royal Palace.

Descriptive Catalogue

The glass is catalogued under the periods of use pertaining to the Royal Palace (12th/13th century) and the Friary (14th century to the Dissolution). It is then further sub-divided into design types and styles where distinguishable. As so much glass is fragmentary and undiagnostic, only illustrated fragments or those that form part of the discussion are included, but all fragments are included in the archive database. Unless otherwise stated, all fragments were painted with brown paint.

12th/13th century glass (Fig. 16a, Nos 1-3)

Very little of this early assemblage was diagnostic, being highly fragmentary and very weathered. However, the pieces illustrated indicate Geometric stiff-leaf Grisaille typical of 13th-century glazing, as well as figural panels. No iconography could be established.

1 Stem, ribbed stiff-leaf on a plain background. Red-brown paint, colourless core. Th: 2 mm. Ctx. 610, Phase 5 .

2 Lobes, possibly cinquefoil on a plain background. Red-brown paint. Th: 3 mm. SF 865, Ctx. 2110, Phase 4 .

3 Drapery folds from garment, complete piece. Brown trace paint, green core. Th: 2 mm. SF 623, Ctx. 610, Phase 5.

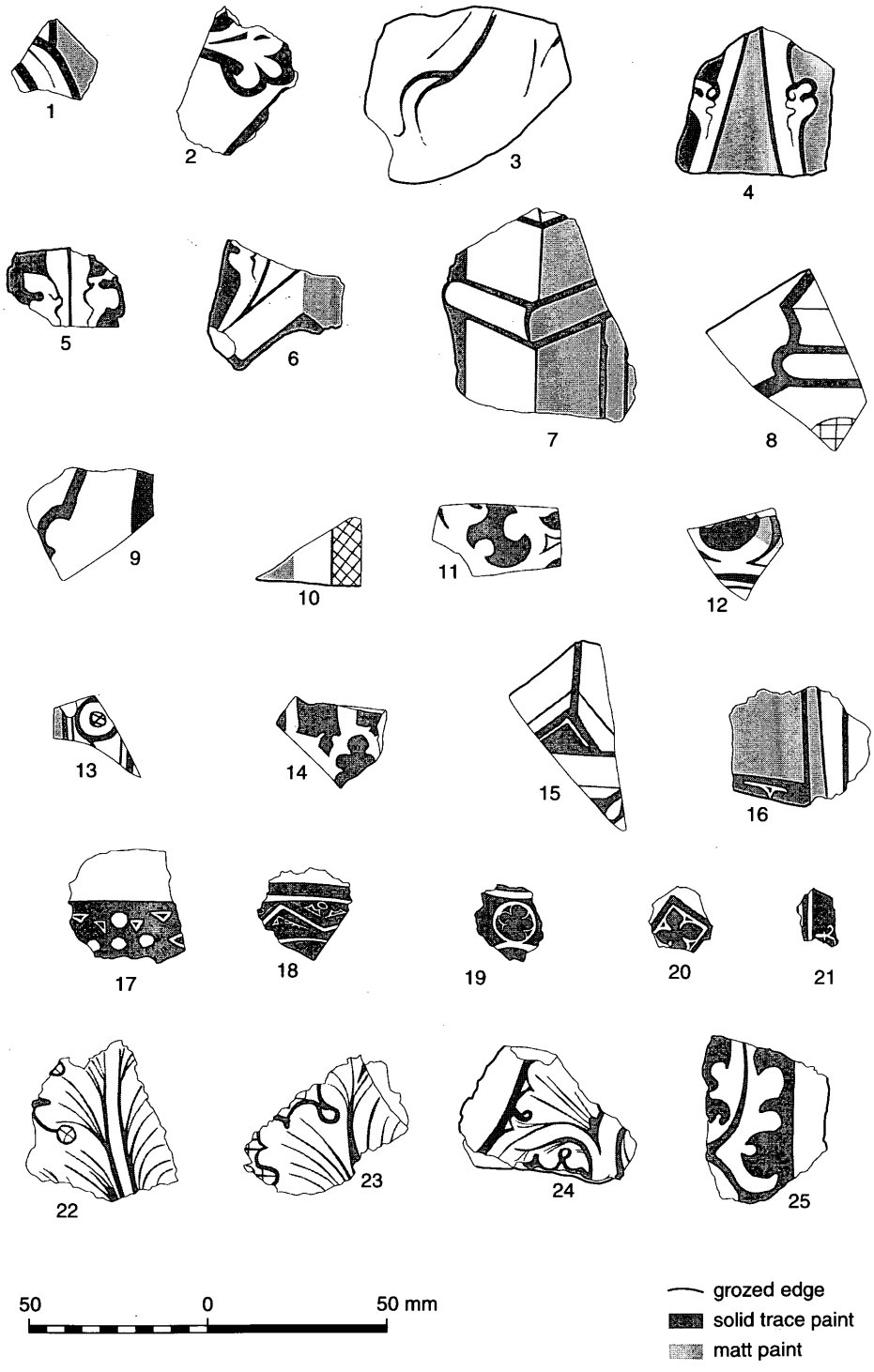

Figure 16a: The painted window glass: 1-25

Glass from the Friary period

Architectural *(Fig. 16 a, Nos 4-21)*

Two styles were identified; the rest could not be attributed to either style but can be said to be of a general later 14th- or early 15th-century date.

Style 1 – Nos 4-7. Late 14th century or early 15th century. Elaborate, finely painted canopy; three-dimensional use of paint and perspective typical of the workshop of Thomas of Oxford. Good extant examples can still be seen in New College chapel, Oxford (Archer *et al.* 1988, 17-18, fig. 7-8) where 11 different types of canopy are represented.

Style 2 – Nos 8-13. Later 15th century. Less elaborate and three-dimensional use of paint though retaining perspective. Similar styles can still be seen in extant examples at St Bartholomew's, Yarnton, Oxon. (Newton 1979, pl.12b, n.VI, 2b) and St Bartholomew's, Brightwell Baldwin, Oxon. (*ibid.*, pl.19, n.III 2a-b) both dating to the mid-15th century. It is interesting that John Glasier, possibly Thomas Glasier's successor (Archer 1985, 19) used this style in his windows at All Souls College chapel, Oxford in 1447 (Brown 1994, 99), although retaining the fundamental characteristics of the earlier windows in New College chapel, Oxford.

Unattributable – Nos 14-16. 14th or early 15th century. The window tracery (No. 15) and a further fragment (SF 726, Ctx. 734, Phase 4, un-illustrated) can be seen in extant examples such as that at the Church of St Helen at Barnoldby-le-Beck, Lincs., in the upper canopy of a Crucifixion panel dated to the early 14th century (Hebgin-Barnes 1996, 21, 2b). The solid, filled-in windows tend to be characteristic of the 14th century rather than the 15th century, though again they are present within the canopies of the late 14th-century windows at New College, Oxford (Brown 1994, 87).

4 Pinnacle and mouldings. Th: 3-6 mm. SF 778, Ctx. 966, Phase 4.
5 Lower pinnacle and moulding. Th: 5 mm. SF 720, Ctx. 938, Phase 4.
6 Pinnacle and mouldings. Th: 3-4 mm. SF 752, Ctx. 939, Phase 4. Five other fragments of canopy mouldings of this style came from contexts 202, unphased, 964, Phase 4, two from 952, Phase 4, 1005, Phase 4 respectively.
7 Pillar. Th: 2-4 mm. SF 689, Ctx. 790, Phase 5.
8 Pillar, with window, red-brown paint, pale greenish glass. Th: 1 mm. SF 680, Ctx. 734, Phase 4.
9 Pinnacle, red-brown paint, colourless core. Th: 2 mm. SF 745, Ctx. 909, Phase 4. Further fragments came from context 604, Phase 5 and from context 916, Phase 5.
10 ?Window, red-brown paint, silver stain, pale greenish glass. Th: 1 mm. SF 689, Ctx. 790, Phase 5. Similar fragment unstratified (SF 732).
11 Tracery colourless core. Th: 2 mm. SF 750, unphased.
12 Tracery, cusp, red-brown paint, backpaint, colourless glass. Th: 1 mm. SF 760, unphased
13 Architectural, red-brown paint, colourless glass. Th: 1.5 mm. SF 718, Ctx. 732, Phase 4.
14 Tracery lights. Th: 3 mm. SF 741, Ctx. 952, Phase 4.
15 Canopy pitting on reverse. Th: 4-6 mm. Ctx. 506, unphased .
16 Canopy (over-fired), pitting on reverse. Th: 2-3 mm. SF 708, Ctx. 915, Phase 5. A similar fragment with scratched-out triangle also came from context 952, Phase 4.

Woodwork/stonework designs *(Fig. 16a, Nos 17-21)*

The following designs, scratched out of solid paint, are likely to come from architectural stonework, from furniture or from borders. They date to the 14th or early 15th centuries. The quatrefoil (No. 19) and a similar one (SF 763, Ctx. 952, Phase 5, un-illustrated) may come from a canopy similar to the one in the Apocalypse window in York Minster (Archer 1979, 11). One fragment (SF 785, Ctx. 1003, Phase 4) had a scratched out scalloped line (un-illustrated).

17 Circles and triangles. Th: 4-5 mm. SF 688, Ctx. 790, Phase 5.
18 Geometric design. Th: 2 mm. SF 763, Ctx. 952, Phase 4.
19 Quatrefoil. Th: 3 mm. SF 734, Ctx. 952, Phase 4.
20 Pointed quatrefoil. Th: 3 mm. SF 738, Ctx. 952, Phase 4.
21 Architectural ironwork/fitting. Th: 2.5 mm. Ctx. 406, unphased .

Floral/Foliate background or border *(Figs 16a and b, Nos 22-30)*

All designs can be dated to the later 14th or 15th centuries. Three different variations (Nos 22-4) of a large vine-type leaf design were identified, on both cross-hatched and plain backgrounds. These are reminiscent of those in the extant window at Winchester

College chapel of the Tree of Jesse window dated to 1393 (Archer 1979, 10) and executed by Thomas of Oxford. The basic design however can be seen throughout the 14th century.

The foliate background of irregular leaves with bifurcated solid veins (No. 25), can again be seen in extant examples of Thomas Glasier's work at Winchester College chapel, as the background to large New Testament figures *c* 1390 (Archer 1985, 15, fig. 14, and Brown and O'Connor 1991, 33, fig. 30). A strikingly similar background is seen in early 15th-century windows in Hampton Court, Herefordshire *c* 1420-35 by a painter of the Midlands school (Archer 1985, 18, fig. 15). A panel in the National Gallery of Scotland is attributed to Hampton Court chapel but was possibly intended for Cardinal Wolsey's unrealised Cardinal College in Oxford (Brown and O'Connor 1991. 34, fig. 31). A further link is found in the east window at Great Malvern Priory, Hereford and Worcester *c* 1420-30 (*ibid.*, 39, fig. 41).

22 Foliate, open central vein, cross-hatching within space between lobes. Th: 3 mm. SF 739, Ctx. 952, Phase 4. Un-illustrated fragments of this design also came from contexts 734, Phase 4, 913, Phase 5 and a further one from 952.

23 Foliate, ?solid central vein, cross-hatched background. Th: 5 mm. SF 720, Ctx. 938, Phase 4. Un-illustrated fragments of this design also came from contexts 780, Phase 5, 952, Phase 4 and 966, Phase 4.

24 Foliate, open main veins, plain background. Th: 3-4 mm. Ctx. 506, unphased .

25 Foliate, irregular with solid single central bifurcating vein. Th: 5 mm. SF 763, Ctx. 952, Phase 4. Un-illustrated fragments of the same design came from contexts 790, Phase 5, 916, Phase 5 and 952, Phase 4.

26 Foliate, ivy grisaille or border. Th: 3.5 mm. SF 791, Ctx. 966, Phase 4. A small fragment of this design also came from context 940, Phase 4.

27 Floral, grisaille or border. Large veined petal, geometric design. Th: 3 mm. SF 625, Ctx. 611, unphased . A curving lobe design (SF 872, Ctx. 2122, Phase 4) is similar (not illustrated).

28 Stylistic floral quarry. Th: 3 mm. Ctx. 753, unphased .

29 Stylistic floral border. Trace lines with overall wash. Th: 4 mm. SF 668, Ctx. 787, Phase 4

30 Floral border, four-petalled flower with open central apex and scratched out circles to side. Th: 5 mm. SF 776, Ctx. 941, Phase 4. A second fragment also came from context 966, Phase 4.

Other *(Fig. 16b, Nos 31-4)*

The fragments of sun rays (No. 31) are likely to come from a blazing sun or sun in splendour such as that found at the Church of St Mary, Pinchbeck, Lincs., being held by an angel in the upper tracery and dating to the early to mid-15th century (Hebgin-Barnes, 1996, 239, nVI, E1). These are represented in many iconographic contexts throughout the 15th century. The elaborate border design (No. 32) is similar to a fragment from Wolvesey Palace, Winchester, incorporating a combination of scratched out serpentine and curling lines and circles (Kerr and Biddle 1990, 410, fig. 100, no. 898.3). It is possible from the mix of curvature and straight pieces that this may have bounded a tracery design. The same may be possible for No. 33.

31 Sun in splendour, circular. Th: 3 mm. Ctx. 506, unphased. Other fragments of this design also came from 739 and 966 (both Phase 4).

32 Decorative border, scratched out circles and serpentine lines. Th: 3-6 mm. SF 778, Ctx. 966, Phase 4. A third fragment also came from the same context and another from context 952, Phase 4.

33 Decorative border, scratched out floral pattern. Pale greenish glass. Th: 3 mm. SF 739, 741, Ctx. 952, Phase 4. Third fragment from context 495.

34 Decorative border. Th: 2.5 mm. SF 679, Ctx. 734, Phase 4.

Figure 16b: The painted window glass: 26-50

Figures and costume *(Fig. 16b, Nos 35-42)*

The solitary fragments of hair (Nos 35-6) are of course difficult to date without a diagnostic face but their large scale and style would place them in the 14th/early 15th century. A third fragment (SF 742) also came from context 952 (Phase 4) though this could not be matched with either. The illustrated fragment of plate armour (No. 37), probably from a leg, is similar in execution to that seen on knights in Tewkesbury Abbey, Gloucs. (Archer 1979, 8) and there dated c 1340-44. This type of armour continued to be worn through into the early 15th century as seen on the figure of a knight in the Church of St Peter and St Paul, Birtsmorton, Hereford and Worcester with plate armour dated to the late 14th to 15th centuries (Crewe 1987, 73, pl. 59).

The wing (No. 41) is again of a large scale typical of the same period, coming either from an angel or a bird such as the eagle, symbolic of the evangelist St John. The style of loosely painted floral pattern seen on No. 40 is used to a great extent in 15th-century designs within drapery or furnishing fabrics, but also in backgrounds. An example of both uses occurs within a Sacrament of Marriage panel originally from the Church of St Andrew, Great Rollright, now in the Bodleian Library, Oxford (Newton 1979, pl. 5).

35 Hair, with some three-dimensional toning. Th: 3 mm. SF 730, Ctx. 734, Phase 4. A fragment from context 790, Phase 5 can be matched to this style (un-illustrated).
36 Hair, red-brown paint. Th: 2.5 mm. SF 741, Ctx. 952, Phase 4.
37 Plate armour, with two ?rivets. Brown paint. Th: 4 mm. SF 794, Ctx. 1006, Phase 4. Two other un-illustrated fragments possibly from the same figure or costume came from context 952, Phase 4.
38 Drapery. Th: 2.5 mm. SF 763, Ctx. 952, Phase 4.
39 Drapery. Th: 3 mm. SF 742, Ctx. 952, Phase 4.
40 Floral design. Th: 3 mm. Ctx. 966, Phase 4.
41 Wing feathers, from angel or bird. Th: 3-6 mm. SF 737, Ctx. 952, Phase 4.
42 Coronet, possibly worn by an angel. Colourless glass core. Th: 3 mm. SF 689, Ctx. 790, Phase 5.

Script *(Fig. 16b, Nos 43-7)*

No complete words are discernible. All lettering is of black-letter type though two dates of script are evident. Style 1 (Nos 43-5) consists of two fragments of a late 14th/early 15th-century date, on glass that is weathered opaque. The lettering is large and elaborate and may well be part of figurative panels attributed to this period. Style 2 (Nos 46-7) is of a later 15th-century date, on glass that is on average 1 mm thick and still translucent. The letters are large and of red-brown paint and would belong to the same glazing programme as architectural fragments Nos 8-13. Smaller fragments of script of this style came from contexts 780 and 790, (Phase 5) and contexts 909 and 939, (Phase 4). No pieces could be joined. All can be compared in style to script found at Wolvsey Palace, Winchester (Kerr and Biddle 1990, 407, fig. 97, Nos 895.17-22) and there dated to the late 14th or early 15th century.

43 ?Downward and circling strokes. Th: 3-4 mm. SF 737, Ctx. 952, Phase 4.
44 Downward and joining strokes. Th: 2 mm. SF 747, Ctx. 909, Phase 4.
45 Elaborate terminals with border and ?stop. Th: 2-3 mm. SF 735, Ctx. 952, Phase 4.
46 Elaborate terminals with border. Th: 1.5 mm. SF 708, Ctx. 915, Phase 5.
47 ?Lower part of letter with border. Th: 1-1.5 mm. SF 745, Ctx. 909, Phase 4.

Unidentified *(Fig. 16b, Nos 48-50)*

The design on three fragments could not be identified, but each was of sufficient interest to be illustrated.

48 ?Figural. Red-brown trace and matt paint, scratched out, slight wash on reverse side. Colourless glass. Th: 2-3 mm. SF 707, Ctx. 914, unphased. Later 15th century. Similar fragment (SF 745) from context 909, Phase 4.
49 Uncertain. Red-brown paint. Th: 4 mm. Ctx. 409, unphased. 14th/early 15th century.
50 Uncertain. Brown paint, trace and scratched out serpentine line. Th: 5 mm. SF 731, Ctx. 734, Phase 4. 14th/early 15th century.

Discussion

Glazing programmes

Glass from the Royal Palace (Fig. 16 a, Nos 1-3)
Unfortunately, very little diagnostic painted glass survives from this period and it is not possible to identify the glass to any particular recorded works. The amount of plain glass (*c* 30% of the 12th/13th-century assemblage) indicates domestic glazing and it can certainly be assumed that the majority of windows were glazed at the palace. Extensive repairs are recorded as having been undertaken to the complex from 1195-7 (Colvin *et al.* 1963, 986) and it can be assumed that this included glazing. Further glazing would have been incorporated in 1237-40 when the Queen's chapel and wardrobe were built and also when four windows were improved in the north and south walls of the hall in 1244-48 (*ibid.*, 987). The evidence from the Royal Palace at Clarendon (Marks 1988, 232-3) certainly supports this quantity of glazing, as all principal apartments in the palace seemed to receive glass under Henry III, and it is during his reign that the majority of recorded works were undertaken at Beaumont. The glass recovered from the excavations at Clarendon was predominantly of typical 13th-century Geometric Grisaille (*ibid.*, 233) though figural glass was also present in the Queen's chamber and the Franciscan's chambers, and the four evangelists were placed in the hall in 1267. Glazing was also undertaken in the Royal premises of Clipstone, Sherborne Castle, and in the chapel at Oxford Castle in the mid 13th century (Salzman 1952, 174). Even the King's garderobe at Westminster Palace received a window of white glass in 1238 (*ibid.*, 174).

Only two fragments could be identified as typical 13th-century Geometric Grisaille, comparable to excavated fragments from Battle Abbey (Kerr 1985, 129, fig. 40, no. 14; 134, fig. 41, nos 32-33) and Eynsham Abbey (Cropper, forthcoming). Grisaille surrounding coats of arms at the western end of Salisbury Cathedral is of a similar style, dated to the late 13th century (Archer 1979, 5). The one fragment of drapery (Fig. 16 a, No. 3) indicates that figural windows were also present.

Glass from the Friary (1318-1538) (Figs 16 a and b, Nos 4-50)
The majority of glass is from this period and two main glazing programmes stand out, though these are later rather than earlier. The Friary is supposed to have been enlarged in 1324 and 1337 so it is possible that a glazing programme, not necessarily involving the chapel however, was undertaken at this point. It is difficult to diagnostically pinpoint any glass to the earlier part of the 14th century. The most convincing match between documentary sources and diagnostic glass from the assemblage is from the early 15th century, when land was granted by the king to the Friary in 1401 with the purpose of extending the house and improving the chapel (see above, Historical and Archaeological Background). The canopy fragments (Fig. 16a, Nos 4-7) are of a design and style typical of the well-known medieval glazier 'Thomas Glazier' or 'Thomas of Oxford', who was active at this time. The then Lord Chancellor, William of Wykeham, had two foundations, New College, Oxford and Winchester College, Hampshire. The chapels of both these buildings retain windows by Thomas and it was from New College that he worked (Archer 1988, 19). Windows also remain at the Church of St Mary the Virgin, Adderbury, Oxfordshire (Newton 1979, 20) and there are remnants at Merton College chapel (Archer 1988, 19). It is therefore highly possible that he undertook a significant glazing programme at Beaumont between glazing three windows in the Great Hall in Wolvesey Palace, Winchester in 1401-2 and glazing of St Mary's, Oxford in 1409 (Kerr and Biddle 1990, 398).

A further glazing programme appears to have been undertaken in the later part of the 15th century, characterised by near-colourless fine crown glass. (Figs 16 a and b, Nos 8-13, 46-8). Both of these programmes installed windows depicting large figures, probably of saints, surrounded by architectural canopy and with inscriptions. Both would have used silver stain though this is only evident on the later 15th-century glass.

Distribution

Approximately 60% percent of the window glass can be attributed to Phase 4 contexts associated with the robbing of the buttressed building and north-south wall soon after the Dissolution. As the windows would have been smashed and destroyed during the Dissolution it is not surprising therefore to find the largest quantity of glass from this phase. Twenty-two percent was associated with Phase 5 contexts, the result of further disturbance during the early 19th-century construction of housing on Beaumont Street. Just less than 15% is unstratified and insignificant amounts came from earlier Phases 3. The two fragments of plain 12th/13th-century glass from Phase 2.1 may have been imported into the site, in the soils used to fill the tree-planters. The large quantity of painted glass from Phase 4 is spatially significant, coming mainly from the robbing of the buttressed east-west wall. This strongly suggests that the assemblage came from the northern wall of the Friary chapel. The quantity of earlier glass here also supports the continuity of the existing Palace chapel through the Friary period.

Window came
by Cecily Cropper

Three pieces of lead window came were recovered from the excavations. Classification is based upon Knight's typology for Battle Abbey (Knight, 1985, 154-155). One piece of Type A (SF 863) cast had a prominent casting flash and was found in context 2098 (Phase 4). The two further pieces were both of Type D, produced from a toothless mill (SF 743, Ctx. 952, Phase 4; SF 743, Ctx. 663, Phase 5).

This evidence indicates two phases of glazing. The Type A can be attributed to the earlier glazing campaigns associated with the Royal Palace and Type D to the later 14th or early 15th century campaign outlined in the Window glass report (see above). The fragment of remaining glass in the came from context 663 is comparable to glass from this campaign, such as the large foliate designs on Nos 22-5. The fragment from context 952 shows no evidence of use, having a clean cut at one end; this may suggest that it was available for in-house repair, or as a bar tie. The ragged ends of the other two fragments, however, indicate part of a general dismantling, most likely as a result of the Dissolution. The presence of the Type A lead infers that the north-south building of Phase 3 retained the early palace glass throughout the Friary period, whereas the Type D piece in the robbing trench of the buttressed building confirms that later glazing programs were undertaken there. The overall paucity of window came, as compared to the large amount of window glass, fits in with the general pattern of dismantling for re-smelting and re-use elsewhere.

Vessel glass
by Cecily Cropper

The vessel assemblage comprised a total of 179 fragments and a maximum number of 101 items with bottles and vessels in almost equal quantity. Of these, 50% of individual vessels came from the Phase 5 dumps at the rear of the group of properties, 34-37 Beaumont Street. These are discussed separately (see below) although bottles and phials are also included within the typological framework. The remaining vessel glass is of a medieval or early Post-medieval date probably associated with the Phase 3 structures.

One residual fragment of very abraded Romano-British bottle glass (1st- to 3rd-century date, not illustrated) came from context 946, Sub-phase 2.1.

Medieval vessels (Fig. 17, Nos 1-3)

A maximum of six individual vessels are represented including typical medieval urinal and bottle types found in both ecclesiastical (eg Battle Abbey, E. Sussex (Charleston 1985, 140, fig. 42, nos 10-21, 28)), urban (eg Exeter (Charleston 1984 b, 266, fig. 146, nos 16-26)) and castle or palace contexts (eg Ludgershall Castle, Wiltshire (Tyson 2000, 154-5, g 486), Winchester Palace, Southwark, London (*ibid.* 162, g 682). The vessels could be associated with the Friary or the Palace, although they are particularly common on monastic sites.

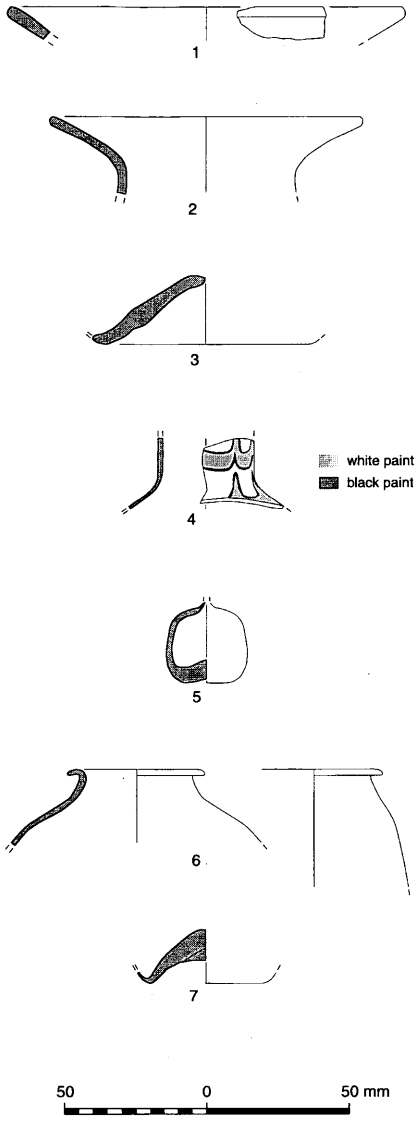

Figure 17: The vessel glass: 1-7

1 Rim, probably from a urinal or hanging lamp. Fire-rounded, opaque and strain-cracked. D: c 140 mm. 13/14th century. SF 683, Ctx. 812, unphased ploughsoil. Similar fragment from context 436, unphased.

2 Urinal, rim. Flaring, near horizontal rim, fire-rounded. Opaque, strain-cracked. D: c 110 mm, neck diameter D: c 60 mm. ?13/14th century. SF 864, Ctx. 2016, Phase 2.1. Two other fragments of urinal rims and one from a convex base (none illustrated) were also recovered: rim, 14/15th century, SF 874, Ctx. 2122, Phase 4; rim, 13/14th century, Ctx. 1203, unphased; base, pale green, 14/15th century, Ctx. 2034, Phase 5.

3 Bottle/flask, base. Domed kick, rounded heel, rising up to a globular body. Opaque, strain-cracked. 13/14th century. Ctx. 415, unphased.

Early post-medieval vessels

Vessel fragments dating to either the late 15th or 16th centuries include a colourless, hollow footrim from a goblet or beaker, now disintegrated from strain-cracking (Ctx. 507, unphased) and an undiagnostic body fragment from a finds reference context 2110, Phase 4.

Later post-medieval vessels (Fig. 17, No. 4)

4 Flask/vase, neck and upper shoulder. Ruby glass, decorated with festoons of marvered opaque white glass. Oxide-stained. Late 17th/early 18th century. Context 909, Phase 4

Although no parallels could be found for this, it is known that ruby glass began to be developed in the second half of the 17th century in Bohemia (Liefkes 1970, 72).

Apothecary phials (Fig. 17, Nos 5-7)

5 Phial, small and squared off. Slight green tint, iridescence. Body height: 25 mm, width: c 25 mm. Late 17th to 18th century (Haslam 1984, 206, fig. 29, no. 20). SF 754 Ctx. 909 Phase 4.

6 Biconical phial, out-turned flattened rim and upper body. Slight green tint. Rim D: 48 mm. Late 17th to early 18th century (ibid., 206, fig. 29, no. 1) Ctx. 759, Phase 5.

7 Phial, base. High internal pointed kick, rounded heel, round pontil. Slight green tint, iridescence. D: 40 mm. Late 17th to 18th century (ibid, 239, fig. 43, no. 9) Ctx. 415 unphased.

Wine/Spirit bottles (late 17th – 20th century)

Two bases from onion bottles dating to the late 17th century (Noël Hume 1961, 99, Type 4, fig. 3, and Leeds 1941, 52, fig. 11, no. 35) came from context 636, Phase 5. Fragments from a third example came from context 667, Phase 5 dating to the late 17th or early 18th century (Haslam 1984, 62, fig. c). A further possibly early bottle, rectangular with chamfered corners and green-tinted, came from context 759, Phase 5. It appears to have been dip-moulded and may date from as early as the mid-18th century (Noël Hume 1961, 90, fig. 1). Noël Hume identifies this type as being rare in Britain but common in America (ibid. 95) but one example came from St Ebbe's, Oxford (Haslam 1984, 235-6, fig. 42, no. 3).

Further rectangular bottles with chamfered edges came from context 629 (colourless Base: 49 mm x 30 mm), Phase 5 and two pale blue examples from context 625, Phase 5. All are mould-blown and of a 19th-century date.

The cylindrical wine bottle shape began to be formed from c 1735 (Banks 1997, 23) and the majority of bottles in this assemblage are true cylindricals. A relatively comprehensive typology is represented with the earliest (context 656, Phase 5)

dating to the late 18th century (*ibid.*, 107, fig. 6.4, quart bottle). The majority of wine bottles date to the first half of the 19th century, with the common characteristics of a bulbous neck and a prominent, rounded or down-tooled lip over-hanging the string rim. Colours range from amber to green. Two dip-moulded examples are represented by a base from context 629, Phase 5 and a complete quart bottle from context 759, Phase 5 (ibid. 28, fig. 4.4, Pt. 2, *c* 1820 Lincoln College).

Two early to mid-19th century examples, with narrower, though still bulbous, necks and of a finer hand-finish were recovered from context 626, Phase 5, and context 697, Phase 5 (Dumbrell 1983, 115 and Banks 1997, 170, fig. 6.48, AM1910.306). A bottle neck and finish also of this date, though mould-blown in a Ricketts/Ricketts type mould (Noël Hume 1961, 105, Type 21, fig. 5), came from context 625, Phase 5. A shoulder and body fragment retaining the last two letters of 'Patent' moulded onto the shoulder is likely to have been produced in the Ricketts factory in Bristol at some time in the early to mid-19th century (*ibid.*, 105, Type 23, fig.5). Further wine bottles of a general 19th-century date include a mould-blown, colourless neck and finish from context 625, Phase 5.

Bottles for a household or pharmaceutical purpose are associated with the features ascribed to the properties of Nos 34-37 Beaumont Street and are described below (see Table 6).

Table 6: Glassware from properties 34-37 Beaumont Street

	No 34	**No 35**	**No 36**	**No 37**
Bottle	1 wine	none	2/3 wine	4 wine
	1 ?spirit		1 Household	2 ?spirit
	1 Biconical phial		1 ?Pharmaceutical	1 Pharmaceutical
			1 Phial	1 Stopper
Vessel	None	None	1 Decanter	1 Stemmed dish
			3 Stemmed glasses	5 Undiadiagnostic
			4 Tumblers	
			1 Cut glass dish	
			1 Gold-painted dish	
Other	Lamp	None	Salt cellar, corked	1 Bead

The dump from Property No. 34 was the smallest assemblage but contained the earliest glass of all the dumps including the biconical phial (Fig. 17, No. 5) and the rectangular bottle possibly dating to the mid-18th century. The complete wine bottle dates from the early to mid-19th century. The lamp, of colourless glass with an etched exterior surface, dates to the 19th or early 20th century.

The dump associated with Property No. 36 comprises a minimum number of 22 objects and is the largest and least fragmentary property assemblage. This assemblage displays the widest range of items, for household, pharmaceutical, drinking and tableware purposes. The drinking glasses (including three sherry glasses and three tumblers) and the squat, globular decanter are of a plain flat cut design and were once possibly part of a larger matching suite dating to the 19th century. A complete elliptical, pale blue bottle has moulded lettering on the shoulder reading " Sir William Burnetts Disinfecting Fluid" and dates from the mid 19th to early 20th century (Jones and Sullivan 1985, 29-31). A second smaller complete oval bottle and a small rectangular example, both of colourless mould-blown glass are of a similar date and probably pharmaceutical. Only one piece appears to be of a 20th-century date, a narrow, cylindrical tube with the moulded letters of "CLICHY" in an Art Nouveau typeset.

The dump associated with Property No. 37 was the most fragmentary assemblage, comprising a minimum number of 17 objects. The earliest is a wine bottle dating to the late 18th to early 19th century, the rest being of an overall 19th-century date. A small cylindrical bottle has moulded lettering reading "Preston Salts". The 19th century saw a significant rise in glassware production

through a combination of technological developments and public demand. These assemblages mirror the overall attraction to more accessible glassware that the average household could begin to afford. The early owners of No. 36 Beaumont Street particularly appeared to have enjoyed this widened appreciation of glassware though the reason behind its relatively unfragmented deposition remains a mystery.

Metal Objects and Worked Bone

by Leigh Allen

There were a total of 164 objects recovered from the excavations at the site of the Sackler Library. The assemblage consisted of copper alloy, iron and bone objects; the material is discussed below by phase.

Phase 2

There were 26 objects of metal or bone recovered from Phase 2 contexts, all of which were from the NE-SW alignment of tree-planting pits that have been placed in Sub-phase 2.1. Contexts 603, 705, 794, 883, 926, 946, 1219 and 2095 contained miscellaneous strips (7), structural nails (8) and horseshoe nails (6). The horseshoe nails are all of the 'fiddle key' form, with large heads that are semi-circular in profile, but the same thickness as the shank. The head is designed to sit in the long counter-sinkings found in the type of shoe traditionally referred to as 'Norman'. This type of shoe was hardly known before the Conquest but common thereafter. The form predominates throughout the 12th century, and is replaced by a heavier more developed shoe sometime in the 13th century (Clark 1995, 96).

The five remaining objects are a finger ring and a key from context 926, a buckle from context 795, a fitting from context 2014 and a bone point from context 2066. The finger ring (SF 706, Fig. 18, No. 1) is of copper alloy plated with gold. It has a stirrup-shaped hoop which is expanded for the bezel, but there are no traces of the setting. Rings of this shape are common in the 12th and 13th centuries. An identical example was recovered from Winchester in a 13th-century context (Hinton 1990, 646-52, fig. 176, no. 2082). The key (SF 756, Fig. 18, No. 7) from the same context has a solid stem which projects beyond the end of the bit; the bit has asymmetrical ward-cuts. The bow is lozenge shaped with corner bosses. There are similar examples from Winchester (Goodall 1990a, fig. 328), where keys with lozenge shaped bows, often internally rounded or with corner bosses, were current in 11th- to 14th-century contexts (*ibid.* note 3, 1007). The buckle from context 795 is rectangular with the pin present. The fitting from context 2014, although incomplete, is possibly a cast link which was designed to join straps on a horse bridle (Goodall 1990b, 1043-6, fig. 334, no. 3882). The bone point from context 2066 has an ovoid cross section and a roughly worked sub-conical end. The shank expands and then narrows towards the tip.

Phase 3

Five of the nine finds from this phase are from context 751, the fill of a small pit. They consist of a lace tag, two mounts, a miscellaneous strip and a fragment from a bone comb. The lace tag is incomplete but has a perforation at the upper edge for the insertion of a rivet to secure the lace. This type of lace tag was common from the 15th century onwards. The first of the mounts, SF 629, is a plain rectangular plate with a perforation at each corner for attachment. The second mount, SF 653, is a domed circular mount with a central perforation for a separate rivet (now missing). The mount is decorated with a raised design of lines radiating from a sub-triangular shape, a little like a seashell. Similar forms of stud or mount were recovered from Westbury-by-Shenley (Mills 1995, 343, fig. 153.63) and from a mid 16th-century context at St Aldate's, Oxford (Goodall and Goodall 1977, fig. 31, no. 66). The comb fragment is from the end plate of a simple double-sided comb. The small fragment of the central zone that survives indicates that there would have been fine teeth on one side and coarse on the other. The fragment is highly polished. This type of comb, with a very slender profile and narrow central reservation, is of late or post-medieval date. Similar examples were recovered

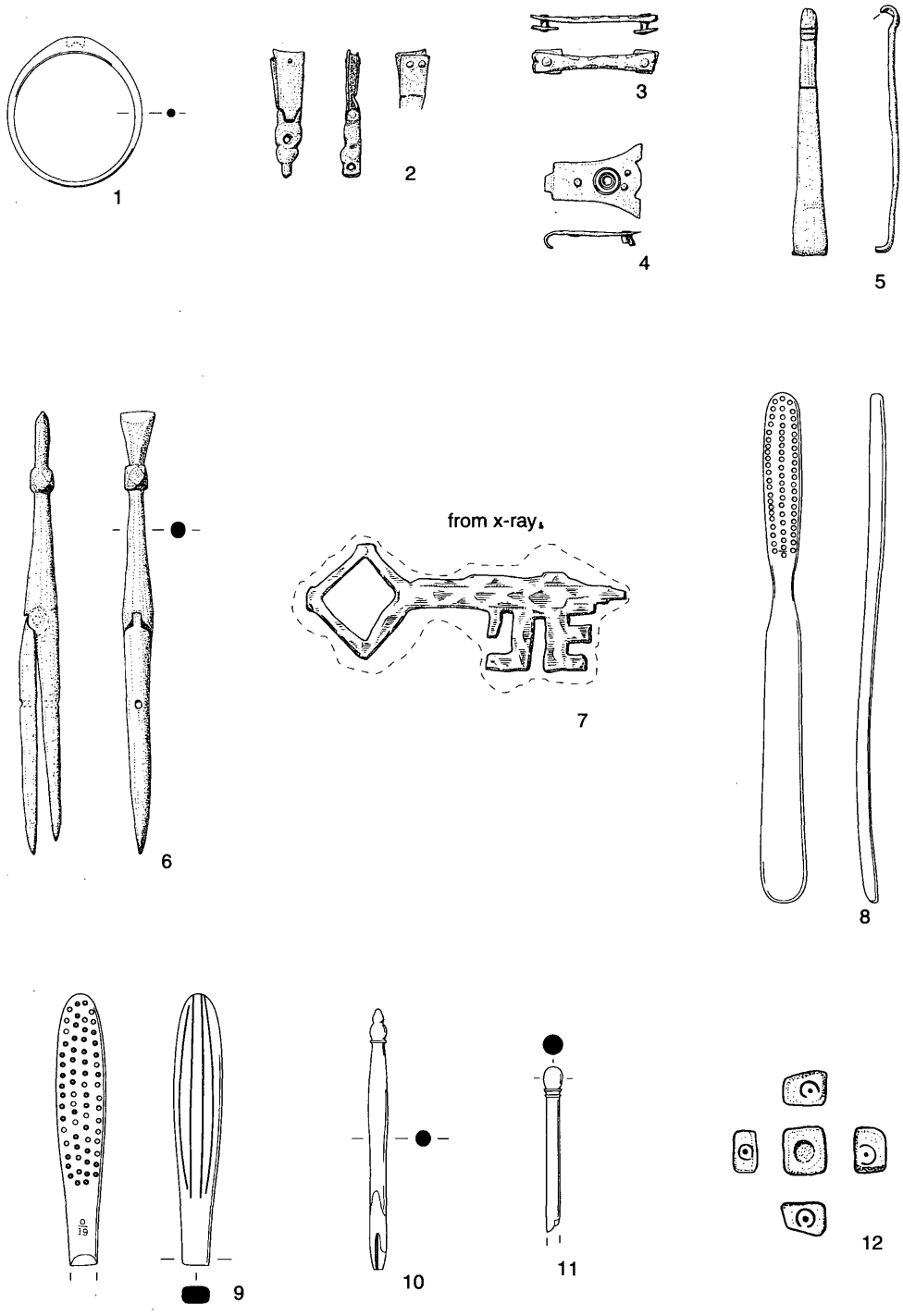

Figure 18: The copper alloy objects: 1 - gold-plated finger ring; 2 - book clasp; 3 - bar mount; 4 - book clasp; 5 - arm from tweezers; 6 - dividers. Other objects: 7 - iron key; 8 and 9 - bone brush handles; 10 and 11 - bone and ivory styli; 12 - jet rosary bead (all scale 1:2 apart from 1 and 12, scale 1:1)

from 17th-century and later contexts at St Ebbes, Oxford (Egan and Henig 1984, 229-30, fig. 39, no. 1).

The other finds from this phase are three structural nails, which were recovered from contexts 737, 1042 and 1046, and an ivory pin or stylus SF 805, from context 1042 (Fig. 18, No. 11). The ivory object is neatly turned with a spherical head and two collars below. The shank is parallel sided but is incomplete. Similar

examples have been recovered from 13th/14th-century contexts from The Hamel, Oxford (Henig 1977, 163, fig. 38, no. 15) and Southampton (Harvey 1975, 274, fig. 248, nos. 1936-7).

Phase 4

There were 30 objects recovered from Phase 4 contexts. The majority of the objects come from deposits resulting from the robbing of the east-west building of Phase 3. These contexts contained only miscellaneous strips and unidentified fragments (10), structural nails (14), lace tags (identical in form to those recovered from the phase 3, context 751) and a single pin with a wire wound head. Pins with wire wound heads are common finds on medieval and post medieval sites; analysis of a large assemblage recovered from Winchester established that this type of pin was first produced in this country as early as the 13th century (Biddle and Barclay 1990, 560-71). However they are more commonly seen in contexts dating to the 14th century and later, with many hundreds coming from 17th- and 18th-century urban contexts. The fills of the robber trench of the north-south wall also contained nails and strips, but in addition there was a book clasp (SF 861 from context 2097), a horseshoe from context 2122 and a diamond-shaped rove from context 960. The book clasp (Fig. 18, No. 2) has a hinged double-sided plate and a cast loop with a central perforation, and is late Medieval in date (Egan 1998, 277-80, fig. 214). An identical example was found during excavation of the Carmelite friary in Ludlow (Klein and Roe 1987, 58). The horseshoe is incomplete but has a lobate profile and three circular holes in lozenge shaped counter sinkings. This type of shoe was hardly known before the Conquest but common thereafter. The form predominates throughout the 12th century and is replaced by a heavier more developed shoe, sometime in the 13th century (Clarke 1995, 96).

Phase 5

The assemblage from the Phase 5 contexts consists of 48 metal objects and 19 bone objects. The majority of the metal objects are nails (18), miscellaneous strips and fragments of sheet (20), lace tags (2) and pins (2). The remaining objects are a book clasp, a button, a buckle, the remains of a pair of compasses, a wall hook and a hinge plate. The book clasp from context 610 is incomplete (Fig. 18, No. 4), as only the upper plate remains. The plate has a hook at one end and an expanded attachment end with scalloped decoration. There is a concentric circle design at the centre of the plate and three *in situ* rivets for attachment. The back spring is missing. This type of book clasp would have secured the cover of a book, by means of hooking the end of the clasp over a bar which projected from a fitting on the opposite cover (Biddle and Hinton 1990, 755-57, fig. 215, no. 2325). Book clasps of this type are late-medieval or post-medieval in date. The button from context 780 is circular and discoidal, with an integral attachment loop. The upper surface has been plated with white metal, probably tin. This type of blazer button is also post-medieval in date. Remains of the pair of compasses from context 697 appear to be of modern design. The buckle frame SF 626 from context 604 is a simple D-shaped buckle with an off-set bar. The two iron objects from Phase 5 are a wall hook from context 697, with a long shank for driving into timber or masonry, and a large hinge plate from contest 644.

The bone objects comprise five fragments from long handled brushes, two comb fragments, a possible stylus, a disc, four handles (one with iron blade still *in situ*) and six miscellaneous fragments of worked bone. The five long handled brushes represent two distinct type of brush. The two complete examples along with a handle fragment, all from context 696, have handles with a flattened oval cross-section, and a head that is the same width as the handle (Fig. 18, No. 8). The head has three rows of holes for the bristles. There are two fragments of the second type of brush from contexts 600 and 626 (Fig. 18, No. 9). This type has an oval shaped head wider than the handle, and four rows of holes. On the back of the heads there are incised longitudinal grooves, and traces of green staining in these

grooves indicate that copper wires would have held the bristles in place. This type of brush is dated from the 17th century onwards (MacGregor 1985, 183); examples from St Ebbes, Oxford were recovered from 19th-century contexts (Egan and Henig 1984, note 8, 229-230, fig. 39, nos. 17 and 44).

The comb fragment SF 622 from context 683 is from the end plate (and part of the central zone) of a simple double-sided comb. There are no complete teeth remaining. However, the very base of the teeth indicate that there would have been fine teeth on both sides of the central zone. The end plate is semi-circular and is identical to an example recovered from St Ebbes, Oxford (*ibid.*, 229-30, fig. 39, no. 31). The second comb fragment from context 696 is very fragile; there is only part of the central zone remaining, and it has been broken longitudinally. The remaining teeth are very widely spaced. It resembles a fragment from a single sided comb with a semicircular back, recovered from an 18th-century context at Southampton (Harvey 1975, note 10, 274, fig. 249, no. 1949).

The bone object from context 625 has a circular sectioned shaft that tapers to a straight cut end (Fig. 18, No. 10). The head is spherical with a single collar below and a rounded conical knop on the top. The shaft is damaged but a longitudinal groove is visible at the end. It is possible that this is where a metal point fitted into the shaft, as would be the case with a stylus. The plain bone disc from context 759 with a single central perforation is a button. The three handles from contexts 663 and 696 are simple, circular or oval sectioned handles for whittle tang implements. The knife from context 648 has a bone handle with a rectangular section of modern design. The six fragments of long bone from context 626 are not from identifiable objects but they have randomly applied ring-and-dot designs on them; similar fragments recovered from excavations in York have been described as 'motif pieces'. They may have been preliminary draft pieces or blanks used in the manufacture of decorated sheet metalwork (MacGregor *et al.*, 1999).

Objects from un-phased contexts

There were 51 objects recovered from contexts (mainly ploughsoils) that have not been assigned to a phase - 14 nails (including 1 fiddle key nail), 14 miscellaneous fragments, 22 identifiable objects and a 16th-century Nuremberg jetton (I am grateful to N. Mayhew of the Ashmolean Museum for his identification). Among the identifiable objects the majority are personal items or dress accessories. They include a small D-shaped buckle frame with a folded sheet buckle plate, a folded sheet strap-end with scalloped attachment-end and incised decoration on the upper surface, and a rectangular bar mount, slightly waisted, and with a rivet and a rove at either end (Fig. 18, No. 3). An identical bar mount was recovered from Eynsham Abbey (Allen *et al.*, in press), from a late medieval context. The remaining personal items are five pins, four with wire wound heads (see above), and one larger pin with a solid spherical head. This larger type of pin was a product of the mechanisation of the pin making process in the 19th century (Biddle and Barclay 1990, note 11, p. 565, fig. 154, no. 1708). There are four lace tags, three of which have rivets at the upper edge for securing the lace (see above), and a circular, discoidal button of post-medieval date. The only iron object in this category is a D-shaped buckle frame with a narrowed bar. This simple form of buckle could have a variety of uses, other than fastening dress.

The remaining copper alloy objects comprise a plain ring, a very elaborately decorated pair of hinges of post-medieval date, an arm from a pair of tweezers and a pair of dividers. The plain ring has a rounded hexagonal section and is possibly a drape ring for hanging drapes or curtains. The arm from the tweezers (SF 666, Fig. 18, No. 5) is cast and fairly robust. The lower half of the arm has a rectangular section and a sharply angled blade, whilst the upper part of the arm below the loop has a D-shaped section. There are traces of simple grooved decoration below the loop. The inside face shows tracing of white metal plating, probably tin. The dividers (SF 604, Fig. 18, No. 6) are complete, and have one

hinged arm and a transverse perforation through both arms, through which a rod or pin would have been inserted to adjust the distance between the arms. The hinge only allows the arms to open to a maximum width of 45mm - less than on a standard type of dividers. The head of the dividers is decorative, in the form of a triangular fan-shaped terminal with a polygonal moulding below. This form of head is reminiscent of the erasers on medieval styli (Biddle and Brown 1990, 742-3, fig. 211, no. 2283) and these dividers may have been designed to be used in the process of laying out lines or decoration on parchment.

The remaining iron objects comprise the tip from the arm of a horseshoe, a wall hook and a key. The horseshoe tip is so corroded that the form of the shoe is not possible to ascertain. The wall hook has a tang to be driven into timber or masonry, and the incomplete key has an oval bow and a hollow shank, from which the bit is missing.

Conclusions

The assemblage from the Sackler Library excavations contains relatively few diagnostic objects from stratified contexts. The majority of the finds are structural nails and miscellaneous pieces, with nearly one third of the assemblage originating from un-phased contexts. The bulk of the material is post-medieval in date and although small, the assemblage, in particular the bone, compares well with that recovered from the post-medieval contexts at St Ebbes, Oxford (Hassall *et al.* 1984, 153-274). It is tempting to suggest that the number of objects relating to literacy, such as the book-clasps, styli and dividers, is due to the occupation of the site by mendicant friars.

Jet Bead

by Angela Boyle

Catalogue

1 SF 768 Ctx. 766: complete squared jet bead with circular perforation. All four faces are decorated by two concentric incised rings. 4.2 x 4.2 x 3 mm. (Fig. 18, No. 12).

Discussion

This bead derives from the upper fill of a probable tree-planting pit thought to be associated with the royal palace phase of the 12th-13th centuries. However, it is possible that the uppermost fill had been disturbed by post-medieval ploughing.

From the 9th to the 15th century necklaces of beads were uncommon, but beads were made to supply the demand for rosaries which first began to appear in England perhaps as early as the 11th century, and by the 13th century the making of rosary beads was a specialised industry (Biddle 1990, 660). This example is therefore likely to derive from a rosary (Margeson 1993, 5). While rosary beads were made of all materials, amber and jet were especially common and examples are known from a variety of sites (Platt and Coleman-Smith 1975, 275-6, no. 1956, fig. 249; Henig 1976, 218, fig. 13.44; Henig and Woods 1988, 228, no. 147; Egan and Pritchard 1991, 306), although none of these examples appear to be decorated. Decorated examples are, however, known from medieval contexts at Winchester (Biddle 1990, 661, nos 2109-17). Early post-medieval examples were perhaps discarded when broken, or after Tudor legislation was passed banning their use (Margeson 1993, 5).

Two jet beads were recovered during excavation of the Dominican Priory, Oxford (Henig 1976, 218, fig. 13.44). One of these survived in a complete state and is identical in form to a globular example from Eynsham Abbey (Boyle, in press). A single example of an unfinished jet bead was recovered from a 14th-century context in London, along with two other examples from the late 15th and early 16th century (Egan and Pritchard 1991, 306, no. 1546). The jet for objects of this type almost certainly came from Whitby, Yorkshire (Dunning 1965, 61) and

according to a 12th-century source it was believed to have anaesthetising powers (Evans 1922, 55).

Clay Tobacco Pipes

by Dr D A Higgins

Introduction

The excavations produced a total of 163 fragments of pipe, comprising 34 bowl, 120 stem and 9 mouthpiece fragments, from a total of 51 different contexts. None of the context groups was particularly large with only two contexts, 663 and 940, producing more than 10 pieces of pipe. A context summary giving the total number of fragments and their date range for each context is provided in Table 7. This table provides an indication of the overall date range represented by the clay tobacco pipe fragments recovered from each context (Cxt). It also shows how many fragments of bowl (B), stem (S) or mouthpiece (M) this date range is based on as well as the total number of fragments (Tot) from each context. The total number of marked (Mkd) examples in each context and the Figure number of any illustrated examples (Fig) are also provided. Bowl fragments, especially if they are marked, are much more closely datable than stem fragments. For this reason, the number and type of fragments present should be taken into account when assessing the reliance that can be placed on any particular date range. The pipes are described and discussed collectively below. This is followed by a section dealing with their relevance to the dating and interpretation of the archaeological contexts from which they were recovered.

Methodology

The 163 pipe fragments have been individually examined and details of each fragment logged on an Excel worksheet. The layout of the worksheet has been based on the draft clay tobacco pipe recording system, which has been developed at the University of Liverpool (Higgins and Davey, 1994). Copies of both the worksheet and the draft recording system have been provided for the site archive.

Bowl forms have been recorded with reference to the London typology established by Atkinson and Oswald (1969), although the dating has been modified according to the form and attributes of the individual fragments. Variants of the basic London shape illustrated in the typology have had the letter 'v' placed after the type number.

An assessment of the likely date of the stem fragments has been provided. The stem dates should, however, be used with caution since they are much more general and less reliable than the dates which can be determined from bowl fragments. All of the pipes were recorded and dated before the preliminary pipe assessment and other site data were examined. This methodology avoids any preconceptions being formed as to the possible date or nature of the various pipe groups while they were being identified and catalogued.

The bowl forms

This site produced a relatively small assemblage of pipes with some 31 identifiable bowls being recovered. The majority of the bowl forms recovered date from around 1700-1770 with only small numbers of earlier and later examples being present. All of the seventeenth- and eighteenth-century bowls are of typical local styles and would have been made at workshops in or around Oxford. The earliest example dates from *c* 1660-1680 (Context 939 Phase 4; Fig. 19, No. 1) and is of fairly sharply bi-conical spur form, which is typical of the area. There is the upper part of a similar but larger bowl of *c* 1660-90 from Context 604, Phase 5. This has a strongly curved form and would almost certainly have been another spur type, similar to Oswald's Type B from St Ebbe's (Oswald 1984, 252). A late seventeenth-century spur type, dating from *c* 1680-1710, was recovered from Context 671, Phase 5 (Fig. 19, No. 2).

After about 1690 spur forms rapidly went out of fashion, being replaced by heel

Table 7: Clay tobacco pipe context summary

Cxt	B	S	M	Tot	Date	Mkd.	Fig	Comments
201		3		3	1660-1880			
202	1	1		2	1780-1880	1	9	Relief moulded serif mark GN for Geo Norwood of Oxford, recorded 1852-63.
301		7		7	1680-1880			
302		4		4	1680-1880			All but one of the stems dates from c1680-1770.
303		1		1	1780-1880			
408		1		1	1680-1770			
414	2		1	3	1650-1770			Bowl fragments suggest a late C17th or early C18th date.
421		2		2	1690-1780			
501		2		2	1700-1850			Stems of different dates.
504		2		2	1660-1770			
505		1		1	1690-1770			
506		1		1	1690-1770			
600	2	3		5	1680-1770			Both bowls date from c1700-1770.
601		1		1	1700-1770			
604	1	4		5	1660-1820			Material of mixed date. Bowl dates from c1660-90.
611		1		1	1660-1700			
626		1		1	1760-1820			Medium thick, quite long frag with a slightly deep oval section; possibly curved.
629	1	5	1	7	1820-1880	1	8	Consistent group of fine, long stemmed frags; bowl with stars on spur and damaged bowl stamp.
648		1		1	1820-1880			Curved frag from a long-stemmed pipe with thin stem; 80mm survives.
656		1		1	1640-1700			
660		1		1	1700-1770			
661	1	5		6	1690-1820			Bowl frag of c1760-1820 from large, full bodied example with neatly finished rim; stems of all date from c1690-1780.
663	8	8	1	17	1680-1770		3, 4 6, 7	Very good, consistent group with large 'fresh' fragments, probably dating from c1690-1730.
667	3	5		8	1690-1770			Consistent looking group; bowl forms suggest a date of c1690-1750 for this group.
668	1			1	1690-1710		5	Transitional heel form. Rim damaged but probably not milled.
669	1			1	1660-1690			Upper portion of a large local bowl type, curvaceous. Probably Oswald's St Ebbe's Type B.
671	1			1	1680-1710		2	Local transitional spur form, a little asymmetrical and with flattened not trimmed spur. Rim damaged but probably not milled.
684		3		3	1700-1780			
689		1		1	1700-1770			
692	1	1		2	1680-1770			Small bowl fragment only.
696	3	2	2	7	1780-1890	3	10, 11	Two complete cutty pipes marked Higgins Agent and a bowl marked TH. Fresh looking group; probabl;y deposited around 1850-75.
709		1		1	1680-1770			
731			1	1	1610-1700		12	Very unusual mouthpiece - very thick (8-9mm) but with the mouthpiece cut and smoothed before firing.
734		7		7	1680-1770			Consistent looking items.
739	1	2		3	1640-1750			Bowl form c1690-1740.
755		4		4	1680-1820			Most stems date from c1750-1820.
778		1		1	1660-1700			
780	2	1		3	1670-1770			
790		4		4	1700-1780			
877		2		2	1610-1820			Stems of different dates, the later one c1760-1820.
909		1		1	1680-1750			
910			1	1	1700-1770			
913		8		8	1680-1900			Mainly late C17th or C18th; some pieces may be C19th.
914		1		1	1680-1770			
915		1		1	1700-1780			
939	2	4		6	1640-1770		1	Latest bowl fragment is c1700-1770.
940	3	7	2	12	1610-1770			Three fitting fragments making an incomplete bowl of c1690-1750
952		5		5	1690-1770			
964		1		1	1690-1770			
966		1		1	1690-1750			
2019		1		1	1700-1770			

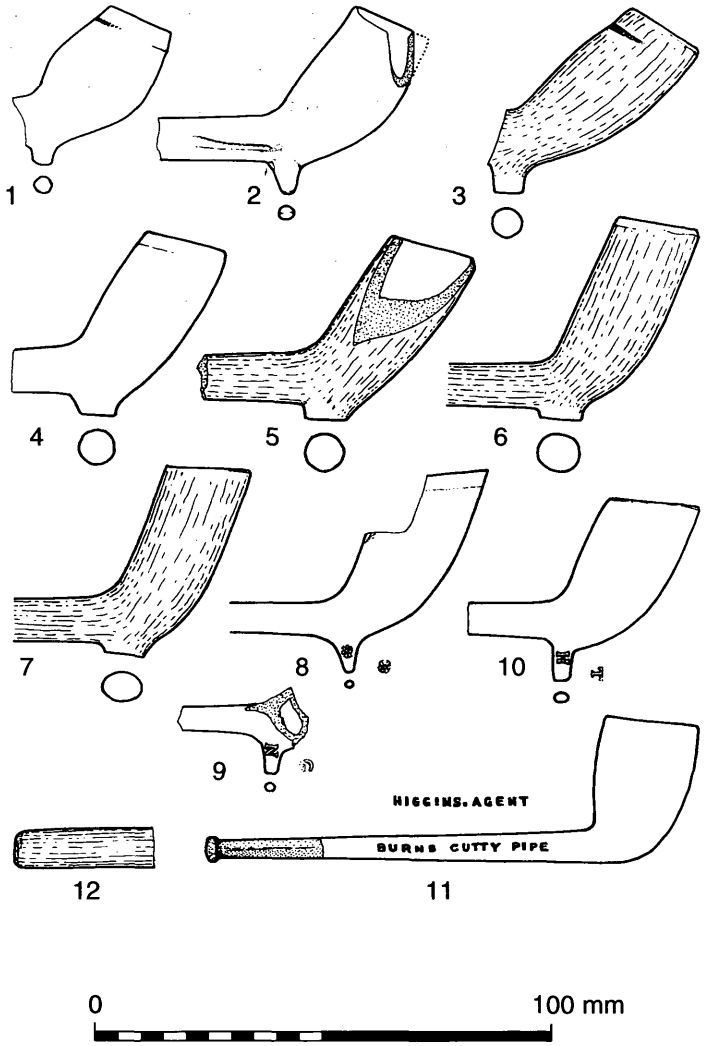

Figure 19: Clay tobacco pipes: 1-12 (illustrated by D.A. Higgins)

types. A variety of transitional forms reflecting this period were recovered from the excavations (Fig. 19, Nos 3-5). By about 1700 a tall cylindrical form had emerged and this became the standard form produced for the next sixty or seventy years (Fig. 19, Nos 6-7). About half of all the identifiable forms from the excavations were of this type. From about 1760 new forms with fuller bodies and thinner walls were introduced but these types are absent from the Sackler assemblage.

During the nineteenth century a much wider range of bowl forms was employed and these tend to be less regionally distinct than the earlier examples. A small number of examples were recovered from the excavation, all of which have local makers' marks on them (Fig. 19, Nos 8-11). One notable feature of the nineteenth-century groups is the high proportion of very fine stems present. These are typically well made, from long-stemmed pipes and with very small bores. Long, thin stems are more difficult to produce than short, thick ones and reflect a more elegant and expensive style of pipe. The frequent occurrence of these types amongst the nineteenth-century material may well reflect a general preference and demand for more refined smoking pipes at Oxford.

The marked pipes

Only five of the pipes recovered had makers' marks on them and all of these date

from the nineteenth century. This is not surprising given the generally low level of marking employed in the Oxford industry prior to that date. Most of the marked pipes were recovered from the fills of brick or stone lined features (Phase 5) in the gardens of the Beaumont Street properties, which were laid out in the 1820s.

One of the marked pieces came from Context 629 Phase 5, the fill of a small brick lined feature (Fig. 19, No. 8). This example dates from c1820-80 and has a relief moulded star on each side of the spur. The bowl is damaged, but the very edge of an incuse stamped mark survives. The Huggins family of Oxford, recorded from at least 1841-76, is known to have used bowl stamps (Oswald 1984, fig. 56) and this is most likely to be one of their products. The stamp is interesting in that it appears to have had a beaded or milled border, a style not previously recorded from Oxford. A fragment from a very similar bowl with a long spur and fine stem was recovered from Context 202 (Fig. 19, No. 9). This is marked with the relief moulded initials GN and can be attributed to the Oxford maker George Norwood, who is recorded working between 1852 and 1863 (Oswald 1984, 262).

The other three marked pipes were all recovered from Context 696, the fill of a large stone-lined feature which may have been a coal bunker but which became a rubbish pit. There is one bowl from a long-stemmed pipe with the relief-moulded initials TH on the spur (Fig. 19, No. 10). A wide range of pipes marked TH is known from Oxford (Oswald 1984, fig. 56) and these have been attributed to T Huggins, who is recorded at Banbury during the 1850s. The number of TH pipes which have been recorded from Oxford suggests that this maker, and possibly others with these initials, must have been based there at some point during the nineteenth century. The other two marked pipes are short-stemmed or 'cutty' pipes, both of which could be completely reassembled from fragments. These two examples are both from the same mould and have incuse moulded lettering reading 'HIGGINS.AGENT / BURNS CUTTY PIPE' on the stem (Fig. 19, No. 11). The 'Burns Cutty' was a plain, spurless, pattern of pipe and was perhaps the most popular and widespread of the nineteenth-century designs. These examples are particularly interesting in that they were clearly produced for a wholesaler, a fact rarely advertised on the pipes themselves. In this case the wholesaler can be identified as John Higgins who was born in Hammersmith in about 1823. By 1851 he was living at 23 Wilderness Row, Clerkenwell, where he was described as a 'pipe importer' and again in 1853 as an 'importer of fancy pipes'. From 1862 he appears in the trade directories as an agent, being recorded at 124 Aldersgate St from 1862-80, 143 Aldersgate St from 1881-1882 and 10 Long Lane, West Smithfield, from 1883-91. From these references the Oxford pipes can clearly be dated to around 1850-90. The pipes themselves are quite fine and neatly made and, having been supplied via a London agent, may have been a little more expensive than similar types which would have been produced locally. The three marked examples from this pit form part of a fresh looking group of pipes, the most likely deposition date for which would have been during the third quarter of the nineteenth century.

The decorated pipes

None of the pipes recovered from this excavation are decorated. The earlier pipes, which were rarely decorated anyway, form the bulk of the assemblage with only four or five nineteenth-century bowls being present. Decoration was much more common during the nineteenth century but the small size of this group does not make their absence significant.

Fabric types

During the examination of a pipe assemblage from Oxford Castle it was noted that many of the locally produced pipes of seventeenth and early eighteenth-century date were made of a distinctive local fabric (Higgins 1999). This fabric is characterised by the presence of numerous fine sand (quartz) inclusions. The

inclusions can just be discerned with the naked eye but they are particularly noticeable when a hand lens is used. The seventeenth and eighteenth-century pipes from this site were also made of this fine sandy fabric, confirming that it was in general use amongst the Oxford area makers and not peculiar to the castle site. The use of almost inclusion-free west country clays is only observed amongst the nineteenth-century fragments from this site.

Manufacturing and finishing characteristics

Although this is only a small assemblage, an analysis of the various finishing techniques used on the pipes supports observations made on the much larger group from Oxford Castle. A burnished finish was commonly applied to locally produced pipes in the Oxford area during the seventeenth and eighteenth centuries. An analysis of the Sackler Library data confirms that the earlier bowl forms, ranging in date from *c*1660-1720, are less likely to be burnished than slightly later forms of *c*1680-1770 but that where this finish was applied, the earlier forms generally have burnishing of a higher quality. There were seven bowls in the earlier group of which just four (57%) were burnished. In contrast, sixteen of the eighteen later bowls (89%) were so treated. However, two of the earlier burnished pipes (50%) had a good quality burnish whereas only three (19%) of the later ones achieved this quality. The majority of the later group, eleven of the sixteen examples (69% of the later burnished pipes), just had an average quality finish.

It was also noted that the majority of the eighteenth-century stems were also burnished. In some cases the burnish could be seen to have ended around half to three-quarters of the way along the pipe. Many of the unburnished fragments were of a small diameter (ie, from near the mouthpiece) and so could have come from pipes that were otherwise mainly burnished. This means that a simple count of burnished fragments will not reflect true percentage of burnished to unburnished pipes in an assemblage.

Milling was confined to the earlier bowl forms produced before c1710. The earliest spur form (Fig. 19, No. 1) was half milled while a slightly later example from Context 604 Phase 5 was three-quarters milled. The transitional bowl from Context 663 Phase 5 (Fig. 19, No. 3) only has a token one-quarter of the rim milled. Despite the absence of milling amongst the standard eighteenth-century forms, the rims were still carefully finished. All of the eighteenth-century pipes had bottered (smoothed) rims and about half of them had also been internally knife trimmed to give a fine, even rim finish. None of the pipes had an internal bowl cross.

Amongst the later, ie nineteenth-century material the only points of note are with regard to the form and length of the stems. The thin-walled bowl from context 629 Phase 5 (Fig. 19, No. 8) was associated with a number of long, thin stem fragments. These stems represented at least two different pipes but both would have had a similar bowl to that recovered. The stems were notably slender and neatly formed with an unusually small bore (3/64 in). From the extrapolated taper it is clear that this pipe style would have had a fine, curved stem with a length of some 35-40 cm (14-16 in) originally. The George Norwood fragment from Context 202 Unphased (Fig. 19, No. 9) was clearly from a similar form of pipe. The longer and thinner a stem was, the more difficult it was to make. The fine quality and elegant nature of the nineteenth-century stems from this site suggests that there may have been a general demand for such pipes amongst the social elite of Oxford.

Two other pipes of note are the ones marked 'Higgins.Agent' from Context 696 Phase 5 (Fig. 19, No. 11). Although of a standard nineteenth-century form these examples also have rather finer stems than would normally be expected for this type of pipe. Given that Higgins was known to specialise in imported pipes it is

quite possible that these were export products from France or the Netherlands, made especially for the English market. Support for this suggestion comes from the fact that the very end of each mouthpiece has been knife trimmed, a finishing technique typically used in neighbouring areas of northern Europe but rarely employed in this country. These two pipes also provide a rare opportunity to see the complete form of the pipe. Both examples had stem lengths of around 86 mm (3 3/8 in) and both have the decayed traces of what appears to have been a red wax coating to the mouthpiece.

The final piece of note is a mouthpiece fragment from context 731 Phase 4 (Fig. 19, No. 12). This has a fairly large bore (7/64 in) and is of 17th-century date. What is unusual is the thickness of the stem at its termination. Usually seventeenth-century stems taper to quite a fine tip. This piece was clearly finished at this point before firing and so either represents an unusually short, stubby pattern of pipe or one with a stem which broke during manufacturing and was finished off short. Either way, this is an extremely unusual piece.

The pipes as archaeological evidence

Despite the small size of this assemblage, the pipes are still able to contribute to a broader understanding of the site and its use during the post-medieval period. The first point to note is the overall chronological distribution of the pipe assemblage. The earliest diagnostic fragment only dates from c1660-80, some 50 or 60 years after the habit of smoking had become common amongst the general population. Furthermore, only a small percentage of the assemblage dates from the late seventeenth century. The paucity of pipes from this period suggests that, whatever its use, the site was being kept free of domestic rubbish for most of the seventeenth century. Loggan's map of 1675 shows the site as a large walled area of open ground. The adjoining area to the north was also open and walled but has cultivation beds indicated as opposed to the excavation area, which does not. If this distinction is reliable, then it may well be that the excavated area was grassed during the seventeenth century, which would accord with the low level of artefacts encountered.

In contrast, the majority of the pipes recovered from almost all the pipe bearing deposits date from around 1690-1770. Indeed, this end date may be a little late since many of the eighteenth-century forms appear to be early types, perhaps suggesting that most of this material was deposited around 1690-1740. This indicates that there was a major change in the use or management of this area around 1700, which completely altered the pattern of artefact deposition. Furthermore, a number of features can be attributed to this period. The foundations of the buttressed building of Phase 4 appear to have been robbed at this date. Four out of the six fills identified within the robber trench (Contexts 734, 939, 940 and 966; Fig. 19, No. 1) contained pipe fragments and these were consistently of late seventeenth to early eighteenth-century date. Likewise, Contexts 663 and 667 contained consistent pipe groups of a similar date (Fig. 19; Nos 3, 4, 6 and 7). These two contexts comprised the fill of a large pit, which may have been used for gravel extraction. This evidence suggests that, from around 1700, the area was regarded as waste ground which was being dug into for gravel and stone and upon which domestic waste was being discarded.

Around the middle of the eighteenth century the disposal pattern of pipes changes again and the archaeological record falls silent. This seems likely to reflect another change in the site's use, perhaps as it was tidied and grassed as an open area again. The final change comes around 1820 with the construction of new houses and the division of the area into small domestic gardens. It is notable that relatively few of the pipes date from this period and that, when they do occur, they tend to be confined to the final fills of stone lined pits in the gardens. This suggests that the disposal of domestic waste had become well managed with almost everything being disposed of away from the site. The pits themselves seem likely to have been

used as the receptacles for household waste or for the contents of privies. These would have been regularly emptied while in use. The mid- to late-nineteenth-century date for the pipes from the final fills of these features, for example, Contexts 629 and 696 (Fig. 19; Nos 8, 10 and 11), may well reflect changes in the system of sanitation and waste disposal, which rendered these features obsolete.

Summary and conclusions

The pipe evidence from this site confirms earlier observations regarding the clay sources, styles and manufacturing techniques of the local industry. Almost all of the pipes recovered are likely to have been made in or near Oxford and show that, despite its cosmopolitan nature, the town's smoking needs were primarily catered for locally. The two exceptions are the Higgins pipes of *c* 1850-90 which were probably imported, via London, from France or the Netherlands. These two examples represent a more refined class of product although all of the pipes are generally neat and well finished and, particularly during the nineteenth century, appear to have been of a fine and elegant appearance.

In terms of the archaeology of the site, the pipes suggest a number of distinct phases of use during the post-medieval period. During the seventeenth century the site appears to have been kept free of domestic waste and may well have been grassed. Around 1700 the digging of pits and robbing of wall footings suggests a period when it was regarded as waste ground before another period of archaeological inactivity from the mid-eighteenth century. The low level of pipe finds following the site's redevelopment for housing in the 1820s is a salutary reminder that domestic occupation does not always result in the deposition of domestic waste. The gardens appear to have been kept clean and tidy with the only significant pipe groups coming from the infilling of redundant pits.

Acknowledgement

I am most grateful to Peter Hammond of Nottingham for providing me with the details of John Higgins from his current research into the London pipemaking industry after 1750.

List of illustrated pipes (Fig. 19)

1. Bi-conical spur form of c1660-80. Rim bottered and half milled. Stem bore 7/674 in. Context 939.
2. Transitional spur form of c1680-1710 with slightly asymmetrical bowl. Rim damaged but internally knife trimmed and bottered with no surviving trace of milling. Spur flattened but not trimmed. Stem bore 6/64 in. Context 671.
3. Transitional heel form of c1680-1710. Rim one-quarter milled, internally knife trimmed and bottered. Poor burnish. Context 663 (A).
4. Rather squat heel form of c1690-1720. Rim bottered but not milled. Stem bore 6/64 in. Context 663 (B).
5. Transitional heel form of c1690-1710. Rim damaged but internally knife trimmed and bottered with no surviving trace of milling. Average burnish. Stem bore 5/64 in. Context 668.
6. Tall example of standard 1700-1770 form with rim still dropping slightly away from stem, probably early C18th. Rim bottered but not milled. Stem bore 5/64 in. Average burnish. Context 663 (F).
7. Slightly shorter example of standard 1700-1770 form with rim parallel to stem. Rim internally knife trimmed and bottered but not milled. Stem bore 6/64 in. Average burnish. Context 663 (D).
8. Thin-walled bowl with fine spur and stem, c1820-1880. Rim cut. Unusually small bore of 3/64 in. Relief moulded star on each side of spur and part of an incuse stamped bowl mark with a milled border. Possibly a product of the Huggins family of Oxford. Context 629.
9. Spur fragment from a similar bowl to that illustrated in Fig. 19, No. 8.

Relief moulded initials GN on the spur, attributed to George Norwood of Oxford, recorded 1852-63. The base of the spur has been trimmed. Stem bore 3/64 in. Context 202.

10. Spur bowl of c1820-1860 with cut and wiped rim. Relief moulded initials TH on spur, attributed to T Huggins. Stem bore 4/64 in. Context 696.
11. Two fitting fragments making up one of two identical complete pipes with 86 mm long stems, c1850-1890. Cut rim and nipple mouthpiece with traces of a decayed red coating, presumably wax.. The very end of the mouthpiece has been knife trimmed, suggesting production in France, Belgium or the Netherlands. Incuse moulded stem mark reading 'HIGGINS.AGENT / BURNS CUTTY PIPE'. John Higgins was a London agent specialising in imported pipes who is recorded working between 1851 and 1891. Stem bore 4/64 in. Context 696 (B).
12. Mouthpiece dating from c1610-1700. Thickness of mouthpiece is extremely unusual but it has clearly been finished before firing. Stem bore 7/64 in. Context 731.

Ceramic building material

by Kate Atherton and Nick Mitchell

Introduction

The excavations produced 968 fragments of ceramic building material with a total weight of 74,415 g. The majority of the material is flat roof tile with a limited range of ridge forms and brick fragments present. The assemblage includes 35 floor tile fragments which appear to represent three floors of decorated tiles and two floors of plain tiles. There are a further 114 fragments of stone weighing 29,702 g and this includes both limestone and slate roofing material.

Methodology

Each fragment was counted and weighed and measurements were made of all complete surviving dimensions. The floor-tiles and ridge tiles were examined with a x20 lens to relate their fabrics to the established fabric series of the Oxford region (S Robinson 1980, 196, microfiche DO9-D14). Fabric analysis was not attempted for the flat roof tile or the brick since this level of fabric analysis is not considered reliable without corroboration from typological features.

The building material forms are described in the first half of the report and each type is further discussed in the second half.

Description

Floor tile

There are 35 fragments of floor tile, 31 of which are decorated, with eight different designs present. The decorated floor tiles of the Oxford region are well-known and are catalogued in two publications, Haberly 1937 and Hohler 1942. The designs present at the Sackler Library are therefore not illustrated here but are referenced to the relevant publications in Table 8.

The assemblage includes inlaid tiles, two types of slip-patterned tiles, and two types of single-colour tiles. Floor tiles which are inlaid have been stamped with a design and the impression filled with a white clay. In contrast to this, slip-patterned tiles, which are sometimes called 'Penn-type' and have also been referred to as 'printed' tiles (the term 'printed' was widely used following Haberly's (1937) description of these tiles as being 'imprinted') are not properly inlaid but are decorated with a design in very shallow white slip. The method of manufacture, which is not yet clearly understood, often leaves the surface of the tile smudged and consequently small fragments of these tiles are difficult to assign to the known range of designs. In contrast to the inlaid tiles their bases are not keyed.

The five groups described below probably represent five separate tiled pavements. They are grouped according to style of decoration, fabric and dimensions.

Table 8: Floor tiles, quantified by group, fabric and design

Floor tile	No. of tiles	Catalogue Design nos		Oxford tile fabric
		Haberley 1937	Hohler 1942	
1	1	XI		IIIb
1	1	XXI		IIIb
1	2	XXIV/XXV		IIIb
1	1	XXIX		IIIb
1	1	XLIV/XLVI		IIIb
1	1	XLVI		IIIb
1	1	LVI		IIIb
1	1	(unidentifiable)		IIIb
2	11		P50	IIIc
2	8	(unidentifiable)		IIIc
3	3	CLXXXIX		IVb
4	2	-	-	IIIb
5	2	-	-	IIIc

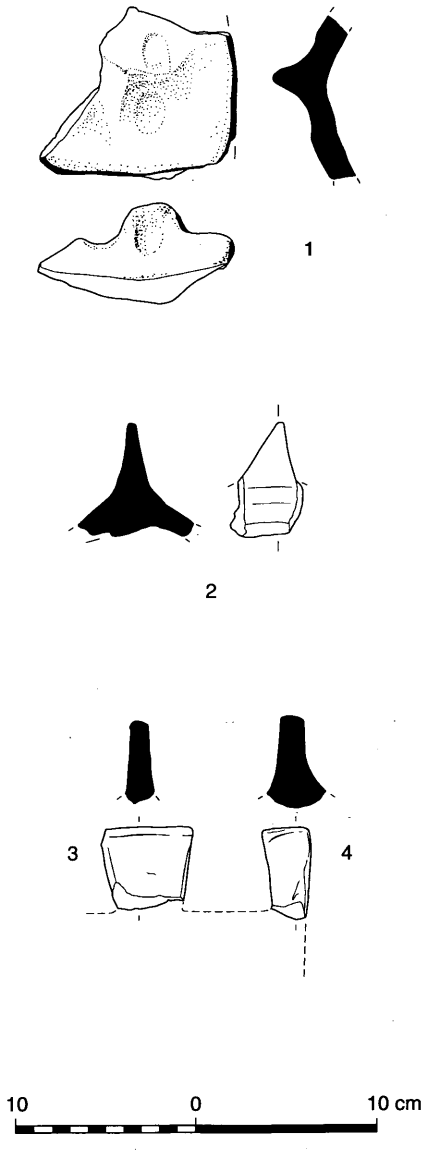

Figure 20: The ceramic building material: roof tiles. 1 - Type A; 2 - Type B; 3 and 4 - Type C

Floor tile group 1: This group consists of nine 'stabbed Wessex' tiles which are distinguished by a very rough, granular and crumbly fabric (Oxford fabric IIIB), with designs inlaid with a hard white slip to a depth of approximately 2 mm. There are no complete sides but the tiles are between 18 and 23 mm thick with small stab marks on their undersides to enable the mortar to adhere to the tile. The designs are well known in the Oxford area, and although they are all well-worn, seven of the nine fragments can be assigned to known designs which are quantified in Table 8.

Floor tile group 2: There are 19 slip-patterned fragments which can be grouped together by their hard, grog-tempered fabric (Oxford tile fabric IIIc), and, where it survives, by their thickness. Only one complete side exists and shows the tiles were 114 mm square and 28 mm thick. Eleven of these are Hohler's (1942) design P50 and although the remaining eight could be of the same design, they are too fragmentary to identify. Twelve of these tiles appear to be totally unworn and ten of these are missing their undersides, existing only as the decorated upper surface. The others of this group are significantly worn and survive to their full thickness.

Floor tile group 3: This group consists of three slip-patterned fragments and is distinguished from group 2 by a slightly sandier fabric (Oxford fabric IVb) and by their dimensions; one tile has a full side measuring 157 mm. This tile appears to have been 'cut' or carefully broken to a rectangular shape after firing had occurred. All three tiles are of the same design, Haberly design CLXXXIX (1937, 230) and are likely to be from the same floor.

Floor tile group 4: There is a single triangular tile, covered with a white slip, and a tile with a thick black glaze in Oxford tile fabric IIIb. It is possible that these two tiles were present in the same floor but the triangle's dimensions, 100 x 70 x 23 mm, are not obviously compatible with the black tile which is at least 80 mm across.

Floor tile group 5: There is also a white slip-covered triangle and a fragment of a virtually black glazed tile in fabric IIIc. The triangle is almost complete, measuring 75 x 55 x 32 mm and the two tiles may have been laid in the same floor.

Ridge tile

Forty-one pieces of tile could be positively identified as roof ridge tiles while other unidentified examples from the non-curved parts of ridge tiles will have been unavoidably recorded within the flat tile category. The ridge tile was sub-

divided into three different types, A to C, according to the shape of the spur and the technique of manufacture.

There are five type A ridge tiles (Fig. 20, No. 1) which are characterised by their handmade, thumbed spurs, by their coarse limestone fabric (Oxford tile fabric Ib) and by their flaky, light green glaze. Several other fragments of this fabric have curved profiles demonstrating that they are ridge tiles and it is probable that fabric Ib is present only in ridge type A tiles. Two pieces had the partial remains of holes which may have been used for ventilation.

Type B is represented by seven tiles and have knife-cut triangular spurs made from applied strips forming a 'cock's comb' crest. They are often irregular in shape and are glazed either green or brown (Fig. 20, No. 2).

There are four 'spurs' which may form the top of ridge tiles and although this cannot be known for certain they are classified here as type C. The applied strips are trapezium-shaped with their narrower end attached to the body of the tile. However, all four examples have become detached and the form of these tiles can only be conjectured (Fig. 20, Nos 3 and 4).

Plain and glazed flat roof tile

There are 458 fragments, 31,228 g, of plain roof-tile and a further 129 fragments, 9102 g, are glazed. It is only necessary to glaze approximately one third of flat roof tiles since only a proportion of the tile is visible once laid on the roof and the true number of glazed tiles will therefore be under-represented in the record.
Only one tile (from Phase 4.2 context 901) was nearly complete and measured 275 x 155 x 15 mm while another had a measurable width of 165 mm. One nib-tile with a modern, machine-made appearance, is 170 mm wide and has the word 'LEIGHSWOOD' stamped on its surface.

Brick

There are 49 brick fragments (21,802 g), of which 30 had no complete thickness and were in a poor and abraded condition. They range from 45 to 50 mm thick and are present in seven fabrics. The fragments of the rougher fabrics are more numerous and smaller and this is a reflection of the coarse material.

Stone tile and objects

The excavations produced 114 pieces of stone, weighing 32,973 g. This comprises limestone roof tiles (88 pieces, 22,045 g), slates (15 pieces, 727 g) with some miscellaneous stone and architectural fragments. Two limestone tiles (both from unphased context 601) were near complete and measured 175 x 115 mm and 175 x 125 mm. Three other limestone roof tiles had complete widths, two of which were 115 mm wide and the third was 120 mm wide.

Discussion

Floor tiles

There are seven different designs identified from a sample of only nine group 1, 'stabbed Wessex', floor tiles and this may suggest that more than one floor is represented. In contrast only one design each has been identified for groups 2 and 3 and it seems likely that they formed pavements of a single design only. The difference in the dimensions of tiles of groups 2 and 3 discounts the possibility that one series was used to repair a pavement of the other.

Two triangular tiles of group 2 are scored and cut from square tiles while the clay was still wet. This suggests that this series was designed to be set diagonally to the axis of the building leaving triangular spaces to be filled at the junction of the floor

and walls. In contrast to this one tile of group 3 appears to have been cut to a rectangle after firing presumably to fit the edge of a pavement, against a wall. This suggests these tiles, unlike those of group 2, were set in line with the walls of the room.

The floor tile comes mainly from phases 4 and 5 with just two fragments from both Phases 2 and 3. The great majority are therefore from the robber trench fills. However, present knowledge suggests that the group 1 type tiles were being made at least by 1280, continuing to be made until at least the 1330s (Eames 1992, 53). This dating shows that they could have been in use at Beaumont Palace or at the Friary.

This form of inlaid tile was manufactured for the Oxford region probably until they were replaced by the mass-produced, slip-patterned tiles, represented by floor tile groups 2 and 3 at the Sackler Library site. Production of both types may have overlapped but the presumably cheaper slip-patterned tiles dominated the market in the second half of the 14th century (Lambrick and Mellor 1985, 185).

The slip-patterned tiles of group 2 show a less straightforward pattern of wear. They are either well-worn but intact, or they are totally unworn and survive with only their upper surfaces intact. The twelve fragments of the latter group have mortar adhering to their sides and may be the result of a pavement that was laid and ripped up shortly afterwards. They are all, however, of the same design and could represent only a few tiles.

The date of the two types of single-colour floor tiles has not previously been established. The exact correlation of the fabrics with those of the broadly datable decorated tiles might suggest a very similar range for the single-colour versions. This cannot be certain, as the group 4 tiles are unlike their inlaid counter-parts in that they are thinner and are unkeyed on their bases. This could be an indication that they belong to the later 14th century when commercial pressures were driving a tendency towards cheaper and less labour-intensive production (Eames 1992, 56).

The basic floor tile production groups from this excavation are well known at other Oxford sites such as Greyfriars (Mellor 1989) and St Frideswide's Priory (Green 1988). Sackler Library excavations have produced more fragments of the later slip-patterned tiles than the 'stabbed Wessex' tiles and although this is also the case at some Oxford sites such as Blackfriars (Lambrick and Mellor 1985, 177-187), the set of designs found there does not match this assemblage. The closest match is found amongst the tiles published from the Cathedral Green, Oxford, which include four of the group 1 designs (XLVI, XXIV, LVI and XXIX) but they are not closely dated (Green 1988).

The two slip-patterned designs of groups 2 and 3 are known in the surrounding area but are not well-known in Oxford itself, the only known parallel being for design CLXXXIX from Magdalen College Tower (Haberly 1937, 230)

Roof tile

It is possible that different combinations of roofing material were in use at the same time at the site and the contexts of the limestone roofing material and the ceramic roof tiles can suggest no patterns through their phasing. The ridge tile type A, with thumbed spurs and made from a shelly fabric, is known from many sites around Oxford, for example at Eynsham Abbey, Oxfordshire (Mitchell forthcoming) and The Hamel in Oxford (S Robinson 1980, 196) and has been dated as used in the Oxford region from the early to later 13th century (Jope 1951, 86-88). Being hand-made, type A ridge tiles are typologically the earliest at the site, but they are all from phase 4 or unphased contexts.

Although the thumbed-spur tiles were replaced by the more evenly glazed ridge

tiles with crests of cut triangular spurs, it is possible that the two types co-existed for a short period in the late 13th century. It seems likely that the trapezium-shaped ridge tile type C with its dark and even glaze is a later development in ridge form.

Eight fragments of plain roof tile were found in Phase 2 contexts and might be 12th or 13th century. The majority of the flat tiles, almost 30% of which are fabric IIIc, were found in Phase 4 deposits resulting from the robbing of the palace and friary. Any surviving widths of the flat tiles fall within the range of 150 to 175 mm which are standard widths for roof tiles in the post-medieval period.

Brick

Seven fragments are present in Phase 2 contexts, and are likely to be intrusive, probably as a result of plough disturbance. The remaining fragments are from Phase 4 and 5. Brick fabrics 1-3 have a rougher and more hand-made appearance and as such are likely to be earlier than the other fabrics. Two fragments, 90mm wide and 50mm thick, are yellow bricks and could have been used to contrast with red bricks in the same wall to create coloured patterns or lines.

Stone roofing material

Fifteen pieces, 727 g, of slate were found in Phase 5 or unphased contexts. There are 88 pieces, 22,045 g, of limestone roofing material and the majority of this, 57 pieces and 11,599 g, was also found in Phase 5 or unphased contexts. Four pieces, 1472 g, were, however, found in Phase 2 deposits.

Conclusion

Phasing shows that the majority of the fragments of all forms were found in features associated with the robbing of the palace and friary in the early post-medieval period, and with 19th-century buildings. Approximately 62% of the total weight, and 50% of the total number, were found in Phase 5 or unphased deposits.

The different types of roof and floor tile reflect developments in medieval building material manufacture and fashions but because they were generally found together, and usually in the later or unphased contexts which clearly post-date their manufacture, it is only sometimes possible to suggest dates and to speculate on the buildings from which they came.

The light-green glazed ridge tiles with hand-made spurs of type 1 can, however, be dated to the 13th century and their use is therefore prior to the establishment of the Friary. These fragments are likely to have been part of a major building at this site during the palace phase. Much of the other ridge tile could be from either the palace or the friary but the unusual trapezium-shaped crests of type C are perhaps typologically later and are likely to have been used for the friary.

The production dates of the 'stabbed Wessex' inlaid tiles which are the earliest floor tiles at this site, mean that they could have been laid for either of the major establishments. Documentary evidence shows, however, that the fabric of the palace was in poor condition in the last quarter of the 13th century with the last known record of building dated to 1289. It therefore seems unlikely that these inlaid tiles were laid in the last decades of the 13th century or the first two decades of the next, before the founding of the friary in 1318. The tiles of the slip-patterned type date to the middle or the second half of the 14th century and can therefore be strongly associated with the friary. The different types of floor tile suggest five separate floors and the different fabrics suggest at least three phases of building or refurbishment.

The forms and basic types of roof and floor tile in this assemblage are commonly found in Oxford and the assemblage is typical of ecclesiastical and high-status

medieval sites in the Oxford region. The 13th-century ridge tiles of type 1 are the only form of building material from the Sackler excavations which can be strongly associated with the Royal Palace. Although most of the material is undiagnostic, some of the broadly datable floor tiles and one type of ridge tile are likely to derive from the friary.

Worked architectural stone
by Dr Richard K Morris

Around sixty worked stones were recovered from the site, many of them fragmentary or in poor condition. All were found re-used or redeposited in Phase 5 contexts. OAU commissioned the author to produce a catalogue of and report on any significant medieval stones amongst this collection. A preliminary assessment was made on the author's behalf by Jamie Preston, who concluded that the only medieval stones worth further comment were a few pieces all found in the 1997 evaluation trenches. These pieces have been catalogued, with a report form for each and a profile drawing/photograph as appropriate; six type-stone numbers were allotted to them (T001-T006). The catalogue has been deposited with the site archive. All the pieces of any significance recovered from EX1 in 1998 seem to be post-medieval, and as such have not been included in the catalogue or given type numbers, though they receive some assessment below. All the stones in the following discussion are of oolitic limestone.

The stones range in date potentially from the mid-13th century to the mid-17th century. Within this span, the architectural history of the site falls into three main periods - various works documented between 1237-70 at the royal palace of Beaumont in King Henry III's reign; the occupation by the Carmelite friary, 1318-1538; and possibly the post-Dissolution re-use of a few surviving buildings on site, *c* 1538-*c*1660. Thus the information from the stones has been checked against selected files in the Warwick Mouldings Archive, with an emphasis on royal and royal-related works of the 13th century, and on Oxford and the Oxfordshire area. In addition, the profiles have been checked of the only other English Carmelite house for which evidence of this kind is available to the author, the Coventry Whitefriars (founded 1342); both from the standing fabric and from worked stones excavated in the 1960s. [3]

The only significant type-stone which may derive from the Beaumont palace period is a short length of stringcourse, T001. Its profile (Fig. 21, No. 1) is characterised by a demi-roll-and-fillet moulding, which in a national context is most likely to be 13th century, from *c* 1225 onwards, but which continues in use

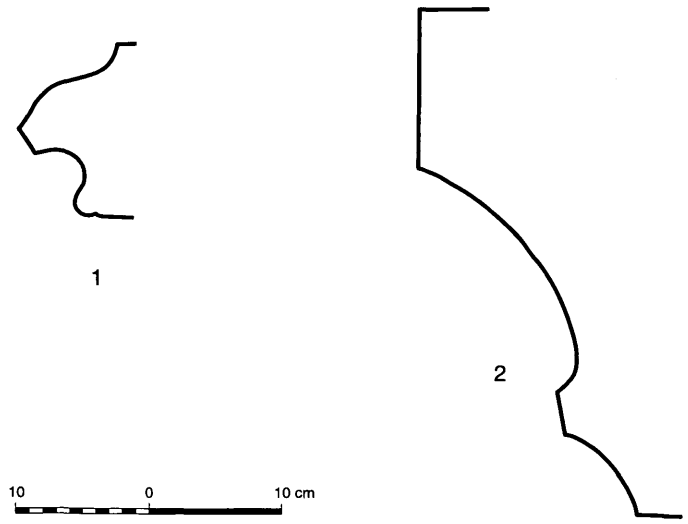

Figure 21: The architectural stone: String course T001 (vertical section), and Jamb T002 (horizontal section)

[3] The author is grateful to Charmian and Paul Woodfield for making drawings of the excavated stones available to him in advance of publication. For a brief résumé of the site, see Woodfield 1971.

into the first half of the 14th century in areas like Oxfordshire, eg Broughton Castle, chapel stringcourse, *c* 1310 (for dating, see Goodall 1995, 275-6). However, finding an exact parallel for the whole profile of T001 has proved elusive in stringcourses employed in royal and related works of Henry III's reign, such as the rebuilding of Westminster Abbey (1245-69) and the new chancel of the Temple Church, London *(c* 1240); or the worked stones excavated from Clarendon Palace (Borenius 1936, 72; James 1988, 234-45), and the work related to Clarendon and Westminster at Salisbury Cathedral (1220-66). The general preference in these works is for stringcourses with unfilleted roll mouldings, often cut from Purbeck marble. In addition, the reverse curve at the top of the profile, above the demi-roll-and-fillet moulding (Fig. 21, No. 1), is an unusual feature, as likely in the 14th century as in the 13th. Nevertheless, the probability is that T001 belongs in the 13th century because of the diagonal linear tooling on its one worked end, and without any traces of tooling from a claw chisel. Abaci of the same general design as T001 (though without the reverse curve) begin to appear around *c* 1260 at Westminster Abbey (nave, first pier; RCHME 1924, p.95) and in the stylistically related work in the north transept at Hereford Cathedral (triforium, and the tomb of Bishop Aquablanca, d.1268). Thus, if T001 came from the site, there is a reasonable likelihood that its provenance is one of the recorded works at Beaumont Palace from the later part of Henry's reign, rather than the early Carmelite period, to which theoretically it could also belong.

Two type-stones which were definitely produced in the period of the White Friars' occupation are T003, a frame for a large aperture, and T004, a small piece of decorative tracery. The profile of T003, a casement moulding terminated by an undercut hollow chamfer (Fig. 21, No. 2), is a common treatment in Perpendicular architecture for a window or door surround (Morris 1978, 43-5). One of the earliest fully developed examples occurs in the cloister tracery of New College, Oxford, *c* 1387 (Harvey 1978, 263), attributed to the important master mason, William Wynford, who may have been responsible for establishing the popularity of the motif. In which case, if T003 derives from the site, it might be connected to any works carried out by the friars following the grant of land in 1401 to enlarge their 'long and narrow house' (see above, Historical and Archaeological Background). However, the feature could be considerably later, as shown by its use in the late 15th century by the Oxfordshire family of masons, the Janyns, at St George's Chapel, Windsor (after 1475), and the Lady chapel of Burford parish church (Harvey 1984, 159-60). Indeed, in the very conservative climate of post-medieval architecture in Oxford, it is still found as late as 1610-12 in the hall and chapel of Wadham College, though the chances of T003 being post-medieval are slight.

Plate 14: The worked architectural stone: medieval tracery T004.

T004 is a rather damaged piece of blind or openwork tracery from a late medieval fitting or monument. It shows no sign of having been glazed and is unusual in being flat on the back, without mouldings. Originally the pattern was of two or more lights with lancet heads and trefoil cusping, of which approximately one half of each light is visible on this piece (Plate 14). The right-hand cusp shows traces of a circular ornament on the tip, which suggests that T004 belongs in the Perpendicular period. Examples of this motif may be seen on the tomb canopy of Thomas Despenser and his wife in Tewkesbury Abbey (*c* 1350-60); on pieces from the crossing tower vault of the Coventry Whitefriars, probably after 1447;[4] and in the Lady chapel vault of Winchester Cathedral, *c* 1500.

The three other type-stones also probably derive from the Carmelite period, if they belong to the site. All are very fragmentary, and this judgement is made mainly on the basis of tooling. T005 is a small part-polygonal stone, perhaps part of a sub-base for a small shaft. T006 is a short length of three-quarter roll moulding. Both are likely to be 14th-century or later. T002 appears to be a fragment of an ashlar block, and is the hardest to date.

[4] See note 3. The fact that this example also occurs in a Carmelite context is coincidental.

Amongst the discoveries on site during the 1998 excavations were a number of stones which are clearly post-medieval, re-used in Phase 5. The most significant for the purpose of precise dating are at least five pieces of window mullion or jamb employing the early Renaissance ovolo moulding (not illustrated). The latter is extremely rare for window mullions before the Elizabethan period, when it became standard (Morris 1989, 137): the author's recent research suggests that its earliest known use in this context in England was at Henry VIII's lost palace of Nonsuch.[5] Examples continue into the 17th century, in the Jacobean period especially, eg Merton College, Oxford, the Fellows' Quadrangle (1608-10). The diagonal width of the ovolo moulding on the Sackler stones is about 83 mm (3¼ ins), which is typical of the range of dimensions used for ovolo mullions (76-95 mm).

The most complete piece of mullion also exhibits the use of the 'tramline' effect, two parallel fillets on the front face, a French Renaissance motif taken over in England during the 1540s and frequently found in Elizabethan and Jacobean windows (Morris 1989, 131-8). The narrowness of the recess between the fillets in the Sackler mullion is unusual, though an exact parallel exists in the mullion template drawings in the opening pages of the book of John Thorpe, the Jacobean surveyor and architect (Summerson 1966, pl.2, T3, 'muniell'). Some of the template drawings in his book seem to relate to work on Kirby Hall, Northamptonshire, for the first Sir Christopher Hatton (after 1575), and may well have been drawn by John's father, the master mason Thomas Thorpe. This suggests that the date range for the Sackler mullions may be c 1575-c.1610. If their provenance is the Whitefriars' site, and also several pieces of Renaissance cornice found in the same context,[6] then there is a possibility that they relate to some undocumented refenestration of buildings surviving on site after the Dissolution. Such improvements would be very typical of the Elizabethan period, though the 17th-century view of 'The white Fryers' buildings on Loggan's map is unhelpful in this matter (Fig. 2).

Ecofactual evidence

Animal bone

by Bethan Charles (larger mammal bones) and Claire Ingrem (bird, fish and small mammal bones)

Introduction and quantification

A total of 2063 fragments of bone were retrieved from the site. From this number only 1859 could be phased accurately (Tables 9 and 10). The remaining bone was found in ploughsoils and unphased features and has been excluded from the report (details can be found in the archive). 293 fragments of bone were retrieved from environmental sampling. All soil samples were 100 litres, or consisted of the entire deposit if it was less than 100 litres (as suggested in the English Heritage standard guidelines for bone sampling). The samples were then processed by wet-sieving through a series of 10 mm, 4 mm, 2 mm and 0.5 mm sieves.

Most of the larger mammal bone came from Phase 2, the tree planting and rubbish pits associated with the royal use of the site. It can be seen from Table 9 and from the minimum number of individuals (MNI) shown in Table 11, that sheep are the dominant species found at the site during most phases.

179 fragments of small animal bone were recovered (Table 10); the majority of fragments belong to bird, with smaller amounts of mammal, amphibian and fish. Forty-eight fragments were retrieved from environmental samples taken from Sub-phase 2.1 pits, accounting for all of the fish remains, several small mammal bones and one bird bone.

In total, fifteen species of small mammal, fish and bird were identified, these are:

[5] Specialist report in preparation by the author and Dr. Geoff Quilley for the Nonsuch Palace Project. The author is grateful to Profesor Martin Biddle for making these materials available to him.
[6] Pieces OXSACK 98-21, 23, 59, 64; and perhaps also 25,38.

Table 9: Larger mammal species representation according to phase and method of recovery

	Phase 1	Phase 2			Phase 3	Phase 4	Phase 5	Total
	Bulk	Bulk	Sieved samples		Bulk	Bulk	Bulk	
			>10mm	10-4mm				
Cattle	1	122	6	0	9	33	63	234
Sheep	1	236	27	6	6	41	80	397
Pig	0	36	1	0	3	8	7	55
Horse	0	1	1	0	0	4	1	7
Red Deer	0	1	0	0	0	1	0	2
Fallow Deer	0	0	0	0	0	0	1	1
Unidentified	2	493	86	136	39	100	128	984
Total	4	889	121	142	57	187	280	1680

Table 10: Smaller mammal, fish and bird species representation according to phase and method of recovery

	Phase 2			Phase 3	Phase 4	Phase 5	Total
	Bulk	Sieved samples	Bulk	Bulk	Bulk		
		>10mm	10-4mm				
Cat	4			1		3	8
Rabbit					1	3	6
Hare	2				1	1	4
Mole			1				1
Rodent	1		1				2
Mammal indet.	5		3		1		9
Small mammal indet.		1					1
Amphibian indent.	1		1				2
Heron					1		1
Domestic/Greylag Goose	6				2	5	12
Domestic Fowl	14	1		2	18	8	43
Peafowl						8	8
Pheasant	1					2	3
Partridge					1		1
Charadriiform	1				1		2
Snipe			1				1
Curlew					1		1
Rock Dove					*11		11
Magpie				1			1
Bird indet.	6		6	2	14	2	30
Eel			13				13
Herring			6				6
Flatfish	1		1				2
Fish indet.			11				11
Total	42	2	46	6	52	31	179

* partial selection

cat *(Felis cattus)*, rabbit *(Oryctolagus cuniculus)*, brown hare *(Lepus europaeus)*, mole *(Talpa europaea)*, grey heron *(Ardea cinerea)*, domestic/greylag goose *(Anser anser)*, domestic fowl *(Gallus gallus)*, peafowl *(Pavo cristatus)*, grey partridge *(Perdix perdix)*, snipe *(Gallinago gallinago)*, curlew *(Numenius arquata)*, rock dove *(Columba livia)*, magpie *(Pica pica)*, common eel *(Anguilla anguilla)* and herring *(Clupea harengus)*. In addition, unspecified rodent, amphibian, pheasant *(Phasianus)*, plover *(Charadriiform)* and flatfish *(Pleuronectidae)* were also present.

Methodology used in recording larger animal bone

The calculation of the species recovered from the site was done by adding the number of identifiable fragments of bone of each species (NISP). All fragments of bone were counted including elements from the vertebral centrum, ribs and long

Table 11: Species and body part representation according to NISP and MNI for main larger domestic species

	Phase 2			Phase 3			Phase 4			Phase 5		
Elements	Cattle	Sheep	Pig	Cattle	Sheep	Pig	Cattle	Sheep	Pig	Cattle	Sheep	Pig
Horn frag.	3			1							1	
Skull frag.	5	6	2	1					1			
Mandible	3	14					1	1	2	4	3	
Teeth	7	15	3	1			2	3	3	2	1	
Scapula	1	5	2					1			1	
Humerus	1	9	5	1		1		3			9	
Radius	2	8			2			4	1	1	4	
Ulna	1	4	3				1	1		1	2	
Pelvis	4	8	1					2		2	1	
Femur	2	5	2					1	1	4	2	3
Tibia	2	17	1		2		1	1		2	6	1
Calcaneus	1				1					1	2	
Astragalus	1	2										
Metacarpal	1	12	4			2	1	3		1	1	
Metapodial	0	1	2					1				
Metatarsal	4	17	1				2			1	2	2
Phalanges	10	4					4			1		
Total	49	127	26	4	5	3	12	21	8	20	35	6
MNI	4	13	3	1	2	1	1	3	2	3	7	2

Table does not include ribs, vertebrae and pisiform

bone shafts. The Minimum Number of Individuals (MNI) for the three most common domestic species was also calculated using the most numerous bones from each phase. For the Caprine sub-family separation was attempted for the sheep and goat bones (their similarity often poses difficulties in identification) using the criteria of Boessneck (1969), and of Prummel and Frisch (1986); no goat bones could be identified, and all caprine bones were therefore listed as sheep. The ageing of the domestic animals for the assessment was based on tooth eruption and epiphyseal fusion of the bone. Tooth eruption and wear were measured using a combination of the tables published by Payne (1973), Grant (1982) and Halstead (1985) - Silver's tables (Silver 1969) were used to give timing of epiphyseal closure for cattle, sheep and pigs only, since there were not enough indicative elements from the other domestic species. The measurements taken are those defined by von den Driesch (1976) - more detailed notes can be found in the archive. The determination of sex for cattle and sheep follows the criteria of Grigson (1982) and Boessneck (1969); modern comparative material was also used. The horses were identified by noting the presence of tusks in the maxillae, as there were no other indicative fragments.

Methodology used in recording the small animal bone

The small animal bone was identified and recorded at the Centre for Human Ecology and Environment (CHEE), Department of Archaeology, University of Southampton. All of the anatomical elements were identified to species where possible, with the exception of ribs and vertebrae which were assigned to size categories. Mandibles and limb bones were recorded using the zonal method developed by Cohen and Serjeantson (1996). This produced a basic fragment count of the Number of Identified Specimens (NISP). The presence of gnawing, butchery and burning was recorded, and the species responsible for gnawing was recorded where possible. Measurements of bird bones were taken according to the conventions of Cohen and Serjeantson (*ibid.*, note 1). The size of fish was visually categorised with the aid of reference specimens as very small (<150 mm),

small (150-300 mm), medium (300-600 mm), large (600-1200 mm) and very large (1200-*c* 2000 mm).

Condition

The condition of the larger mammal bone was graded from 1 to 5 using the criteria stipulated by Lyman (1996), with Grade 1 being the best preserved bone and Grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable. The majority of the bone from the site was in very good condition, around Grade 2, with only a few badly damaged fragments. Roughly a quarter of the bone from all phases had butchery marks (Table 12), many of which were not identified to species. In addition to this, much of the bone had fresh breaks, which would have contributed to the higher fragmentation of the bones and the greater number of unidentified fragments. There was very little burnt bone from the site, all of which was from Phase 2 and Phase 5 contexts. A few of the bones from the site had damage likely to have been caused by dog gnawing.

Phase 1

Only four fragments of bone were retrieved from this phase. An immature cattle mandible and a sheep pelvis were identified. However, it is possible that these may be associated with tree root intrusions or with the Phase 2.1 pit digging.

Table 12. Condition of hand collected larger mammal bone by phase.

	Butchery	Gnaw	Burnt	Fresh break	Total no. of bones
Phase 1	1	0	0	5	4
Phase 2	233	19	17	313	1152
Phase 3	12	1	0	37	57
Phase 4	47	1	0	97	187
Phase 5	76	1	14	61	280
Total	369	22	31	513	1680

(A number of other tables for animal bone, showing mandible wear, epiphyseal fusion, and body part representation, can be found in the archive.)

Phase 2

Sheep were the most dominant species found at the site, followed by cattle and pigs. One male cattle pelvis and two sheep pelves (one male, one female) were identified, as well as a horse tooth and phalanx, and a single red deer phalanx.

Nearly 80% of the larger animal bone from the Phase 2 deposits was from the tree planting pits of Sub-phase 2.1. Butchery cut marks appeared to be concentrated around the join areas and on the ribs of the main domestic species. Most of the sheep vertebrae had been cut down the medial plane, consistent with the sagittal cleaving of the carcass, which is often seen to occur after the 11th century in England (O'Connor 1982). The mandible wear and fusion of the epiphysis of the sheep bones from this period show that the majority of sheep were killed between 2 and 4 years of age. In contrast, the epiphyseal fusion of the pig bones suggests that the animals were mainly immature, less than 1 to 2 years of age. From the small amount of data available cattle appear to have been killed between 2 and 3.5 years of age.

Few small mammals were present with only one fragment each from hare, mole and rodent. The latter two probably represent natural casualties as does the humerus of an amphibian. Birds are better represented with domestic goose, domestic fowl, unspecified plover and snipe all being present (Table 10). Domestic fowl was the most numerous followed by goose. A single pheasant tibio-tarsus was recovered from a tree planting pit. This is one of the few pheasant bones identified

from early phases of urban sites in Oxford (Wilson 1996). Fish remains were more frequent than bird bones and eel, herring and flatfish are all present. Eel is the most numerous and both the head and body are represented indicating that eels were originally present as whole fish. Context 794 produced the largest concentration of small animal bone: this mainly comprises fish remains including most of the eel and herring. Context 926 contained a smaller concentration, also dominated by fish including the pterygiophore of a large plaice or flounder. Both of these contexts are from Sub-phase 2.1. Cut marks were present on a femur and tarso-metatarsal belonging to both goose and domestic fowl. A coracoid belonging to domestic goose, a domestic fowl furcula and one vertebra from each of eel and herring had all been gnawed, probably by dogs.

Phase 3

There are far fewer animal bones from this period, consistent with the fact that the phase consisted largely of structural elements, such as masonry, which had been fairly thoroughly robbed. Cattle, sheep and pig were the most numerous species. A cat tibia was the only small mammal bone present. Bird is represented by two fragments of domestic fowl and the ulna of a magpie.

Phase 4

There is an increase in the number of animal bones found from the site during this period, due simply to the increased quantity of the surviving deposits. Species recovered included sheep, cattle, pigs, one fragment of red deer tibia and a few fragments of horse bone, mainly teeth. One male horse maxillae was recovered. The only small mammals present are rabbit and hare which are represented by a pelvis and metapodial respectively. A variety of birds are represented in addition to goose and domestic fowl, these are heron, partridge, curlew, plover and rock dove in addition to domestic goose and fowl. Domestic fowl is the most frequent bird species. Four bones displayed evidence of butchery, all belonging to domestic fowl. A tibio-tarsus and two humeri had been cut and a carpo-metacarpus chopped through the shaft. Only one goose carpo-metacarpus showed evidence of gnawing, probably by a cat.

Phase 5

Sheep, cattle and pig dominate the assemblage; one horse tooth was also recovered.
The mandible wear stages and the epiphyseal fusion of the sheep bones show that the age at death of the animals was around 2 to 4 years, possibly older. The epiphyseal fusion of the pig bones indicates that the animals were young at the time of death. There appears to be a gradual increase in the size of the sheep during the early medieval through to the post medieval period. This may be as a result of improvements in the management of sheep and in breeding techniques, or result from the introduction of new breeds to the area.

The only small mammals present are rabbit and hare which are represented by a pelvis and humerus respectively. Goose and domestic fowl are again present, whilst peafowl and pheasant appear for the first time. Peafowl is represented by at least two individuals and was recovered in equal number to domestic fowl remains. Again, domestic fowl is more frequent than goose. Context 697, which filled possible coal bunker 695, contained a small concentration of bird bones including all of the peafowl and pheasant remains from this phase. In addition, both the rabbit and hare bones were recovered from this context.

Several bones displayed evidence of butchery. The femur of a rabbit, the tibio-tarsus of a domestic fowl, the femur and tibio-tarsus of domestic goose and the coracoid of a peafowl had all been cut. Two bones (tibio-tarsi from goose and domestic fowl) displayed evidence of gnawing suggestive of human chewing. In

addition, the ulna of a peafowl displayed evidence of canid gnawing.

Discussion of the larger mammal bone evidence

Very little bone was recovered from the Phase 1 features, all of which may have been intrusive. Little information can be gleaned from this data with regards to the Bronze Age economy.

The majority of bone from the site was from the Phase 2 features. However, the features of this phase were mainly tree-planting pits, likely to have been filled quickly following the arrival of the saplings to the site, and it is not certain that the material used would have derived from the site itself. Bone may have intentionally been thrown into these pits to provide a source of phosphate for the trees. The majority of bones from Phase 2 were from sheep, which had been culled between 2 and 4 years of age. It is likely that they were kept for their wool, milk and dung as well as for their meat as is commonly seen at other sites in the city (Wilson 1989 and 1996). The cattle may have provided much of the meat for the inhabitants and as there do not appear to have been very many old animals they may have been bred specifically for their meat. Pork does not appear to have been eaten as much at the site. However, since the majority of the bones from the site appear to have come from younger individuals it is possible that the smaller more friable bones may not have survived as well as the more robust cattle and sheep bones.

There is a drop in the number of animal bones found in Phase 3, simply because few deposits likely to have contained animal bone survived at the site. As with Phase 1, no conclusions can be drawn from this assemblage. A slightly greater number of animal bones was found in Phase 4, but again this simply reflects the type and quantity of the deposits that survived, and as with Phase 2 the deposits are not suitable for analysis of dietary habits, as they are most likely to have been redeposited. A further increase in the number of animal bones occurs in the deposits from Phase 5, as a result of the development of housing at the site after the 1820s, and the deposition of domestic rubbish behind the houses.

Horse bones do not feature greatly in any of the phases of occupation and nearly all of the fragments of horse bone were either teeth or feet bones. It is unlikely that the horses were part of the diet of the inhabitants, although it is possible that the meat was fed to the dogs since there is evidence from as early as the 13th century that feeding horse meat to dogs was practised in wealthy and noble households (Wilson and Edwards 1993).

Discussion of the small mammal, fish and bird bone evidence

The only small mammals which are likely to have contributed to the diet are hare and rabbit. Wild hare were probably caught locally. Rabbit is only present on the site from the 14th century and may have been farmed in man-made warrens, a common practice during the medieval and post-medieval periods. Cats were present in the earlier and latest phases and may have been kept as pets, to control vermin or for their pelts; they may also have been present as strays.

A wide variety of birds are present, possibly indicating the varied nature of the diet throughout the site's occupation. Domestic goose and fowl were probably kept to provide meat, eggs and feathers but the relative importance of each cannot be estimated as no indication of sex (such as medullary bone and spurs on tarso-metatarsii) was seen. The remains of domestic fowl consistently outnumber those of goose, but the larger size of goose means they contributed more to the diet than a direct comparison of numbers suggests. Many medieval country houses had dove-cotes (Spandl 1998 and Albarella and Davis 1994) and it is likely that rock doves were also kept to provide a winter source of protein and manure. The exploitation of wild bird species is seen at other sites of this period such as Castle

Mall, Norwich (Albarella *et al.* 1997) and Launceston Castle (Albarella and Davis 1994, note 1). Waders such as heron, plover, snipe and curlew are present in all but the latest phase, and these would all have been available locally (Peterson *et al.* 1993). Gamebirds such as pheasant and partridge are mainly seen in the later two phases (there was a one pheasant bone from Phase 2) and could also have been caught locally.

Although fish remains were only recovered from Phase 2 deposits this is more likely to result from the method of recovery (see Table 10) rather than reflect a real absence. Eels are often found at inland sites of this period such as Eynsham Abbey (Serjeantson *et al.* forthcoming) and Guildford Castle Palace (Ingrem forthcoming). Fresh eels would have been available in local rivers and streams although they may have been eaten in a preserved form. In contrast, herring and flatfish would have been imported from the coast. According to Hammond (1993), fresh fish could be successfully transported anywhere in medieval England. Therefore fresh marine fish such as plaice and flounder would have been available to the inhabitants of Oxford. Herring remains are common at other sites from this period such as Eynsham Abbey (Serjeantson *ibid.*, note 6) and Castle Mall, Norwich (Locker 1997) and were probably preserved in some form, perhaps by pickling in brine.

According to Hammond (1993), 'peasants were forbidden by law to hunt hare and other gentlemens game' whilst wildfowl such as heron, snipe and plover are known to have 'played a prominent role in banquets of the nobility'. The exploitation of hare and wildfowl seen throughout the site's history suggests that the occupants consumed a varied diet.

Human skeletal remains

by Angela Boyle

Summary

Two fragments of disarticulated human bone were recovered from a ploughsoil (610) which may date to no later than the 16th century. A partial fragment of a right calcaneus (heel) exhibited osteophytic lipping (bony growth) of the articular surfaces. The second more substantial fragment has been identified as a probable portion of the left ilium (pelvis) of an adult male. The bone exhibits excessive lipping in the vicinity of the sciatic notch and the auricular surface has an elderly appearance. A partially healed cut mark is located immediately below the sciatic notch. The cut appears originally to have sliced almost completely through the bone and there is indication of some infection. Irregular woven bone is present and the bone itself has a thickened appearance although the cortex appears normal. This injury was not the immediate cause of death as some healing had occurred although septicaemia when the injury was healing is a possibility. It is conceivable that the fragments belong to the same individual as both exhibited a tendency to form new bone. Although the fragments derive from a ploughsoil it is possible that they represent redeposited material from the nearby cemetery, identified through observations made over the last 170 years (see above Historical and Archaeological Background).

Charred plant remains

by Ruth Pelling

Introduction

During excavation of the Sackler Library site, charred plant remains were recovered from soil samples taken from pits, ditches and other features. A total of 20 samples were processed by bulk water flotation and the flots collected onto a 0.5mm mesh. Only small quantities of remains were present in the majority of deposits. However, five samples taken from the Sub-phase 2.1 pits produced sufficient charred remains to allow analysis.

Laboratory methods

Each sample selected for analysis was sorted under a binocular microscope at

Table 13: The charred plant remains

	Sample	003	015	023	024	025
	Context	794	946	1086	1086	883
	Feature	796	925	1085	1085	882
	Volume (litre)	40	40	40	40	40
Triticum sp.	Wheat, free-threshing grain	7	9	18	22	3
Triticum sp.	Wheat grain	7	4	11	8	18
Triticum sp.	Hexaploid free-threshing rachis	-	1	-	-	
Triticum sp.	Free-threshing rachis	-	-	3	2	3
Hordeum vulgare	Barley, hulled grain	-	-	1	-	1
Hordeum sp.	Barley grain	1	1	3	1	5
Avena sp.	Oat grain	7	4	6	9	11
Secale cereale	Rye grain	1	-	-	-	-
Secale cereale /*Triticum* sp.	Rye/wheat grain	1	2	1	-	-
Secale cereale	Rye rachis	3				
Cerealia indet	Indeterminate grain	25	35	42	30	38
Cerealia indet	Cereal size culm node	1	-	-	-	1
Vicia/Lathyrus/Pisum sp.	Bean/Vetch/Pea	1	1	4	1	3
Corylus avellana	Hazel nut shell fragments	-	-	-	-	5
Ranunculus subgen *Ranunculus*	Buttercup	-	-	-	1	-
Cf. Agrostemma githago	Corn Cockle	-	1	1	-	3
Caryophyllaceae		1	2	-	-	-
Medicago/Trifolium sp.	Medick/Clover	1	2	2	1	-
Vicia/Lathyrus sp.	Vetch/tare	-	3	-	1	-
Umbelliferae		-	-	2	-	-
Rumex sp.	Docks	-	1	1	1	1
Polygonum aviculare agg.	Knotgrass	1	-	-	-	-
Polygonaceae		1	1	-	-	-
Lithospermum sp.	Gromwell (silica)	-	-	-	1	-
Odontites verna/ *Euphrasia* sp.	Red Bartsia/Eyebright	-	-	1	2	-
Plantago lanceolata/ *media*	Plantain	-	1	-	1	-
Plantago major	Plantain	-	-	1	-	-
Anthemis cotula	Stinking Mayweed	8	13	10	-	2
Centaurea sp.	Cornflower/Knapweed	-	1	-	-	1
Compositae	Small seeded	2	5	3	1	-
Carex sp.	Sedge	-	-	-	-	3
Cyperaceae		-	-	-	-	2
Gramineae	Grass, small seeded	-	1	4	1	-
Gramineae	Grass, large seeded	-	-	-	1	2
Indet		2	5	4	-	4

magnification of x10 to x20. Any identifiable and quantifiable charred seeds and chaff were extracted. Identifications were based on well established morphological characteristics and by comparison with modern reference material. Nomenclature and taxonomic order are based on Clapham, Tutin and Moore (1989). The results are shown in Table 13 below.

Results

Grain dominates the samples; wild chaff is particularly rare and weed seeds scarce.

The preservation of the grain is such that the absence of weeds and chaff may well be partially the result of preservation biases. It is equally possible, however, that the assemblages represent clean grain from which the weeds and chaff had been removed. Generally the remains show signs of having been subjected to high degrees of heat with the grain being very clinkered and tarry in appearance and lacking much of the internal structure.

The majority of the cereal grains are too poorly preserved to allow identification. Of those grains for which identifications were possible, free-threshing *Triticum* sp. (wheat) is the dominant species. Rachis internodes were very rare, but it was possible to identify a hexaploid, *Triticum aestivum* type rachis (bread type wheat). *Avena* sp. (oats), *Hordeum* sp. (barley) and *Secale cereale* (rye) are also present in descending order of abundance. Occasional large cultivated legumes are present in the samples, but lacked the hilum or testa; thus identification was left as *Vicia/Lathyrus/Pisum* sp. (beans/vetch/peas). Occasional hazel fragments were present in one sample (025), possibly also representing a food product.

The seeds of weed species were infrequent in the samples. *Anthemis cotula* (stinking mayweed) was most frequently identified, suggestive of cultivation of heavy clay soils. The remaining weeds are all common species of cultivated or ruderal habitats. *Agrostemma githago* (corn cockle) and *Centaurea* sp. (cornflower, knapweed) are characteristic weeds of medieval arable fields, while other species such as *Rumex* sp. (docks), *Polygonum aviculare* (knotgrass), *Odontities verna/Euphrasia* (red barstia eyebright), *Plantago lanceolata/media* and *P. major (plantain)* are all common native arable/ruderal species.

Discussion

The site is situated on free-draining gravels, hence no waterlogged deposits were recovered unlike other medieval sites on the periphery of Oxford, such as The Hamel or St Aldate's. Much of the usual evidence of increasing urbanisation for this period in the form of organic build up is therefore absent. There is no evidence for large-scale cereal processing on the site. Evidence for such activities in the form of charred remains are known from elsewhere in Oxford (eg M Robinson 1980, 1984, 1996).

It is possible that large-scale crop processing was not taking place in the Beaumont Palace area but that the processing occurred elsewhere and clean grain was being brought into the settlement. This is certainly consistent with the fact that all of the Sub-phase 2.1 deposits are the fills of tree-planting pits and therefore could have been imported onto the site (a possibility supported by the presence of stinking mayweed seeds, usually found on heavy clay soils, in some of the samples). Whilst it is also possible that this is a reflection of the high status nature of the site there is no supporting evidence of high status diet in the form of imported exotics such as fig, grape or spices, or of large burnt assemblages of grain suggestive of a casual attitude to cereal grain as might be expected if grain was abundant. The assemblage is more characteristic of the occasional grain losses which occur during small scale cereal processing immediately prior to consumption or food preparation. There is likely to have been considerable mixing and redepositing of material, thus assemblages need not bear any relation to the features in which they were recovered.

Mollusca

by Mark Robinson

Introduction

Although the Second Gravel Terrace of the Upper Thames (on which the Sackler Library is sited) largely comprises limestone, the soils which developed on it were circumneutral and unsuitable for the preservation of mollusc shells. However, human activity which results in the incorporation of gravel in the soil can lead to conditions conducive to the survival of shells. Therefore a column of seven

Table 14: The molluscs

	Context	793	793	928	928	958	949	930
	Sample	7	8	9	10	11	12	13
Mollusca	Depth (m)	0-0.1	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5-0.6	0.6-0.7
Cochlicopa sp.		-	-	-	-	+	-	-
Vallonia excentrica		-	-	-	-	+	-	-
Vallonia sp.		-	-	-	-	++	-	-
Helicella itala		-	-	-	-	+	-	-
Trichia hispida gp.		-	-	-	+	+	-	-

samples was taken through the Phase 1 barrow ditch for molluscan analysis.

Methods and Results

2 kg of each sample was floated onto a 0.5 mm mesh and then the heavy residues sieved over a 0.5 mm mesh. Flots and residues were then dried. The dried flots were scanned at x10 magnification. Only Sample 11 from Context 958, which was a primary gravel slip, contained significant numbers of shells, probably because the spill of gravel into the ditch had made conditions more calcareous. The results are given in Table 14.

Conclusions

The shells from Sample 11 comprise a fauna of dry open ground with species such as *Vallonia excentrica* and *Helicella itala.*

Marine shell

by G E Campbell

During the excavation a small assemblage of 160 marine shells was recovered. Of these, 122 were collected from 42 well-stratified contexts with the remainder being from general soil layers. Apart from three of other animals (one shell of whelk and one valve each of cockle and mussel), all are valves of oyster. There is a slight favouring of right (upper) valves over the heavier but more easily decayed left (lower), which is typical of archaeological material. Overall the preservation of the shell is fair, with little powdering due to chemical decay or perforation from terrestrial roots or worm action, and less than a half dozen unidentifiable fragments.

There are two notable features to this group of shells. The first of these is the distribution through time. The great majority of the stratified shell comes from the later two phases, 34% from the Georgian terraces (Phase 5) and 46% from the episodic robbing of the earlier stone structures (Phase 4), with most of that from the post-Dissolution robbing of the buttressed building (44%). The complete absence of shell from the Bronze Age features of Phase 1 is not surprising - such a find would be rare, the relative proportion of Bronze Age features excavated (compared to other periods on the site) is small, and Robinson notes (above) that terrestrial snails are preserved only exceptionally in the decalcified fills.

The early medieval royal Palace features (Phase 2) contributed only 18% to the stratified assemblage, when more might have been expected as evidence of a well-supplied table. However, given the nature and type of the contexts excavated (few possible rubbish pits, and no occupation layers) no definite conclusions can be drawn. The same can be said for Phase 3, which contributed only 2 shells; only one possible rubbish pit is attributed to this phase, with the remaining features being related to wall construction.

The second notable feature is the consistency of size and shape through time. The shells are consistently small, averaging about 60 mm in height (the distance from

the hinge to the edge opposite) with only 15 shells larger than 65 mm. Small oysters dominated in all phases, indicating careful selection of young tender types. The dominant shape of these shells is not the typical oyster shape (an irregular circle) but is triangular with the height consistently greater than the length. The edge of the shell opposite the hinge did not grow evenly along its length, but grew more strongly to the posterior, making the posterior edge of the shell straight or concave. This shape dominates in all phases and regardless of size. Such a consistent shape could argue for a consistent population of oyster stock as a source. Comparison with other assemblages currently being carried out by the author will allow this idea to be investigated in more detail.

The archive

The archive has been microfilmed and is currently held by the Oxford Archaeological Unit. The records and finds will be deposited at the Ashmolean Museum, Oxford.