

Medieval and Later Activity at Saïd Business School, Park End Street, Oxford

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SUMMARY

Investigations by Oxford Archaeology in advance of an extension to the Saïd Business School, Park End Street, Oxford revealed medieval and later occupation at the site of the former abbey of Rewley, a house of study for Cistercian monks founded in 1281. Part of a rectilinear arrangement of probable drainage or boundary ditches may have been associated with a substantial medieval barn of the abbey revealed during previous excavations on the site in 1994. Inside the area enclosed by the ditches were several pits, some of which may have been used for gravel extraction. To the west were the remains of two possible fishponds. By the mid eighteenth century, a large pond and associated water channels were constructed that may have formed part of water features associated with the house that occupied the site of the former abbey.

INTRODUCTION

Between October 2010 and January 2011, Oxford Archaeology undertook an archaeological excavation and watching brief before the construction of an extension to the Saïd Business School, Park End Street, Oxford (NGR 5054 0638). The site lies on the west side of the City of Oxford, about 135 m north of Park End Street and some 70 m to the west of Rewley Road (Fig. 1); its north-east part lies within the Scheduled Monument of Rewley Abbey (Oxon. 80). Formerly the 'wild garden' of the Saïd Business School, the site is bounded by the business school to the south-east, Oxford railway station hard-standings to the west, and housing to the north. The site covers an area of approximately 0.2 hectares and lies at about 58 m OD. Rewley Abbey occupied the northern part of Osney Island, which in the Middle Ages was a low-lying area of hay meadow and pasture between two substantial channels of the Thames, the Castle Mill Stream to the east and the present main course through Osney Lock to the west. The Rewley Abbey stream bounds the site to the north. The geology of the site is made ground overlying alluvium and first terrace or floodplain gravel deposits.¹ These deposits overlie Oxford Clay.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The results of some forty years of archaeological work on the site of Rewley Abbey and the former Rewley Road station were published in 2007.² Two further reports deal with a desk-

¹ Geological Survey Map of England and Wales, 1:50,000 (solid and drift), sheet 236 (1982 edn).

² J. Munby et al., *From Studium to Station: Rewley Abbey and Rewley Road Station, Oxford*, Oxford Archaeology Occasional Paper, 16 (2007).

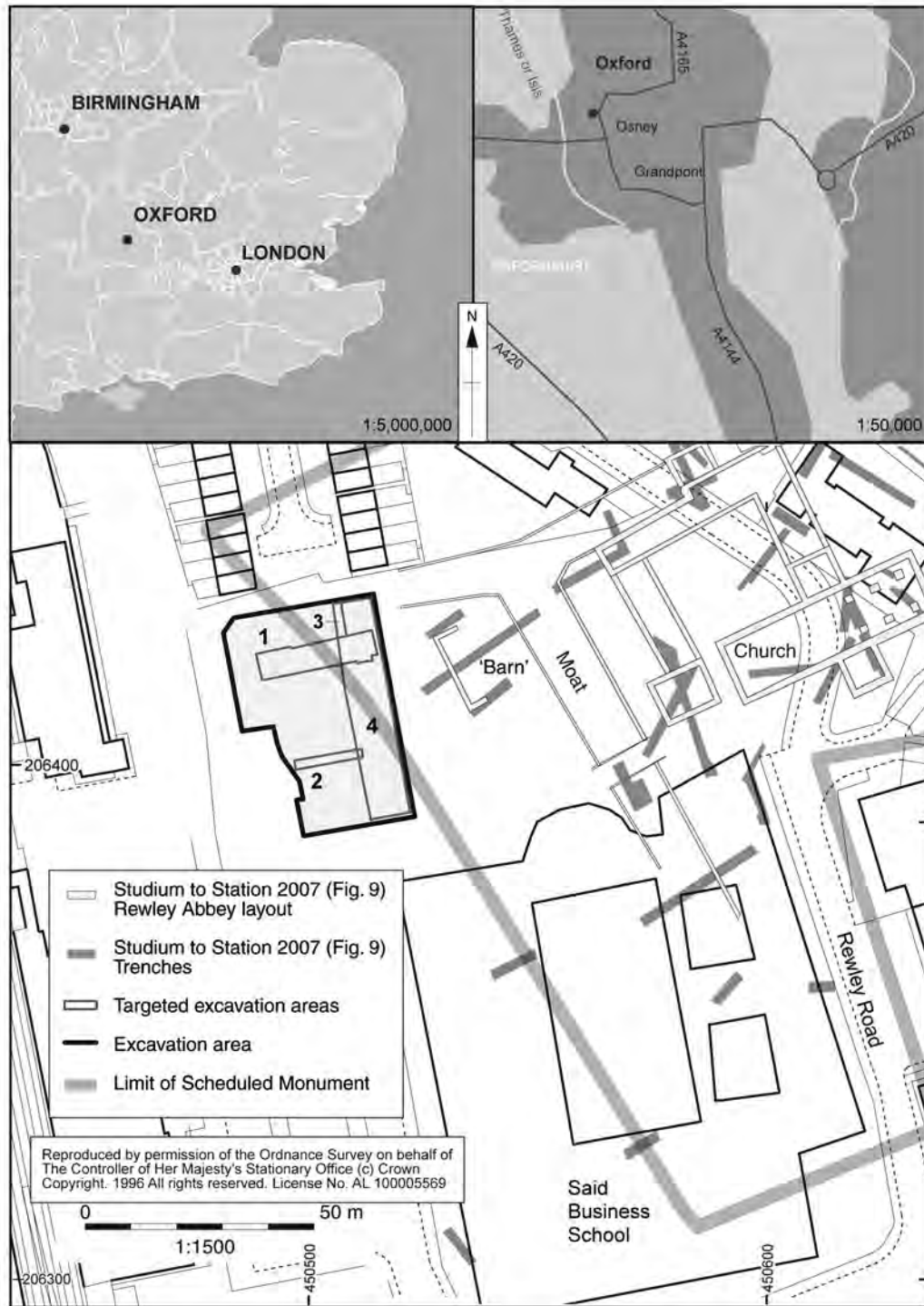


Fig. 1. Site and trench location.

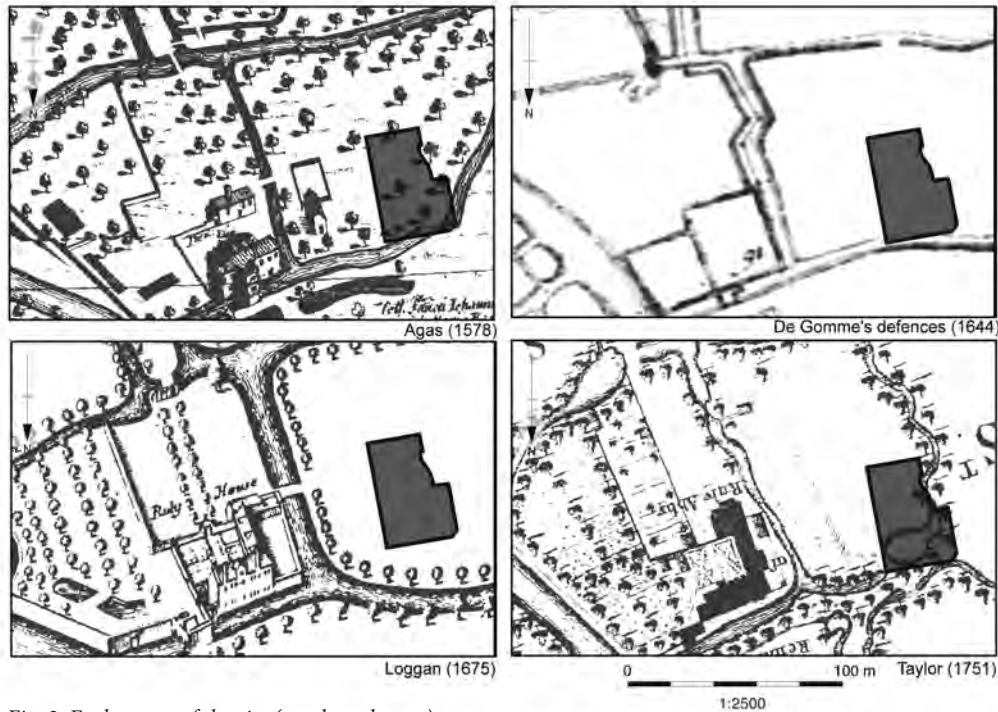


Fig. 2. Early maps of the site (south to the top).

based assessment and evaluation of the part of the abbey site that forms the subject of the present excavations.³

In 1281 Edmund, earl of Cornwall granted the site of his manor at North Osney to the Cistercian order for the foundation of Rewley Abbey; the principal buildings of the abbey were located some 40 m east of the present site (Fig. 1).⁴ Prior to the foundation of the abbey much of the area was hay meadow and pasture, and it is likely that this low-lying area was susceptible to flooding since alluvial deposits had formed over the natural substrate in many areas. In order to allow permanent occupation a series of drainage channels were dug, creating the configuration of numerous small islands that can be seen on early maps of the area (Fig. 2). The principal buildings of the abbey were constructed inside a perimeter wall on an artificially raised platform enclosed by the Castle Mill Stream to the east, and on the remaining sides by smaller water channels. Where observed in excavation on the north and west of the precinct this was a moat 6–8 m in width revetted with limestone blocks, representing a formalisation of pre-existing channels.⁵ The site of the present excavations was located on the adjacent island to the west. In the north-eastern corner of this island was a building (with attached rectangular enclosure) that can be seen on Agas' map of 1578 (Fig. 2) close to a bridge or causeway leading into the precinct. This building was investigated by excavations in 1994, which suggested that it had been a substantial buttressed stone barn; it had been demolished in the late sixteenth or

³ JMHS, 'An Archaeological Evaluation at Saïd Business School, Oxford', unpublished report (2007); JMHS, 'An Archaeological Desk-Based Assessment of Land to the Rear of Saïd Business School', unpublished report (2007).

⁴ *VCH Oxon.* 4, p. 279.

⁵ *Ibid.* pp. 11–14, figs. 9 and 17.

seventeenth century though a possible internal floor survived dating from the late thirteenth century.⁶ The barn does not appear on later maps, and it has been suggested that it was levelled at the time of the construction of the Civil War defences in this area (Fig. 2, 1644 plan) in order to provide a clear line of fire.⁷ To the west were two ditches and a pit, which pre-dated the west wall of the barn. Further to the west, within the area of the present site, the 1994 excavations recorded two apparent layers of cultivation soils over gravel, the earlier containing medieval and later pottery and what was later interpreted by the 2007 desktop assessment as an undated 'palaeochannel'.⁸

Following the dissolution, the abbey church and cloister were quickly removed and windows from the abbey were taken to Hampton Court in 1537, apparently for the king's new bowling alley. The remaining buildings were converted to domestic use and leased out. The site of the former abbey is shown on several early maps (Fig. 2). Agas's map and Loggan's map (1675) both show the extent of the precinct, the outline of the moat, and possible fishponds. These maps also show that the area of the present excavations can be located within a roughly sub-rectangular island of open land surrounded by watercourses. On Taylor's map of 1751 (Fig. 2) a drainage channel is shown running south to north across the island, leading to a pool within the northern part of the site. An element of this system seems to have been identified during test pitting of this site in 2007.⁹ Rewley (later Oxford) railway station was constructed in 1851, and the low-lying areas were raised by up to 2 m in order to avoid potential flooding.¹⁰

EXCAVATION METHODOLOGY

The business school extension included a basement measuring 52 x 36 m, which encompassed the entire footprint of the site. Its perimeter was lined with sheet piling before the commencement of archaeological excavations. Modern overburden and make-up levels associated with the construction of Rewley station were removed using a mechanical excavator down to a level of c.56.2–56.6 m OD, or about 1.5–1.9 m below the current ground level. This exposed a horizon of medieval and post-medieval features and an earlier soil horizon, which was then recorded in plan. An access ramp of unexcavated material was maintained in the south-west corner of the trench. The features were subsequently targeted with three trenches (Fig. 1, trenches 1–3) utilizing further machine and hand excavation in order to elucidate their character and date; monolith and bulk environmental sampling was also undertaken. A controlled watching brief was maintained during further general reduction by machine, which revealed earlier archaeological features towards the eastern part of the site. As part of this operation a c.10-m wide area along the eastern side of the site (Trench 4) was targeted for further detailed archaeological excavation to record these features.

DISCUSSION

Rewley Abbey (1281–1536)

Archaeological evidence for the use of the area prior to the establishment of the abbey remains ambiguous. Previous excavations have recorded early layers of loamy soils on the site that contained substantial quantities of pottery of mid eleventh- to mid thirteenth-century date. This was interpreted as representing former topsoil that had been enriched by manuring with midden material, which would be consistent with use of the land for growing crops. However,

⁶ Ibid. pp. 28–9, fig. 9.

⁷ Munby et al., *From Studium to Station*, p. 31.

⁸ Ibid. See also fig. 4, Trench 1994/18 in JMHS, 'Archaeological Desk-Based Assessment', p. 8.

⁹ JMHS, 'Archaeological Desk-Based Assessment', p. 19.

¹⁰ Munby et al., *From Studium to Station*, pp. 66–7.

the loamy soils were associated with silt layers that are likely to represent episodes of flooding, and it was clear that in at least some cases the topsoil had been dumped on the site to raise the ground level prior to construction of the abbey. Topsoil for ground raising would have been brought in from elsewhere, so its association with cultivation on the present site at the time is not currently demonstrable.¹¹

The present excavations revealed a dark-grey silty clay (context 195, Fig. 4), recorded along the eastern side of the trench, that pre-dated the earliest features, all of which were probably of thirteenth-century or later date. Unfortunately, no dating evidence was recovered though this layer was possibly contemporary with a similar but more gravelly deposit (context 149, Fig. 4) that survived to its south, and had been deposited under damp conditions. This contained two sherds of pottery that suggest a thirteenth-century date (see Cotter, below). These silty layers could therefore have been deposited during the early years of the abbey and would show that parts of the site remained susceptible to flooding at this time. Several small ditches (249, 251, 252 and 204, Fig. 3) may have defined part of a rectilinear field or enclosure system, and would also have assisted with drainage. It is notable that these features were aligned parallel and at right angles to the barn, the remains of which were found in the three trenches excavated immediately to the east of the site in 1994 (Fig. 1). A system of drainage ditches here may have been put in place to make the area dry enough for its construction.

West of the ditches were two large pits (130 and 136, Figs. 3, 5 and 6) that represented water-filled features and were possibly fishponds; these contained waterlogged plant remains consistent with the surrounding area being used as damp, open pasture with scrub or hedgerow in the vicinity (Hunter, below; Champness, below). Plant, insect and molluscan remains suggest that the pond held a relatively clean body of oxygen-rich water, possibly fed by the river via small channel inlets, creating an environment suitable for the keeping of fish, and nearly half of the small assemblage of animal bone fragments was composed of frog or other amphibian remains (Strid, below). It is possible that evidence for medieval feeder channels was removed during the construction of the seventeenth- or eighteenth-century channels that fed post-medieval pond 109 (see below). A marked bend in the post-medieval inlet channel (140) near to the medieval ponds may suggest that the earlier fishponds were fed by the river in a similar way but via smaller channel inlets that were removed by the later channels. In 1717 the antiquary Thomas Hearne noted that there were two fishponds remaining at Rewley which had belonged to the monks.¹² He was probably referring to the two rectangular features depicted within the east side of the former abbey precinct by Agas and Loggan, but not shown on Taylor's map of 1751 (Fig. 2). Part of a possible fishpond was revealed during the 1994 excavations and contained a series of silt deposits at least 0.9 m deep.¹³ However, this lay immediately to the north of the abbey and corresponded to one of two large ponds depicted on Agas's map but not shown a century later by Loggan (Fig. 2). The features identified in the present excavations may therefore provide evidence for earlier fishponds that would have supplied the abbey, but which are not represented on the early maps. The small pottery assemblage from this feature would be consistent with a date very early in the life of the abbey (Cotter, below). Unfortunately, insufficient fish remains have been recovered either from the present excavations or the earlier work to indicate the species kept.

To the east of the ponds, within the drier area, were up to five pits that were broadly contemporary and therefore possibly associated with the use of the barn; all but one would have been situated east of boundary ditches 251 or 252. Only one pit (190) could be investigated in detail and this contained sterile fills, which suggests it had not been used for the disposal of rubbish. A similar large pit (245) recorded in section to its south (and west of ditches 251 and

¹¹ Ibid. pp. 10–11.

¹² Ibid. p. 9.

¹³ Ibid. p. 29.

252). Both appear not to have been open for long, as there had been little erosion of the pit sides. The fact that both had been excavated c.0.60 m into the underlying gravel could suggest that they were gravel quarries. Gravel could have been extracted for use elsewhere, presumably by the abbey as hardcore for foundations, floors and yards. Contemporary pits serving a similar function have been found elsewhere in Oxford, most recently during excavations at the Ashmolean within the northern suburb of the city.¹⁴ The scant refuse recovered that was found in contexts contemporary with the use of the abbey came largely from boundary ditch 207 (251) and pond 130, features that would have been open for some time.

After the Abbey (1536 and Later)

The evidence would suggest that the fishponds revealed in these excavations were not maintained throughout the lifetime of the abbey and had been allowed to become completely silted up well before the dissolution. The larger fishponds to the east and north of the precinct that are visible on early maps may have replaced them. Plant remains from later fills of the ponds suggest that the area had become overgrown with brambles and nettles, although some of the species represented might have come from a nearby hedgerow. Certainly a thick accumulation of a dark grey-brown soil (Fig. 4, 175=194) was allowed to develop across the site which would indicate agricultural/horticultural use, or that the area was allowed to become overgrown.

Much of the site of the former abbey was converted into formal gardens and evidence was found in previous excavations for garden soils overlying medieval remains.¹⁵ Within the area of the present excavations, the medieval configuration was replaced by a large post-medieval pond (109/114) and adjoining channels 140 and 243 (Figs. 3, 5 and 6). This pond was probably created after 1675 as it is not depicted on Loggan's map, but corresponds closely to a large pond and adjoining tree-lined channel that is clearly shown on Taylor's map of 1751 (Fig. 2). The excavations revealed a second channel, 243, connecting channel 140 to the western arm of the former abbey moat, though this is not shown by Taylor. This second channel, which may have been medieval in origin, might have ceased to operate by the time the map was drawn. It is possible that it was replaced by a stone-lined drain or culvert (151) that may have fed into the pond from its eastern side. This pond has a classic waterhole profile and it is possible that it was a pond for drainage and watering stock rather than an element of a formal garden.

The purpose of ditch 103/176, which terminated immediately to the east of pond 109/114, is difficult to understand given the small area of it that was exposed. That they respected each other would imply that the two features were contemporaneous, though no useful dating material was recovered from the ditch. One possibility is that ditch 103/176 was an element of the Civil War reconfiguration of the area, though such a feature is not depicted on a map of the Civil War defences of 1644 (Fig. 2). Within the area of the site, de Gomme shows that the defences utilized the western and northern moats of the former abbey, which presumably offered sufficient protection at this point. A possible sponce was identified north of the main defences in 1994,¹⁶ which suggests that other contemporary features might have existed outside the main defended area. Alternatively the ditch could be later and represent the terminus of a water-filled channel linked to the moat of the former abbey that is depicted somewhat further south by Taylor. The presence of open water plant remains in its basal fill including pond weeds and rigid hornwort, the later preferring stagnant water conditions, might add some support to this interpretation.

¹⁴ S. Teague, OA report on excavations at the Ashmolean Museum extension, in preparation.

¹⁵ Munby et al., *From Studium to Station*, p. 31.

¹⁶ *Ibid.* pp. 31–2.

EXCAVATION RESULTS

Natural and Pre-Medieval Soils (Figs. 4 and 6)

The natural comprised orange sub-rounded river gravel (108) with lenses of white sand. Its undisturbed surface was reached along the eastern side of the excavation where it was found to slope slightly away from north to south from 55.70 m OD to 55.56 m OD. The gravel surface was overlain by up to 0.20 m of firm, sterile, orange-brown clay (146) that pre-dated the earliest activity on the site.

Pre 1281? (Fig. 4)

Pre-dating the earliest features was a firm, dark grey silty clay (195), possibly representing an early or pre-abbey soil accumulation, though no dating evidence was recovered. It was similar to and possibly contemporary with dark grey clay 149 (see Fig. 4) which was recorded towards the south-eastern part of site. However, this deposit contained frequent gravel from which a sherd of early type Brill/ Boarstall ware jug (c.1200–1300) and a worn sherd of Medieval Oxford ware (c.1075–1300) were recovered. It is possible that layer 195 could be a buried agricultural soil and that layer 149 may have been deposited under alluvial conditions.

Medieval (?1281–c.1500) (Figs. 3–6)

Ditches. Drainage ditch [249] (127, 159 and 167) was a north-east to south-west aligned linear ditch located in the north-east part of the site, up to 0.75 m in width, with a concave base. It was filled with alluvial, bluish grey clay that contained no finds, the nature of its fill otherwise suggesting a use for drainage.

Ditch [251] (202 and ?226) ran approximately at right-angles to ditch 249 and was cut by ditch 204, although it did not apparently extend to its north. It measured 0.60 m in both width and depth and had steep sides and a concave base. It was filled with dark brown clay and contained no finds. It may have been the same feature as 226, which was revealed in section and had a similar profile and fill (see Fig. 4).

Ditch 204 ran at an oblique angle to the north of ditch 251 and measured 1.2 m in width and 0.90 m in depth. It had a 'V'-shaped profile and contained two fills of mid-dark grey clay, of which the earlier (205) contained a sherd of East Wiltshire Ware (1150–1350). It apparently terminated to the north and its southern extent within the site is unknown.

Ditch [252] (207 and 237) ran parallel to the western side of ditch 251 and almost perpendicular to ditch 249, though it post-dated ditch 251 since it cut ditch 204. It was flat-bottomed, measured 1.60 m in width and 0.85 m in depth and contained organic-rich brown clay (208) at its base which also contained preserved brushwood. It eventually became filled with dark grey clay (210) that contained sherds of water-stained Medieval Oxford ware (1075–1300) and a small quantity of animal bone. A similar feature (237) was observed in section (Fig. 4) 15 m to the south-east and is likely to represent the same ditch. It was flat-bottomed and measured 1.35 m wide and 0.80 m deep, containing a thin deposit of organic-rich clay at its base.

Ponds. Large sub-rectangular feature 130, possibly a pond, was located 6.5 m to the west of ditch 252 and had been partially removed by post-medieval channels 140 and 243. It measured c.8.5 m across (east-west) by at least 6.2 m (north-south), although it could not have extended more than 7.5 m, as it did not appear south of channel 243. An excavated slot (Figs. 5 and 6) revealed it to be c.1.9 m in depth with moderate to steep straight sides and a slightly concave base. Its primary fill (131) comprised firm dark grey silty clay with lenses of fine sands and gravels, possible water deposited (see below, monolith sample 105) and was rich in aquatic molluscan remains (see below). It contained sherds of Medieval Oxford ware (c.1075–1300) and a small quantity of animal bone. It was overlain by a thick deposit of firm mid-grey silty clay (132) that contained sherds from an early type Brill/Boarstall jug (c.1200–1300) and then by light bluish grey silty clay (133), both probably alluvial in origin (see monolith samples 104 and 105 below). These later fills perhaps represent the final silting up of the pond, over which a dump of clay (134) had been deposited within the remaining hollow against the western side. This contained a sherd of Brill/Boarstall ware datable to c.1225–1400. Its final fill (135) contained limestone rubble and appears to have been deposited at a much later date in order to level off the hollow that had been left by the former pond. It contained sherds of post-medieval red earthenwares (1675–1800?).

A second possible pond (136) was located less than 5 m to the west of pond 130 and its eastern edge had been removed by post-medieval channel 140. Its full extents were not established although it measured at least 10.5 m across and was more than 1.0 m in depth with a moderately steep edge on its eastern side. Its earliest fill (147, not excavated) comprised firm organic-rich dark grey clay. This was overlain by firm dark grey silty clay (137), possibly representing silting up of the proposed pond (see monolith sample 106

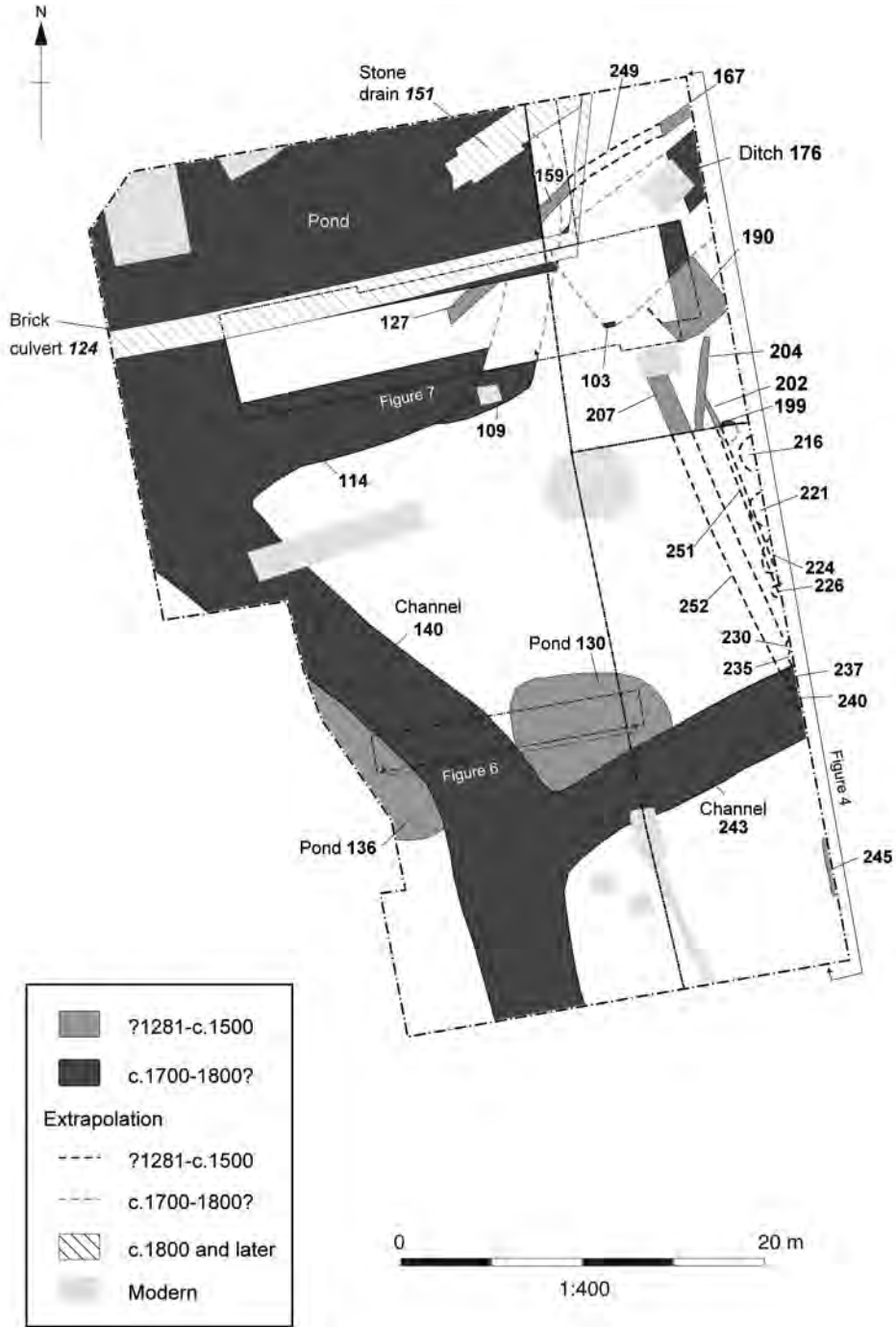


Fig. 3. Plan of all features.

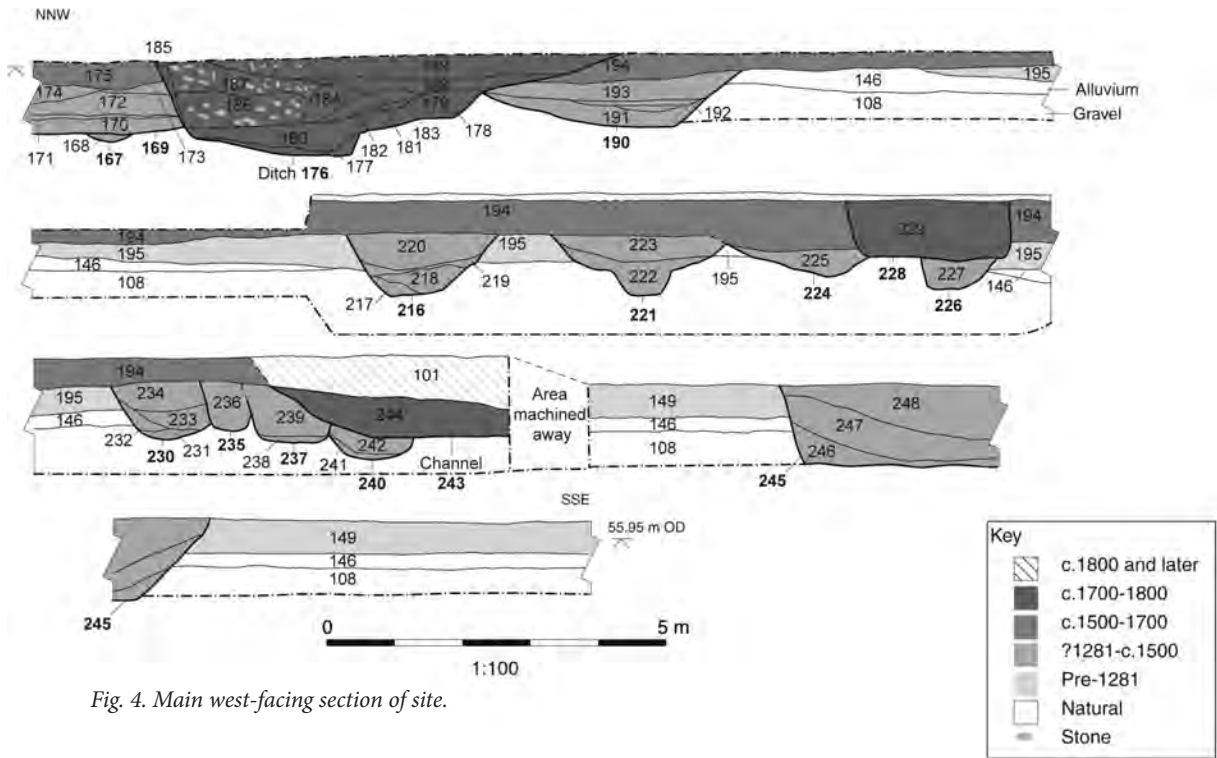


Fig. 4. Main west-facing section of site.



Fig. 5. Trench 2, post-medieval channel 140 (centre) with earlier medieval 'ponds' 130 and 136, looking south-east.

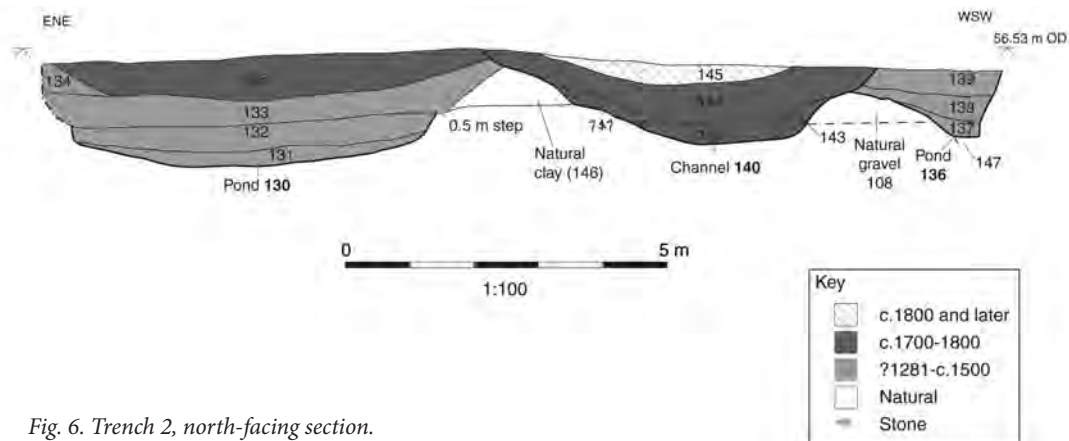


Fig. 6. Trench 2, north-facing section.

below), which contained a worn sherd of Brill/ Boarstall ware (c.1225–1400). Further fills of grey-brown silty clay (138 – see monolith sample 106 below) and light-grey clay (139) levelled the top of the feature and contained no finds.

A third possible pond (169) was recorded in the north-east corner of the site, though due to the extent of later disturbances it was no longer visible in plan, but was recorded in section (Fig. 4). It had a flat base and cut medieval gully 167 but was also cut by post-medieval ditch 176 and was sealed by late medieval/early post-medieval soil 175 (see Fig. 4). It measured at least 7.1 m across and was 1.10 m in depth with a flat base. Its earliest fill comprised firm dark grey clay (170) over which was a thin deposit of grey silty sand (171), possibly water-deposited, over which were further fills of dark grey or grey-brown clays (172–174). The latest fill (174) produced sherds of Brill/Boarstall ware (c.1225–1400) and a few animal bone fragments.

Pits. Rectangular pit 190 (Fig. 3) measured 3.7 m by at least 3.5 m, had steep and straight sides, a flat base, and was 1.05 m deep. Although its northern edge had been clipped by post-medieval ditch 250, it was probably originally square, and was aligned with ditch 249 to its north. It contained several fills of firm light-dark grey clay, and a tiny sherd of late-medieval Brill/Boarstall ware (c.1450–1625), possibly intrusive, was recovered from its uppermost fill. Otherwise, no other finds were recovered.

Features seen in section only during the watching brief. Four further features were recorded, three of which were sealed by late-medieval/post-medieval soil layer 194 (see below and Fig. 4). Although no finds were recovered, most can be broadly dated to the medieval period because of their stratigraphic position. It could not be established whether they represent discrete pits or if they formed part of linear features. However, the profile of features 221 and 224 resembles those of ditches and both were filled with alluvial or organic rich clays, perhaps suggesting their use for drainage. However, if they did indeed represent linear features then no evidence for them was found further to the west. It is possible that the largest feature (216) could be a pit, given its flat base and sides. Although it contained organic-rich clay at its base, it also contained several other fills including a dump of limestone gravel (219). The fourth feature (245) was substantially larger and measured 4.60 m across; its western edge survived immediately inside the site and it was probably a pit. It had steep straight sides, a flat base and contained several fills of grey or grey-brown silty clay. The pit had been dug c.0.60 m into the natural gravel and perhaps represented a quarry.

Early Post-Medieval (c.1500–1700) (Fig. 4)

Overlying early soil layer 195 (pre-1281?) and sealing medieval features 190, 202, 204, 207, 216, 221, 224 and 226 was a grey-brown silty clay (194=175) up to 0.70 m thick that may have represented a garden soil. No finds were recovered but it presumably developed over a significant time once the medieval features had gone out of use and before the late post-medieval features were cut into it.

Late Post-Medieval (c.1700–1800?) (Figs. 2–7)

A linear feature (103/176) was aligned north-east to south-west and ran approximately 1.0 m south of, and parallel to, medieval gully 249; it cut late-/post-medieval soil layer 194/175. It extended 9.4 m from the north-east edge of the site before it terminated immediately to the east of post-medieval pond 109/114. It measured c.6.80 m in width and 1.48 m in depth, was stepped on its southern side, and had a slightly sloping base. Its earliest fills (177, 178 and 179) comprised light grey silty sand and brown clay that probably derived from weathering of its sides, suggesting it had remained open for some length of time. Subsequently, a thick deposit of dark grey clay (180) – probably water lain – developed over its base (see monolith samples 100, 101 and bulk sample 103 below). Its later fills appear to represent deliberate filling and dumping in order to level the ditch. The earliest (180–84) comprised dumps of redeposited natural gravel, which were overlain by thick deposits of limestone rubble (186–189) that represented the final and rapid levelling of the ditch. The rubble probably derived from the demolition of nearby stone structures, and contained two fragments of decorated medieval floor tile and presumably residual medieval pottery.

Pond 109/114 is accurately depicted on Taylor's map of 1751 but is not on Loggan's map of 1675, suggesting that it was established between these dates. Only the southern and part of its eastern edge were clearly defined within the excavated area. However, the position of the slumping nineteenth-century levelling layers suggests that its northern and western extent probably corresponded closely to the edges of the trench. It may have been sub-oval and probably measured at least 18 m and possibly up to 24 m across. A trench excavated from its eastern extent suggests that its edge was stepped, the upper step occurring at a depth of c.1.2 m (109) and the lower step at c.2.4 m (Fig. 7). Above each step were thick deposits of mid dark grey clay (110, 111 and 115), laminated with lenses of gravel and sand, suggesting waterlain silting. One deposit (115) contained sherds of Pearlware datable to 1780–1830. Both steps became levelled with dark grey-blue clay, which appears to have represented gradual silting up rather than deliberate infill and contained sherds of English porcelain dated to c.1820–50.

The pond was linked to channel 140 on its south side, which ran throughout the length of the trench in an approximate north-west to south-east direction. It measured up to 6.2 m across with slightly stepped and moderately sloping sides and a flat base, and was 1.2 m in depth (see Fig. 6). The base of the excavated section of the channel occurred at 55.05 m OD (Fig. 6), some 1.39 m above the base of pond 109/114 which occurred at 53.66 m OD (Fig. 7). This would suggest that the channel fed into the pond. Its earliest fills (141–3) comprised dark grey clay, the earliest of which contained a shard from a glass bottle of late seventeenth- or early eighteenth-century date and a small fragment of Chinese porcelain dish (c.1750–1825). It had become levelled with dark grey-blue clay (144) that was very similar to that which filled the upper part of pond 109/140. A second channel (243) of similar width (see Fig. 4) joined it from the east at approximately a right-angle. At the point where it met the eastern side of the trench its depth was shallower at c.0.50 m, suggesting that if it was a water channel, it fed into channel 140.

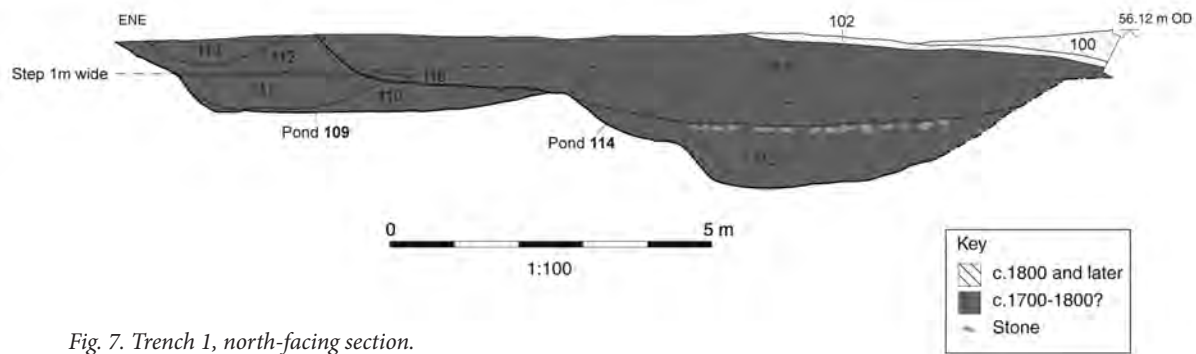


Fig. 7. Trench 1, north-facing section.

It is possible that pit 228 (seen in section only – Fig. 4) which cut late-medieval soil layer 194 may be contemporary with these features. It measured 2.4 m across and 0.80 m in depth, had vertical sides and a flat base, and was filled with firm dark grey-brown silty clay, similar to early post-medieval soil 194, which it cut. No finds were recovered though it predated the levelling of the site after 1851.

Modern (c.1800 and Later) (Fig. 3)

Possibly contemporary with the late use of pond 109 was a stone-lined drain or culvert (151) that measured 2.5 m wide, and was constructed with un-bonded and roughly hewn limestone blocks. It may originally have been arched over, though this appears to have collapsed under the weight of the mid nineteenth-century levelling of the site. A 0.20 m thick dark blue sand silt survived over its base and contained sherds of Late Creamware (1770–1830) and other wares suggesting an early nineteenth-century or later date. It also contained a sherd from a late eighteenth- or early nineteenth-century glass bottle. The drain was only partially revealed against the northern side of the excavation and extended several metres into the pond from its eastern edge before both it and pond 109/114 were overlain by mid nineteenth-century levelling, at which point they were not further investigated. The drain or culvert may have supplied water to the pond and possibly replaced channels 140 and 243. It was replaced by a brick-lined channel that cut west–east through the upper fills of pond 109 before turning northwards and across the line of the earlier channel. It was constructed with unfrosted red bricks (220 x 100 x 60 mm) bonded by limestone mortar in English Bond.

The construction of the railway in 1851 involved the raising up of the area of the site with dumps of redeposited alluvium, sand, vegetation waste and general refuse totalling up to 1.3 m in thickness. These deposits were revealed to have levelled the upper part of post-medieval channels 140 and 243 (see Fig. 4, context 101 and Fig. 6, context 145) and pond 114 (Fig. 7, contexts 101–102).

POTTERY by JOHN COTTER

The assemblage comprised 81 sherds of pottery weighing 2.046 kg. It was made up of a mixture of medieval and post-medieval wares including nineteenth-century material. The pottery is generally in a poor and very fragmentary condition with wear visible on most pieces. The more robust post-medieval wares generally survive as larger, fresher sherds. Many sherds – particularly the medieval ones – have a reduced sub-metallic lead glaze and a dark staining evidently caused by waterlogged conditions. The range of fabrics and vessel forms present is typical of sites in the city and identical to the range of material published from the site of Rewley Abbey adjacent to the present excavation.¹⁷ Although the abbey itself was founded c.1280, the excavations produced a fair quantity of eleventh- to early thirteenth-century pottery which had probably arrived on the site in soil and rubble brought from elsewhere to raise its level prior to building. The presence of this pottery here cannot therefore be taken as reliable evidence for occupation at this date. The small size, mixed character and poor condition of the present assemblage – particularly in comparison to that from Rewley Abbey – means that its main value here is the dating evidence it provides for the contexts from which it came. What follows is a quantified list of the various fabrics present and a summary report focusing on the date of the phases, highlighting the more interesting items in the assemblage.

Methodology

An intermediate level catalogue of pottery types was constructed, following standard procedure, for the whole assemblage and spot-dates produced for each context. The catalogue includes, for each context and pottery fabric, quantification by sherd count and weight. Quantification by rim EVEs (measurable rim percentage) was not considered worthwhile. Details of vessel form, part, decoration and any other features of note were recorded in a comment field. Full details can be found in the archive. As better parallels are published elsewhere, none of the material was illustrated.

Pottery Fabrics

Medieval pottery fabrics were recorded using the system of codes developed for the Oxfordshire County type series.¹⁸ Post-medieval pottery fabrics were recorded using the codes of the Museum of London, which can be applied to most post-medieval types in south-east England.¹⁹ The types and quantities occurring at the present site are listed below in roughly chronological order.

¹⁷ J. Cotter, 'Medieval and Post-Medieval Pottery', in Munby et al., *From Studium to Station*, pp. 33–42.

¹⁸ M. Mellor, 'Oxfordshire Pottery: A Synthesis of Middle and Late Saxon, Medieval and Early Post-Medieval Pottery in the Oxford Region', *Oxoniensia*, 59 (1994), pp. 17–217.

¹⁹ LAARC, 'Post 1992 Museum of London Code Expansions: Post-Roman Pottery', http://www.museumoflondonarchaeology.org.uk/NR/rdonlyres/F0118AAF-EF24-4228-A07A-39F89E6F092E/0/post92mol_post_roman.pdf (2007), accessed May 2011.

OXAG: Ashampstead-type ware (formerly Abingdon ware), c.1050–1400. Berkshire. The sherd here is from a glazed jug with white slip decoration, which probably dates to c.1150–1350. (One sherd, 28 g).
 OXY: Late Saxon-Medieval Oxford ware (sand-tempered), c.1075–1300. Oxfordshire. (15 sherds, 444 g).
 OXAQ: Early–Late Medieval East Wiltshire ware (also known as Newbury ‘B’ ware: flint and algal limestone), c.1150–1350. (One sherd, 10 g).
 OXAM: Brill/Boarstall ware, c.1225–1625. Buckinghamshire (Mellor 1994, pp. 111–140). (19 sherds, 313 g).
 OXBX: Late Medieval Brill/Boarstall ware, c.1450–1625. Buckinghamshire. (One sherd, 3 g).
 FREC: Frechen stoneware, c.1525–1750. Import, Germany. (One sherd, 47 g).
 BORD: Surrey/Hampshire white Border ware, c.1550–1700. (One sherd, 14 g).
 PMR: Post-medieval red earthenwares, c.1550–1900. Local, including Brill (Bucks.). (20 sherds, 814 g).
 CHPO: Chinese porcelain, c.1600–1900+ (mainly c.1725–1900). Import, China. (One sherd, 5 g).
 SWSG: Staffordshire-type white salt-glazed stoneware, c.1720–80. (Seven sherds, 81 g).
 STBL: Staffordshire-type fine black-glazed earthenware (Jackfield-type), c.1740–80. (One sherd, 4 g).
 ENPO: English porcelain, c.1745–1925+. (One sherd, 3 g).
 CREA: Later Creamware, c.1770–1830. Staffordshire, Leeds. (One sherd, 29 g).
 BBAS: Black Balsalt ware (Wedgwood-type), c.1770–1900. Staffordshire. (One sherd, 64 g).
 PEAR: Pearlware, c.1790–1830. Staffordshire. (Two sherds, 2 g).
 PEAR SLIP: Pearlware with slip decoration, c.1790–1830. Staffordshire. (Two sherds, 5 g).
 YELL: Yellow wares, c.1790–1900. Staffordshire, Derbyshire. (One sherd, 8 g).
 REFW: Refined white earthenwares (including transfer-printed), c.1800–1900+. Staffordshire. (Four sherds, 93 g).
 MISC SLIP: Miscellaneous unsourced slipwares, c.1480–1900. The piece is a figurine of late date and is probably English (see below). (One sherd, 79 g).

Summary by Phase

Pre-1281? (two sherds, 31 g). One sherd is of Medieval Oxford ware, c.1075–1300 (OXY), and is likely to be residual or redeposited. The same context (149) produced a worn handle stump from a jug in Brill/Boarstall ware (OXAM), or possibly the earlier sandier fabric variant of this tradition (OXAW). The handle has unusual random slashed decoration and traces of red slip decoration. It may be from the same vessel as the highly decorated jug sherds in medieval context (132) and probably dates to c.1200–1300.

Medieval (?1281–c.1500) (31 sherds, 686 g). These sherds were dated mainly by jug sherds in Brill/Boarstall ware (OXAM). These examples appear to belong to the first century or so of production (c.1225–1400) and include (from 132) ten fresh joining body sherds from a highly decorated jug with a complex arrangement of rouletted strips in the ‘highly decorated’ or ‘North French style’ and probably dating to c.1200–1300. These may be from the same jug as the handle in context 149 (see above). The other OXAM sherds are not closely datable. There are also several large and fairly fresh sherds in Medieval Oxford ware (OXY), including an early medieval-style pitcher handle fragment with an inlaid twisted strip which probably dates no later than c.1250. Large fresh joining sherds from a thumbled OXY jug base probably date to c.1150–1250. The fact that many of the OXY sherds are quite fresh and join, taken together with the decorated OXAM jug, suggests most of this pottery was deposited before c.1300 and is not obviously residual. The single sherd of East Wiltshire ware (OXAQ c.1150–1350) does not contradict this suggestion. There is, however, one small sherd (3 g) from (121) which looks early post-medieval – possibly c.1550–1625 (OXBX). This may be intrusive.

Early post-medieval (c.1500–1700) (one sherd, 28 g). A single worn sherd of Ashampstead-type ware (OXAG) was recovered from context 148. This is from a glazed jug or pitcher with characteristic, white slip decoration. It dates within c.1150–1350 but is probably residual.

Late post-medieval (c.1700–1800?) (12 sherds, 327 g). Several sherds from late eighteenth- and early nineteenth-century wares (PEAR, ENPO, CHPO, YELL). The latest piece is a Yellow Ware tankard rim with a band of metallic, copper lustre decoration on the rim (117). The latter is probably datable to c.1820–50. Sherds of seventeenth- or eighteenth-century glazed dishes and jars in post-medieval red earthenware (PMR) occur, as do three worn medieval sherds.

Modern (c.1800 and later) (35 sherds, 974 g). Dated by sherds of Staffordshire-type refined white earthenware (REFW) including blue transfer-printed decoration that is broadly nineteenth-century in date, including one decorated piece (101) datable to c.1825–1860. There is nothing in the assemblage that need be later than the building of the railway station in 1851. A range of seventeenth- and (mainly)

eighteenth-century wares are also present. Context (101) also produced the base of an unidentified hollow slipware figurine (MISC SLIP) – with two surviving human feet on a square plinth. This loosely resembles nineteenth-century Staffordshire figurines (in REFW) but unusually occurs in red-firing clay covered all over externally with a white slip under a clear lead glaze with green and brown mottling. It is probably of eighteenth- or nineteenth-century date and perhaps from an unidentified English country pottery.

CERAMIC BUILDING MATERIAL by JOHN COTTER

The assemblage of eight pieces of medieval tile was residual in four eighteenth- and nineteenth-century contexts. Three fragments were worn pieces of medieval peg tile (combined weight 146 g), from contexts 102, 103 and 117. The remainder comprises five pieces (609 g) representing four separate medieval decorated floor tiles and all were from the upper levels of eighteenth-/nineteenth-century ditch 103/176. These are all corner fragments of various sizes and vary in condition from worn to very worn but all retain traces of white slip decoration and glaze. They all have a very sandy orange-red fabric, deeply stabbed pits or keying on the underside and deeply 'inlaid' white slip decoration, which identifies them as floor tiles of the 'Stabbed Wessex-type' (c.1280–1330). This type is common from monastic sites in Oxford and was one of the commonest types at nearby Rewley Abbey whence the tiles here probably came.²⁰ These mostly have bevelled edges and are within the 20–26 mm thickness range. Owing to their poor condition they have not been illustrated, but the designs can, for the most part, be paralleled in Loyd Haberly's corpus of medieval floor tiles of the Oxfordshire region and are therefore briefly described below.²¹ Tiles illustrated by Haberly are usually referred to by his initials followed by the catalogue number (for example, LH VIII).

Context 102 (c.1700–1800?)

Corner with partial design of two intersecting pointed ovals or 'lentoids' forming a four-pointed star or cruciform design with dot filler. Originally with central quatrefoil. LH LIX.

Corner with partial design (very worn). Part of a large quatrefoil border or frame with traces of curved lines within – originally probably a walking lion. Small trefoils in corners. Probably LH XLIII.

Corner with partial design. Trident-like fleur-de-lys. Originally one of four fleurs radiating out from centre from a small central square containing a circle. Probably LH LVI.

Context 187 (c.1700–1800?)

Two joining pieces from corner with partial design barely visible under dark brownish glaze (probably reduced by waterlogged conditions). Larger/fresher than the tiles above but still somewhat worn. Faintly visible heraldic shield (occupying a quarter of the original tile) with top flush with side of tile. Shield with several horizontal bars. No exact parallel but possibly a variant of LH XV (Arms of Clare).

GLASS by IAN SCOTT

Two sherds of vessel glass were identified. One is a body sherd in an olive green glass (context 141) and is probably from a squat bottle of large diameter rather than from a cylindrical bottle. It therefore should be dated to the early eighteenth century, perhaps even to the late seventeenth century. The second sherd is from the neck of a cylindrical wine bottle in dark olive green metal (context 123). This is probably part of an early moulded bottle of mid to late nineteenth-century date, rather than from a free blown bottle of late eighteenth- or early nineteenth-century date.

THE WATERLOGGED AND CHARRED PLANT REMAINS by KATH HUNTER (TABLE 1)

Two samples were selected for plant macrofossil analysis, primarily to aid the interpretation of the features but also to look for evidence of plant use by inhabitants of Rewley Abbey and for indications of later land use. Two 22 litre bulk soil samples were processed using a standard wash-over technique with the flot

²⁰ J. Cotter, 'A Commentary on the Source and Local Context of the Floor Tiles', in Munby et al., *From Studium to Station*, pp. 54–7.

²¹ L. Haberly, *Mediaeval English Paving Tiles* (Oxford, 1937).

collected on a 250 µm mesh and the residue on a 500 µm mesh. A one litre sub-sample from each context was also processed using bucket flotation to recover waterlogged remains. Both the flot and residue were collected on 250 µm mesh. The resulting flots and residues were retained wet. All the flots and residues were sorted using a low powered microscope at magnification between x10–20 (MTL10.). The plant remains extracted were then identified using a reference collection of modern plant remains and comparative texts.²²

Sample 108 (Context 131)

This was taken from the basal fill of what was thought to be a medieval pond (context 130). The charred plant remains consisted of one grain which resembles a bread wheat type (*Triticum* cf. *aestivum*) and a single achene of stinking chamomile (*Anthemis cotula*). The paucity of this kind of plant remains suggest that these are residual inclusions. In contrast, abundant waterlogged remains were recovered; the species represented are recorded in Table 1. Two plum stones (*Prunus domestica*) suggest that domestic fruit was eaten and/or the presence of nearby fruit trees. The stones were sufficiently different in shape to suggest that they might be from two different subspecies – possibly damson and plum. Pondweed (*Potamogeton* sp.), along with the remains of Caddis fly larva cases suggest an oxygen-rich and relatively clean body of water. Several species noted may be representative of a waterside habitat: cow parsley (*Anthriscus sylvestris*) and meadow sweet (*Filipendula ulmaria*) are often found growing in this kind of environment. The relatively large number of bramble and nettle seeds might suggest overgrown vegetation at a wood margin or hedgerow. Nettles (*Urtica dioica*) often colonize nitrogen rich soils associated with human activity. Possible wood dock (*Rumex* cf. *sanguineus*) and nettle along with elderberry seeds (*Sambucus nigra*) also suggests that there may have been woodland or a hedgerow close by. The presence of pimpernel (*Anagalis arvensis*) may represent a more open grassy environment, but it is only represented by one seed and it is possible that the seed was carried by water from some distance away.

Sample 103 (Context 106)

This was taken from fill of possible post-medieval ditch 103. It again produced few charred remains but abundant waterlogged plant macrofossils. The charred plant remains consisted of six bread wheat type cereal grains with a number of cereal grain fragments and some fragments of charcoal. Again these might represent a residual deposit. The waterlogged remains were very abundant. There were no domestic plants represented but again plants that could potentially have been utilized by people were present. These included bramble/blackberry (*Rubus* sp.) and hazelnut (*Corylus avellana*). Open water plants such as pondweed were again present as were rigid hornwort (*Ceratophyllum demersum*) and lesser pond weed (*Potamogeton* cf. *pusillus*). These plants, together with possibly two types of Caddis fly larvae, again suggest a relatively open body of water (one of the larvae cases had waterlogged dock (*Rumex* sp.) seeds attached to it rather than the sand grains seen on the previous examples). The rigid hornwort prefers slow moving water and taken together with the presence of one oogonia of *Chara* sp. (stonewort: an algae) might suggest evidence of stagnation, although the latter may equally have been carried in the water from some distance away. Selfheal (*Prunella vulgaris*) may be representative of a drier open environment but this plant is again represented by only one seed.

Discussion

The charred remains in both samples provide only very limited information about crop utilization, and it is likely that they are residual. Apart from the two plum stones in sample 108 which may have originated from trees in or close to the abbey grounds and almost certainly represent domesticated varieties, all the waterlogged remains represented wild plants. However, the fruit and nuts from some would have been potentially available for human consumption as both elder and bramble produce edible fruit. The samples also produced evidence of several habitat types, which may represent the flora in and close to the features. It is likely that the possible pond held fresh, fairly clean water and was surrounded by permanently damp open vegetation and scrub or woodland margin. However, whether this was a pond as opposed to a slow flowing stream, river or ditch is unclear from the plant remains alone. The waterlogged remains from ditch sample 103 are indicative of still but again relatively clean water, although there may have been periods of stagnation. Earlier excavations on the site of the abbey did not produce sufficient plant remains

²² W. Beijerinck, *Zandenatlas Der Nederlandsche Flora* (Wageningen, 1947); G. Berggren, *Atlas of Seeds and Small Fruits of Northwestern-European Plant Species. Part 2: Cyperaceae* (Stockholm, 1969); idem, *Atlas of Seeds and Small Fruits of Northwestern-European Plant Species. Part 3* (Stockholm, 1981); R.T.J. Capper et al., *Digitale Zandenatlas van Nederland* (Barkhuis, 2006); C.A. Stace, *New Flora of the British Isles* (Cambridge, 2010).

Table 1. The plant remains identified from samples 103 and 106 (all remains are waterlogged unless indicated)

FAMILY	TAXA	COMMON NAME	COMPONENT	HABITAT	Sample 103 (context 106)	Sample 108 (context 131)
	<i>Triticum</i> sp.	Wheat (bread wheat type)	grain (charred)	C	6	1
	Cereal NFI	Unidentified cereal	grain fragments (charred)	C	12	
Ceratophyllaceae	<i>Ceratophyllum demersum</i> L.	Rigid hornwort	achene	P, R (slow moving)	3	
Ranunculaceae	<i>Ranunculus acris</i> L./repens L.	Buttercup meadow/creeping	achene	G (damp), B	9	3
	<i>Ranunculus</i> sp. subgen <i>batrachium</i>	Water crowfoots	achene	P, R	128	26
Fabaceae	<i>Vicia/Lathyrus</i>	Vetch/pea type	seed (charred)		2	
Rosaceae	<i>Prunus domestica</i> cf. ssp. domestica	Plum	stone			1
	<i>Prunus domestica</i> cf. ssp. Insitita	Damson type	stone			1
	<i>Filipendula ulmaria</i> (L.) Maxim.	Meadowsweet	seed	wet, damp places		13
	cf. <i>Rubus</i> sp.	Bramble type	spine			36
	<i>Rubus</i> sp.	Brambles	seed		1	151
Urticaceae	<i>Urtica dioica</i> L.	Common nettle	achene	D, W	33	67
Betulaceae	<i>Corylus avellana</i> L.	Hazel	nut shell	W, H	1	
Onagraceae	<i>Epilobium</i> cf. <i>hirsutum</i>	Great willowherb	seed	wet, damp places	9	1
Malvaceae	cf. <i>Malva</i> sp.	Mallow	nutlet			1
Brassicaceae			seed		3	2
	cf. <i>Rorippa/Nasturtium</i> sp.	Yellow watercress	seed	B/B, P, R	6	1
	<i>Thlaspi arvense</i> L.	Field penny-cress	seed	W, A	1	
Polygonaceae	<i>Persicaria maculosa</i> Gray	Redshank	achene	Da		1
	<i>Persicaria hydropiper</i> L.	Water-pepper	achene	B, Aqu (shallow)	2	
	<i>Rumex</i> sp.	Dock	achene		7	
	<i>Rumex</i> cf. <i>Sanguineus</i> L.	Wood dock	achene (some with tepal)	W (damp), B	4	52
Caryophyllaceae	cf. <i>Stellaria</i> sp.				1	7
	cf. <i>Myosoton aquaticum</i> (L.) Moench	Water chickweed	seed	marsh, ditches, banks	2	
Amaranthaceae	<i>Chenopodium</i> sp. I. (Blitum L.)	Goosefoots	seed		1	1
	<i>Atriplex</i> sp.	Orache	seed		7	
Primulaceae	<i>Anagalis arvensis</i> L.	Scarlet pimpernel	seed	Da		1
Rubiaceae	<i>Galium operine</i> L.	Cleavers	nutlet (charred)	Da, Dc, H	1	
Scrophulariaceae	<i>Scrophularia auriculata</i> L.	Water figwort	seed	damp, open and shady, H	7	3

Table 1. Continued

FAMILY	TAXA	COMMON NAME	COMPONENT	HABITAT	Sample 103 (context 106)	Sample 108 (context 131)
Laminaceae					13	1
	<i>cf. Lamium</i> sp.	Dead-nettle type	seed		1	
	<i>Scutellaria galericulata</i> L.	Skullcap	seed	B, G (wet)	1	
	<i>Prunella vulgaris</i> L.	Self heal	seed	G, woodland clearings	1	
	<i>Lycopus europaeus</i> L.	Gypsywort	seed	B	4	1
	<i>Mentha cf. aquatica</i> L.	Water mint	seed	marsh, ditches, wet fields	1	
					1	
Asteraceae					2	
	<i>Cirsium</i> sp.	Thistles	achene		1	
	<i>Picris hieracioides</i> L.	Hawkweed oxtongue	achene	G, D	1	
	<i>Soncus cf. Asper</i> (L.) Hill	Prickly sowthistle	achene	W, Dc	11	3
	<i>cf. Soncus</i> sp.	Sowthistle type	achene		2	
	<i>Taraxacum</i> sp. F. H. Wigg	Dandelion	achene		1	
	<i>Anthemis cotula</i> L.	Stinking chamomile	achene (charred)	Da		1
Caprifoliaceae	<i>Sambucus nigra</i> L.	Elder	seed	W, H		10
Apiaceae	<i>Anthriscus sylvestris</i> (L.) Hoffm.	Cow parsley	fruit	G, H wood margins		9
	<i>Apium nodiflorum</i> (L.) Lag.	Fool's-water-cress	fruit	P, R, B	1	
Potamogetonaceae	<i>Potamogeton</i> sp.	Pondweed	achene	aquatic	1	1
Potamogetonaceae	<i>Potamogeton cf. pusillus</i> L.	Lesser pondweed	achene	P, R	21	1
Cyperaceae	<i>Carex</i> sp.		nutlet (biconvex)		3	3
	<i>Carex</i> sp.		nutlet (trigonus)			
	<i>Chara</i> sp.	Stone wort	oogonia	aquatic, often stagnant	1	*
Caddis fly larvae cases					**	*

KEY

B	Bankside	H	Hedge bank	*	Rare 1-5
C	Cultivated	M	Marsh	**	Occasional 6-20
D	Disturbed ground	S	Scrub	***	Frequent 21-100
Da	Disturbed ground inc. arable	W	Woodland	****	Abundant 100+
Dc	Disturbed cultivated	P	Ponds/ditches		
G	Grassland	R	River		

to warrant analysis.²³ Hence the survival of both charred and waterlogged material in the assemblages from these two features demonstrates the potential for the survival of these kinds of material in the area, a fact of relevance for any future archaeological investigations in the vicinity of Rewley Abbey.

ENVIRONMENTAL EVIDENCE FROM MONOLITH SAMPLES by CARL CHAMPNESS

Five monolith samples were taken for further sedimentary and environmental assessment. Each was examined, photographed and logged in detail. The sediments were recorded following standard techniques.²⁴

Samples 104 and 105

A monolith sequence was taken through a large oval-shaped feature that was believed to be a possible medieval fishpond (130). The feature was 10 m in diameter and 1.5 m in depth, filled with a sequence of low-energy clayey silts (131–33), overlain by modern make-up deposits (134). The basal fill (131) of the feature was a soft to firm light yellowish brown silty clay with frequent snail and pebble inclusions. The occasional presence of charcoal throughout the deposit would indicate burning activity within the wider area. A diffuse interface deposit of soft mid yellowish brown silty clay was present between this and the overlying deposit. This was itself overlain by a soft mid blackish brown silty clay deposit (132), 0.30 m in thickness, with frequent charcoal and coarse pebble inclusions. Above this was a soft friable dark blackish organic brown silt with frequent pebble and grit inclusions (133).

Sample 106

A second possible medieval fishpond (136) was encountered at the very edge of the excavation and so a complete cross-section of the feature was not achieved. The sample from the basal deposits indicated a more organic basal deposit compared to the other fishpond (130), possible indicating a change in water-levels or conditions within the site. The basal fill (137) of the feature was soft dark brown silty clay with frequent charcoal and pebble inclusions. Freshwater snails were present through the deposits with a clear concentration of shells near to the very top of the deposit. This was overlain by soft light brownish grey homogeneous silty clay with rare sub-rounded pebbles (138). There was a distinction erosional contact between the two deposits. The overlying silty clay alluvial sequence (139) was not sampled.

Samples 100 and 101

Two monolith samples were taken through post-medieval ditch 103. The basal fill of the ditch (106) was a slightly oxidized loose mildly organic light greenish grey fine sand and silt. This was overlain by a thin 0.10 m thick band of gleyed brownish grey silty clay possible representing the in-wash of silts through either increased floodplain flooding or increasing groundwater levels within the ditch. There is a return to organic-rich sedimentation in the overlying silty clay deposit (105) with signs of decayed vegetation remains visible within the deposit.

Interpretation

The samples from the excavation reveal an area which was prone to flooding and sediment in-wash. The low-energy nature of the deposits would indicate a series of water-filled features that may have received coarser elements either through overbank flooding or through small channel inlets. The organic nature of some of the feature fills would suggest that vegetation might have been growing within or encroaching at the edges of the features. The upper fills of some features may have seen some small degree of organic middening or backfilling. The fills of the two oval features (130 and 136) are consistent with their interpretation as fishponds. The nature of the deposits would indicate waterlain deposits in a changing environment where water levels appear to have fluctuated over time. The different nature of the deposits between the two ponds would indicate that the two features may not be contemporary and one may have been superseded by the other. A marked bend in the later post-medieval inlet channel (140) near to the earlier ponds, associated with the later much larger post-medieval pond (114), may suggest that the earlier fish ponds were fed by the river in a similar way via small channel inlets (removed by the later activity). Ditch 103 was most likely a later addition to the drainage system of the island, possible to facilitate better drainage for the purpose of improving pasture or agriculture.

²³ Munby et al., *From Studium to Station*, p. 5.

²⁴ A.P. Jones et al. (eds.), *The Description and Analysis of Quaternary Stratigraphic Field Sections* (London, 1999).

MOLLUSCAN REMAINS by CARL CHAMPNESS (TABLE 2)

Two basal samples (107 and 108) were examined for molluscan remains from probable pond 130. The samples were processed initially for plant remains and then molluscan remains and consisted of 10 litres of sediment, disaggregated in water, floated onto 0.5 mm nylon mesh and air dried. The residues were also retained to 0.5 mm. For the purpose of analysis, the flots were then scanned under a binocular microscope at magnifications of x10 and x20 and an estimate of abundance recorded. The flots and residues of samples selected for further analysis were systematically picked for identifiable mollusc fragments. All of the finer grade (1–0.5 mm) residues from the bulk samples were sorted. Flotation in these samples appears to have been good with only very occasional items retained in the residues. The species present in each assemblage were identified by Elizabeth Stafford.²⁵ Whole shells and apical fragments were estimated. The results are presented in Table 2. Bivalves were assigned to the general *Pisidium* spp. group and the number of terrestrial species noted. For the freshwater molluscs, groups defined by habitat preferences consist of:

Slum species: those able to live in water subject to stagnation, drying up and large temperature variations.

Catholic or intermediate species: tolerate a wide range of conditions except the worst slums.

Ditch species: require clean, slowly moving water often with abundant aquatic plants.

Flowing water species: require a clean stream with a current.

Table 2. Snail assemblage from pond feature 130

TAXA (context 131)	Sample 108 (context 132)	Sample 107
Flowing water species		
<i>Valvata cristata</i> (Müller, 1774)	++	
<i>Valvata piscinalis</i> (Müller, 1774)	+++	+
<i>Bithynia tentaculata</i> (Linnaeus, 1758)	++	+++
Ditch species		
<i>Planorbis planorbis</i> (Linnaeus, 1758)	+++	+++
<i>Planorbis contortus</i> (Linnaeus, 1758)	++	+
<i>Anisus vortex</i> (Linnaeus, 1758)	++	
<i>Bathyomphalus contortus</i> (Linnaeus, 1758)		+
Catholic species		
<i>Gyraulus crista</i> (Linnaeus, 1758)	+	
<i>Lymnaea palustris</i> (Müller, 1774)	++	
<i>Lymnaea peregra</i> (Müller, 1774)	+++++	
Slum species		
<i>Lymnaea truncatula</i> (Müller, 1774)	++	
<i>Anisus leucostoma</i> (Müller, 1813)	++	
Bivalves		
<i>Pisidium</i> spp.	+++	+
Terrestrial species		
<i>Cochlicopa</i> spp.	+	
<i>Vallonia</i> spp.	+	

KEY

+ (1-3), ++ (4-17), +++ (18-25), ++++(26-50), +++++ (51-100)

²⁵ Summary habitat information follows A.E. Boycott, 'The Habits of Freshwater Mollusca in Britain', *Journal of Animal Ecology*, 144 (1936), pp. 129–30 and J.G. Evans, *Land Snails in Archaeology* (London, 1972); nomenclature after M. Kerney, *Atlas of Land and Freshwater Molluscs of Britain and Ireland* (Colchester, 1999).

Sample 108 (Context 131)

The basal sample of the pond provided quite a diverse aquatic assemblage of ditch, flowing water and slum taxa, but individual terrestrial species were also present. Abundance estimates indicate just over 100 individuals (10/ltr). The assemblage was dominated by *Planorbis planorbis*, which favours well-vegetated shallow pools/ditches, and *Lymnaea peregra*, which is a catholic species that inhabits all kinds of aquatic environments. Other species present are listed in Table 2. Species like *Valvata cristata* are restricted to well-oxygenated, slowly flowing or still water, with a strong preference for richly vegetated places. Many of these species, like *Anisus vortex*, *Valvata picalis* and *Gyraulus crista*, avoid closed pond and lake systems that are prone to seasonal desiccation. Other species, like *Anisus leucostoma*, *Lymnaea truncatula* and *Planorbis planorbis*, are more tolerant of seasonal drying out and may have been present around the edges of the feature.

Sample 107 (Context 132)

The upper basal fill of the pond produced a purely aquatic assemblage with no slum or terrestrial assemblages. The organic rich feature fill and snail assemblage would suggest that the deposit was formed within a wetland environment with vegetation growing either within or at the edges of the feature. Shell was generally poorer in this sample, ranging from 50–60 individuals (10/ltr), and it was of lower diversity though similar in character, dominated mostly by freshwater species, *Planorbis planorbis* and *Bithynia tentaculata*. These species favour well-vegetated aquatic environments, like ponds and lakes. The increases in *Bithynia* may indicate slightly more flowing conditions in muddy bottomed environments where there are dense growths of aquatic plants. The decline in *Lymnaea* spp. within the assemblage may indicate deeper and more stable water levels at this time.

Discussion

The results of the molluscan analysis indicate an entirely aquatic assemblage. The assemblages were dominated by species indicative of well-oxygenated slightly flowing and still water, characteristic of ponds, lakes and river backwaters. Some of the aquatic species may also derive from overbank flooding due to its close proximity to the river, but the ditch and slum species are clearly more representative of a lower-energy environment like a pond. The presence of a few slum and water edge species would suggest that the pond levels may have fluctuated, but never completely dried out during the summer months. The assemblage would also indicate that the pond or its edges were well vegetated, and the absence of *Succineidae* may indicate that they did not support reeds or rushes. Sufficient water levels appear to have been maintained in the pond to provide an aquatic environment. The molluscan evidence suggests an open pond system that may have been connected to the river via small channel inlets, which meant that the pond maintained some degree of water flow and depth during the summer. The pond environment appears to have supported clean, oxygen rich water, with abundant aquatic vegetation that would have been well suited for its use as a fishpond. This feature appears to have formed part of a managed system of fishponds in the area that may have supplied the abbey or its associated residences with fresh fish and eels.

ANIMAL BONES by LENA STRID (TABLE 3)

The very small animal bone assemblage comprised 31 refitted bone fragments, 26 of which date from the medieval period. As the assemblage is so small it is only summarised here, but a full record can be found in the site archive. The bones were recovered through hand collection during excavation and from wet sieving of bulk samples sieved to 0.5 mm. The sieved fragments constituted 48.4% of the total number of fragments and were entirely comprised of frog and unidentified amphibian remains from medieval features. The species present are shown in Table 3. Dental ageing indicates that one sheep or goat was an animal of 6–8 years of age.²⁶ Sheep/goats of this age are more common in rural manorial assemblages than urban assemblages and probably represent wool-producing sheep at the end of their useful life. One cattle pelvis and one sheep/goat distal tibia were fused, indicating an age of death of more than 7–10 months and 15–20 months respectively. Sexing was carried out on one female cattle pelvis. A single sheep/goat tibia could be measured, and displayed a distal width of 24.8 mm. Butchery marks were noted

²⁶ A. Grant, 'The Use of Toothwear as a Guide to the Age of Domestic Ungulates', in B. Wilson et al. (eds.), *Ageing and Sexing Animal Bones from Archaeological Sites*, BAR BS, 109 (1982), pp. 91–108; S. Payne, 'Kill-Off Patterns in Sheep and Goats: The Mandibles from Aswan Kale', *Anatolian Studies*, 23 (1973), pp. 281–303.

Table 3. Anatomical distribution of animal bone

	Medieval						Post-Medieval		Modern	
	Cattle goat	Sheep/ goat	Frog	Amphibian	Medium mammal	Large mammal	Sheep goat	Horse	Sheep	Large mammal
Skull							2			
Mandible	1	1								
Vertebra				1		2				
Rib					1	3				1
Humerus			1	1						
Metacarpal									1	
Pelvis	1									
Femur	1			2						
Tibia		1								
Tibiofibula			3							
Metatarsal								1		
Long bone				7						
Total (NISP)	3	2	4	11	1	5	2	1	1	1
Weight (g)	231	73	0	0	2	44	157	106	29	55

on two bones: one rib from a medium sized mammal had transverse cutmarks, probably from filleting, and one vertebra from a large mammal had been split axially, which is typical for division of a suspended carcass, a very common butchery method in the Middle Ages.

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