# ROMAN, MEDIEVAL AND POST-MEDIEVAL ACTIVITY AT ASHTON ST PETER'S LOWER SCHOOL, DUNSTABLE, BEDFORDSHIRE

## Publication report

**February 2019**

**Aldi Stores Ltd**

Issue No: 2
NGR: 50204 22199

oxfordarchaeology
southsouthsouth

| | |
|---|---|
| Client Name: | Aldi Stores Ltd |
| Document Title: | Roman, medieval and post-medieval activity at Ashton St Peter's Lower School, Dunstable, Bedfordshire |
| Document Type: | Publication report |
| Grid Reference: | 50204 22199 |
| Planning Reference: | 2004/682/FUL |
| Site Code/Accession No.: | DUASP/2004/111 |
| Invoice Code: | DUNAPPX |
| Receiving Body: | Luton Culture |

| | |
|---|---|
| OA Document File Location: | X:\d\Dunstable_Ashton_St_Peters\PX\Client report\ |
| OA Graphics File Location: | \\10.0.10.86\invoice codes a thru h\D_invoice codes\DUNAPPX |

| | |
|---|---|
| Issue No: | 2 |
| Date: | 5th February 2019 |
| Prepared by: | Martyn Allen (Project Officer) |
| Checked by: | Paul Booth (Senior Project Manager) |
| Edited by: | Leo Webley (Head of Post-Excavation) |
| Approved for Issue by: | David Score (Head of Fieldwork) |
| Signature: | |

***Disclaimer:***
*This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Oxford Archaeology being obtained. Oxford Archaeology accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person/party using or relying on the document for such other purposes agrees and will by such use or reliance be taken to confirm their agreement to indemnify Oxford Archaeology for all loss or damage resulting therefrom. Oxford Archaeology accepts no responsibility or liability for this document to any party other than the person/party by whom it was commissioned.*

**OA South**
Janus House
Osney Mead
Oxford
OX2 0ES

t. +44 (0)1865 263 800

**OA East**
15 Trafalgar Way
Bar Hill
Cambridge
CB23 8SG

t. +44 (0)1223 850 500

**OA North**
Mill 3
Moor Lane Mills
Moor Lane
Lancaster
LA1 1QD
t. +44 (0)1524 880 250

e. info@oxfordarch.co.uk
w. oxfordarchaeology.com
Oxford Archaeology is a registered Charity: No. 285627

# ROMAN, MEDIEVAL AND POST-MEDIEVAL ACTIVITY AT ASHTON ST PETER'S LOWER SCHOOL, DUNSTABLE

Martyn Allen and Paul Booth

with contributions by Sheila Boardman, John Cotter, Mike Donnelly, David Dungworth, Rebecca Nicholson, Ian Scott and Ruth Shaffrey

## INTRODUCTION

In 2007 Oxford Archaeology (OA) was commissioned by Thurley Associates on behalf of Aldi Stores Ltd to excavate a site at Ashton St Peter's Lower School in Dunstable. The school was demolished in advance of the construction of a supermarket. The excavation revealed features of Roman, medieval and post-medieval date. The Roman phase was characterised by a series of ditches in the northern part of the site with a scatter of pits and postholes found elsewhere. Much of the Roman archaeology appears to have been truncated by medieval features, particularly areas of quarrying. The most notable medieval remains comprised three kilns (possibly used as malting ovens) and several wells. Post-medieval features were mostly located in the southern part of the site, including part of a building that once fronted Church Street. This structure appears to have been an end-of-terrace house, as seen on early Ordnance Survey maps, though finds from the building suggest that its origins probably lay in the 16th/17th century, though a late medieval construction cannot be ruled out. Other features related to the early life of Ashton St Peter's School which was built in the 19th century.

### Site location

The site is located in the centre of Dunstable (TL 0204 2199) to the north of Church Street and to the east of the A5 (Fig. 1). The former school site is currently occupied by an Aldi store, which was constructed shortly after the excavation, and is bordered by housing on Kingsbury Court to the east and two enclosed fields to the north. To the west, the site is bordered by an access road, shops and a car park.

Dunstable lies at the foot of the Chilterns, just to the north of the Area of Outstanding Natural Beauty (AONB). The site is fairly flat and is located at a height of *c* 145m above Ordnance Datum (aOD). The bedrock geology consists of undifferentiated Holywell Nodular Chalk Formation and New Pit Chalk Formation, though shallow clay deposits are sometimes encountered locally (www.bgs.ac.uk). The chalk is overlain by freely draining, lime-rich loamy soils (www.landis.org.uk).

### Historical and archaeological background

*Roman and medieval Dunstable*

The site lies within the historic core of Dunstable. The settlement centres on the junction of the Icknield Way, which is reputed to have prehistoric origins (cf Harrison 2003), and Watling Street, the Roman road linking London with the north-west of the province and now followed by the A5. Little is known of prehistoric settlement activity in Dunstable, though a Neolithic causewayed enclosure and Iron Age hillfort is located at Maiden Bower, just over 2km west of the centre of the modern town. This site is a scheduled monument (NHLE 1015593).

Dunstable has long been accepted as the site of *Durocobrivis*, a roadside settlement that appears to have been established in the 1st century AD (Rivet and Smith 1979, 349–50). Early Roman occupation in the form of enclosure ditches and pits was identified about 300m north of the Watling Street/Icknield Way crossing at Queensway Hall (Mudd 2004). These features were abandoned at the start of the 2nd century AD. A 1st–2nd-century mixed-rite cemetery was discovered about 150m to the west of this site and may have provided an early burial ground for the settlement (Edwards 2010). An excavation towards the south-western periphery of the settlement, 200m west of Watling Street, revealed evidence for pits and wells dating to the 1st and 2nd centuries AD, some of which contained human skeletons (Matthews and Hutchings 1972; HAT 2001). Closer to the centre of the settlement, archaeological investigations undertaken during the building of the Quadrant Centre in 1964 revealed Roman remains dating from the 2nd to the 4th centuries AD (HER No. 11270). Evidence of a metalled road, potentially part of Icknield Way, was discovered alongside three probable timber buildings and numerous pits and wells. By the 4th century, the south-west periphery of the settlement at Friary Fields was converted into an enclosed inhumation cemetery. The boundary ditch was used for the burial of people, horses and dogs in the later 4th century (Matthews 1981).

There is little evidence of Anglo-Saxon activity in the town, and it is possible that the settlement was largely deserted during this period. Excavation 2km north-west of Dunstable at Puddlehill revealed the remains of a 5th–7th-century settlement and burial ground, while a later 6th/early 7th-century cemetery containing nearly 50 inhumations was found at Marina Drive in West Dunstable (Matthews 1962a; 1962b).

Henry I founded a new town out of his Houghton Regis estate at the Icknield Way/Watling Street crossroads in 1119 (Page 1912). A royal residence was established in Dunstable, which was regularly visited by the monarch until the reign of Henry VIII (HER 4355). It has been suggested that the residence was located along Church Street around Kingsbury Court and Old Palace Lodge (HER 148), but while excavations at Kingsbury Court produced some medieval remains there was no evidence for a royal residence (HER 15079). Henry I also founded St Peter's Augustinian Priory in 1132 on the south side of Church Street (HER 131 and 132) close to the present site. The priory, which is a Scheduled Ancient Monument (NHLE 1004676 and NHLE 1114581), was dissolved in 1540 and the conventual buildings were demolished a little later, though the church nave was retained as Dunstable parish church.

*Archaeological background of the site*

The site was formerly occupied by Ashton St Peter's Lower School, which was built in 1861. This building is shown on the 1st edition Ordnance Survey map of 1880 (25 inch) set a short distance back from Church Street, which was fronted by a series of houses with back gardens. The land immediately north of the school appears to have been covered by an orchard in the later 19th century, and this area was subject to an archaeological evaluation by Hertfordshire Archaeological Trust in 2000 as part of the early phase of town regeneration (HAT 2000). Five trial trenches were excavated, two of which encroached on the northern part of the Ashton St Peter's School site. Archaeological features were encountered in each of the trenches, though there was a greater concentration of activity in the two southernmost trenches (Fig. 2). A small quantity of abraded late Iron Age pottery sherds was recovered from subsoil layers, hinting at some pre-Roman activity in the area. Roman wares, particularly of 3rd–4th century date, dominated the pottery assemblage and included a small amount of regional fine wares and continental imports. Medieval pottery was comparatively less common but included a range of Saxo-Norman, early- and high-medieval regional wares.

By 2004 Ashton St Peter's Lower School had been acquired by Aldi Stores. The first phase of archaeological evaluation at the site was carried out by OA, comprising two small trenches set fairly close to Church Street (OA 2004). The work revealed a possible Roman pit and 11th–13th-century quarrying.

In 2006 OA undertook a second phase of evaluation work, consisting of four trenches (OA 2006). Trenches 1, 2 and 4 were located south of the school building while trench 3 was dug to its north. Trench 3 contained a concentration of features that produced pottery dating from the later 1st century to the 4th century, as well as a single sherd of residual late Iron Age pottery, confirming the results of the 2000 HAT evaluation. None of the features identified could be dated to the medieval period. Quantities of post-medieval building materials were encountered across the site, some of which was recovered from Roman features that had been truncated by later construction works.

The school was demolished later in 2006 to make way for the development of the Aldi supermarket. This allowed for a larger area to be excavated in the central area of the site. The excavation was undertaken in 2007, mainly in advance of building work. This report presents the results of the 2007 excavation. In 2018, a watching brief was undertaken to monitor the groundworks of an extension to the northern end of the car park (OA 2018). This work revealed two medieval pits and two ditches that probably relate to 20th-century features.

## THE 2007 EXCAVATION

The 2007 excavation was undertaken in two main phases, with one large trench (Trench 1) followed by three smaller areas of watching brief work (Fig. 2). Trench 1 measured *c* 62m x 40m and exposed the area for the foundations of the Aldi supermarket and included four evaluation trenches from previous work. In the second phase, three subsidiary areas were excavated. Trenches 2 and 3 were positioned for a soakaway and associated drainage to the north of Trench 1. Trench 2 measured *c* 19m x 5m and partially included evaluation trenches dug by OA in 2006 and HAT in 2000. Trench 3 was narrow and L-shaped, measuring between 1m and 8m wide and *c* 45m in length. Trench 4 was located to the south-west of Trench 1 and measured 10m x 5m.

In each trench, the overburden and subsoil layers were stripped by mechanical excavator to the first archaeological horizon and the resulting spoil was scanned for artefactual remains, though no metal-detector was used. Excavation of archaeological features followed standard OA fieldwork methodology guidelines. Not all the archaeological features identified were excavated and several clearly modern intrusions were left unexcavated (Fig. 3). Also, some features were truncated by the foundations of the supermarket that were unfortunately partially laid after site stripping but prior to the excavation taking place. Of those features excavated, 10% of linear features and 50% of pits and postholes was investigated. Several wells were found on site and these were generally half-sectioned and excavated down to a safe level, usually no more than 1.2m. Two Victorian wells (775 and 780) found near the eastern edge of Trench 1 were exposed but not excavated. The three medieval kilns were fully excavated though two of these had been partially truncated by the supermarket foundations. The post-medieval structure located in the south-east corner of Trench 1 was fully exposed and an L-shaped slot was dug across the area to investigate its stratigraphy. Several large quarries were found, most notably in the northern part of the site. These were sampled by excavation to recover suitable dating evidence.

Dating of features relied upon the recovery of pottery and, in a few cases, ceramic building material, though it became quickly apparent that a sizable quantity of Roman finds was present in later medieval and post-medieval features. Excavated archaeological features have been phased as ‘Roman’ (phase 1), ‘medieval’ (phase 2) and ‘late medieval/post-medieval’ (phase 3), though many were left unphased (Fig. 3). The excavation archive will be deposited with Luton Culture, Bedfordshire, under the accession code DUASP/2004/111.

**Prehistoric activity**

No features at the site conclusively dated prior to the Roman period. A small quantity of prehistoric worked flint was recovered, though all of it was residual in later contexts or from the overburden (see *Worked Flint*).

No certainly pre-Roman ceramics were identified during the 2007 excavation. It is worth noting, however, that a few sherds of late Iron Age pottery were recovered from subsoil layers in evaluation trenches to the north of Trench 1, which suggests that there may have been some pre-Roman activity to the north of the site (HAT 2000; OA 2006). The small possibility that one or two ditches in the northern part of the site may have been late Iron Age is highlighted below.

**Phase 1: Roman**

A scatter of Roman features was discovered across the site. Residual Roman material was also frequently recovered from numerous medieval and post-medieval features that had truncated earlier remains.

*Boundary ditches*

A series of Roman ditches were found in the northern part of the site. These were roughly aligned east–west and north–south and probably formed field or enclosure boundaries, though they varied in size and extent. Trench 2 exposed 19m of the length of ditch 1120. The feature had a V-shaped profile, and measured over 2m wide and 1.05m deep (Fig. 4, Section 706). The Roman ditch contained four surviving fills (1020–1023) before being recut in the medieval period by ditch 1098. The basal fill (1020) consisted of a natural accumulation of silty clay, while the next three layers consisted of chalk or chalky clay that appear to have been redeposited up-cast material. Two of these fills—1021 and 1023—were thin layers that had formed on the southern side of the ditch. Fill 1022 directly overlay the basal fill and contained 2nd-century pottery. The upper fills were dug through by ditch 1098 in the medieval period to a depth of 0.7m. The first fill, 1009, contained two sherds of 12th–14th-century pottery, residual 3rd/4th-century AD pottery, animal bones and small fragments of poorly preserved iron. The upper two fills, 1024 and 1025, were thicker and consisted of a mixture of clay, silt and chalk, and contained a mixed assemblage of Roman pottery, a fragment of modern blue/green glass and metal (the latter two from the uppermost fill 1024). Two medieval pits, 1035 and 1036, cut the upper layers of the ditch on its southern side (Fig. 4, Section 711).

Several pits were located to the north of ditch 1120, all of which were excavated though only two, 1004 and 1006, could be dated to the Roman period on the basis of contemporary pottery and a lack of later material.

A small section of east–west ditch 1108 was located exposed in Trench 3. This ditch was not on the same alignment as ditch 1120, though the two features had similar V-shaped profiles. Ditch 1108 reached 0.8m deep and contained a grey silt fill. This ditch may have been associated with ditch 1106 which was north–south aligned and located in the southern end of Trench 3. It, too, had a V-shaped profile, reached *c* 0.7m deep and contained a grey silt fill.

Ditches 633 and 592 were exposed in the northern part of Trench 1, though these ditches were considerably narrower than ditch 1120 and measured only 0.2m deep. These ditches did not produce any datable finds, but their stratigraphic relationship with other features suggested that they were either late Iron Age or early Roman (see below). Ditch 633 was north-south aligned and was cut at its northern end by medieval quarry 658 and posthole 636. The southern end of the ditch was truncated by another, probable medieval quarry (unexcavated). Ditch 592 extended for about 29m from its western terminal, though it was truncated along its length by well 607 and the unexcavated quarry feature. Crucially, however, it was also cut near the eastern end of the trench by pit 594. This pit measured *c* 1.5m across and had a steep-sided profile with a flat base almost 1.0m deep (Fig. 4, Section 521). The fill of the pit (596) contained 24 sherds of mid–late 1st-century pottery, making it one of the earliest features at the site. It is possible, therefore, that ditch 592 was late Iron Age in origin, though this remains uncertain.

The area between the Roman ditches was largely unexcavated. However, the recovery of sizable quantities of Roman pottery from several medieval quarries in the northern part of Trench 1 suggests that they truncated earlier features.

*Pits and wells*

Three Roman pits (626, 632 and 702) were located *c* 17m to the south of ditch 592 in an area unaffected by medieval quarrying. Pit 626 was the largest, measuring 1.8m across, while pits 632 and 702 were closer to 1.5m across. The pits were quite shallow, measuring no more than 0.25m deep. Pottery dating to the late 1st/2nd century was recovered from each of the pits, suggesting that they were contemporary with the ditches to the north.

Roman activity was also notable in the south-western quarter of Trench 1. Pit 528 was partially exposed next to the western trench edge. The feature was circular in plan and measured 2.77m across. Although not fully excavated, the pit reached over 1.0m in depth and contained four fills (Fig. 4, Section 502). These included a thick, lower sandy clay (537) that had accumulated on the northern side of the pit, a 0.18m-thick layer of compacted chalk mixed with silt (538), and a 0.6m-thick, light brown silty clay (536). Fill 536 contained two sherds of late 1st/2nd-century AD pottery, representing the only datable material from the feature. The upper fill of the pit (529) consisted of a friable, rubbly, chalk-mixed deposit which appeared to have been formed by a tree in the top of the pit.

Medieval quarry 1113 lay immediately east of pit 528, though this feature contained a sizable quantity of residual Roman pottery. The quarry was formed by a series of intercutting pits, the earliest of which (532 and 534) may have been Roman given that they contained 3rd/4th-century pottery but no medieval material.

Roman well 522 was located about 10m east of quarry 1113. This feature was excavated to a depth of 1.2m but was not bottomed (Fig. 4, Section 500). The sides of

the well appear to have collapsed after it was dug, creating fills 523 and 524. The main fill of the well (525) consisted of a silty loam and contained a notable assemblage of late Roman pottery, including Oxfordshire colour-coated ware dating to the later 3rd/4th centuries AD. A small fragment of post-Roman tile was recovered from the very top of the fill and was almost certainly intrusive. The tile may have been associated with the medieval pit 520, immediately south of the well, which contained a larger assemblage of tile.

Pit 813 was also located in the south-western part of the site, though the phasing and interpretation of this feature are a little problematic as the relationships with most adjacent features were unclear. The pit lay immediately west of medieval kiln 848 and between post-medieval features 756 and 815, being cut by the later. The pit was oblong and almost ditch-like in plan. It measured over 2.0m long and 0.9m wide but was only 0.2m deep. Its size and shape bore similarity to the post-medieval pit 756 immediately to its north. However, the upper fill of the pit (822) contained 13 sherds of Roman pottery, mostly dating to the 2nd century AD.

**Phase 2: Medieval**

Medieval features were present across the site, characterised by areas of quarrying, wells and three kilns. As noted above, the quarries are likely to have been responsible for truncating earlier Roman features, as attested by the quantity of residual material pottery recovered. The medieval recut (1098) of Roman ditch 1120 is described above.

*Kilns*

Kiln 514 was located at the southern edge of Trench 1. The feature consisted of a rectangular foundation cut (also numbered 514) that was approximately 3.6m long north–south and 2.8m wide east–west, and reached a depth of 0.8m (Fig. 5). The kiln was truncated across its mid-section between the working/stoking area and the heating chamber by the concrete foundation, just over 1m wide, of the supermarket. The heating chamber lay to the north of the foundation and the stoking area to the south. Four courses of Totternhoe Stone (a type of locally quarried chalk) represented the remains of the western wall (683) in the southern half of the kiln (Fig. 5, Section 551). Rather than abutting the natural chalk, the wall was constructed about 0.2m in from the side of the cut and at least three silty clay fills (686–688) were deposited within the gap to support the wall. The walls on both sides of the stoking area were built using neatly faced blocks (though more tile was used on the eastern side), bonded with a pinkish-white chalk mortar. A large, squared stone was placed close to the southern entrance on the western side and may have acted as a support base. No similar stone was found on the opposite side, though it may have been robbed away; the stoking chamber had clearly been much more disturbed on the eastern side.

The walls of the heating chamber (684) were constructed slightly differently to those in the stoking area. Tiles constituted the bulk of the building material, especially facing the inside of the heating chamber. The northern wall was almost exclusively made of neatly stacked tiles bonded with the same chalk mortar found elsewhere (Fig. 5, Section 550). Totternhoe Stone was less frequently used, and the blocks were smaller and more irregularly shaped. A gap of about 0.20–0.25m was present between the north wall and the cut of the kiln and this was filled with the same deposits found in the south-west corner, also presumably after the walls had been constructed.

The heating chamber walls were partly built onto a tiled floor (694) and partly onto the base of the cut for the kiln (514), which had been deliberately stepped (Fig. 5, Section 550). The floor was pitched using consecutively-laid, upright tiles, set directly into the deeper-cut section of the base. Unfortunately, most of the floor had been removed after the kiln had gone out of use and was replaced by a layer of gritty, silty clay containing a mixture of tile, stone and flint. The tile floor and the abutting demolition layer was about 0.12m thick, and both were overlain by a chalky clay backfill (515) that completely filled the inner part of kiln. The backfill layer was 0.83m thick and reached the top of the kiln before being overlain by the subsoil layer that covered the kiln. It contained a mixture of tile, Totternhoe Stone, chalk fragments, animal bones, glass, metal, and pottery dating to the later 13th and 14th centuries. The glass derived from a 19th-century rounded pot-bottom which highlights the disturbed nature of this fill. The layer was cut close to the southern end of the kiln by a post-medieval feature (695/696), which also cut medieval pit 510 and whose fill (511/690) contained medieval and post-medieval pottery and CBM. The relationship between pit 510 and kiln 514 is uncertain (see below).

Kiln 848 was located about 11m north-west of kiln 514. Kiln 848 was a twin-chambered structure, with its stoking area positioned on the eastern side and the heating chamber to the west (Fig. 6). Unfortunately, most of the stoking area had been truncated by the supermarket foundation. The cut for the kiln (805) ranged between 1.2m and 1.6m across the heating chamber, while the stoking area measured *c* 2.6m across, though here it may have been later recut (845) and widened. The total length of the structure was approximately 3.8m. The floor of the heating chamber (807) was laid on the base of the original cut and consisted of roughly hewn Totternhoe Stone that extended about 0.55m across from the western wall where it was bordered by a single course of upstanding tiles. The floor consisted of a mixed sequence of horizontal and upturned tiles, the latter giving the floor a pitched surface. More Totternhoe Stones were present closer to the stoking area and the eastern end of the heating chamber was marked by a dip in the floor level.

As in kiln 514, the walls of the heating chamber (806) were built onto the floor surface. The lowest course of the walls on each side were constructed with roughly cut rectangular blocks of Totternhoe Stone with smoothed inner faces that survived two–three courses high in places. The walls were not built flush against the cut of the kiln and a filler deposit appeared to have been used to support the walls after their

construction. Scatters of small flint nodules suggest that these were used in the upper courses of the walls along with tile. There was little sign of a bonding agent in the walls, though this may not have survived. Internally the heating chamber measured 0.74–0.89m wide and approximately 1.1m long. Several tiles (808) were stacked on either side of the eastern end of the heating chamber and were either part of the kiln wall or abutted against it, perhaps representing shelving or part of the entranceway into the heating chamber.

Although the stoking area was largely destroyed by the concrete foundation, its eastern end survived. The cut (845) was 0.64m deep in the centre of the stoking area, which was notably deeper than the cut under the floor of the heating chamber (*c* 0.44m). The stoking area was notably wider than the heating chamber, and it may have been extended on the north and south sides, possibly to accommodate the eastern wall (877). Wall 877 extended north–south for approximately 2.42m and appeared to be more solidly built than the walls of the heating chamber (no other walling was found in the stoking area). Unlike the heating chamber walls, however, wall 877 was built flush against the cut of the kiln. A sandy loam appears to have been used in places as a packing, and a small dump of this material (846) was spread over the northern side of the stoking area (Fig. 6, Section 591). The wall was constructed with Totternhoe Stone on the outer sides and internal flint packing. The bottom two courses of stone were fairly large and neatly faced on the western side. A single course of tiles was lain above the lowest courses, and a course of flatter Totternhoe Stones was placed on top of the tiles.

A silty loam (850), no more than 0.22m thick, filled the centre of the stoking area, and may have been the same as the thin layer of loam (809) that covered the floor of the heating chamber. These fills probably accumulated after the abandonment of the kiln. Fill 850 contained two body sherds of a late 12th–13th-century storage jar, while fill 809 contained a small, scrap of sandy greyware (*c* later 13th–14th century), and 10 sherds of residual Roman pottery. In the stoking area, fill 850 was overlain by a sterile silt deposit (851), before a final accumulation of kiln debris (852) was found spread across the area. This upper fill contained pottery dating to the later 13th–14th century and was probably the same as layer 810 that almost completely filled the internal area of the heating chamber.

Kiln 888 was discovered in the north-east corner of Trench 1. Initially, only the eastern part of the kiln was revealed during the excavation and the trench was subsequently extended to expose the remainder of the feature. This kiln differed from kilns 514 and 848 in terms of its shape and mode of construction (Fig. 7). The feature consisted of a single cut (586) dug into the natural chalk. However, the heating chamber was a ‘bowl’ shape, rather than rectangular, while the stoking area was rectilinear and contained three steps leading down to the entrance of the chamber. The whole structure was 4.88m long, 2.52m across the widest part of the heating chamber and 1.5m across the stoking area. The sides of the heating chamber were fairly steep and concave towards the bottom. The base was cut slightly deeper in the centre,

forming a circular depression about 0.84m across and reaching 1.08m below the modern surface (Fig. 7, Section 609). Two thin fills, 930 and 931, together no more than 0.08m thick, had accumulated within this depression. Both consisted of chalky silts that appear to have been heat-affected—the basal fill (930) was notably pink in colour. A sandy silt (932) packed with gravel and chalk fragments extended continuously around the sides of the heating chamber. This fill varied between 0.17m and 0.33m thick and may have been deliberately laid as a packing for the wall of the kiln. The packing was almost completely covered by a very thin (no more than 0.02m) light pink layer (926), which may have been a rendering coat possibly applied to protect the walls from the heat of the furnace, or perhaps resulted naturally from the firing of the kiln altering the surface of the walls.

Compared to kilns 514 and 848, there was very little masonry and no ceramic building material used in the construction of the kiln. The only use of stone appears at the division between the heating chamber and the stoking area, where two large and neatly faced Totternhoe Stone blocks (927) were positioned (Fig. 7, Section 608). These stones were placed on either side of the kiln, forming a gap of no more than 0.5m. Both stones were supported by rubbly backfills and additional stone packing (928). The stone packing on both sides then appeared to have been sealed by another gravelly fill (589) that covered the sides of the stoking area (Fig. 7, Section 520). This fill was similar to the walls of the heating chamber, though it was not covered with the pink layer found within the heating chamber. Random blocks of Totternhoe Stone were found within the backfills of the heating chamber and these may also have related to the entrance structure.

Another aspect in which kiln 888 differed from 514 and 848 was the steps leading down into the stoking area. Three steps were cut into the natural subsoil from the western entrance to the stoking area, each about 0.2m–0.3m high. A gap of 1.1m extended from the edge of the lowest step and the heating chamber entrance. A 0.24m-thick, black (possibly organic), primary fill (587) partly overlay the base of the stoking area. This may have accumulated while the kiln was in use or immediately following its abandonment (Fig. 7, Section 520). Fill 587 contained sherds of gritty and sandy wares dating to the later 13th–14th century and was overlain by a slump of stony sandy silt (591) on the south side of the stoking area. This layer was, in turn, covered by a thicker sandy silt (590), which appears to have accumulated from above the kiln on both sides. A final, upper fill of light grey sandy silt formed in a slump within the centre of fill 590, and over this the kiln was covered by modern made-up ground.

### *Wells*

Two medieval features—607 and 865—were identified as wells. Well 607 was found in the northern part of Trench 1, just south of the main area of medieval quarrying. The well was sub-square in plan, measuring 3.9m by 4.6m across, and it cut through Roman ditch 592 and probable Roman pit 611. The well had moderately sloping sides

but it was only excavated to a depth of 0.9m due to safety concerns (Fig. 8, Section 531). Thin, naturally weathered layers (609 and 610) had accumulated on both sides of the well, above which was a single fill of compact, grey chalky silt (608) containing four 14th/early 15th-century sherds and two sherds of Roman pottery, along with ceramic tiles and animal bones.

Well 865 was a sub-circular feature, located just over 10m south-east of well 607. At its surface, the well was 3.5m wide though it had stepped sides that narrowed to 1.1m across at 1.5m below the surface (Fig. 8, Section 592). Excavation of the feature was stopped at this point due to safety concerns. The lowest fill (875) was a 0.16m-thick layer of compact silty sand that extended up the sides to the surface of the well. Six clay deposits (869–874), ranging between 0.2m and 0.6m thick, overlay the lower fill, which suggests that the upper cavity of the feature silted up fairly slowly. Datable pottery was only recovered from the lowest fill, 875, which produced sherds of later 12th–early 14th-century shelly ware. Well 865 was cut on its eastern side by shallow pit 868 and on its northern side by a short length of gully (880). The fill of gully 880 contained two sherds of a 14th-century Brill ware jug base.

*Quarries*

At least four large quarries extended across much of the northern part of Trench 1. Excavation of three of these features (918, 887 and 658) showed that they consisted of series of intercutting pits, most likely dug to extract the underlying chalk. All the quarries in this area are thought to be broadly contemporary owing to their similar characters and their proximity to each other. Quarry 658 extended south from the northern trench edge for almost 10m and it spread over 17m east–west. It is likely that this quarry originally adjoined the adjacent quarry (not numbered) on its eastern side as modern disturbance had truncated the area between the two. Five postholes (group 1118) were aligned along the southern edge of the quarry and it seems likely that these formed a fence-line marking a boundary to the area. A second set of slightly larger postholes (group 1119) set to the south of group 1118 may also have been part of a fence line, though these features were not dated.

A section excavated across quarry 658 revealed two pits: 652 and 655. Pit 655 was dug first. It measured at least 2.5m long across its excavated section and 0.7m deep (Fig. 8, Section 545). It contained a single chalky silt fill and may have been backfilled fairly soon after it was dug. Pit 655 was cut on its northern side by pit 652, which measured 0.7m x 0.8m across, and contained the skeleton of a sheep (Fig. 9). Quarry 658 was later covered by a spread of dark grey silt that may have been created by standing water, or was perhaps a deliberate levelling layer. Quarries 887 and 918 were located on the north-western side of the trench and these may also have been an extension of one another. Excavation of the eastern edge of quarry 887 show that it here consisted of four intercutting pits, ranging between 1.9–2.3m across and 0.14–0.4m deep. Each comprised a dark grey silty loam with chalk inclusions, and the earliest pit contained three sherds of medieval pottery dating between the late 12th

and 14th centuries. A small area of quarry 918 was excavated revealing three intercutting pits. It was impossible to discern the stratigraphic relationship between each, though pit 923 contained 13th–14th-century pottery and a medieval knife.

Quarry 1113 lay almost 20m to the south of quarry 918. This quarry was much smaller than those in the northern part of the trench, but it also consisted of a series of intercutting pits. However, the earliest pits in the sequence (532 and 534) may have been Roman in date (see *Phase 1: Roman features*). Pit 534 was poorly defined as it was cut by pit 532. The later pit was also truncated but was seen sufficiently in plan to show that it was sub-rectangular, measuring 0.6m by 1.04m across and 0.12m deep. Fills of two of the later cut pits (552 and 555) contained a small number of medieval sherds dating between the 12th and 14th centuries, although these were outnumbered by at least 20 sherds of residual Roman pottery.

In the central western part of Trench 1, sub-square pit 653 may have been associated with an unexcavated area of quarrying to its east. Unfortunately, this area was obscured by the supermarket foundation that truncated the eastern side of the pit. The pit measured *c* 4.6m across, though its base, *c* 0.22m–0.44m deep, was undulating and stepped suggestive of it being a quarry (Fig. 8, Section 544). The fill (654) of the feature contained fragments of ceramic tile and animal bones, along with late 13th–early 14th-century pottery, including early Brill ware and a Brill ware copy.

*Pits*

In Trench 2 at the northern end of the site, Roman ditch 1120 was cut on its southern side by two large, circular, intercutting pits (1035 and 1036). Pit 1035 was the first to cut the ditch. This feature was 1.12m x 0.88m across and 0.5m deep (Fig. 4, Section 711). The pit contained a sizable quantity of Roman pottery, including one 1st/2nd-century sherd from the lower fill (1043), and eight Roman sherds from the upper fill (1044), though this was recovered alongside a body sherd from a thin-walled jug dating to the late 13th/14th century AD. Pit 1036 also cut ditch 1120 as well as pit 1035. It was smaller than its predecessor, measuring 0.9m x 0.65m across, 0.67m deep, and contained a single fill (1045) of grey silty clay mixed with chalk fragments, similar to both fills in pit 1035. The character of the fills in both pits suggests that the features silted up fairly rapidly. Pit 1036 contained a small amount of Roman pottery. The phasing of both pits is based on their stratigraphic relationship with ditch 1120, the recovery of medieval pottery from 1035 and the assumption that the Roman pottery was residual from the neighbouring ditch, though it is possible that the medieval sherd was intrusive in Roman features.

A group of five pits, including 1013, 105 and 1028, were located to the north of ditch 1120, next to the northern edge of Trench 2. Two adjacent pits were not dated and did not have any stratigraphic relationships; the one on the western side of the group was irregular in shape and profile and was thought to have been a tree-throw hole. Pit 1013 was largely covered by the baulk to the north of the trench edge, but

enough was exposed to indicate that it was circular or sub-circular in plan and medieval pottery from its fill provided a 13th–14th-century date. To its south lay pit 1028, which was *c* 1m long, roughly oval in plan and also contained 13th–14th-century pottery. However, this pit was heavily truncated on its eastern side by sub-rectangular pit 1015. This feature was 1.5m long, 0.9m wide, with vertical sides and a flat base, 0.33m deep. The feature was deliberately cut for the burial of a horse. The arrangement of the animal bones suggest that the horse had been dismembered (Fig. 10; see *Animal bones*).

At least five medieval pits (526, 530, 561, 564 and 770) were found in the south-western part of Trench 1. Four were located close to quarry 1113, north of kiln 848, and may have been associated with the former. Three of the pits (526, 530 and 564) measured between 1.8m and 2.3m across, and each was circular or sub-circular in plan. Pit 530 was the deepest, reaching 0.5m, though the other two were very shallow, suggesting that they had been heavily truncated. Pit 561 was smaller than its counterparts, measuring 0.8m across, and it was cut on its northern side by pit 564. Medieval pottery dating to the 13th–14th century was recovered from the three larger pits, while 530 also contained a fairly large quantity of residual Roman pottery (13 sherds). Circular pit (770) to the south of kiln 848 was dated to the 12th–13th century. This pit measured 2.4m across, though its depth varied, owing to it undulating base, between 0.28–0.4m. It contained two fills, one of which produced a small collection of 13th–14th-century pottery and a residual Roman sherd.

Pits 704 and 700/698 lay immediately to the east and both were truncated by the supermarket foundation. Pit 704 was excavated on the western side of the foundation and probably extended to the large irregular soil mark observed on the eastern side. Pit 704 was at least 3.4m long with a shallow, V-shaped profile, *c* 0.42m deep (Fig. 8, Section 554). A single silty sand fill contained nine sherds of 14th-century pottery, plus a fragment of a stamped samian ware dish. Feature 700/698 consisted of two pits that were excavated on the eastern side of the supermarket foundation. The earliest, pit 698, was steep-sided, measuring at least 2.2m across and 0.4m deep, while pit 700 measured 2.98m across and 0.65m deep. It has a fairly uneven base and may have originated as a quarry.

Two features at the southern end of Trench 1 were located close to kiln 514. The larger of the two, pit 510, was dug immediately south of the stoking area of the kiln. However, the relationship between the two could not be observed as both features were later truncated by post-medieval linear feature 695/696. Pit 510 was circular in plan, just over 2m across, and 0.32m deep (Fig. 5, Section 542). Much of the central part of the pit had been removed by feature 695/696 but enough survived to show that the sides had partially collapsed (685) before the feature had been backfilled (697). Neither of the fills contained datable material, other than tile from the abandoned kiln. Posthole 618, located 1m west of pit 510, was circular, about 1.15m across, with steep sides and flat base. The posthole was 0.56m deep and evidence for a postpipe was observed in the fill, while fragments of flint may

represent packing. Sherds of Brill-ware pottery date the feature to the later 13th–14th century. It is uncertain whether the feature was contemporary with kiln 514 but, if so, it may have been associated.

A group of three pits (group 1115) was discovered close to the south-east corner of Trench 1. This group was partially truncated by the supermarket foundations to the west and lay to the north of late medieval/post-medieval structure 832 (see below). The eastern side of the pit group continued under the site baulk. Pit 706 was the earliest cut in the sequence (Fig. 8, Section 557). Only the corner of this pit was exposed during the excavation, suggesting that it was square or rectangular. Its base was reached 0.89m below the surface, though only 0.22m of its chalk rubble fill (707) survived. Pit 706 was first cut by pit 708, which extended north for about 2.4m. This pit contained a thin, basal silt layer (709), no more than 0.02m thick, which was overlain by two sandy loam layers (710 and 711) containing degraded chalk and flint. Fill 711 was cut by pit 712 on its southern side. A chalk-rubble backfill (713) had accumulated first on the western side of the pit, which was overlain by chalk-and-flint silt deposit (714). The remainder of the pit then later silted up with two loamy deposits (732 and 731), the upper of which contained 26 sherds of medieval pottery, including fragments of shelly ware and Olney ware, all dating to the late 12th–13th century.

**Phase 3: Late medieval/Post-medieval**

Late medieval/post-medieval features were mainly located in the southern half of the site. A building in the south-eastern corner of the trench (structure 832) may have originated in the late medieval period and continued to be occupied in the post-medieval period. Most of the post-medieval features were Victorian and probably related to Ashton St Peter's School, including two brick-lined wells—one rectangular (775) and one circular (780)—that were discovered close to the eastern trench edge. These features were left unexcavated. No structural remains of the school were observed, and it appears that the foundations were fully removed during the stripping of the site.

*Structure 832*

Structure 832 was discovered in the south-east corner of Trench 1, immediately south of medieval pit group 1115. This was first identified from the remains of north–south wall 767 against the eastern edge of the trench. Subsequently, an L-shaped slot was excavated across the feature to investigate it further (Fig. 11). The building was largely constructed in Totternhoe Stone, but most of it appears to have been robbed away and the remaining features had been considerably damaged. Wall 767 was only represented by the lowest course of stones and its surviving remains extended for about 2.2m. It is uncertain whether the wall was laid directly on the natural or a foundation layer, though cut 832 was dug through the natural chalk along the southern

edge of the trench and was certainly dug deeper than the base of the wall at the southern end (Fig. 11, Section 566). Two stones in the southern end of the wall were set at a lower level next to a flat stone (792) which lay on the western side of the wall and may represent a step next to an entranceway, or part of a floor surface.

No sign of a southern east–wall was found. However, a particularly large, flat stone (764) was found *c* 2.2m west of wall 767 and just less than 0.5m north of cut 832. It is uncertain whether this stone was in its original position, but it was neatly faced on its western and southern sides and it may have been a cornerstone.

Most of the area surrounding stones 764 and 792 was filled with demolition rubble (765/766/768), mostly consisting of Totternhoe Stone with some chalk fragments and ceramic tiles. This rubble was contained within a silty clay layer (788) and clearly represents the destruction of the walls of the building. The demolition layer contained a mixture of post-medieval pottery from a variety of vessels that ranged in date from the 15th to the 19th century.

Two large pits (769 and 790) were encountered close to the northern end of the building. Pit 790 was larger and contained 12th–14th-century pottery with three Roman sherds. However, the relationship between this pit and demolition layers of structure 832 was uncertain. It may have been a medieval pit, perhaps associated with group 1115 just to the north (see above), or it could have been cut later and associated with the building. Pit 769 contained 14th–16th-century pottery and appears to have been associated with the building.

*Pit 815/862*

Pit 815 was an early post-medieval feature located in the south-western corner of Trench 1, just west of kiln 848. This feature was sub-rectangular, measuring 1.60m east–west. It was excavated to about 1m deep, though the feature was not fully bottomed during the excavation owing to safety concerns as it had been truncated on the southern side by the supermarket foundations. It clearly continued to the south of the foundations as pit 862, making the feature about 3m long north–south, though the southern part was not excavated, again due to safety concerns. Pit 815 contained a thin primary silt, no more than 0.04m thick, that covered the sides as well as the base of the feature. This was overlain by three silty loam fills mixed with chalk, suggesting that it was gradually backfilled. Three of the fills produced late medieval/post-medieval pottery, all of which was fairly closely dated between the second half of the 15th century and the first half of the 17th century, including a fresh body sherd from a Siegburg stoneware jug in the uppermost fill. A small quantity of animal bones and CBM was also recovered from two of the fills. The function of the pit is uncertain.

*Pit 660*

Pit 660 was discovered in the south-eastern quarter of Trench 1. It measured over 5m long, about 2.3m wide and was 1.1m deep. A north–south slot was excavated over the central part of the pit revealing a series of regularly aligned postholes in the base. The pit was backfilled with six fills, mostly consisting of building rubble, 19th-century pottery and a stem-fragment of a clay pipe. The pit lay partly below the school swimming pool, which was demolished along with the school buildings, but it clearly survived its construction. The pit likely related to a structure that predated the pool, probably in the backyard of one of the street-front houses that existed prior to the southward expansion of the schoolgrounds. Pit 660 aligned with the backyard boundaries shown in several late 19th and early 20th century OS maps, and possibly relates to a small structure observed on the 1950 OS map, though this is not certain.

*Posthole group 1116*

A group of seven postholes were located about 8m north of pit 660. These ranged in size between 0.36–0.9m across and 0.06–0.48m deep. The features varied in plan between circular and sub-rectangular, though they all tended to have flat bases, indicative of their use as postholes. Six of the postholes were aligned WSW–ENE and one was positioned just to the south at the eastern end of the group, with three intercutting postholes forming a corner. As with pit 660, the alignment of the posthole group followed that of the post-medieval backyards. Four of the features contained post-medieval pottery dating between 17th and the 19th centuries.

*Features in Trench 4*

Trench 4 was located in the south-eastern part of the site. It contained a series of features dating to the 18th century onwards, including two rows of postholes (group 1121), a rectangular (1069) and a circular pit (1065), and larger rectangular feature (1093/1096). Eleven postholes were discovered in total. These were generally circular or sub-rectangular in plan, measuring between 0.28m and 0.65m across. In some of the features, the remains of the post could be seen in the soil. Circular pit 1065 was exposed near the northern end of the trench and was clearly larger than the postholes, measuring 0.91m across. Sub-rectangular pit 1069 was a shallow, flat-based feature, just under a metre long.

A large rectangular feature, measuring 4.3m across, was partially exposed on the western side of the trench. Two slots showed that the feature had straight, vertical sides and had fills of silty clay with crushed chalk to a depth of at least 1m, but were not excavated below this level. The function of the feature is uncertain.

The positioning of all the features in Trench 4 suggests that they were closely contemporary and probably related to the now-demolished street-front buildings to the south, although, like the school building, no traces of the foundations of these buildings survived the stripping of the site. All the pottery recovered from features in this trench dated between the 18th and 20th centuries.

FINDS

**Roman pottery** by Paul Booth

The 2006 evaluation and excavation produced a small assemblage of 295 sherds (4271g, 4.02 REs) of Roman pottery, ranging in date across the whole of the Roman period and including material from post-Roman contexts. The totals also include sherds recovered from the >10mm fraction of sieved soil samples, but not the tiny fragments from the smaller fractions of those samples. The pottery was scanned rapidly for purposes of assessment and preliminary dating, and subsequently recorded in more detail. The material was recording in line with recently published standards (PCRG *et al*. 2016) using codes set out in the OA later prehistoric and Roman recording system (Booth 2016). Quantification was by sherd count, weight and rim equivalents (REs), with an additional, more subjective count of vessels based on individual rim sherds. Details of rim, base, handle, spout and decorative types and other characteristics were recorded where present. The full record of the pottery is contained on an Excel spreadsheet in the project archive.

The pottery was in variable condition. The mean sherd weight (16g) is a moderate figure, but the degree of fragmentation varied considerably depending on fabric, period, and context type. Surface condition varied from good to poor, some sherds having eroded surfaces but others being in fresh condition. Heavily abraded sherds were scarce, but tended to occur in post-Roman contexts, reflecting the effects of redeposition.

*Fabrics*

The excavation produced a modest range of late Iron Age and Roman fabrics. These are listed in Table 1 by major ware groups. The ware groups can be combined to constitute two main classes of material, fine and specialist wares on the one hand and the coarse wares on the other, as a potential guide to aspects of site status (cf. Booth 2004). The fine and specialist ware groups (identified by the initial letter of the fabric/ware code) are: samian ware (S); fine wares—colour-coated, lead glazed, mica coated, etc.—(F); amphorae (A); mortaria (M); white wares—other than mortaria—(W); and white-slipped wares (Q). The remaining ware groups are: 'Belgic type' (broadly in the sense of Thompson 1982, 4–5), usually grog-tempered, fabrics (E); 'Romanised' oxidised coarse wares (O); 'Romanised' reduced coarse wares (R); black-burnished ware (B); and calcareous (particularly shell-tempered) and other wares (C).

Within these classes there are hierarchically arranged subgroups, usually defined on the basis of inclusion type, and individual fabrics/wares are then indicated at a third level of precision, both levels of subdivision being expressed by numeric codes. Thus, W20 is a general code for sandy white wares, while W21 is a specific code for Verulamium region sandy white ware. For the bulk of the present assemblage

fabric identification was at the intermediate level of precision. Much of the material was in fabrics of unknown or uncertain sources, and detailed assignment to specific fabric codes did not seem to be warranted. Attribution of sherds to ware groups or to individual fabrics was on the basis of macroscopic inspection, with frequent but not universal use of the binocular microscope at x10 or x20 magnification.

Relatively summary fabric descriptions or labels are given in Table 1. More comprehensive descriptions can be found in the project archive and/or in the handbook to the National Roman Pottery Fabric Reference Collection (Tomber and Dore 1998). Fabric codes from the latter are cross referenced in the table in bold. Approximate equivalent codes in the Bedfordshire later prehistoric and Roman fabric series are also given.

The principal ware group comprised reduced coarse wares, which were fairly consistently represented by the three measures (38.6% of sherd count, 37.2% weight and 42.8% REs). Except for the R90 subgroup, primarily tempered with grog, the reduced wares are all sand-tempered with inclusions ranging from sparse and/or very fine (in the R10 group) to abundant and/or coarse (in the R20 group). The majority of sherds (R30) occupy an intermediate position on this spectrum. Apart from variation in the density of sand tempering, there is broad similarity in character across most of the sherds in the R10, R20 and R30 ware groups. Black surfaces were an occasional feature in all groups (most common in R30), and three such R30 sherds were noted as close imitations of black-burnished ware (Bedfordshire fabric R07C), but distinct from the sherds identified as BB2. One R30 vessel (Fig. 12, No. 5) had a distorted rim and was clearly a 'second', perhaps indicating relatively local production. A possible sherd of Highgate C ware (fabric R88) was notable; another was noted at nearby Friary Fields (Fawcett 2004, 170).

Oxidised coarse wares formed another fairly important component of the assemblage. As with the reduced wares, a range of fabrics was evident with fine (O10) sherds proportionately more numerous (but poorly represented in terms of weight). It is possible that these included one or two fragments from the Hadham industry. Some coarse, sand-tempered, oxidised sherds may have been equivalent to Verulamium white ware (W21) (but not all, see eg Fig. 12, No. 6). Pink grogged ware (fabric O81), from a source at Stowe (Buckinghamshire), was well represented amongst the heavily grog-tempered O80 fabrics. Less significant coarse ware groups were the broad 'Belgic type' and shell-tempered (E and C wares respectively). The former group consisted primarily of grog-tempered (E80) sherds (eg Fig. 12, No. 1), but sand-tempered equivalents were also present (eg Fig. 12, No. 2). The shell-tempered material may have included a significant proportion of products from the kilns at Harrold (fabric C11) but a cautious view was taken of this and most shell-tempered sherds were assigned to the general C10 code.

The 'fine and specialist' wares amounted to a quarter of the assemblage by sherd count and REs (though only 15.2% by weight). Samian ware was a significant element of these, contributing half of all the REs in fine and specialist wares. Three

South Gaulish sherds included a small decorated fragment from a Drag 29 bowl. The remaining material, apart from a tiny unassigned piece and a single, small, possibly East Gaulish sherd, was all Central Gaulish, with five of the 15 sherds assigned to Les Martres-de-Veyre (fabric S32). These included an incomplete stamp of Paterclus ii/Paterclos (die 10a or 10a[i]; Hartley and Dickinson 2011, 43) on form 18/31, from a medieval feature, and two sherds of a Drag 37 bowl from pit 632. The Lezoux forms, all represented by rims, were 33 (two examples), 31 (two examples) and an uncertain dish. Most of these were in fairly fresh condition.

Fine wares, by contrast, were almost entirely in standard late Roman fabrics, dominated in terms of sherd count by Oxford products (F51), the only fine ware rim being from a dish of Young-type C45 (Young 1977). Nene Valley ware (fabric F52) could have included forms dating from the later 2nd century onwards, but there were no certain examples of this, and the most substantial sherd was a base from a dish or bowl for which a later date is likely. Hadham red-slipped ware (fabric F56) was also present. All the mortarium sherds were Oxford products, identifiable forms being WC7 (2 rims) and C97. A further Oxford product was the base of a parchment ware (fabric W11) bowl of Young-type P24. Other white wares, unsurprisingly, were mainly from the Verulamium industry (eg Fig. 12, No. 3), but in view of its proximity, the absence of mortaria from this source is notable.

*Vessel types*

The late Iron Age and Roman vessels amounted to a mere 4.02 rim equivalents (REs). A minimum figure of 50 vessels is based on a count of rim sherds. Vessels were recorded by major classes arranged approximately in a sequence from narrow-mouthed to wide-mouthed vessels, defined by letter codes (Table 2). The class labels are conventional terms and are not necessarily indicative of specific functions. The vessel classes are divided into broad subgroups, usually with respect to key aspects of form (eg a simple division between straight-sided and curving-sided bowls and dishes), and in some cases, specific typologies were also used in recording—for example, for samian ware, for amphorae (where possible) and for Oxford fine wares and mortaria (Young 1977). In view of the assemblage size, percentages are only given for totals of vessels in each major class.

Jars were the dominant vessel class, amounting to just under half of the total vessels. This is a characteristic pattern, but one that will have changed through time (for example, jars are usually best represented in the early Roman period, declining in relative importance at the expense of bowls and dishes in the 3rd and 4th centuries). Since the present assemblage is too small for chronological change to be quantified, the quantification of vessel classes combines material from all phases of the Roman occupation, making meaningful characterisation difficult. Both bowls and dishes were well-represented, and including the uncertain class I examples, total 41.8% of vessels. Other aspects of the vessel class repertoire are unremarkable: amphorae and flagons

are only represented by body sherds, and lids and miscellaneous forms are completely absent.

Evidence of use, beyond generic burning which is of uncertain significance, was restricted to a single occurrence of an internal burnt residue on a sherd of fabric E30 and two instances of limescale on sherds of fabric R30, indicating use of these vessels for boiling water.

*Context and chronology*

Only just over half the assemblage by sherd count (52.5%, but 65% by weight) came from contexts assigned to Period 1, with most of the rest (36.6% of sherds, 24.4% weight) from medieval (Period 2) contexts and the remainder from post-medieval or unphased contexts. The Period 1 pottery came entirely from ditches, pits and well 522 (fill 523). There were notable differences in the character of the pottery from these features, the 50 sherds from ditches having a mean sherd weight (MSW) of only 8.7g, while that of the 76 sherds from pits was 29.4g (this figure was increased by a couple of substantial storage jar rims from pit 594), and the MSW for feature 523 (29 sherds) was 13.7g. Most of the Roman pottery in medieval features was also from pits, but now unsurprisingly with a much lower MSW (and an overall MSW of 10.7g for this period).

The incidence of individual fabrics by period was examined to see if, for example, later Roman pottery was more likely than early Roman fabrics to be redeposited in post-Roman features, but no clear patterns emerged (data in archive).

The earliest component of the Roman assemblage consists of E wares. With one exception, these are confined entirely to fill 596 of pit 594. Allowing for a single small intrusive sherd of fabric R30, this pit can be broadly dated to the middle of the 1st century AD and is distinctly earlier than any of the other pottery-dated features on the site. Sherds of the other obvious early Roman ceramic marker, South Gaulish samian ware, were all from medieval contexts. The context 596 group is one of the larger ones from the site. Apart from this group, no others are dated earlier than the 2nd century. Small assemblage size exacerbates the problem of close feature dating, and many groups are only assigned to broad ‘2nd century’ and ‘2nd century or later’ date ranges. Scarce exceptions include fill 536 of pit 528 (27 sherds, 602g), which is dated to the mid-late 2nd century, while broad mid-3rd to 4th-century dates can be assigned to the pottery in pits 534 and 1006, well 522 and ditch 1120.

*Discussion*

Unfortunately, the assemblage is too small to sustain detailed arguments based on the relative proportions of individual fabrics, or even ware groups or broad vessel classes. Pottery supply in all periods is likely to have been dominated by local sources, though none of the coarse ware fabrics can be confidently assigned to a known source. The

nearest recorded kilns are early Roman examples at Luton and at Toddington, respectively *c* 5km and 8km distant to the north-east and north, but both are old discoveries, and neither is well known (Swan 1984, fiche 1.210 and 1.211). A number of features described as 'kilns' were examined in the course of excavation of the cemetery in the south-western part of Roman Dunstable (Matthews 1981, 13–17). Their function is unclear and was not necessarily related to pottery production; certainly, the pottery associated with kiln 1 (ibid., 52, fig. 37) is an extremely mixed group. At the present site, local production is hinted by the presence of the 'second' (Fig. 12, No. 5) in the commonest individual fabric, R30, and the suggestion is perhaps supported by the relative homogeneity of many of the sand-tempered sherds present on the site, but this is not conclusive. Known sources are either those of the obvious imports such as samian ware (though neither of the two amphora sherds is certainly assigned to a known source) or local/regional industries. The former includes the Verulamium-region industry, while the latter include the principal late Roman fine-ware suppliers and the pink grogged ware and shell-tempered ware industries of west Buckinghamshire and north Bedfordshire. The relative importance of fabric O81 is notable but is consistent with the regional pattern, given its frequency at sites in Milton Keynes (eg Marney 1989, 64–9; see Taylor 2004, 61 fig. 1) and does partly address Taylor's comment (ibid., 65) about the lack of understanding of its distribution south-east of Magiovinium. Further sherds from Dunstable are noted by Fawcett (2004, 170) and the fabric is also clearly present, though not identified as such, on the villa site at Totternhoe (eg Horne and Schneider 1992, 77, fig. 12 no. 88).

The Ashton St Peter's assemblage has been summarised as covering the whole of the Roman period, but the contrast in character between the material from pit 594 and the rest of the pottery is very marked. A break in the sequence is suggested by the complete absence of E wares from any other features. It is notable that such a break coincides exactly with the chronological range assigned to the larger assemblage Queensway Hall, Dunstable (some 300m to the north-west), dated from about the middle of the 1st century to the late 1st or early 2nd (Timby 2004, 148). In terms of fabric proportions (the principal group being grog-tempered wares—53.5%—while sandy wares only amounted to *c* 35%; ibid.) and typologically, the Queensway Hall material is very different, including jars with beaded, lid-seated and angled everted rims, shallow dishes and other forms not present at all at Ashton St Peter's (ibid., figs 4 and 5). The fact that the latter group is so small is not adequate to account for the differences and a contrasting chronological sequence seems a much more likely explanation.

A further nearby excavation, at Friary Fields (roughly 500m distant to the SSW), produced 503 sherds (6006g, 6.08 REs) of Roman pottery of which a significant proportion, as at St Peter's School, was redeposited in medieval contexts (Fawcett 2004, 168). The assemblage mostly dates from the early–mid 2nd century onwards. The most consistent form of quantification presented is by REs (totalling 5.84, rather than 6.08, quantification of vessel types is not given). Based on these figures, reduced coarse wares (including black-burnished ware imitations) account for

33.6% of the assemblage, and shell-tempered wares (all assigned to the Harrold kilns) total 23.6%. The combined fine and specialist ware total of 31.5% is a little higher than for Ashton St Peter's (26.4%) but not greatly different. In broad terms the two assemblages have several similarities, the most pronounced difference in terms of the RE percentages being the much higher representation of shell-tempered pottery at Friary Fields, but the small size of both groups precludes detailed comparison.

*Illustrated vessels (Fig. 12)*

1. Fabric E80. Type CD jar. Context 596, pit 594.

2. Fabric E30. Type HA carinated bowl with burnished line and lattice decoration. Context 596, pit 594.

3. Fabric W21. Type HA carinated bowl. Context 703, pit 702.

4. Fabric R30. Type CD medium mouthed jar with burnished horizontal and oblique line decoration. Context 822, pit 823.

5. Fabric R30. Type CJ lid-seated jar. A distorted 'second', Context 822, pit 823.

6. Fabric O20. Type H bowl. Context 503, post-medieval pit 502.

**Post-Roman pottery** by John Cotter

A total of 273 sherds of post-Roman pottery weighing 6.3kg was recovered, mostly of medieval date. An intermediate level catalogue of pottery types was constructed for the whole assemblage in Excel, following standard procedure, and spot-dates were produced for each context. The catalogue includes, per context and per pottery fabric, quantification by sherd count and weight only. Given the relatively small size of the assemblage, and its fragmentary nature, a more detailed catalogue was not considered worthwhile. Additional details, however, including vessel form, part and decoration, etc., were noted in a comments field. Fabric codes used here are those of the Bedfordshire County Type-Series (Baker and Hassall 1979; Brine 1988). Where possible, non-local wares (mainly post-medieval) were also cross-referenced to the Oxfordshire type series (Mellor 1994) and the fabric codes of the Museum of London (MoLA 2014). Full details may be consulted in the site archive.

Relatively little medieval pottery has been published from Dunstable. A fairly large group of pottery from Friary Fields, Dunstable, has been published by the local archaeological society (Green and Horne 1991) although it uses its own fabric coding. Another small group of pottery from 24 Friary Fields has also been published (Sudds 2004). A much larger and more informative medieval pottery assemblage has also been published from the motte and bailey castle at Chalgrave, 5km north of Dunstable (Brine 1988). These last two reports are the most relevant to the assemblage here since they feature a similar and broadly contemporary range of medieval pottery described using the county fabric codes. The Ashton St Peter's material is generally in

a very fragmentary, sometimes abraded, condition, although some fairly large sherds do occur. The range of pottery from the site is described in some detail in the catalogue and therefore only summarised below. A breakdown of fabric types is presented in Table 3.

*Chronology*

The earliest significant evidence for post-Roman activity on the site seems to have commenced in the late 12th or first half of the 13th century. This is based almost entirely on typological or stylistic features seen in the predominant medieval fabric, coarse sandy greyware (Fabric C59A), which occurs mainly as jars/cooking pots and a much smaller number of storage jars, bowls and jugs. The paucity of medieval shelly wares (B05, B07) also suggests that there was very little activity in the 12th century when these wares had their heyday. The three small and very abraded sherds of Saxo-Norman St Neots-type ware (B01) were most likely redeposited from elsewhere.

Small groups of typologically early-looking greyware (C59A) occur in a small number of features on their own with no later wares present (eg glazed Brill/Boarstall ware C09), thus hinting at a phase of late 12th- to early 13th-century activity. The largest of these (25 sherds) is from fill 731 of pit 712 (group 1115) in the south-east corner of the site. A cooking pot rim (Fig. 13, No. 1) and a decorated bowl rim (Fig. 13, No. 2) from this pit have been illustrated as representative. The cooking pot, and several others from the site, is decorated externally with widely spaced horizontal grooves, a decorative trait seen on cooking pots from Chalgrave (Brine 1988, fig. 8.24, fabric C59B finer greyware). The bowl has distinctive notched decoration on the rim, probably made with the fingernail; two bowls from Chalgrave appear to have similar notched decoration (ibid., fig. 7.18 and 8.31), also seen on the edges of a strap handle from a probable curfew (ibid. fig. 8.23). The Chalgrave greywares (C59A and B), which are presumed to be locally made, are assigned a broad late 11th- to 12th-century date (ibid., 43). It seems likely, on the basis of broad regional parallels, that the earliest greyware vessels from the present site are somewhat later than this, and the fabric itself almost certainly continued in production well into the 14th century.

Other much smaller groups of early pottery include four sherds of greyware from fill 771 in pit 770, tentatively dated *c* 1175–1300. These include a body sherd from a jar or pitcher with horizontal bands of triangular rouletting (Baker and Hassall 1979, fig. 96.2). A ditch fill (1009, ditch 1098) in the north-west corner of the site contained a single cooking pot rim in a coarse ware with mixed inclusions (C67, including ‘grog’ or clay pellets); the simplicity of the rim form again suggests a date in the second half of the 12th century. The bulk of the medieval pottery from the site, however, appears to be of 13th–14th-century date, including that from the three malting kilns (see below). This dating is mainly suggested by the presence of glazed and decorated jugs in Brill/Boarstall ware (C09), and a smaller number of glazed jug sherds in local and regional fabrics. The presence of more developed-looking forms in

the local greyware is also a general indicator of later dating, although by themselves they can be difficult to date with any precision. On balance, a date range of *c* 1250–1400 can be suggested for the bulk of the medieval pottery assemblage and for the peak of medieval activity on the site.

A few vessels in late medieval reduced ware (E01) indicate continued, if diminished, activity into the late medieval period (late 14th and 15th centuries?). A single body sherd from a jug in Siegburg stoneware (P28A) is also probably of about this date, or possibly 16th century. Two small body sherds of Raeren stoneware (P23) are almost certainly from classic Raeren drinking mugs/jugs with frilled bases, and closely datable to the period *c* 1480–1550, into the early post-medieval period. Glazed red earthenwares (P01) comprise the commonest post-medieval type from the site. Some of these are in a smoother better-made fabric indicating a date in the 16th or early 17th century, but most are probably of 17th–18th-century date and a few (including unglazed flowerpots) may be as late as the 19th century. Some of the latest pieces from the site are a few dishes and teacups in transfer-printed wares (P43, P45), some with designs indicating a mid-19th-century date. Possibly the latest piece is the single sherd of English stoneware (P48). This has a Bristol-type glaze (*c* 1835+) and is probably from a water closet or washbasin dating from the second half of the 19th century or the early 20th century. This may be the only piece directly connected with the demolished school.

*Some typological aspects*

Within the largest fabric group, the coarse sandy greywares (C59A), there is a fair amount of textural variety. Most vessels have a coarse, sometimes gritty, fabric with abundant coarse rounded quartz inclusions, including clear, milky and orange-brown iron-tinted quartz grains. Some sherds are slightly finer than the bulk of the group, while a few others contain sparse flint inclusions. Body sherds from two separate cooking pots occur in an unusually pale or leached grey (iron-poor) fabric which appears to be a variant of the main fabric. These slight differences have been noted in the catalogue; for convenience, however, they have all been grouped together under the code C59A, rather than creating sub-categories. The distinction between C59A and the less common late medieval reduced wares (E01, from *c* 1350 onwards) is not always clear-cut - particularly with undiagnostic body sherds, and misidentification is likely in a small number of cases. No complete vessel profiles survive in the medieval greyware (C59A) assemblage but some larger pieces of cooking pot clearly have a handmade body with a wheel- or turntable-finished rim. A few wide bowls were also made this way. Other vessels may have been completely wheel-thrown. Several cooking pots and possible jugs are decorated with the widely-spaced horizontal lines or grooves mentioned above and seen on Fig. 13, No. 1. One cooking pot has thumbed decoration on the rim and a single bowl also has thumbed or notched rim decoration (Fig. 13, No. 2). A single flat-topped cooking pot rim is decorated on top with a single incised wavy line. A few probable jug sherds are decorated with bands

of horizontal combing, probably widely spaced down the body, as with the horizontal lines. One jug sherd with a combed horizontal band also has traces of diagonal (perhaps chevron) decoration joining this. Another jug/jar sherd has bands of horizontal combing separated by a horizontal thumbed strip (perhaps an alternating pattern extending down the body). The jug assemblage is very fragmentary. There is a single example of a jug rim with a pulled lip (spout). A fairly large base sherd (from kiln 888), with a group of two thumbed impressions ('feet') on its basal angle, is almost certainly identifiable as a jug. Other potential jugs are represented by the small number of decorated sherds described above.

Sherds from a minimum of three, very large, thick-walled, greyware vessels, with vertical thumbed strips, are probably to be identified as storage jars (contexts 521 and fills of kilns 514 and 848). These are represented by body sherds, apart from the unusual vessel from the fills of kiln 514 which appears to have a footring base (Fig. 13, No. 3)—a rare feature on jars of this size and date. The vessel survives as 24 large and small sherds, some of which join. Although the sherds with thumbed strips do not physically join the base, they clearly come from the lower wall just above it. The vessel was handmade with a sagging base to which a prominent footring has been separately added (diameter *c* 340mm). The outside of the footring bears a series of crude oblique knife-slashes vaguely resembling the thumbed impressions seen on medieval jug bases. The slashes may have been partly decorative, but they were probably intended to ensure efficient firing in the kiln. Two separate sherds survive from the steeply flaring lower wall of the vessel; both have vertical thumbed strip suggesting a series of strips around the body of the vessel. While quite a bit of the circumference survives, very little of its vertical profile does, and one can only guess how the complete vessel would have looked. A broadly contemporary parallel exists in Kingston-type ware from Surrey, in the form of a squat jug-like storage jar which clearly has a separately applied (thumbed) footring base with a diameter of *c* 370mm (Pearce and Vince 1988, fig. 102.401). No close parallel, however, has yet been identified from the south-east Midlands. It could be argued, on the basis of form (if inverted) that this is part of a bowl-shaped curfew (fire-cover), but curfews often have reinforcing thumbed strips across the dome (base), and sometimes evidence of vent-holes, but enough of the base survives to be fairly certain that it lacks these features. Nor is there is evidence of sooting (or scorching) from the fire. The association of this vessel with kiln 514 (interpreted as a malting kiln) could be coincidental, but it is notable that the most unusual medieval vessel from the site was found in an industrial feature. Two joining sherds from one of the other possible storage jars with thumbed strips also came from the backfill of kiln 848 (Context 850). It may be, therefore, that these large storage jars were used as some kind of accessory vessel connected with the original function of the kilns, perhaps to hold grain or a handy supply of water or ale for thirsty workers.

The backfills of the three kilns (kilns 514, 848 and 888) contained small to modest assemblages of pottery, with kiln 514 producing the most (44 sherds, 1178g). Besides greywares, kiln 514 produced a couple of sherds from Brill/Boarstall ware

jugs (C09), and couple of glazed jug sherds in orange gritty ware (C64). Taken together, these provide a broad dating of *c* 1250–1400 for the use (and backfilling) of the kilns, coinciding with the peak of medieval activity on the site (see above).

Brill/Boarstall ware (C09) is the second most common medieval fabric from the site and occurs exclusively in the form of glazed fineware jugs. These was produced at kilns in west Buckinghamshire and were widely traded throughout the south Midlands, including Bedfordshire (Mellor 1994; Baker and Hassall 1979, 173). The assemblage here (27 sherds) is mostly very fragmentary, but several large/fresh sherds occur; these include a near-complete green-glazed jug base/lower wall from context (619), the fill of posthole (618), while context (705), the fill of pit (704), in the centre of the site, produced large fresh sherds from at least three jugs. Strip jugs (including a biconical or triple-decker jug) and plainer baluster jugs with bands of combed horizontal decoration are equally represented. Brill provides the best ceramic dating for the medieval assemblage from the site. While the fineware fabric was produced from *c* 1225 onwards, a date range of *c* 1250–1400 would easily accommodate the assemblage here; the biconical strip jug probably dates to *c* 1275–1350, and some of the plain baluster jugs with combed bands could well be 14th century, but there is nothing obviously later than this. The presence of these attractive fineware jugs, in reasonable quantity, suggests that they originate from households of middling to better-off status, although most households probably had a jug or two. After Brill/Boarstall ware the next commonest glazed jug fabric is orange gritty ware (C64). This has the same gritty fabric as the dominant greyware fabric (C59A) and is very probably a product of the same relatively local industry, but deliberately oxidised. The assemblage (probably six jugs) is very fragmentary but includes a sherd from a possible anthropomorphic jug (Fig. 13, No. 4, see illustration catalogue for description). There is also a fairly large unglazed strap-handle fragment (654) which copies exactly the sort of 'classic' oblique knife-slashed decoration found on the handles of Brill/Boarstall ware jugs, and strongly suggests contemporary dating (Baker and Hassall 1979, pl. 30, fig. 121.601). Another orange gritty jug sherd, with traces of combed decoration, appears to have a white slip under a greenish glaze. Two small sherds from glazed London-type ware jugs were also noted (C57).

The local late medieval/early post-medieval sequence is closed by a few vessels in late medieval reduced ware (E01) represented by a few jar rims (Fig. 13, No. 5) and a jug rim. These utilitarian greywares were produced at numerous locations across the south-east Midlands including several in Bedfordshire (Slowikowski 2011). It has been suggested that the fabric found in Dunstable originates from the kilns at Flitwick, *c* 12km to the north of the town (Green and Horne 1991, 12). Two neckless jars have typically complex, angular/infolded rims of the sort found elsewhere in Dunstable and at Flitwick (Green and Horne, fig. 14.18; Slowikowski 2011, fig. 37.152–6). The very plain flaring rim of a wide jar with a wide handle scar on the outside is illustrated here (Fig. 13, No. 5). Two similar handled jars from Flitwick are described as cisterns (brewing/storage jars) (ibid., fig. 39.172, 174). Two of the jars in this fabric, including the illustrated vessel, come from

the demolition layer (788) of a structure (832) in the south-east corner of the site. Related contexts in this structure produced the sherd of imported Siegburg stoneware (819) and some early-looking sherds of post-medieval glazed red earthenware (P01) which may date from the 16th or early 17th century (766, 767, 816, 817, 821).

*Illustrated vessels (Fig. 13)*

1. Coarse sandy greyware (Fabric C59A). Cooking pot rim (diam. 230mm). Everted neck with ledged/beaded rim. The body is decorated with widely-spaced, lightly incised, horizontal lines or grooves. Late 12th/early 13th century? Context 731, fill of pit 712 (Group 1115).

2. Coarse sandy greyware (Fabric C59A). Bowl with notched decoration on rim (diam. 260mm). Sooted exterior. Late 12th/early 13th century? Context 731, fill of pit 712 (Group 1115).

3. Coarse sandy greyware (Fabric C59A). Storage jar (?) with applied footring base decorated externally with a series of oblique knife slashes. The body above this is decorated with a series of vertical thumbed strips. Footring diameter *c* 340mm. Contexts 515 and 686, fills of kiln 514. Coarse grey sandy/gritty fabric with rounded quartz grits up to 5mm across, many iron-stained. The base from 515 has traces of a rough, post-manufacture, perforation (*c* 12mm diam.) knocked through in antiquity. The join between the lower wall and the footring base has been roughly sheared-off all around the circumference (post-deposition?). 13th–14th century.

4. Orange gritty ware (Fabric C64). Jug sherd with anthropomorphic decoration? From neck/shoulder of jug in fairly coarse orange sandy fabric with clear brown glaze. Fragmentary applied high-relief strip decoration, possibly representing a stick-like human figure. Main vertical strip, with crude herringbone-style knife slashes either side, possibly forming the torso (and possibly splitting into pair of legs lower down), joined by two downward-angled strips possibly forming the arms. The left 'hand' has detached/flaked off, but a trace of slashed/incised decoration here may represent the start of fingers? The 'neck' or collar is defined by three deep horizontal slashes. 'Head' area missing. Wheel-turned. Fairly thick-walled. Late 13th/early 14th century? Context 527, fill of pit 526. No good regional parallels for this unusual style of anthropomorphic decoration (with the torso represented by a strip) have yet been identified. Much further afield, however, there are fairly close parallels with jugs in Bristol Ham Green ware (McCarthy and Brooks 1988, fig. 208.1410 and fig. 209), and more generally with Scarborough ware (Yorkshire) knight jugs (ibid., fig. 127), although no direct connection is implied.

5. Late medieval reduced ware (Fabric E01). Jar (cistern?) rim (diam. 240mm). Scar of strap-handle attached below rim. 15th or early 16th century? Context 788, demolition layer of structure 832.

**Ceramic building material** by John Cotter

A total of 837 pieces of ceramic building material (CBM) weighing 59.83kg were recovered from a total of 144 contexts. This includes a small amount of Roman material (mostly residual) and a much larger assemblage of medieval and post-medieval material. A very small quantity of 19th-century roofing slate was also recovered from the site; this has been noted in the catalogue but is not discussed further.

*Methodology*

A basic level catalogue of CBM types was constructed in Excel for the whole assemblage and broad spot-dates produced for each context. Only in a relatively small number of instances (usually 19th–20th-century material) was it possible to assign a spot-date within a century or two based on the CBM alone. The catalogue includes, per context and per CBM type (or category), quantification by fragment count and weight only. Other details were recorded in a comments field. These could include, for more complete or significant pieces, measurable dimensions, fabric description, decoration and condition, etc. Given the limited time and resources available, no attempt was made to assign systematic fabric codes, although selected items were described in some detail in the comments field. This approach gives a reasonably detailed overview of the composition of the assemblage. Full catalogue details remain in the site archive and are summarised in the report here. Approximately one third (29%) of the assemblage by weight is represented by tile samples taken from two of the three medieval malting kilns (kilns 514 and 848, see below – kiln 888 did not incorporate CBM in its structure). The other two-thirds represents loose material from numerous contexts, mainly from the fills of quarry pits. A breakdown of CBM categories is presented in Tables 4 and 5.

*Roman CBM*

A small, fragmentary and mostly very abraded assemblage of 33 Roman pieces (2848g) was identified. Nearly all of this is residual in post-Roman contexts. It mostly comprises pieces of tegula in a very hard, smooth orange-red fabric with a grey core. The fragments are generally much thicker and more abraded than the medieval and later roofing tile. Only three pieces of imbrex were noted. The miscellaneous Roman category includes pieces of brick/tile and pieces too small to assign to any type. It also includes a small piece of hypocaust box flue tile in a pale brown fabric with traces of combing, again residual (context 531). Given the extremely poor condition of the Roman CBM, it is quite possible that it has nothing to do with the site other than simply being dumped here in the Roman and post-Roman periods. Small quantities of Roman CBM, including flue tile, have been found at other sites in Dunstable (Horne 2002).

*Flat roof tile (peg tile)*

As is usual on medieval/post-medieval sites, this is the commonest category of CBM present. As far as can be determined, all the flat roof tile here is peg tile. It is typically rectangular with a pair of circular nail holes at the upper end for suspension. No nibbed tiles or rarer types of flat roof tile were noted. Most tiles here are fairly crudely manufactured with a smoother, hand-wiped, outer face and rougher inner face (underside) which is sanded or gritted from the manufacturing process. Most have a coarse, sometimes very coarse, sandy fabric, generally oxidised orange, orange-red or orange-brown. Evidence for glazing is very rare and, in most cases, appears accidental. There is little reason to doubt that much of the peg-tile assemblage is of medieval date (in many cases associated with medieval pottery). What is less easy to determine (especially when pottery is absent) is how to tell the medieval and post-medieval tiles apart, and how many of the latter are present. To address this properly would require a more in-depth study of local tiles than can be provided here. In general, and as at many other sites in southern England, the changeover from medieval to post-medieval seems to have been a gradual process: the tiles slowly became more neatly manufactured, with squared edges, neater nail holes, and a somewhat finer and more uniformly sandy fabric than previously. Local (or presumably local) tiles from 19th-century contexts here are much like most tiles of this date elsewhere, and are generally oxidised with a relatively fine sandy fabric. Early post-medieval tiles (roughly 16th to 18th century) are much less easy to distinguish from medieval ones and in some instances, only a broad late medieval/early post-medieval date can be suggested. The situation is complicated by the fact that a medieval tiled roof could remain in place for several centuries, and by the fact that medieval tiles could be reused. All things considered, it still appears that most of the assemblage here is of medieval date (probably mainly 13th–14th century), and only a small proportion of tiles are much later than this.

Peg tiles are present in London from around the middle of the 12th century, and were present in more provincial areas, such as Kent and Oxfordshire, by the late 12th century (Cotter 2006, 302, note 154). There is little reason to suppose that Bedfordshire, with its highly suitable clays, was any different to this and production by the 13th century, if not slightly earlier, is almost certain. The first documented use of clay roofing tiles in the county is in 1273 (Baker 1979, 253), and evidence from Bedford suggest that after the 12th century 'roof tiles of clay and limestone became widespread, sometimes elaborately glazed and decorated' (ie ridge tiles and roof finials) (Baker *et al*. 1979, 294). The peg tile form continues in production to this day.

The condition of the assemblage is variable. There are no complete tiles, although the samples from two of the medieval kilns include, not surprisingly, many very large and fresh pieces. No full lengths were preserved but nine tiles preserve complete measurable widths of *c* 183–210mm. Eight of these are from the kiln structures (see below), and one tile (width 195mm) recovered from the fill of a kiln stoke hole appears (along with pottery) to represent post-medieval contamination.

Apart from this single example, it is not possible to compare medieval and post-medieval tile widths, and there is little obvious difference in tile thicknesses. Most tiles fall within a thickness range of *c* 13–18mm (13–15mm being most typical). There are rare instances of medieval tiles only 10–11mm thick and, at the other extreme, rare instances of tile edges up to 24mm thick, but this was clearly caused by accidental denting during manufacture. The longest surviving (broken) length is 235mm+. Two complete post-medieval peg tiles illustrated from Bedford have the dimensions 148mm wide x 252mm long, and 144mm x 244mm (Baker *et al*. 1979, fig. 162.1105–6). If the latter are representative of later tiles in the county it suggests that medieval tiles, as here, were considerably wider than post-medieval ones, and certainly the tiles from the malting kilns, at least, are some of the widest medieval roof tiles known to the author from anywhere in southern England. Almost a third of the CBM assemblage (by weight) is represented by peg tile samples taken from the medieval kilns; these comprise 41% of all peg tiles recovered from the site. It seems appropriate then to describe the kiln tiles in more detail and to follow this with some general observations about the other tiles.

*Description of peg tile from medieval kilns 514 and 848*

Fuller details of kiln plan and construction are provided above and are only briefly mentioned here. The walls were constructed of local limestone, flint, and peg tile fragments (some almost complete) laid in courses, while the floors of the oven chambers were also made of stone cobbles with areas of pitched (upstanding) tile fragments. Pottery from the backfills of the kilns suggests a later 13th- to 14th-century dating, and the peg tile samples also suggest a broad 13th–14th-century dating. Context (511), the stoke hole fill of kiln 514, produced some medieval pottery and tile, but also a large piece of post-medieval peg tile (16th–17th century?) and a sherd of 19th-century pottery. This later material must represent post-medieval contamination of this particular fill, but does not affect the medieval dating of the kilns themselves. Only two of the three kilns were sampled (kilns 514 and 848). The fills and samples comprise a total of 149 fragments of tile weighing 17.103kg.

The samples from kiln 514 comprise 21 fragments of peg tile (7.354kg). About half of this (by fragment count and weight) is from the structure itself and the other half from the fills. There is little difference in the average fragment weights from the structure (393g) and the fills (311g), compared to kiln 848, but this is almost certainly explained by the different sampling strategies used (the fills of kiln 848 being sieved and thus producing a much greater number of small pieces). Kiln 514 produced six tiles with measurable widths of *c* 180–210mm; one of these, however, is probably a post-medieval tile (width 195mm) from the contaminated stoke hole fill (511). The latter is distinguished by its finer brick-red fabric, sparser inclusions and smoother outer face compared to the much coarser tiles from the kiln proper. The ‘complete’ upper and lower halves of some tiles have survived, and one tile is two-thirds complete. It seems likely that the kiln was built using two slightly different

types (or sizes) of peg tile, although the distinction between them is hampered by the lack of complete examples. These are described here as ‘cruder’ and ‘robust’ tiles. Two of the cruder tiles have complete widths of 180mm and 185mm whereas the three robust tiles are noticeably wider (2 x 202mm, 1 x 210mm). Two of the robust tiles are also at the upper end of the thickness range (*c* 16–18mm thick) and seem to be of more uniform thickness (flatter) than the cruder tiles and also have slightly squarer/neater edges, although one has an unusually rolled/beaded edge (20mm thick). It may or may not be significant that these robust tiles were only noted from kiln 514 and not from kiln 848. Whether this has any chronological (or other) significance is unknown. It might be that the robust tiles represent a more specialised product than the cruder tiles, or perhaps represent the product of a different tile workshop. It is likely, in any case, that the kilns were built of reused material salvaged from several local sources.

Most fragments from kiln 514 (and all those from kiln 848), are, however, are of cruder type. These, as the name suggests, are very crudely made and uneven with roughly finished and creased edges showing finger-denting here and there. On the long sides of some tiles the lower angle of the edge has been rounded-off or roughly bevelled. The positioning of the pair of circular nail holes near the top of the tile is sometimes very careless and off-centre. In one instance the tiler appears to have missed his target and has clipped the edge of the tile with an accidental extra nail hole about 80mm down from the top of the tile. The nail holes (in both kilns) have a diameter range of 13–19mm on the outer face of the tile. The exit holes on the underside are generally narrower and have a ‘puckered’ ring of surplus clay displaced by the (tubular?) tool used to create the holes (a common medieval trait). A few tiles appear to have been made with ‘blind’ nail holes (not fully punched through) but most of these have subsequently been pierced—probably by an iron nail—thus demonstrating that some of the tiles are reused (although others might possibly be tile kiln ‘seconds’). Blind nail holes have been noted on medieval tiles from numerous locations along the Thames valley, including London. The outer face sometimes shows vertical wiping (or even light scoring) and in some cases the lower end of the face has been squared off with a broad horizontal wipe. One or two tile fragments have lightly scorched edges, probably from exposure to the firing or heating chamber of the kiln. One such fragment appears to have been broken into a rough square (130mm x 140mm) and, very unusually, one end has been roughly sawn off, or filed down (post-manufacture) to achieve the desired shape.

The fabric of the cruder tiles from both kilns is the same. This is orange to red-brown, sometimes with a grey core and often with a very laminated fracture. They have a fine-medium very sandy matrix but with sparse-moderate very coarse stone grits commonly 5–15mm across. The smaller grits include rounded quartz grains (clear or iron-stained) while the larger grits include small flint pebbles and angular grey or white flint (in rare cases up to 25mm), chalk and possibly calcite, and hard red-brown iron-rich inclusions (ironstone or ochre/mudstone?), the latter sometimes angular (also up to 25mm across), and sometimes coarse rounded brown or grey clay

pellets. The coarser inclusions have sometimes caused the tile to split. The evident coarseness or grittiness of the fabric might result from the use of glacial sands and gravels. All tiles are sanded on the underside, to varying degrees, from the manufacturing process. Around a third of tiles (from both kilns) have a coarse gritting on the underside rather than finer sanding. The gritting (up to 5mm across) comprises quartz, flint and chalk. In several instances, the chalk inclusions are much more frequent but have often been dissolved out leaving a pitted or cratered texture on the underside. In rare instances, small accidental splashes and specks of brown glaze occur on the edges of some tiles. 'Robust' tiles have the same basic fabric, but it appears better-sorted and has fewer of the larger grits; the undersides appear (from the limited sample) to be sanded rather than gritted.

The samples from kiln 848 comprise 128 fragments of peg tile (9.749kg). The two samples from the structure comprise 80 pieces (8.292kg), whereas the two fills comprise 48 mostly much smaller pieces (1.457kg). The average fragment weight from the structure is 104g, and that from the fills only 29g. Sieving of all this material has resulted in a much higher fragment count compared to kiln 514, although the weight of the samples recovered from both kilns is not greatly different. The largest pieces are from context (808), a raised 'surface' (possible floor) of coursed horizontal tiles within the oven chamber and against the southern wall. This comprised large parts of 8 to 10 tiles and scraps of others. The tallest piece has a height of 235mm+. Three complete tile widths survive: 183mm, 189mm and *c* 200mm. Fabric, colour and generally crude appearance are as in kiln 514 above, except that a few small pieces are purplish and overfired/warped. A few other small pieces have an evenly sandy fabric with no grits (and could be mistaken for post-medieval tiles). Some edges are heat-scorched. One tile has a long dent along its side edge creating a furrow or trough impression and expanding the edge to a maximum of 24mm thick; the dent was caused during manufacture possibly by contact with another tile edge, or perhaps a long stick. The top edge of one tile fragment has a fairly large accidental splash and vertical trail of dark green-black glaze suggesting that it was fired in a vertical position in a kiln that probably also contained glazed items (ridge tiles?) higher up in the stack. A spalled edge fragment (from fill 809) shows denting and also quite a clear textile impression along the edge (Fig. 14, No. 1), possibly from contact with the tilemaker's sleeve. Other possible textile impressions were noted in the non-kiln assemblage.

*Comments on the non-kiln assemblage of peg tile (medieval and post-medieval)*

Most of the remaining peg tile assemblage has the same oxidised sandy-gritty fabric as the 'cruder' tiles from the kilns described above. In some contexts, with late 15th-16th-century pottery, some of the tiles are less gritty and of neater appearance with squared edges; the fabric is often harder/denser than previously and gritting of the underside is gradually replaced by sanding. These tiles are likely to be contemporary with the pottery. Gritting of the underside is a fairly common feature on medieval tiles

in southern England. In the Thames Valley, at least, this feature seems to disappear during the course of the 16th and 17th centuries. There is slight evidence from the present site that gritting may have continued slightly later than this, but a wider survey of local tiles would be needed to explore the medieval/post-medieval changeover. Tiles from a few 19th-century contexts include well-made sandy oxidised tiles, still handmade, but not dissimilar to tiles of this date across much of the country.

Two other, very rare, peg tile fabrics were noted, both from the fills of (unrelated) post-medieval postholes. These are probably non-local imports from elsewhere in Bedfordshire or further afield. A small body fragment (not definitely peg tile) from 1067 has an unusual red fabric with a grey core, laminated texture and abundant rounded voids probably from dissolved chalk or (oolitic?) limestone. Associated tile fragments suggest a 16th–17th century date. Another larger fragment from the squared edge of a peg tile has an unusually smooth sandy, light yellow/off-white fabric. This resembles some of the post-medieval brick from the site and may have been made in an area of Gault clay, such as east or south-west Bedfordshire, or further afield (see brick below). It was associated with pottery dating *c* 1480–1550 (827).

*Ridge tile*

Only six small pieces from four items are tentatively identified as ridge tile. These are distinguished by their thickness, the presence of glaze (on two), or curvature (on one). The fabric is like that of the medieval peg tiles above but generally finer. An edge fragment (18–19mm thick), possibly from near the apex of a ridge tile, has possible traces of notched decoration which may represent a trace of decorative crenellation, or cockscomb decoration (699). A very abraded brown-glazed corner fragment (23mm thick) might also be from the side of a ridge tile (764). Other details remain in the archive. Glazed medieval ridge tiles occur in Bedford, including tiles with fancy equestrian finials (Baker 1979, fig. 160.1076, 1083). The only notable point here is just how rare ridge tiles are; one might have expected a few more from a medieval CBM assemblage of this size. It might be a small indication of the fact that no medieval buildings of substance stood on this site, and this might perhaps be expected if it was a predominantly industrial area during this period.

*Floor tile*

The five pieces identified include two medieval decorated floor tiles and three pieces of unglazed post-medieval quarry tile. The two decorated floor tiles are very similar in fabric and condition, both very worn/abraded. They probably date from the late 13th or 14th century and come from the same manufactory, or tradition. Their scarcity and very poor condition suggests they may have been dumped here and probably do not come from any building on the site. Both come from posthole fills. The largest piece (context 856; Fig. 14, No. 2) is from the damaged corner/side of a cut triangular tile

with a complete side width of 110mm (thickness 24mm). Originally square, this has been cut/snapped in half along a pre-scored diagonal line, which is a common practice for producing smaller tiles for the edges of tiled pavements, or as fillers. The sides are slightly bevelled. It has a hard, fine orange fabric with sparse flint grits up to 5mm across. The underside is heavily flint-gritted and show no evidence of keying. On the upper surface is a worn 'printed' design in thin white slip under traces of clear purplish-brown glaze. Although unclear, the design is possibly radial (something like a rose window?) and possibly part of a four-tile scheme. The source has not been identified but the flint gritting and general similarity to the roof tiles suggest that it may be relatively local. The other piece (840) is a small corner fragment also with traces of white slip decoration and brown glaze on the side. The design is mostly worn off, but it appears to have a white slip border line. The three fragments of quarry tile are thicker (up to 36mm), unglazed, and probably post-medieval (details in archive).

*Brick*

The brick assemblage is very fragmentary. No complete examples were recovered although a few complete ends were present. Most of this has the appearance of abraded brick rubble and is of relatively little interest. Fragments of handmade, unfrogged, orange-red to brown brick predominate. A few thin 'Tudor' examples (*c* 50mm thick) could be as early as the 15th or 16th century. These frequently have flint gritting on the sides and the underside (similar to that noted on the underside of the medieval peg tiles above), suggesting local manufacture. This treatment probably continues into the 17th and possibly 18th century on thicker more neatly made bricks. A few appear to have been used for paving. Four unfrogged 19th-century bricks have a fine yellow fabric, possibly made from the Gault clay of east or south-west Bedfordshire (Bedford CBM Fabric 3: Baker 1979, 253–4). One of the latter is a thin, possibly, architectural brick. Parts of six late 19th–20th-century machine-pressed Bedfordshire-made 'Fletton' bricks are also present. These have a granular orange fabric with a deep triangular-section frog. Three of these contain traces of moulded maker's marks. Full details remain in the archive.

*Miscellaneous*

Mostly unidentifiable scraps of brick/tile. The largest item is a curved body sherd possibly from the apex of post-medieval ridge or hip tile.

**Wall plaster** by John Cotter

Sixteen pieces of wall plaster weighing 334g were recovered from four contexts, all associated with structure 832, in the south-east corner of the site. These are all nearly identical in appearance and almost certainly come from the same plastered wall or surface. They have a base, or backing, of rough sandy white or light grey mortar and a

thinner zone of finer outer render containing abundant finely crushed fired clay inclusions (‘grog’) and distinctive platelets of black (magnetic) hammerscale. These inclusions may have derived from an ironworking smithy. The outer surface is very flat and light grey in colour. A post-medieval date seems likely. These have not been separately catalogued but are described below.

*Context (767). Wall foundation. Structure 832. Date: Post-medieval*

Description: 3 pieces (20g). Joining pieces. The largest piece (43mm wide x 20mm thick) has a thick backing of off-white lime mortar with very coarse quartz grits and sands. The outer face of all three pieces is dead flat. The outermost layer (5mm) has a coarser inner layer or render of sandy pale pink-white plaster containing a mixture of bright orange-brown amorphous fired clay or grog inclusions mixed with coarse lumps and platelets of dark grey-black hammerscale. The outer 2mm appears to be a paint or wash of flat aligned hammerscale platelets under a surface film of light grey colour. All the pieces are attracted to a strong magnet. The outer render was possibly made from a mixture of plaster, leftover hammerscale and ground-up fragments of oven clay lining originating from a smithy. This may have had refractory properties, although there is no evidence of scorching.

*Context (768). Demolition layer of Structure 832. Date: Post-medieval*

Description: 1 piece (20g). 46mm wide x 25mm thick. Dead flat outer face with hammerscale render as in (767) above and almost certainly part of the same surface treatment/plastering. The outer layer is thicker (8mm) with a stronger demarcation between the pink inner layer and the outer dark grey layer. Strongly magnetic.

*Context (788). Demolition layer of Structure 832. Date: Post-medieval*

Description: 2 pieces (29g). Identical to hammerscale render in (767-768) above. Largest piece 52mm wide x 15mm thick. Contains tiny metallic globules/spheres as well as platelets. Strongly magnetic.

*Context (792). Floor/wall foundation of Structure 832. Date: Post-medieval*

Description: 10 piece (265g). Some joining. Identical to hammerscale render in (767-768 and 788) above. Largest piece 70mm wide x 25mm thick. Outer coloured layers of render up to 12mm thick. Stronger demarcation between the pink inner layer and the outer dark grey layer. Strongly magnetic. Outer surface mostly dead flat and quite modern looking. Slightly uneven and rough on two pieces including the largest (possibly abraded/worn?). Strongly magnetic. Red grog inclusions up to 4mm across. Mortar or cement backing is very hard, light grey and quite modern looking (18th–19th century?).

**Mortar** by John Cotter

Two pieces of sandy mortar weighing 13g were recovered from two post-medieval contexts associated with structure 832 (819 and 821). Both had wooden lath impressions.

**Worked stone** by Ruth Shaffrey

A total of 20 pieces of stone were retained during the excavation. The bulk of these are unworked and unused. The worked fragments that were retained all derived from medieval or post-medieval contexts and were examined with the aid of a x10 magnification hand lens.

A large block used in the construction of medieval kiln 888 (933) is carved from clunch, a type of fine-grained limestone of chalk-like appearance, quarried in Dunstable, and also known as Totternhoe Stone. The block, probably later medieval in date, is dressed and tooled on eight faces, chamfered on one side and rebated on the other and had probably been used as a door jamb (Julian Munby pers. comm.). During the medieval period, clunch was used in high-status buildings in Dunstable including at the Dominican Friary (Matthews 1966) and St Peter's Church, and some is still extant in the Priory Gate wall. It seems likely that the block found here was robbed from nearby St Peter's Priory or was damaged during carving and was surplus to requirements. The use of Totternhoe Stone in ovens and kiln structures in Dunstable has been previously noted, the blocks having often been used in the same position between the oven and the 'fuelling area' as seen here (Schneider 1999, 23, fig. 2).

Other worked stone includes a fragment of lava rotary quern from the fill of medieval pit 555 (556), while an unworked sandstone slab found in post-medieval pit 660 (661) is smoothed on one side, suggesting that it had been used in a floor surface.

**Coins** by Paul Booth

Ten late Roman coins were recovered, two from the second phase evaluation in 2006 and the rest from the subsequent excavation. The coins were in very variable condition. They were assigned to issue periods (as defined eg by Reece 1991) where possible and tabulated in approximate chronological order of issue (Table 6). Precise identifications were only possible in two cases; most coins were worn and eroded and/or encrusted. Some of the resulting identifications are very tentative, except for the two examples with diagnostic mintmarks. Some manual cleaning was undertaken to facilitate identifications.

The single certain late 3rd-century coin is an otherwise unidentified radiate (SF 18). SF 12 is very eroded and could have been of later 3rd- or 4th-century date. The remaining coins were fairly certainly of 4th-century date, although SF 19 was

assigned to the period *c* 350–364 solely on the basis of its general character. This piece, and two further coins assigned to the same period, one certainly and one possibly with Fel Temp Reparatio (fallen horseman) reverses, were all irregular issues, and the same was true of earlier 4th-century issues of Constantinopolis (SF 1) and Helena (Pax Publica, SF 15). The latest issue was of the House of Valentinian (SF 20).

All the coins except SF 6 came from the northern part of the site, with five from quarry fill 658 and the two unstratified pieces from the area of the adjacent quarry 887 just west of 658, while the two coins from the evaluation were both from Trench 3 at the northern margin of the site. The coins are too few for detailed comment about site character and the chronological range of activity. The exclusive late Roman emphasis is unremarkable and is characteristic of rural settlements and larger nucleated sites such as roadside settlements like Dunstable. In such contexts, however, the absence of earlier coins does not indicate that the site was not occupied before the mid-3rd century.

**Non-ceramic small finds** by Ian Scott

The non-ceramic small finds number 83 objects (118 fragments). There are 71 iron objects, 11 copper alloy objects and one bone hairpin. In addition to the 83 objects, there are 12 pieces of glass including seven fragments of window glass, all post-medieval or modern in date. These are not included in this report. The finds have been identified, where appropriate measured and details recorded on a spreadsheet. Basic context data and phasing has been recorded.

Just six finds come from Roman contexts, 25 objects come from medieval contexts and 40 objects from post-medieval contexts (Tables 7 and 8). Six objects are from contexts that could belong to either Phase 2 or 3. There are four objects from contexts that cannot be phased and only two objects that are unstratified. The largest functional categories of small finds by number are nails (n=34) and miscellaneous objects (n=21). The latter comprise mainly rod, bar, strip or sheet fragments and plain rings, and the like.

*Roman*

Finds from Roman contexts include a hobnail from context 1009 (ditch 1120), nails, miscellaneous pieces and a possible button or composite stud. The latter comprises five small fragments including its low domed top. The shape of the latter suggests an intrusive post-medieval button rather than a Roman composite stud. There are no personal items from Roman contexts, but a fragment of a 2nd- to 3rd-century brooch with hinged pin and an enamel decorated lozenge-shaped bow (Cat. No. 2) was recovered as a surface find from medieval quarry 658, a decorated bone hairpin (Cat. No. 3) was recovered from medieval pit 530 (fill 531) and part of probable Roman harness bell was found in medieval quarry 918 (fill 922) (Cat. No. 1).

*Medieval*

The 25 finds from medieval contexts include seven nails and seven miscellaneous objects. There is also a probable medieval knife blade (L: 165mm) with bellied triangular section blade and plate tang from quarry 918 (fill 925). The remaining finds include the probable Roman harness bell (Cat. No. 1), the fragment of Roman brooch (Cat. No. 2) and bone hairpin (Cat. No. 3). Six hobnails, almost certainly of Roman origin, come from pits 1036 (context 1045; three examples), 1015 (fills 1014 and 1026) and 1035 (fill 1043). Kiln 514 (context 686) produced a U-staple, which is not closely datable.

*Post-medieval*

Although contexts of this phase produced almost half the finds by number, most comprise nails and miscellaneous pieces. The only tool is a spring knife or pen knife handle with antler handle plates, dating to the later 19th or early 20th century (pit 660, fill 661). Of similar date is a copper alloy hinge from a carpenter's folding rule (pit 660, fill 663). The same pit (fill 665) produced a circular shank button embossed on the back: 'LONDON DOUBL'. The London Double was a small plain shank button widely produced in the early 19th century.

Three of the four household items comprise pieces of sheet iron vessels (14 fragments) from pit 660 (fill 662); all may be from a single vessel or bucket with wire reinforced rim. The only other household item is the tip of a possible knife blade from pit 1065 (fill 1063).

*Unstratified*

Amongst the unstratified material is a plain medieval or later dagger chape formed from copper alloy sheet.

*Catalogue of illustrated finds (Fig. 15)*

1. Harness bell, incomplete. Tinned cast Cu alloy. Ht extant: 39mm. Surface find SF 21, context 922, quarry 918. Phase 2
The form suggests that this is Roman rather than medieval or post-medieval in date.

2. Bow brooch with hinged pin and lozenge-shaped enamel decorated panel. The foot and catch plate are missing, as is the pin. Cu alloy. L extant: 21mm; W: 16mm. Surface find SF 16, quarry pit 658. Phase 2

This form with its enamel decorated lozenge and hinged pin belongs to a broad class of brooch with hinged pins and enamel decorated bows, which Mackreth called his 'Continental' group (2011, 167, see especially pl. 110, no. 11653).

3. Bone hairpin with rectilinear or cuboid head with single piercings from face to face. The head is rectangular in cross-section, with two more or less square faces, and rectangular faces. The flat top is decorated with cross cuts from edge to edge. The cuts extend over the edge to a horizontal cut just below the top running around the head. Below this each face has a diagonal cut cross with the piercing at its centre. The lower portion of each face is defined by a further horizontal line, below which the edge is decorated with cuts. The stem has a distinct bulge but is incomplete and broken. L extant: 69mm; W of head: 10mm. Context 531, pit 530. Phase 2

The hairpin has an unusual head, firstly because it is rectangular in section and secondly because it is pierced. Crummy (1983, 20) noted that there is a surprisingly limited range of basic designs for bone hairpins. Most pins comprise knobs of varying complexity, or collars and 'cotton reel' mouldings or in some instances combinations knobs and mouldings. In the later Roman period facetted cuboid heads (Crummy Type 4) are common. Besides these basic types there are pins with heads in the form of hands (Greep 1983, figs 249-50), some formed as female busts (ibid., figs 250-51), and some with cockerels or axe heads (ibid. fig. 258). The only example of a bone hairpin with a square head of rectangular section is an example from South Shields with a grooved rectangular section head (Allason-Jones and Miket, 1984, 84-5, no. 2.534). The thickening of the stem is feature of later forms of hairpin (Crummy 1983, 20).

4. Dagger chape, formed from cut and folded cu alloy sheet, with small terminal inserted. The upper edges describe a concave curve. Medieval or later. Cu alloy. L: 41mm; W: 24mm. SF 11, context 939, unexcavated pit 940

**Slag** by David Dungworth

All the metalworking debris submitted for assessment was examined visually and recorded following standard guidance (HE 2015). This comprised just over 0.9kg of metalworking debris (Table 9). The only material which can be positively identified is iron smithing slag (context 810, medieval kiln 848). The absence of smelting slags (and the small size of the assemblage) suggests that the remaining non-diagnostic ironworking slags were also produced by smithing. The recovery of undiagnostic iron slags from phase 1 contexts might suggest that some smithing took place in the Roman period. It is not clear whether smithing also took place in the medieval period or if this material is entirely residual.

The material recovered from the environmental samples includes modest amounts of flake hammerscale indicating that iron smithing took place. The quantity of hammerscale suggest that smithing was either a minor activity or took place outside the area excavated. The small size of the individual flakes of hammerscale suggests that they have undergone a degree of abrasion/redeposition. The material from the environmental samples also included a proportion of heat-magnetised residue (HMR). This material is unintentionally produced in many contexts when

earthy materials (containing at least some iron) are heated (eg in a domestic hearth) and as such is of no industrial significance (cf HE 2015, 61).

**Worked flint** by Mike Donnelly

Despite a fairly large collection of flint being recovered, only seven pieces appeared to be genuine worked artefacts, in addition to some pieces that were potentially accidental shatter (Table 10). The assemblage lacked any diagnostic elements and comprised just four flakes and three sieved chips, alongside 19 pieces of burnt unworked material weighing 13g. All flints were catalogued according to OA South's standard system of broad artefact/debitage type, general condition noted and dating was attempted where possible. Additional information on condition and the state of the artefact (ie burnt, broken or visibly utilised) was also recorded.

Three flakes were recovered from context 587, the primary fill of medieval kiln 888, which also produced one small sieved chip (sample 8). The flakes were definite examples with obvious dorsal flaking patterns and formal platforms. All three were relatively fresh but were still residual. One possible flake was recovered from context 833 that also contained a sieved chip (sample 7). This may be an accidentally flaked piece struck from local flint.

Burnt unworked material was found in contexts 587, 833 and 931 in very small amounts (3g, 4g and 6g respectively), none of which was recovered by hand. Given that the weight is so low, it is likely that the flints were accidentally burnt rather than being used as pot boilers. There were numerous, fresh, angular fragments recovered from several samples, but the vast majority looked to be accidental in nature and are presumably derived from damage to flint pebbles or cobbles in the local geology. Only three small chips from contexts 587, 809 and 833 were deemed to be genuine.

This very small assemblage is of little importance. There is some indication that much of the recovered assemblage related to the accidental breakage of presumably local flint cobbles. The flakes from 587 are genuine but are unfortunately not diagnostic; all that can be said is that there was a very limited presence here during prehistory.

ENVIRONMENTAL REMAINS

**Wood charcoal and other charred plant remains** by Sheila Boardman

Twelve bulk soil samples were collected and processed for charred plant material and other remains. The processed sample fractions were scanned by Wendy Smith at Oxford Archaeology, who recommended that samples 5 and 8 from fills of medieval kilns 848 and 888 (contexts 809 and 587 respectively) should be analysed for charred plant remains and that sample 6 from kiln 848 (context 850) had suitable material for wood charcoal analysis.

*Methods*

The samples were processed by flotation using a modified Siraf tank. The flots and residues were collected on meshes with aperture sizes of 250µm and 500µm respectively. Once dried, the residues were sorted for wood charcoal, cereal grains, seeds and other remains. These remains and the flots were then assessed for charred plant remains and wood charcoal. The two samples selected for full analysis of charred plant remains were sorted in their entirety. Plant remains were identified by comparison with modern seed reference material and various keys and guides (eg Jacomet 2006; Cappers *et al.* 2006; Berggren 1981; Anderberg 1994). For the charcoal sample, around 130 fragments greater than 2mm size were randomly extracted from the different sample fractions. These were prepared and identified using methods and keys in Gale and Cutler (2000), Hather (2000) and Schweingruber (1990). A low power binocular microscope and a Brunel SP400 metallurgical microscope with brightfield/darkfield illumination and magnifications up to x400, were used in the identifications. Plant nomenclature follows Stace (2010), and Zohary and Hopf (2000) for the cultivated species.

*Wood charcoal*

Wood charcoal remains are listed as fragment counts in Table 11. The majority of fragments were of beech (*Fagus sylvatica*) and over half were roundwood fragments. None of the roundwood had any surviving bark. Where these included pith, their diameters were measured in mm and the numbers of growth rings were counted (Table 12). The other charcoal taxa, each represented by one to four fragments, were oak (*Quercus*), ash (*Fraxinus excelsior*), legume (Fabaceae) wood, cherry/blackthorn (*Prunus*), blackthorn (*Prunus spinosa* type), possible cherry/blackthorn (cf. *Prunus*) and hazel (*Corylus avellana*). The few oak charcoal fragments present had wide rings regardless of whether from sapwood or heartwood, suggesting that this grew in open conditions. Legume (Fabaceae) wood may include gorse (*Ulex*) and/or broom (*Cytisus*). Gorse wood was a favoured fuel for bread ovens in the past, possibly as it burns with a hot flame and leaves little charcoal residue (Dickson and Dickson 2000). The other charcoal taxa (ash, blackthorn, cherry/blackthorn and hazel) are all widely present in medieval (and earlier) deposits at sites across the region (Smith 2002). These, together with the legume wood and oak fragments, may be incidental inclusions with the main beech fuel.

Much attention has been paid recently to the introduction of beech fuels into medieval Oxford and the extent to which this reflects an organised regional trade in wood fuels and woodland management practices (eg Boardman 2016; forthcoming; Challinor 2002; Druce 2006; 2018). Early work suggested that the transition from oak to beech as the main fuel wood occurred in the 15th/16th century (Challinor 2002). In a recent assessment at New College, Oxford (Druce 2018), beech was present in

significant quantities (including roundwood) in the pre-college features dating to the 14th/15th centuries. Meanwhile, detailed work at Lincoln College, Oxford, has indicated that the initial shift to increased beech utilisation occurred as early as the early–mid 13th century (Boardman forthcoming). Forthcoming work on potentially earlier (AD 1150–1350) beech dominated deposits at The Queen's College, Oxford, may push this back further still (OA in prep.).

The numbers of growth rings and the diameters on beech roundwood fragments show that the roundwood diameters were more variable than the numbers of growth rings, at least in this small subsample. Growth ring numbers ranged between 5 and 11, but most fragments had 7–9 rings, while roundwood diameters varied between 4–20 mm and fragments with larger diameters did not always have the most growth rings. Some caution is required as the roundwood fragments from Ashton St Peter's had no surviving bark, so they are incomplete. At Lincoln College, Oxford, similar data were collected on beech roundwood fragments (with bark) from deposits dating from the late 14th to the mid-16th/early 17th centuries (Boardman forthcoming). Most frequent were fragments with 7–9 growth rings and the majority had diameters of 4.5–12 mm. The Ashton St Peter's remains appear similar to these, at least in age. A second group of roundwood fragments from Lincoln College had 14–15 growth rings. The increasing proportion of roundwood fragments with 7–9 growth rings through the phases at Lincoln College is interpreted as possible evidence for standardisation of fuel supplies to urban settlements such as Oxford, and possibly the increased use of coppicing to manage regional woodlands (Boardman forthcoming). In his account of medieval woodland in the Chilterns, Roden (1968) suggested that widespread coppicing did not take place across most of the area prior to the late 15th or early 16th century, but in the north-eastern Chilterns (ie close to Dunstable) woodlands were under more pressure and coppicing was probably widely used by *c* 1400.

### *Charred plant remains*

The charred plant remains are listed in Table 13. Whole cereal grains, diagnostic chaff fragments, straw nodes and individual seeds and fruits were each counted as one. Fragmentary or incomplete remains (suffixed 'F') are not included in the sample totals. Both samples had a range of cereals, largely represented by grain, including hulled barley (*Hordeum vulgare*), oats (*Avena* sp.), wheat (*Triticum* sp.), and, in sample 8, rye (*Secale cereale*). With so few diagnostic chaff fragments, the actual cereal species present are not always clear. The wheat grains were of all free threshing type, so are most likely to come from bread wheat (*Triticum aestivum*) and/or rivet wheat (*T. turgidum*) in this period. The oat grains are presumed to come mostly from common oat (*Avena sativa*) but wild species also may be present. The presence of asymmetric barley grains indicates the six-row species of *Hordeum vulgare*, but there was no barley rachis to confirm this or other barley species. Other cultigens are represented by very few remains, of possible lentil (cf. *Lens culinaris*), possible black

mustard (*Brassica* cf. *nigra*), and one larger legume (*Vicia* sp./*Lathryrus* sp./*Pisum* sp.) which may include cultivated pea (*Pisum sativum*).

Samples 5 and 8 both had germinated grains and associated remains such as detached cereal embryos and embryo sprouts/coleoptiles. The germinated grains in each sample were from three or four different cereals (six-row hulled barley, oats, free-threshing wheat and, in sample 8, rye). Probable lentil (cf. *Lens culinaris*) was also present in sample 5. The possibility that these were the remains of mixed crop processing waste burnt as fuel, mixed perhaps with spoilt grains or grains that were accidentally burnt during drying, must be considered. There were as many seeds and fruits of wild species as there were remains of cultivated plants in Sample 5, from a central, basal fill (809) of kiln 848. In sample 8, from fill 597 in the flue area of kiln 888, there was approaching eight times the number wild plant remains as cereal remains. This sample also included a few wheat, rye and barley/rye rachises, some cereal/large grass culm nodes and a few oat awns, suggesting mixed crop-processing waste possibly including some oat straw. The original position of the plant material in sample 8, in the flue of the kiln, also points to raked-out fuel debris.

The kilns at Ashton St Peter's may have had several different functions but regular cleaning following use means that the remains are difficult to interpret. In addition to malting, the kilns may have been used to dry grain to prevent germination during storage and to aid milling. The presence of a wheat grain that had become infected with the earcockle nematode (*Anguina tritici*) points to conditions in which cereals may have germinated in the field. This pest is found in medieval wheat crops in Britain, and infestations are associated with cool, wet conditions, although the nematodes can lie dormant in the soil for many years. Infestation causes distortion, stunting and the wheat grains are eventually lost (Kath Hunter pers. comm.). Earcockle infestations have been largely eradicated from Britain through careful seed selection, crop rotation and fallowing (Brown and Kerry 1987).

As with the cereals, the wild species present in each sample also point to mixed origins. Annual weeds of arable fields include poppies (*Papaver* spp.), many cabbage/mustard (*Brassica*/*Sinapis*) species, campions (*Silene vulgaris*, *Silene* sp.), field madder (*Sherardia arvensis*), field gromwell (*Lithospermum arvense*), cornflower (*Centaurea cyanus*), nipplewort (*Lapsana communis*), corn marigold (*Glebionis segetum*), cf. oxeye daisy (cf. *Leucanthemum vulgare*) and particularly chamomile (*Anthemis cotula*). The latter is represented by large numbers of seeds. Many of these weeds have large seeds or seed heads (as with stinking chamomile) which are not easily removed from grain other than by hand picking. Weeds associated with autumn-sown crops include stinking chamomile, field gromwell and cornflower. Stinking chamomile and field gromwell are typical of heavier, calcareous soils, suited to bread wheat cultivation. Cornflower is widely believed to be associated with rye cultivation and corn marigold is common in spring sown barley. The wild species as a group represent a wide range of different soil conditions, ranging from

heavy clays (see above) and light, base rich soils (eg poppies, field madder, nipplewort), to mostly acidic, sandy soils (eg cornflower, sheep's sorrel).

A significant proportion of the plant remains are from wild taxa which are widely found in grasslands, as well as in and around cultivated fields. These include the small seeded small legumes (*Vicia/Lathyrus* and *Melilotus/Medicago/Trifolium* species), grasses (Poaceae) and bladder campion (*Silene vulgaris*). Sedges (*Carex* sp.) may have grown in damp grassland or in ditches around fields. Rushes (*Juncus* spp.) are found in damp grasslands and woods but not fields. These may have been brought onto site as floor coverings, animal bedding or for other purposes. Another group of wild plant species are the catholic weeds which grow on disturbed or nitrogen-rich ground, around settlements, in garden type cultivation and with spring sown crops. These include many docks (*Rumex* spp.), knotweeds (*Polygonum*, Polygonaceae), goosefoots (*Chenopodium* sp.), oraches (*Atriplex* sp.), chickweeds (*Stellaria* sp.) and chickweed/mouse-ear (*Stellaria/Cerastium* species).

*Summary and conclusions*

The beech-rich charcoal sample may provide tentative evidence for fuel wood collected from managed woodland close to the site. However, given the fairly wide variation in the diameters of the beech roundwood and the presence of a range of woody taxa, this equally may have come from waste cut from felled timbers, or from underwood and hedgerows. With more charcoal samples from medieval deposits at sites such as Ashton St Peter's, it may be possible to gain more insight into the nature and possible management of the local woodlands.

The charred plant remains provide inconclusive evidence for the functions of the kilns. This material seems to be largely cleaning debris from different crops grown in different cultivation environments and mixed with some grassy and rushy (ie general waste) material. Most of the plant material seems to have been deliberately burned. Some sprouted barley grains may represent deliberately germinated grain that became charred by accident, but this is unlikely for the other cereals.

**Animal bones** by Martyn Allen

The excavation produced 355 hand-collected specimens and 193g of animal bone from sieved samples from Roman and medieval features. The Roman material was largely unremarkable, mainly due to the small sample size. A modified fallow deer antler was recovered from pit 528. This feature was dated by a few Roman pottery sherds and an absence of medieval remains, though it is possible that the ceramics were residual in a later feature. The medieval assemblage was more substantial, consisting of 290 specimens. Complete skeletons of a horse and a sheep (each counted as single specimens) were recovered from medieval pits. The horse was placed in a specifically dug pit, while the sheep was placed in one of the later pits of a larger

quarry, possibly as a 'closing' deposit. Post-medieval remains were also recovered. These have been kept with the assemblage but were not recorded.

*Methods*

The animal bones were analysed using OA's skeletal reference collection to identify specimens to taxon and element. Where possible, elements were sided and recorded by zone following the criteria of Serjeantson (1996). Zoning data were then used to calculate the minimum numbers of elements (MNE) by counting the number of repeating diagnostic parts, and minimum numbers of individuals (MNI) by taking body side into account.

Epiphyseal fusion timings were based on those published by Getty (1975). Dental wear patterns were recorded on cattle, sheep/goats and pig mandibles using the scheme produced by Grant (1982) to estimate age at death; each specimen was given a mandible wear score (MWS) and these were converted to absolute ages following work undertaken on modern cattle (Jones and Sadler 2012), sheep (Jones 2006) and pig (Hambleton 1999) populations. Horses were aged using measurements taken of the crown height of cheek teeth following Levine (1982).

Measurements of mammal remains followed the standards of von den Driesch (1976), and withers' heights were calculated using the criteria set out by Kiesewalter (von den Driesch and Boessneck 1974). Non-metric characteristics were used to determine sex, including the presence of canines in horses, the morphology of pig canines, the shape of the ilio-pubic ridge in cattle, sheep and goat pelves (Grigson 1982), the presence of deer antler, and the presence of medullary bone in bird remains. Butchery marks were recorded using the criteria of Maltby (2010). Evidence for carnivore gnawing and burning was recorded at a basic level (see Table 24).

*Provenance*

Animal bones were found in a range of features spread across the site, most of which derived from small-scale butchery waste. Just under half of the Roman assemblage was recovered from ditches located in the northern part of the site, with the remainder deriving from pits and wells (Table 14). Small concentrations of material were found in ditch 1120, well 522 and pit 534.

Most of the medieval assemblage was found in pits and wells, which is unsurprising given the lack of ditches dating to this phase. Notable concentrations of animal bones were recovered from well 607, pit 712 and pit 1015. Two fills in well 607 produced numerous butchered cattle and sheep/goat remains, the forelimb of a cat, chicken bones and several neonatal cattle bones. Two specimens—chicken and sheep bones—had fresh surfaces, which suggests that the upper fill of the well (608) had been fairly recently backfilled and/or disturbed. Animal remains were also found in the backfilling of the medieval kilns. These included an articulated horse vertebral

column in kiln 848, while kiln 514 included remains of cattle, sheep/goat, rabbit and goose.

*Taxa representation*

Cattle and sheep/goats were roughly equally represented in Roman and medieval features (Table 15). The complete skeleton of a sheep was found in quarry pit 652. Horse bones were also found in similar numbers to those of cattle and sheep/goat, but were vastly over-represented by the 40 vertebrae fragments deposited in the backfill of kiln 848, which seem likely to have been semi-articulated. These bones have been identified as horse based on the presence of an axis bone (the second vertebra from the skull), and other horse remains in the same deposit. A complete horse skeleton was also discovered in medieval pit 1015, close to the northern edge of Trench 1. The medieval sheep and horse skeletons are discussed in more detail below.

Very few remains from other domestic mammal species were identified. Pig bones accounted for seven specimens, three from Roman features and four from medieval features. Dogs were represented by a pelvis from Roman ditch 1034, a semi-complete juvenile skull from medieval well 865 and a mandible from medieval pit 547. Three cat bones were recovered from medieval well 607. These consisted of a scapula, humerus and radius, all from the left side of the body, and probably derive from the same animal. All the bones were fused and no butchery marks were observed.

Four bones from wild mammals were identified. Roman pit 528 produced a fallow deer antler which had been sawn and burnt (Fig. 16), as well as a fragment of tibia shaft that was too large to be from a sheep. This was recorded as ‘deer’ based on its morphology. A worked and burnt red deer antler fragment was recovered from medieval pit 712, and a rabbit tibia was found in the backfill (686) of kiln 514. The rabbit bone did not exhibit any butchery mark, but its surface was not noticeably fresh enough to indicate that it was a modern intrusion.

A total of 14 bird bones were identified, all from medieval features. These included ten chicken bones and four goose bones. Seven of the chicken bones, representing at least two birds, were recovered from pit 712. Two chicken bones—a humerus and a tibiotarsus—were recovered from the upper layer of well 607. The humerus was noticeably fresh in appearance and this bone may be a fairly modern intrusion. The four goose bones were recovered from kiln 514 and pits 530, 547 and 712.

Fish bones were present in the sieved samples, all from medieval deposits (Table 16). Two eel vertebrae were recovered from the backfill of kiln 888, and five small herring vertebrae (identified by R. Nicholson) were recovered from the upper fill of pit 1015, above the medieval horse burial.

*Age and sex data*

Only seven mandibles provided dental ageing data, including two (a pig and a sheep/goat) from Roman features and five (four cattle and one sheep/goat) from medieval features (Table 17). The medieval cattle dental ageing data, although few in number, range from a calf aged 0–6 months to an elderly animal aged over 12 years. The presence of very young cattle was also indicated by the presence of neonatal bones (a humerus, a radius and a rib) in well 607. Cattle epiphyseal fusion data suggest that cattle were being culled from around four years old, though the sample size is very small (Table 18).

Two sheep/goat mandibles derive from animals aged around 20–36 months old, which is fairly common on Roman and medieval sites. There were very few fused/unfused sheep/goat specimens, though the available data suggest that lambs were rarely killed prior to 24 months (Table 19). The pelvis of the sheep skeleton in pit 651 was very narrowed along the ilio-pubic ridge which clearly showed that the remains belonged to a ewe (Table 20).

There were even fewer ageable pig specimens, including one mandible (Roman) from an animal that died between 7 and 14 months old, and an unfused distal 3rd metacarpal (medieval) from an animal that lived no longer than two years of age. The presence of a large canine with an open root from context 718 was from a male.

A chicken proximal humerus from pit 712 had not reached skeletal maturity. This probably represents the consumption of a young bird rather than evidence for local breeding. However, hens were clearly present during the medieval phase, as indicated by a tibiotarsus with a thick deposit of medullary bone within the shaft cavity. This came from a female that was about to come into lay.

*Body-part representation*

There were not enough bones from Roman features to reliably examine body-part patterns, though the medieval cattle and sheep/goat samples were more substantial. Calculated from the number of repeatable element zones from one side of the body, a minimum of four cattle was present in the assemblage and all the main body parts were represented (Table 21). Mandibles were slightly over-represented, though it was notable that no horncores were found at the site. It is possible that horns were sent elsewhere for working soon after slaughter and primary butchery.

The medieval sheep/goat sample included remains from at least three animals (Table 22). Taphonomic bias affected the sheep/goat remains because smaller or more fragmentary elements, such as the scapula and the ulna, are poorly represented or absent altogether; mandibles, distal tibiae and proximal metacarpals are comparatively dense elements, and these tended to survive well.

The horse skeleton will be discussed in more detail below and the horse vertebrae in kiln 848 have been mentioned above, but both show that horse bones

tended to be deposited as whole or partial carcasses rather than as disarticulated remains. However, a horse scapula from medieval pit 547 was found to have been butchered and is suggestive of meat consumption (see below).

Although few in number, chicken bones were mostly represented by long bones, including humerus, femur, tibiotarsus and tarsometatarsus specimens. These were generally found as either whole bones or were broken in half. As mentioned above, most of the chicken bones derived from pit 712.

*Carcass processing*

Very few animal bones from Roman deposits displayed butchery marks (Table 23). These included a chop mark through the shaft of a sheep/goat femur and cut marks on a scapula. A possible deer tibia had been axially split in a medial–lateral direction. The beam of a fallow deer antler had been sawn through just below the second tine and exhibited a series of small nick/cut marks along the edge of the upper parts of the beam (Fig. 16). The purpose of these marks is uncertain.

Butchered remains were more common in medieval features, predominantly from cattle and sheep/goat. Both chop and cut marks were evident on the remains indicating the use of a heavy-bladed implement, such as a cleaver, and knives for more intricate work. Axial spitting of cattle long bones to extract marrow was only recorded on a femur, a humerus and a tibia. Cleavers appear to have been more often used to chop through the shafts or articulating ends of the long bones in order to dissect the carcass into smaller joints. These types of marks were found on cattle humerus, metatarsal, tibia and ulna bones, and sheep/goat mandible, pelvis and tibia bones.

One horse scapula had a thin strip of bone removed from the caudal edge of the neck and several chop marks were found around the glenoid (Fig. 16). This shows that the shoulder was being stripped of meat along this side of the bone.

*The sheep burial (pit 652)*

The sheep skeleton appears to have been placed on its left-hand side in pit 652. This feature formed part of quarry 658 in the northern part of Trench 1 (Fig. 9). The skeleton was recovered by hand excavation and consisted of 255 individual fragments representing most parts of the body. The bones were generally well preserved, though low-density elements, such as the skull and the ribs, had fragmented to a greater degree (note that only proximal rib ends and vertebrae centra were counted so as not to skew the fragment count). No datable material was recovered from this pit, though adjacent pits within the quarry produced 13th–14th-century pottery.

The skeleton was identified as a sheep, as opposed to goat, from the morphology of the distal condyles on the metacarpals which were very straight. This

is generally characteristic of sheep, while goat condyles tend to be inwardly angled (Boessneck 1969).

Unfortunately, most of the teeth were lost post-mortem, but the skeleton could be aged fairly accurately by the state of epiphyseal fusion on several bones. Almost all the epiphyses on the long bones had fused, other than the proximal humerus and the proximal tibia which were fusing at the time of death. These elements fuse at around 42 months in sheep and, given that other late fusing elements (the distal radius, distal femur, etc.) had completely fused, it seems likely that the animal was at least, but not much more than three and a half years old.

The ilio-pubic ridge on the pelvis was very narrow. This is highly characteristic of female sheep and strongly suggests that the animal was a ewe. The metatarsal, radius and humerus bones were complete enough to provide measurements for the calculation of a withers' height for the animal (Table 25). The average for all three bones indicated that the animal stood at 59.3cm at the shoulder (the astragalus gave an anomalously low result and this bone was not used in the calculation).

The skeleton showed no signs of butchery or burning and there is no indication that the meat of the animal had been eaten. No sign of canid or rodent gnawing was observed, suggesting that the sheep had been placed in the pit and buried in a single episode.

Several bones were notably light-weight and slightly porous. Affected elements included the atlas, axis, other vertebrae, the proximal humeri and the pelvis. These pathologies are consistent with osteoporosis. This condition can be defined as an imbalance between the normal levels of bone resorption and bone formation, causing the bone to have a lower density and be susceptible to fracture. The causes of osteoporosis in sheep varies, but it can be related to old age, having offspring, poor nutrition (particularly in infancy), parasites or anaemia (Bartosiewicz and Gal 2013, 156–9). Any of these causes may account for the development of osteoporosis in the ewe, though old age seems unlikely given that the animal was probably less than four years old when it died. It is possible that a combination of factors caused the condition (i.e. poor living conditions contributing to malnutrition and infection), and this may have contributed to the death of the animal but the cause of death remains unknown.

### *The horse burial (pit 1015)*

The complete skeleton of a horse was discovered in sub-rectangular pit 1015. The animal was placed at the base of the pit and was contained within the bottom chalky fill (1026), which was sealed by an upper layer (1014). The soil surrounding the skeleton contained several pottery sherds dating *c* 1480–1550, as well as some residual Roman pottery which was also found in the upper fill. All the bones were very well preserved with minimal fragmentation and no signs of canid or rodent gnawing. No evidence of butchery or burning which might have suggested that the

animal had been deliberately killed and eaten was present on any of the bones. It appears that the pit was dug specifically for the burial of the horse. Unfortunately, the only photograph of the bones *in situ* was taken when the pit was half excavated, with only part of the skeleton exposed (Fig. 10). However, the photograph and the description of the context suggest that the body was only partly articulated; the neck and skull appear to be intact, though a long bone, possibly a femur, appears to the right of the vertebrae, and the pelvis seems to be positioned to the left of the skull. The excavator also describes two large long bones lying across the skull. These are almost certainly leg bones from the horse. Overall, the evidence suggests that the carcass of the horse was very carefully dissected with sharp knives by skilled butchers who left no trace of dismemberment of the skeleton.

The horse was distinguished from donkey and mule by the patterning of the enamel on the occlusal surfaces of the cheek teeth (cf. Johnstone 2004, 163–6, table 4.1, fig. 4.3). Several premolars and molars in one of the mandibles could be easily removed from the bone without damaging it, and this allowed the crown heights to be measured. The results of these measurements are provided in Table 12 and these have been compared with Levine's (1982) data for horse ageing. The 4th premolar, 1st, 2nd and 3rd molars all corresponded well with an animal that died when it was 5–6 years old, while the 3rd premolar fell within the size range of a 6–7 years old. Together, these suggest that the earlier age range is more likely.

The presence of four well-developed canines suggest that the horse was a male. Canines tend to be rare or poorly developed in mares (Hillson 1990, 87). The pelvis also displayed some male characteristics.

Complete radius and metacarpal bones were measured to estimate the withers' height (Table 12). This was done by taking the average height calculated from both specimens, which indicated that the horse stood 146.5cm at the shoulder. This is quite tall for medieval horses. For example, Baxter (1996, 74) found that later medieval and post-medieval horses at Market Harborough, Leicestershire, ranged from 131.7cm to 146.7cm, with a mean height of 141.0cm, while the horses from the late medieval/Tudor burial ground at Elverton Street, Westminster, ranged from 120.0cm to 155.0cm, with over 90% between 125.0cm and 145.0cm in height (Cowie *et al*. 1998, 243).

Exostoses were visible on the posterior medial and lateral sides of both 3rd phalanges. This type of cartilaginous-bony outgrowth is normally a reaction to trauma or excessive pressure being placed on a joint over a period of time, in this case towards the base of the foot. There are also signs of bitting wear on the teeth. The anterior edges of the left and right lower 2nd premolars had been worn down through the enamel to expose the dentine. In addition, the anterior edges on the upper 2nd premolars were slightly bevelled next to the occlusal surfaces, matching the wear seen on the lower premolars. Taken together, these marks are strongly suggestive of the use of a bit (Bendrey 2007), probably either for riding or pulling a vehicle. A

localised area of periostitis was also observed on the left maxilla, extending from the 2nd premolar to the 4th premolar, though this may be unrelated to the bit wear.

The sternum was unfused and comprised six individual sternebrae. Each segment had areas of extra bone growth around the edges, but it was uncertain whether these were caused by the bones beginning to fuse or whether they were the result of an infection. No other signs of pathology were observed on the ribs though the costal cartilage had fully ossified, and the bone growth seen on the sternebrae may be related to this ossification.

*Discussion*

The animal bone assemblage provides a small but useful sample from Roman and medieval Dunstable. As mentioned, the Roman sample is largely unremarkable, consisting mainly of butchery waste from cattle and sheep/goat. However, the presence of a sawn and burnt fallow deer may be of more significance. Fallow deer are known to have been imported into Britain during the Roman period, sometimes as live animals, but there is also some evidence that body parts such as antler and foot bones were traded, perhaps as amuletic items (Sykes 2004). Based on historical accounts coupled with isotopic analyses it has more recently been argued that fallow deer body parts were imported and used for zootherapy and medicinal practices in the Roman period (Miller *et al*. 2016). While the Dunstable antler specimen has clearly been worked, there is no evidence that it was being made into an artefact per se. The odd cut marks on the upper part of the beam and the burnt patch next to it require further explanation. Nevertheless, this specimen would require radiocarbon dating to confirm its identification as a Roman find.

The medieval assemblage was dominated by remains of cattle and sheep/goats, much of which appears to have been in secondary deposits resulting from the gathering up of waste material that was dumped in pits and disused wells. The presence of some gnaw marks, made by dogs and rodents, suggests that scavengers had some access to material prior to final deposition (Table 24). The pattern of butchery does not appear to be overly standardised, consisting of chop marks to dismember the carcass and knife marks for filleting. There is no strong body-part pattern that might otherwise indicate specific activities, although the absence of horncores (of both cattle and sheep/goats) may suggest that horns were removed and sent elsewhere for working. It is possible that many of the livestock were polled, though this seems unlikely and there is no direct evidence for polled animals in the assemblage. The cat forelimb in well 607 may derive from a skinned animal, though there were no obvious cut marks on the bones.

A lack of consistency in the cattle ageing data suggests a lack of selectivity in terms of animals brought to slaughter, and there is some evidence for veal consumption alongside meat from much older animals. Sheep and pigs tended to be slaughtered quite young, though there were few ageable bones from these species.

Understanding of local dietary patterns was enhanced by the recovery of chicken and goose bones, as well as bones of herring and eel. Herring is a coastal, marine species and must have been transported to Dunstable, perhaps via the extensive medieval fish markets in London (Orton *et al*. 2014). There is also evidence that horse meat was being eaten, if only on a limited basis. The horse scapula from pit 547 showed clear signs that a heavy blade had been repeatedly run along the caudal edge of the blade, indicating that meat was being stripped from the shoulder.

A complete horse skeleton was found in a ready-made, rectangular pit near the northern edge of Trench 1. There was no evidence of butchery on the bones, nor of trauma to the skull which might suggest that it had been pole-axed. However, the arrangement of the bones in the pit, with the pelvis and long bones being placed near the skull, show that the skeleton had been dismembered—and with some skill given the lack of cut marks. The horse was only 5–6 years old and pathologies indicate that it was used in life for riding or cart-pulling. Other than some undiagnosed bone growth on the sternebrae (which might be related to fusion of the sternum), there is no evidence for disease; if the horse had died from an infection, it did not leave any trace on the bones. Otherwise, it is possible that the horse was deliberately slaughtered.

A parallel for this type of burial can be found at Elverton Street, Westminster, where an excavation by Museum of London Archaeology (formerly MoLAS) in 1994 revealed the remains of an extensive horse burial ground (Cowie *et al*. 1998). Here, most of the horses had been dismembered and their remains had been placed in purpose-cut, sub-rectangular burial pits. Unlike the Dunstable example, most of the pits contained the remains of two or more dismembered horses; in total, 76 horses were present in 27 pits (197 pits were found altogether, though the acidic, sandy soil was not conducive to preservation). But as with the Dunstable horse, the Westminster horses had been dissected by skilled butchers who left little or no trace on the bones. Radiocarbon dating of two articulated horse bones from different pits gave calibrated results of AD 1415–1450 and AD 1476–1636, which broadly corresponded with the bulk of the pottery from the site. The burial ground was abandoned around 1600 when it was extensively quarried for sand (ibid., 240). These dates are broadly contemporary with the medieval pottery found in the Dunstable horse burial. The excavators of the Elverton Street site argued that the burial ground represented the activities of a local knacker's yard (ibid., 241–2). The presence of a local knacker's yard may account for the horse burial at Dunstable, and the presence of a semi-complete, horse spinal column in the backfill of kiln 848 may also derive from similar activities.

**Marine shells** by Rebecca Nicholson

A fairly small assemblage of marine shell, almost all of oyster (*Ostrea edulis* L.), was hand retrieved from 13 contexts (Table 26). Comprising over 100 valves, the largest group came from a 13th–14th-century backfill (852) in medieval kiln 848. Smaller groups of oyster shell came from a chalky backfill deposit (515) in kiln 514, which

has been dated as 13th–14th century, as well as medieval and post-medieval pit and posthole fills and a demolition layer. A single oyster valve came from Roman well fill 525. Apart from oyster, the only other shells found were four small carpet shells (*Tapes/Ruditapes/Venerupis* sp.) including probable banded carpet shell *Tapes rhomboides,* all from context 852.

Apart from the assemblage in 852, the oyster valves are in poor condition and vary in size. In comparison, the oyster shells in kiln backfill 852 are in relatively good condition: about half of the left valves are nearly complete and the great majority are of a small size and traditional rounded shape with small hinges. Juveniles are also present in this assemblage. Opening notches are evident on a few left valves, demonstrating that the shellfish were consumed. The relatively regular shape and small size is consistent with a medieval date and indicates that the oysters were probably from cultivated beds (Winder 2017, 244). Oysters were widely cultivated in medieval times and those that are relaid for fattening tend to achieve a smaller size since they stop growing while periodically out of the water (ibid., 245). The carpet shells may have been accidentally harvested while dredging for oysters, but these small clams may also have been eaten.

## DISCUSSION

The density of archaeological remains at Ashton St Peter's School reflects the long period of activity at the site, beginning in the 1st century AD and running (albeit not continuously) until the Victorian period. Roman and medieval features survived fairly well in the northern half of the site. The foundations of Ashton St Peter's School, which was built in 1861, were completely removed during the stripping of the site suggesting that they were relatively shallow. Thin layers of subsoil were recorded over much of the area and this appears to have sealed and preserved a range of archaeological remains, including the lower parts of the medieval quarries and kilns, and numerous postholes. Phasing of the archaeology, however, was more problematic, particularly due to the level of destruction caused to Roman features by medieval activity. This resulted in fairly sizable quantities of Roman material becoming redeposited in medieval features. Because of this, some caution has been exercised over the phasing of individual contexts and many have remained unphased. Nonetheless, enough of the archaeological features and deposits at the site have been excavated and dated to allow for some discussion and interpretation of each period.

### Roman

The Roman period was characterised by a series of ditches in the northern half of the site, in Trenches 1, 2 and 3, and it possible that further remains would have been discovered had the area in between the three trenches also been excavated. The focus of Roman activity was also demonstrated by the fact that all but one of the Roman coins from the site was recovered in this area. As with most Roman coin assemblages,

the emphasis was very much on the later period (late 3rd to 4th centuries AD), but the pottery assemblage, although small, indicates earlier occupation. Pit 594 at the eastern edge of Trench 1 is significant here. The pit produced an assemblage of 19 sherds that were quite tightly dated to the mid-1st century AD. The pit's truncation of ditch 592 shows that the linear feature (which was perhaps no more than a drainage gully) had been abandoned by the second half of the 1st century. The ditch potentially dates to the late Iron Age, though the complete lack of finds from its fill means that this is uncertain. The recovery of a small amount of late Iron Age pottery from the previous evaluation trenches to the north of the site indicates pre-conquest activity in the area (HAT 2000).

Other than the pottery assemblage from pit 594, 1st-century ceramics were largely absent from the site and the sequence seems to begin again in the early 2nd century. As noted in the Roman pottery report above, this apparent gap is filled by a larger assemblage from the excavation at Queensway Hall, located only 300m north-west, which was dominated by later 1st/early 2nd century wares with several vessel forms not found at Ashton St Peter's. The construction of Watling Street about 150m west of the site soon after the Roman conquest no doubt encouraged the early development of the settlement, perhaps near its purported crossing over the Icknield Way, though the dating evidence for the latter road is slim (Harrison 2003). Although the Roman roadside settlement of *Durocobrivis* is thought to have been established in the 1st century AD (eg Smith 1987, 218), it appears that occupation along Watling Street may have been transitory in different areas at least until the 2nd century.

Perhaps the most significant Roman feature at the site was ditch 1120. The size and profile of the ditch suggests that it formed a significant land boundary (the ditch is also aligned roughly perpendicular to Watling Street, though any suggestion of a relationship between the two features is conjecture). The recovery of 2nd-century pottery from a lower fill of the ditch, just above the basal silt, shows that it was beginning to silt up by this time. The ditch was then recut in the medieval period, perhaps during the later 12th or 13th centuries, almost to the same depth as the Roman cut. This may suggest that the ditch represented a long-lived boundary.

Although the Roman features are heavily truncated by later activity, there is little evidence of domestic occupation at the site. If *Durocobrivis* was centred on the crossing of Watling Street and Icknield Way, one might expect more evidence of habitation. While evidence of structures is likely to have been lost, the quantity of artefactual remains recovered is relatively low; 273 pottery sherds and 33 CBM fragments are notably poor returns for a nucleated settlement on a major Roman road. Small finds were restricted to a small number of hobnails, two brooches, a hairpin and a harness bell, little of which was recovered from Roman features, but was instead found redeposited in later contexts or recovered from subsoil layers. Given that a wide range of artefacts are generally well represented at roadside settlements compared to other types of rural site, particularly in southern and midland England (Smith 2016, 186, fig. 5.46), the evidence suggests that the area was always a fairly peripheral part

of *Durocobrivis*. The site is located about 150m north-east of Watling Street and it is possible that settlement activity was focussed on the road, perhaps forming a ribbon-like settlement along it. If this was the case, the site may have represented an area of enclosures and field boundaries, perhaps set back from domestic areas, where smaller amounts of material had spread and become deposited.

**Medieval**

No evidence for activity between the 5th and the 11th centuries was found, except for three Saxo-Norman St Neots type ware sherds that were almost certainly residual. Apart from these, the earliest medieval pottery from the site dated to the second half of the 12th century, mostly consisting of coarse greywares (see *Medieval pottery)*. This is fairly consistent with a general lack of early medieval activity in the town. Given that 5th–7th-century cemeteries to the west and north of the town indicate the presence of a sizable population in the area (Matthews 1962a; 1962b), it seems likely that the focus of Saxon settlement was located elsewhere.

The three kilns (514, 848 and 888) were the most notable medieval features excavated at the site. Differing construction methods suggest that two kiln types were represented: a rectangular type, built with masonry and tile, and a sub-circular/oval type with gravel-and-chalk-packed walls. Possible comparisons for both kiln types have previously been excavated in Dunstable, including two (F37 and F42) found immediately south-west of the Methodist Church, north-east of Bull Pond Lane, and one (G10) about 150m further north-west at Dunstable Police Station (Schneider 1999). Kiln 888 closely resembled kiln F42, and bore similarity to kiln G10 (though the latter had tile walling within the heating chamber). The heating chambers of these three kilns consisted of a sub-circular 'bowl' cut into the natural chalk, with Totternhoe Stone blocks used at the entrances to the heating chambers (Fig. 7; Schneider 1999, 23, fig. 2, 30, fig. 8). Kilns 888 and F42 had steps, cut into the natural chalk, leading down to the stoking area facing the entrance of the heating chamber; in kilns F37 and G10, the steps led in from the right-hand side. Schneider (ibid., 27–8) highlights the presence of a 'mortared chalk lining' surviving in places, which she suggests points to the walling being robbed out, perhaps for the construction of kiln F37, which cut through the stoking area of F42. It is possible that kilns 888 and F42 had both been robbed of building material, which may explain the irregular slope to the heating chamber walls in both features (Fig. 7, Section 609; ibid., 27, fig. 6). The walls to the entrance of the heating chamber in kiln 888 were vertical where Totternhoe Stone walling survived against the packing. Schneider does not mention gravel packing against the cut in kiln F42, but the apparent mortared chalk lining she found may be similar to the pink-coloured layer found overlying the packing in kiln 888. As mentioned in the description of kiln 888 above (see *Phase 2: Medieval features*), it was uncertain whether this 'lining' was a deliberately laid rendering to protect the walls, or was the result of heat affecting the surface of the gravel-and-chalk packing. The discovery of thin, pink-coloured basal fills in the base

of kiln 888 perhaps supports the latter interpretation of material accumulating from the walls after successive firing. If so, this suggests that kiln 888 did not have tile/masonry walling to begin with, and it was the gravel-and-chalk packing that was used in its absence. The fact that kiln F42 was cut by the more regular and substantially built kiln F37 may suggest that the bowl-type kiln was not a long-lasting design and needed to be replaced after a relatively short period.

Kilns 514 and 848 are both more closely paralleled by kiln F37. It was unfortunate that both the Ashton St Peter's kilns were heavily truncated by the supermarket foundations, as these removed substantial parts of both kilns in the stoking areas and the flue arches/entrances to the heating chambers. The initial construction cuts in the natural chalk were rectangular (or sub-rectangular) in plan. Kilns 514 and 848 were both just under 4m long, end-to-end, while F37 was slightly longer at about 4.5m. Some variation was noted in the construction of the walls in each kiln: kiln 514 was mainly built with tile (similar to G10), kiln 848 was primarily constructed with Totternhoe Stone, while kiln F37 mainly used mortared chalk rubble. The internal area of the heating chambers of all three kilns was about 1m$^2$, and each had pitched tiled floors, though these were arranged differently in kilns 848 and F37, while the floor in kiln 514 was largely destroyed.

The stoking area of kiln F37 was entered via steps from one side. Unfortunately, the steps into kiln 848 were probably truncated by the concrete foundations, though the stoking area appeared to extend to one side, and an eastern wall to the rear of the stoking area bears some similarity to the wall in the same position in kiln F37. In kiln 514, one course of Totternhoe Stone was laid slightly set back into the cut of the kiln, and while this may just be a disturbed stone, its position suggests that it might have been a step. The function of pit 510 to the south of kiln 514 is uncertain, mostly because it was heavily truncated by the post-medieval linear feature 695, but the pit may have been associated with the kiln. All three kilns were built in a regular fashion, using masonry and tiles, that was clearly meant to last.

The plan of kilns F42 and F37 clearly shows that the former was succeeded by the latter (Schneider 1999, 23, fig. 23). None of the Ashton St Peter's kilns were directly related, and the chronological resolution of the medieval pottery is not fine enough to distinguish the kilns in terms of their dating. Nonetheless, it may be worth pointing out that greyware sherds in fabric C59A, dated to the later 13th–14th century (see *Medieval pottery*), were found in the lowest backfill (587) of the stoking area of kiln 888, suggesting that it was abandoned around this time, while pottery of the same fabric was recovered from the supporting fills between the cut and the heating chamber wall of kiln 514.

The question of the function of the kilns remains outstanding. Schneider (1999) was clear in her assertion that both types were malting ovens, and she distinguished these from bread ovens which were circular and enclosed to reach a higher temperature. Grain could be malted either by being spread over the floor of the oven and gently heated to halt the germination process, or by being placed on a frame,

often made of horse hair, and rested on shelves within the chamber. While this may be the case, Schneider did not produce any archaeobotanical evidence to support her argument. Unfortunately, although two environmental samples were examined from kilns 848 and 888 at Ashton St Peter's, neither could confirm the function of either structure. Both samples contained quite mixed assemblages of cereal grain, chaff and wild plant species, and it seems likely that the remains reflect debris from several firings and episodes of cleaning out (see *Wood charcoal and other charred plant remains*). Malting is indicated (but not proven) by the presence of sprouted barley, oats, wheat and rye, including a sizable number of detached coleoptiles recovered from kiln 888. The range of wild species is more difficult to interpret, however, and may reflect material brought in with straw or other fuels used in the firing of the oven, or in material which entered the kiln after its abandonment (ie floor covering or animal bedding).

Several medieval wells may have been contemporary with the kilns, though whether they were related to them is uncertain. If malting was being undertaken at the site, access to clean, fresh water would have been necessary for the germination of the grain before it was malted in the ovens.

The other main feature type present at the site was the quarry pits, most of which were located at the northern end of the site. Pottery recovered from these pits was generally of 13th–14th-century date, and the pits could have been contemporary with the use of the kilns. While the dating is not certain, it is worth noting the presence of posthole groups that appear to cordon off the quarry pits from the rest of the site to the south.

Medieval activity at the site would have occurred in view of Dunstable Priory, which was located immediately to the south on the opposite side of Church Street. St Peter's Parish Church is the only surviving remnant of the priory, which was established by Henry I in 1131–2 and dissolved by Henry VIII in 1540. The priory is known to have had a brewery from a record from 1282 which noted that the canons built an extension to the bakery and rebuilt the brewery wall (Fowler 1990). Excavation by Manshead Archaeology Society in the 1980s revealed medieval cellars, possibly of the bakery, at the Saracen's Head Hotel site to the south of the priory church, close to High Street South (Matthews 1984), and these appear to have been relocated during a geophysical survey in 2012 (Stratascan 2012). However, no further remains were subsequently discovered during a small-scale excavation (AS 2012). The location of the brewery remains unknown, although it is likely to be within the grounds of the priory. Nonetheless, it is possible that the malting kilns found at the Ashton St Peter's School site (if they were used for brewing) may have been used to supply the priory.

Another activity undertaken at the site is indicated by the presence of the horse burial in the northern part of the site and the articulated remains found in kiln 848. Sub-rectangular pit 1015 contained the complete skeleton of a horse that had been dismembered and its body parts lain within the base of the feature. Most of the skull,

neck and trunk of the animal remained intact, while the legs were removed and placed alongside the rest of the body. The absence of butchery marks on the skeleton shows that the dismemberment of the animal was undertaken by highly skilled practitioners. The burial of the animal is comparable, if on a much smaller scale, with the horse burial ground at Elverton Street, Westminster, which is interpreted as the remains of a nearby knacker's yard (Cowie *et al*. 1998). It is possible that a local knacker was operating in this part of Dunstable, perhaps after the kilns had gone out of use (15th–16th century pottery was found with the horse burial). No evidence for secondary use of the bones was found, though the skins may have been exploited and horsemeat appears to have been eaten, as suggested by the discovery of a butchered scapula from another context.

### Late medieval/Post-medieval

The one feature of significance in this period is building 832, which was located in the far south-eastern corner of Trench 1. The Ordnance Survey map of 1880 (25 inch) shows a short row of terraced houses fronting Church Street and the position of building 832 appears to match that of the house at the eastern end of the row. The southern edge of Trench 1 ended several metres north of Church Street, suggesting that building 832 represented the rear end of the house. The pottery from building 832 suggests that its origins may have lain in the late medieval period and it continued in use into the post-medieval period, or that it was built in the 16th/17th centuries and the late medieval pottery found was residual from contexts disturbed by the construction of the building. The OS map shows this house extending further back than all the other houses along the terrace, of which there was no trace as they lay just south of the excavated area. The pits and postholes in Trench 4 may be related to features to the rear of one of the other houses.

## CONCLUSIONS

The excavation at Ashton St Peter's School has provided additional, useful information about the nature of activity in this part of Roman and medieval Dunstable. It should be acknowledged that not all features were sampled, owing to on-site limitations, and the true extent of the Roman, medieval and post-medieval archaeology present at the site may not be fully recognised.

The Roman remains have suffered from quarrying during the medieval period, but the remains of ditches and possible drainage gullies suggest localised activity set back some 150m from Watling Street, where domestic occupation is more likely to have been present. If so, the Roman features probably represent peripheral activity, perhaps of an agricultural nature.

The medieval archaeology is characterised by the three kilns, which may have been primarily used for malting as part of the brewing process, several quarry pits for the extraction of chalk (and possibly gravel), perhaps for building materials, and

several pits and wells. The medieval pottery appears to focus on the 13th–14th centuries, when the site would have been overlooked by the Augustinian Priory of St Peter from the south side of Church Street. Whether the kilns and the quarries had any association with the priory is unclear, and they may simply have had civic functions. After the abandonment of the kilns, the site may have been close to a knacker's yard, as suggested by the recovery of dismembered horse remains. This change in function may have had nothing to do with the dissolution of the priory in 1540, though that reflects a major change nearby the site in the 16th century.

**Acknowledgements**

The excavation and post-excavation analysis and reporting programme were funded by Aldi Stores Ltd. The fieldwork was managed for Oxford Archaeology by Tim Haines. The assistance of Lesley-Ann Mather, the County Archaeological Officer for Bedfordshire County Council at the time of the excavation, is acknowledged.

REFERENCES

Allason-Jones, L, and Miket, R, 1984 *The catalogue of small finds from South Shields Roman fort*, Soc of Antiquaries of Newcastle upon Tyne, Monograph No. 2, Newcastle upon Tyne

Anderberg, A-L, 1994 *Atlas of seeds. Part 4. Resedaceae–Umbelliferae*, Swedish Museum of Natural History, Stockholm

AS, 2012 Land rear of the Saracen's Head, 45 High Street South, Dunstable. Archaeological Solutions evaluation report 4098, SBD11929

Baker, D, Baker, E, Hassall, J, and Simco, A, 1979 *Excavations in Bedford 1967-1977*, Bedfordshire Archaeological Journal **13**

Baker, E, 1979 Brick and tile, in Baker *et al*. 1979, 253–8

Baker, E, and Hassall, J, 1979 The pottery, in Baker *et al*. 1979, 147–240

Bartosiewicz, L, and Gal, E, 2013 *Shuffling nags, lame ducks: The archaeology of animal disease*, Oxford

Baxter, I L, 1996 Medieval and early post-medieval horse bones from market Harborough, Leicestershire, England, UK, *Circaea* **11.2**, 65–79

Bendrey, R, 2007 New methods for the identification of evidence for bitting on horse remains from archaeological sites, *Journal of Archaeological Science* **34**, 1036–50

Berggren, G, 1981 *Atlas of seeds and small fruits of Northwest-European plant species with morphological descriptions. Part 3, Salicaceae–Cruciferae*, Swedish Museum of Natural History, Stockholm

Boardman, S, 2016 OXQUPG15: Queen's College 2015: Assessment of charred and mineralised plant remains and wood charcoal, in Provost's Garden, The Queen's College, Oxford, post-excavation assessment and updated project design, Oxford Archaeology unpublished client report

Boardman, S, forthcoming Wood charcoal, in S Teague and B M Ford, The excavation of medieval and post-medieval tenements at Lincoln College, Turl Street, Oxford

Boessneck, J, 1969 Osteological differences between sheep (*Ovis aries* Linné) and goat (*Capra hircus* Linné), in D R Brothwell and E S Higgs (eds), *Science in archaeology: A comprehensive survey of progress and research*, London, 331–58

Booth, P, 2004 Quantifying status: some pottery data from the Upper Thames Valley, *J Roman Pottery Studies* **11**, 39–52

Booth, P, 2016 Oxford Archaeology Roman pottery recording system: an introduction, unpublished OA document, revised

Brickstock, R J, 2004 *The production, analysis and standardisation of Romano-British coin reports*, English Heritage

Brine, G, 1988 The pottery, in A Pinder and B Davison, The excavation of a motte and bailey castle at Chalgrave, Bedfordshire, 1970, *Bedfordshire Archaeology* **18**, 40–6

Brown, R H, and Kerry, B R, (eds) 1987 *Principles and practice of nematode control in crops*, Academic Press, London

Cappers, R T J, Bekker, R M, and Jans, J E A, 2006 *Digital seed atlas of the Netherlands*, Barkhuis Publishing and Groningen University Library, Groningen

Challinor, D, 2002 The wood charcoal, in Z Kamash, D R P Wilkinson, B M Ford and J Hiller, Late Saxon and medieval occupation: Evidence from excavations at Lincoln College, Oxford 1997–2000, *Oxoniensia* **67**, 271–4

Chance, E, Colvin, C, Cooper, J, Day, C J, Hassall, T G, Jessup, M, and Selwyn, N, 1979 Markets and fairs, in A Crossley and C R Elrington (eds), *A history of the County of Oxford: Volume 4, the City of Oxford*. London: Victoria County History, 305–12, http://www.british-history.ac.uk/vch/oxon/vol4/pp305-312 [accessed March 2015]

Cotter, J P, 2006 Ceramic building materials, in D Poore, D Score and A Dodd, Excavations at No. 4A Merton St., Merton College, Oxford: The evolution of a medieval stone house and tenement and an early college property, *Oxoniensia* **71**, 292–305

Cowie, R, Pipe, A, Clark, J, and Pearce, J, 1998 A late medieval and Tudor horse burial ground: excavations at Elverton Street, Westminster, *Archaeological Journal* **155**, 226–51

Crummy, N, 1983 *The Roman small finds from excavations at Colchester 1971–9*, Colchester Archaeological Report **2**, Colchester

Dickson, C, and Dickson, J, 2000 *Plants and people in ancient Scotland*, Tempus, Stroud

Druce, D, 2006 Merton College: Charcoal assessment, Oxford Archaeology unpublished archive report

Druce, D, 2018 New College Kitchen, Oxford: Assessment of the plant remains and charcoal, Oxford Archaeology unpublished archive report

Edwards, C, 2010 Excavation of a 1st–2nd century cemetery at New Venue, Court Drive, Dunstable, *Bedfordshire Archaeology* **26**, 237–67

Fawcett, A, 2004 Roman pottery, in R Gardner, Archaeological investigations at 24 Friary Fields, Dunstable, Bedfordshire, *Bedfordshire Archaeology* **25**, 168–72

Fowler, F A, 1990 *The Priory Church of Saint Peter, Dunstable: A brief history*

Gale, R, and Cutler, D, 2000 *Plants in archaeology: Identification manual of vegetative plant materials used in Europe and the Southern Mediterranean to c. 1500*, Westbury and Kew

Getty, R, 1975 *Sisson and Grossman's the anatomy of the domestic animals*, Philadelphia

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

Green, M, and Horne, B, 1991 Analysis of the medieval pottery from Friary Fields, Dunstable, *Manshead Magazine* **31**, 1–31

Greep, S J, 1983 Objects of animal bone, antler, ivory and teeth from Roman Britain. Unpublished PhD thesis, University College Cardiff

Grigson, C, 1982 Sex and age determination of some bones and teeth of domestic cattle: a review of the literature, in B Wilson, C Grigson and S Payne (eds), *Ageing and sexing animal bones from archaeological sites*, BAR British Series **109**, Oxford, 7–23

Hambleton, E, 1999 *Animal husbandry regimes in Iron Age Britain: A comparative study of faunal assemblages from British Iron Age sites*, BAR British Series **282**, Oxford

Hartley, B R, and Dickinson, B M, 2011 *Names on Terra Sigillata: Volume 7 (P to RXEAD)*, Bulletin of the Institute of Classical Studies Supplement 102-07, Institute of Classical Studies, University of London, London

HAT, 2000 Land adjacent to 24 Friary Fields, Dunstable: an archaeological evaluation, Hertfordshire Archaeological Trust unpublished report

Hather, J G, 2000 *The identification of northern European woods: A guide for archaeologists and conservators*, Archetype Publications, London

Harrison, S, 2003 The Icknield Way: some queries, *Archaeological Journal* **160**, 1–22

HE, 2015 *Archaeometallurgy: Historic England Guidelines for Best Practice*, London

Hillson, S, 1990 *Teeth*, Cambridge

Horne, B, 2002 Ceramic building material from Roman Dunstable, *Manshead* **42**, 13–15

Horne, B, and Schneider, J, 1992 Pottery, in C L Matthews, J Schneider and B Horne, A Roman villa at Totternhoe, *Bedfordshire Archaeology* **20**, 66–84

Jacomet, S, 2006 *Identification of cereal remains from archaeological sites*, (2nd edn trans. by James Greig), Basel, Archaeobotany Laboratory, IPAS, Basel University

Johnstone, C, 2004 A biometric study of equids in the Roman world. Unpublished PhD Thesis, University of York

Jones, G G, 2006 Tooth eruption and wear observed in live sheep from Butser Hill, the Cotswold Farm Park and five farms in the Pentland Hills, UK, in D Ruscillo (ed.), *Recent advances in ageing and sexing animal bones*, Oxford, 155–78

Jones, G, and Sadler, P, 2012 Age at death in cattle: methods, older cattle and known-age reference material, *Environmental Archaeology* **17**, 11–28

Levine, M, 1982 The use of crown height measurements and eruption-wear sequences to age horse teeth, in B Wilson, C Grigson and S Payne (eds), *Ageing and sexing animal bones from archaeological sites*, BAR British Series **109**, Oxford 223–50

Mackreth, D, 2011 *Brooches in late Iron Age and Roman Britain*, Oxbow, Oxford

Maltby, M, 2010 *Feeding a Roman town: Environmental evidence from excavations in Winchester*, 1972–1985, Winchester Museums, Winchester

Marney, P, 1989 *Roman and Belgic pottery from excavations in Milton Keynes 1972-82*, Buckinghamshire Archaeological Society Monograph Series No. **2**, Aylesbury

Matthews, C L, 1962a The Anglo-Saxon cemetery at Marina Drive, Dunstable, *Bedfordshire Archaeological Journal* **1**, 25–47

Matthews, C.L., 1962b, Saxon remains on Puddlehill, Dunstable, *Bedfordshire Archaeological Journal* **1**, 48–57

Matthews, C L, 1966 Excavations on the site of the Dominican Friary, Dunstable 1965, *Manshead Magazine* **16**, 3–23

Matthews, C L, 1981 *A Romano-British cemetery at Dunstable*, Bedfordshire Archaeology **15**

Matthews, C L, 1984 The Saracen's Head Hotel, High Street South, Dunstable, *Manshead Journal* **26**, 1–26

Matthews, C L, and Hutchings, J B, 1972 A Roman well at Dunstable, *Bedfordshire Archaeology* **7**, 21–34

McCarthy, M R, and Brooks, C M, 1988 *Medieval pottery in Britain AD 900-1600*, Leicester University Press

Mellor, M, 1994 Oxfordshire pottery: A synthesis of middle and late Saxon, medieval and early post-medieval pottery in the Oxford Region, *Oxoniensia* **59**, 17–217

Miller, H, Carden, R F, Evans, J, Lamb, A, Madgwick, R, Osborne, D, Symmons, R, and Sykes, N, 2016 Dead or alive? Investigating long-distance transport of live fallow deer and their body parts in antiquity, *Environmental Archaeology* **21**, 246–59

MoLA 2014 Medieval and post-medieval pottery codes, http://www.mola.org.uk/resources/medieval-and-post-medieval-pottery-codes

Mudd, A, 2004 Early Roman occupation on the site of the former Queensway Hall, Dunstable, *Bedfordshire Archaeology* **25**, 141–58

OA, 2004 Ashton St Peter's Lower School, Church Street, Dunstable, Bedfordshire, Oxford Archaeology unpublished Evaluation Report No. 2402

OA, 2006 Ashton St Peter's Lower School, Church Street, Dunstable, Bedfordshire, Oxford Archaeology unpublished Evaluation Report No. 3368

OA, 2018 Aldi Stores Car Park Extension, Dunstable, Bedfordshire, Oxford Archaeology unpublished Watching Brief Report

Orton, D C, Morris, J, Locker, A, and Barrett, J H, 2014 Fish for the city: meta-analysis of archaeological cod remains and the growth of London's northern trade, *Antiquity* **88**, 516–30

Page, W, 1912 Parishes: Dunstable, *A History of the County of Bedford: Volume 3*, London, 349–68

Pearce, J E, and Vince, A G, 1988 *A dated type-series of London medieval pottery, Part 4: Surrey Whitewares*, London and Middlesex Archaeological Society Special Paper **10**

Prehistoric Ceramics Research Group, Study Group for Roman Pottery and Medieval Pottery Research Group, 2016 *A standard for pottery studies in archaeology*, Historic England

Reece, R, 1991 *Roman coins from 140 Sites in Britain*, Cotswold Studies **4**, Cirencester

Rivet, A L F, and Smith, C, 1979 *The place-names of Roman Britain*, Batsford, London

Roden, D, 1968 Woodland and its management in the medieval Chilterns, *Forestry* **41**, 59–71

Schneider, J, 1999 Medieval malting kilns in Dunstable, *Manshead Journal* **39**, 20–32

Schweingruber, F H, 1990 *Microscopic wood anatomy* (3rd Edition), Swiss Federal Institute for Forest, Snow and Landscape Research, Birmensdorf

Serjeantson, D, 1996 The animal bones, in S Needham and A Spence (eds), *Refuse and disposal at Area 16 East Runnymead: Runnymede Bridge research excavations, Vol. II*, London, 194–222

Slowikowski, A M, 2011 '*Genius in a cracked pot', Late Medieval Reduced Ware: A regional synthesis*, Medieval Pottery Research Group Occasional Paper **4**

Smith, A, 2016 The central belt, in A Smith, M Allen, T Brindle and M Fulford, *New visions of the countryside of Roman Britain: The rural settlement of Roman Britain, Vol. 1*, Britannia Monograph **29**, London, 141–207

Smith, R F, 1987 *Roadside settlements in lowland Roman Britain*, BAR British Series **157**, Oxford

Smith, W, 2002 A review of archaeological wood analyses in southern England. Centre of Archaeology Report 75/2002. English Heritage.

Stace, C, 2010 *New flora of the British Isles*, (3rd Edition), CUP, Cambridge

Stratascan, 2012 Geophysical survey report, Saracen's Head, High Street South, Dunstable, J3079, Archaeological Report SBD11920

Sudds, B, 2004 Post-Roman pottery, in R Gardner, Investigations at 24 Friary Fields, Dunstable, Bedfordshire, *Bedfordshire Archaeology* **25**, 172–4

Swan, V G, 1984 *The pottery kilns of Roman Britain*, Royal Commission on Historical Monuments Supplementary Series **5**, London

Sykes, N J, 2004 The introduction of fallow deer to Britain: a zooarchaeological perspective, *Environmental Archaeology* **9**, 75–83

Taylor, J, 2004 The distribution and exchange of pink, grog-tempered pottery in the East Midlands: an update, *J Roman Pottery Studies* **11**, 60–6

Thompson, I, 1982 *Grog-tempered 'Belgic' pottery of south-eastern England*, BAR British Series **108**, Oxford

Timby, J, 2004 The pottery, in A Mudd, Early Roman occupation on the site of the former Queensway Hall, Dunstable, *Bedfordshire Archaeology* **25**, 148–53

Tomber, R, and Dore, J, 1998 *The national Roman fabric reference collection: a handbook*, Museum of London Archaeol Services Monograph No **2**

von den Driesch, A, 1976, *A guide to the measurement of animal bones from archaeological sites*, Peabody Museum Bulletins **1**, Harvard

von den Driesch, A, and Boessneck, J, 1974 Kritische Anmerkungen zur Widerristhöhenberechnung aus Längenmassen vor- und frühgeschichtlicher Tierknochen, *Saugetierkundliche Mitteilungen* **22**, 325–48

Winder, J, 2017 Oysters in archaeology, in M J Allen (ed.), *Molluscs in archaeology. Methods, approaches and applications*, Oxford, 238–58

Young, C J, 1977 *The Roman pottery industry of the Oxford region*, BAR British Series **43**, Oxford

Zohary, D, and Hopf, M, 2000 *Domestication of plants in the Old World: The origin and spread of cultivated plants in West Asia, Europe and the Nile Valley*, 3rd edn, Clarendon Press, Oxford

**Roman, medieval and post-medieval activity at Ashton St. Peter's Lower School, Dunstable: tables**

| Ware Code | Description | NRFRC code/referenc | Bedfordshire equivalent codes (approximate) | Quantities | | |
|---|---|---|---|---|---|---|
| *Samian ware* | | | | No. sherds | Weight (g) | REs |
| S | Samian ware unspecified | | R01 | 1 | 1 | |
| S20 | South Gaulish samian ware (general). | incl. LGF SA | R01B | 3 | 10 | |
| S30 | Central Gaulish samian ware (general) | incl. LEZ SA2 | R01A | 10 | 66 | 0.35 |
| S32 | Les Martres-de-Veyre Central Gaulish samian ware | LMV SA | R01A | 5 | 78 | 0.19 |
| S40 | East Gaulish samian ware? | | R01C | 1 | 2 | |
| *Fine wares* | | | | | | |
| F51 | Oxford colour-coated ware | OXF RS | R11D | 17 | 76 | 0.03 |
| F52 | Nene Valley colour-coated ware | LNV CC | R12B | 6 | 74 | |
| F56 | Hadham red-brown colour-coated ware | HAD OX | R22A | 4 | 16 | |
| F60 | Uncertain oxidised colour-coated ware. A fine, moderately hard oxidised fabric with red-brown colour coat | | R38 | 1 | 2 | |
| *Amphorae* | | | | | | |
| A21 | Reddish brown, fairly hard and fine, possible Dressel 2-4 | cf. GAL AM | R19 | 1 | 55 | |
| A30 | Coarse oxidised amphora fabrics | | R19 | 1 | 10 | |
| *Mortaria* | | | | | | |
| M22 | Oxford white ware mortaria | OXF WH | R11E | 2 | 13 | |
| M31 | Oxford white-slipped mortaria | OXF WS | CF R11 | 3 | 43 | 0.08 |
| M41 | Oxford red colour-coated mortaria | OXF RS | R11F | 1 | 2 | |
| *White wares* | | | | | | |
| W10 | Fairly fine white fabrics (general) | | R01/R11A | 3 | 28 | |
| W11 | Oxford parchment ware | OXF PA | R11C | 1 | 20 | |
| W20 | Coarse sandy white fabrics (general) | | R03B | 1 | 1 | |
| W21 | Verulamium buff/white ware | VER WH | R03A | 11 | 173 | 0.41 |
| *White-slipped wares (except mortaria)* | | | | | | |
| Q10 | Fine oxidised white-slipped fabrics (general) | | R05D? | 1 | 10 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Q20 | Fine-moderately sandy oxidised white-slipped fabrics (general) | | R05A? | 3 | 37 | |
| *'Belgic-type' wares* | | | | | | |
| E20 | Fine sand-tempered 'Belgic type' fabrics | | F12? | 1 | 11 | |
| E30 | Medium to coarse sand-tempered 'Belgic type' fabrics | | F28? | 7 | 163 | 0.23 |
| E80 | Grog-tempered 'Belgic type' fabrics | SOB GT | F06B, F06C | 12 | 498 | 0.14 |
| *Oxidised 'coarse' wares* | | | | | | |
| O10 | Fine oxidised coarse ware fabrics (general) | | R05B, R05C | 22 | 119 | 0.12 |
| O20 | Sandy oxidised coarse ware fabrics (general) | | R05A | 11 | 99 | 0.25 |
| O30 | Fine/medium sandy oxidised fabrics | | R05A | 4 | 43 | 0.06 |
| O80 | Coarse tempered (usually grog) oxidised fabrics, comparable to R90 | | cf F06C | 6 | 169 | |
| O81 | Pink grogged ware (Booth and Green 1989) | PNK GT | R09A | 16 | 538 | |
| *Reduced 'coarse' wares* | | | | | | |
| R10 | Fine reduced 'coarse ware' fabrics (general) | | R06C, R06D | 21 | 147 | 0.52 |
| R20 | Sandy reduced coarse ware fabrics (general) | | R06B | 23 | 255 | 0.12 |
| R30 | Medium/fine sandy reduced coarse ware fabrics (general) | | R06B, R07A, R07C | 64 | 706 | 0.83 |
| R88 | A fine reduced fabric, cf. Highgate Wood C | HGW RE C? | R06H? | 1 | 5 | |
| R90 | Coarse tempered (usually grog-tempered) reduced fabrics | e.g. Young | cf. F06C | 5 | 641 | 0.25 |
| *Black-burnished wares* | | | | | | |
| B11 | Dorset BB1 | DOR BB 1 | R07A | 1 | 4 | |
| B20 | BB2, source uncertain | | R07G | 3 | 70 | 0.27 |
| *Calcareous wares, etc.* | | | | | | |
| C10 | Shell-tempered fabrics (general) | | R13 | 18 | 443 | |
| C11 | Harrold shell-tempered fabric | HAR SH | R13 | 4 | 93 | 0.17 |
| Total | | | | 295 | 4271 | 4.02 |

Table 1: Late Iron Age and Roman pottery fabric codes and descriptions

| Class | Description | REs | % of total REs |
|---|---|---|---|
| *A* | *Amphorae (not subdivided)* | * | |
| *B* | *Flagons/jugs (not specified)* | * | |
| C | Jars (not specified further) | 0.63 | |
| CC | narrow mouthed jars (rim diameter less than 2/3 girth) | 0.12 | |
| CD | medium mouthed jars (general) | 0.30 | |
| CH | bead rim jars | 0.05 | |
| CI | angled everted rim jars | 0.04 | |
| CJ | lid seated jars | 0.40 | |
| CN | storage jars (large, generally thick walled) | 0.29 | |
| *C total* | | *1.83* | *45.5* |
| *D* | *Uncertain jars/bowls* | *0.11* | *2.7* |
| *E* | *Beakers (not specified)* | *0.13* | *3.2* |
| *FC* | *conical Cups (Drag 33)* | *0.19* | *4.7* |
| H | Bowls (not specified further) (diameter/height ratio from 1:1–3:1) | 0.10 | |
| HA | carinated bowls | 0.47 | |
| HB | straight sided (usually flat-based) bowls | 0.13 | |
| HC | curving sided bowls | 0.08 | |
| *H total* | | *0.78* | *19.4* |
| I | Uncertain bowls/dishes | 0.03 | |
| IA | straight sided bowls/dishes | 0.09 | |
| IB | curving sided bowls/dishes | 0.07 | |
| *I total* | | *0.19* | *4.7* |
| JA | straight sided dishes | 0.49 | |
| JB | curving sided dishes | 0.22 | |
| *J total* | | *0.71* | *17.7* |
| *KE* | *tall bead/stubby or elongated flange mortaria (e.g. Young WC7)* | *0.08* | *2.0* |
| Total | | 4.02 | |

Table 2: Summary description and overall quantification of late Iron Age and Roman vessel classes by rim equivalents (REs) (*Type present, but not represented by rim sherd(s))

| Fabric Code | Description | Date | No. sherds | Weight (g) |
|---|---|---|---|---|
| B01 | St Neots-type ware | *c* 900–1150 | 3 | 15 |
| B05 | Harrold/Olney Hyde-type shelly ware | *c* 1100–1350 | 3 | 90 |
| B07 | Medieval shelly ware | *c* 1100–1300 | 4 | 95 |
| C59A | Coarse sandy greyware (local?) | *c* 1100–1400 | 133 | 3160 |
| C09 | Brill/Boarstall ware (Bucks) | *c* 1225–1500 | 27 | 584 |
| C57 | London-type ware | *c* 1140–1400 | 2 | 10 |
| C64 | Orange gritty ware (local?) | *c* 1200–1400? | 6 | 193 |
| C67 | Coarseware with mixed inclusions | *c* 1100–1400? | 2 | 34 |
| E01 | Late medieval reduced ware (local?) | *c* 1350–1550 | 17 | 286 |
| P01 | Glazed red earthenware (local?) | *c* 1550–1900 | 38 | 1520 |
| P11 | Buff earthenware (incl. Yellow ware) | *c* 1820–1900 | 3 | 40 |
| P14 | Blackware | *c* 1550–1750 | 4 | 25 |
| P19 | Mottle (speckle)-glazed ware | *c* 1680–1800 | 1 | 17 |
| P23 | Raeren stoneware (Germany) | *c* 1480–1550 | 2 | 8 |
| P28A | Siegburg stoneware (Germany) | *c* 1300–1630 | 1 | 8 |
| P35 | English porcelain | *c* 1745–1925 | 2 | 5 |
| P36B | Nottingham stoneware | *c* 1700–1800 | 1 | 3 |
| P38 | Developed Creamware | *c* 1760–1830 | 2 | 9 |
| P43 | Pearlware (Staffs, etc.) | *c* 1780–1840 | 10 | 83 |
| P45 | Transfer-printed ware | *c* 1780–1900+ | 11 | 63 |
| P48 | English stonewares | *c* 1670–1900 | 1 | 62 |
| Total | | | 273 | 6300 |

Table 3: Breakdown of post-Roman pottery types

| Type | No. fragments | Weight (g) |
|---|---|---|
| Tegula | 13 | 1519 |
| Imbrex | 3 | 183 |
| Miscellaneous | 17 | 1146 |
| Total | 33 | 2848 |

Table 4: Breakdown of Roman CBM types

| Type | No. fragments | Weight (g) |
|---|---|---|
| Flat roof tile | 711 | 41,372 |
| Ridge tile | 6 | 400 |
| Brick | 76 | 13,777 |
| Floor tile | 5 | 1035 |
| Miscellaneous | 6 | 393 |
| Total | 804 | 56,977 |

Table 5: Breakdown of medieval and later CBM types

| SF no. | Context | Location | Est. date | Reece period | Denomination | Obverse | Reverse | Mint | Ref. | Condition | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 658 | 32.7E/163N | 260-296 | 14? | radiate 17-18mm | radiate head r | figure l? | | | VW/VW | irregular? Surface find |
| 13 | 658 | 41E/162.5N | 323-324 | 16 | AE3 18mm | CONSTANTINVS IVN NOB C | CAESARVM NOSTRORVM<br>VOT X in wreath | PTR | RIC VII, Trier 433 | SW/SW | |
| 1 | 308 | Evaluation Tr 3 | 332-333 | 17 | AE3 17mm | CONSTAN TINOPOLIS | Victory on prow | TR.P | as RIC VII, Trier 543 | W/W | poss. irregular—reverse very poorly centred |
| 15 | 658 | 38.25E/160.25N | 337-340 | 17 | AE3 15mm | FL IVL HEL]ENAE A[VG | Pax Publica | | | SW/W | irregular |
| 2 | 310 | Evaluation Tr 3 | 350-364 | 18 | AE3 14mm | head r | | | | SW/SW | irregular |
| 17 | 658 | 33.4E/159N | 350-364? | 18? | AE3 15-16mm | head r | | | | VW/VW | eroded, surface find |
| 19 | US | 24.6E/160.2N | 350-364? | 18? | AE4 9mm | | | | | E/E | completely encrusted |
| 20 | US | 23.4E/161N | 364-378 | 19 | AE3 17mm | head r | SECVRITAS REIPV]BLIC[AE | | | W/W | encrusted |
| 6 | 554 | | 4C? | | AE2 20mm | ?beardless head r | | | | C/C | surfaces largely eroded |
| 12 | 658 | 62.5E/160.75N | late 3-4C | | AE3 16mm | | | | | E/E | encrusted and incomplete |

Table 6: Summary of Roman coins (condition codes after Brickstock 2004, 7; E = encrusted)

| Phase | Iron | Copper alloy | Bone | Total |
|---|---|---|---|---|
| 1 | 5 | 1 | | 6 |
| 2 | 22 | 2 | 1 | 25 |
| 3 | 37 | 3 | | 40 |
| 2 or 3 | 5 | 1 | | 6 |
| unphased | 2 | 2 | | 4 |
| unstratified | | 2 | | 2 |
| Total | 71 | 11 | 1 | 83 |

Table 7: Quantification of small finds by phase and material

| Category | Phase 1 | Phase 2 | Phase 3 | Phase 2/3 | Unphased | Unstratified | Total |
|---|---|---|---|---|---|---|---|
| arms | | | | | 1 | | 1 |
| tools | | | 1 | | | | 1 |
| transport | | 1 | | | | | 1 |
| measure | | | 1 | | | | 1 |
| writing | | | | | | 1 | 1 |
| personal | | 2 | 1 | | | 1 | 5 |
| footwear | 1 | 6 | | | | | 7 |
| household | | 1 | 4 | | 1 | | 6 |
| structural | | 1 | 2 | | | | 3 |
| binding | | | 1 | | | | 1 |
| nails | 2 | 7 | 21 | 2 | 2 | | 34 |
| miscellaneous | 2 | 7 | 8 | 4 | | | 21 |
| query | 1 | | 1 | | | | 1 |
| Total | 6 | 25 | 40 | 6 | 4 | 2 | 83 |

Table 8: Quantification of small finds by phase and functional category

| Context | Phase | Sample | Fraction | Description | Weight (g) |
|---|---|---|---|---|---|
| 527 | 2 | | | Stone (natural?) | 19.0 |
| 527 | 2 | | | Iron object | 20.7 |
| 554 | 2 | | | Non-diagnostic ironworking slag | 6.1 |
| 810 | 2 | | | Smithing slag cake | 431.0 |
| 850 | 2 | 6 | 10-4mm | Non-diagnostic ironworking slag? | 1.15 |
| 884 | 2 | | | Non-diagnostic ironworking slag | 32.1 |
| 1009 | 1 | 22 | >10mm | Non-diagnostic ironworking slag | 4.6 |
| 1009 | 1 | 22 | 10-4mm | Non-diagnostic ironworking slag | 0.9 |
| 1009 | 1 | 22 | 2-0.5mm | 50% hammerscale, 50% HMR | 4.1 |
| 1010 | 0 | | | Non-diagnostic ironworking slag | 4.2 |
| 1014 | 2 | 24 | 10-4mm | Non-diagnostic ironworking slag | 6.3 |
| 1014 | 2 | 24 | 2-0.5mm | 50% hammerscale, 50% HMR | 3.4 |
| 1014 | 2 | 24 | 4-2mm | ? Slag/HMR + 1 possible hammerscale flake | 1.1 |
| 1025 | 1 | | | Non-diagnostic ironworking slag | 349.0 |
| 1026 | 2 | 25 | 2-0.5mm | 50% hammerscale, 50% HMR | 1.7 |
| 1026 | 2 | 25 | 4-2mm | ? Slag | 0.3 |
| 1037 | 1 | | | Non-diagnostic ironworking slag | 8.3 |
| 1043 | 2 | 21 | 2-0.5mm | 50% hammerscale, 50% HMR | 4.5 |
| 1045 | 2 | 20 | 10-4mm | Non-diagnostic ironworking slag | 1.4 |
| 1045 | 2 | 20 | 2-0.5mm | 50% hammerscale, 50% HMR | 2.3 |
| 1066 | 3 | | | Non-diagnostic ironworking slag | 32.1 |
| 1092 | 1 | | | Non-diagnostic ironworking slag | 1.5 |
| 1097 | 3 | | | Clinker? | 5.8 |
| Total | | | | | 941.6 |

Table 9: Summary of ferrous waste

| Context | Type | Sub-type | Notes |
|---|---|---|---|
| 587 | Flake x 3 | Inner side and distal trimming | Undiagnostic waste flakes, one has possible polish trace on upper dorsal surface |
| 587 | Sieved chip | 10-2mm | One small chip |
| 587 | Burnt unworked x 9 | | Nine very small (3g) fragments likely to be unintentionally burnt material |
| 809 | Sieved chip | 10-2mm | One small chip |
| 833 | Flake | Side trimming | Possibly accidental shatter |
| 833 | Sieved chip | 10-2mm | One small chip |
| 833 | Burnt unworked x 4 | | Four very small (4g) fragments likely to be unintentionally burnt material |
| 931 | Burnt unworked x 6 | | Six small (6g) fragments likely to be unintentionally burnt material |

Table 10: Summary of worked flints by context

| Taxa | Type | No. frags |
|---|---|---|
| Fabaceae | legume wood | 2 |
| *Prunus spinosa* type | blackthorn | 1 |
| *Prunus* | cherry/blackthorn | 2 |
| cf. *Prunus* | cf. cherry/blackthorn | 1 |
| *Fagus sylvatica* L. | beech | 109 r |
| *Quercus* | oak | 4 sh |
| *Corylus avellana* L. | hazel | 1 |
| *Fraxinus excelsior* L. | ash | 3 |
| Total | | 123 |

Table 11: Summary of charcoal fragments from fill 850 (sample 6) in kiln 848; volume = 10l (h = heartwood, s = sapwood, r = roundwood)

| Spec. no. | No. growth rings | Diameter (mm) |
|---|---|---|
| 1 | 5 | 6 |
| 2 | 6 | 5 |
| 3 | 7 | 5 |
| 4 | 7 | 8 |
| 5 | 7 | 9.5 |
| 6 | 7 | 11 |
| 7 | 7 | — |
| 8 | 7 | — |
| 9 | 8 | 4 |
| 10 | 8 | 12 |
| 11 | 9 | 9 |
| 12 | 9 | 10 |
| 13 | 9 | — |
| 14 | 11 | 20 |

Table 12: Number of growth rings and diameter of beech roundwood charcoal specimens

| **Sample** | | **5** | **8** |
|---|---|---|---|
| **Context** | | **809** | **587** |
| **Feature** | | **kiln 848** | **kiln 888** |
| **Cereal grain** | | | |
| *Hordeum vulgare* L. | barley, hulled twisted grain | 6 (3) | 17 (5) |
| *Hordeum vulgare* L. | barley, hulled straight grain | 2 (2) | 15 (4) |
| *Hordeum* sp. | hulled barley | 16 (7) | 35 (11) |
| *Hordeum* sp. | barley | 1 | 2 |
| cf. *Hordeum* sp. | cf. barley | 1F | |
| *Avena* sp. | oat grain | 14 (4) | 47 (27) |
| cf. *Avena* sp. | cf. oat | 3 (2) | 11 (2) |
| *Triticum* sp. | free threshing wheat grain | 13 (1) | 34 (4) |
| cf. *Triticum* sp. | cf. wheat grain | | 6 (1) |
| *Secale cereale* L. | rye grain | | 3 (2) |
| cf. *Secale cereale* | cf. rye grain | | 5 (2) |
| *Trtiticum* sp./*Secale* sp. | wheat/rye | | 2 |
| Cereal indet. | indet. cereal grain | 17 (3) | |
| Cereal indet. | detached sprouted embryos | 9 | 11 |
| Cereal indet. | coleoptiles | 1 | 100F+ |
| **Cereal chaff and straw** | | | |
| *Avena* sp. | awns | | 6F |
| *Triticum* sp. | free-threshing wheat rachis | | 2 |
| *Secale cereale* L. | rye rachis | | 2 |
| cf. *Secale cereale* | cf. rye rachis | | 1 |
| *Hordeum* sp./*Secale cereale* | barley/rye rachis | | 6 |
| Cereal indet | indet cereal rachis | | 2F |
| Cereal/Poaceae | cereal/larger grass culm node | | 2 |
| **Pulses** | | | |
| cf. *Lens culinaris* | cf. cultivated lentil | 1.5 | |
| *Vicia* sp./*Lathyrus* sp./*Pisum* sp. | vetch/tare/pea | | 1 |
| **Wild species** | | | |
| *Papaver rhoeas* L./*dubium* L. | common/long-headed poppy | | 5 |
| *Papaver* cf. *argemone* | cf. prickly poppy | | 1 |
| *Papaver* sp. | poppy | 2 | 5 |
| cf. *Papaver* sp. | cf. poppy | | 2 |
| *Ranunculus* cf. *bulbosus* | cf. bulbous buttercup | | 1 |
| *Ranunculus* sp. | buttercup | 1F | |
| *Vicia/Lathyrus* | vetch/tare/pea (2-3 mm) | | 5 |
| *Vicia/Lathyrus* | vetch/tare/pea (< 2mm) | | 19 |
| *Melilotus* sp./*Medicago* sp./*Trifolium* sp. | small seeded legume | 12 | 33 |
| Fabaceae undiff. | small seeded legume | 2 | 5 |
| *Brassica* cf. *rapa* | cf. wild turnip | | 4 |
| *Brassica* cf. *nigra* | cf. black mustard | 1 | |
| *Brassica* sp./*Sinapis* sp. | cabbage, mustard | 9 | 92 |
| Brassicaceae undiff. | cabbage family | | 2 |
| *Polygonum aviculare* L. | knotgrass | | 2 |
| *Rumex acetosella* L. | sheep's sorrel | | 4 |
| *Rumex* cf. *acetosella* | cf. sheep's sorrel | | 3 |
| *Rumex* spp. | dock | 5 | 16 |

| | | | |
|---|---|---|---|
| cf. *Rumex* sp. | cf. dock | 2 | 1 |
| Polygonaceae undiff. | knotweed family | | 1 |
| *Silene vulgaris* (Moench) Garcke | bladder campion | | 11 |
| *Silene* cf. *vulgaris* | cf. bladder campion | 1 | 12 |
| *Silene* sp. | campion | 4 | 30 |
| *Stellaria media* (L.) Vill. | common chickweed | | 2 |
| *Stellaria* cf. *media* | cf. common chickweed | | 1 |
| *Stellaria* sp./*Cerastium* sp. | stitchwort/mouse-ear | | 1 |
| Caryophyllaceae undiff. | pink family | 5 | 30 |
| *Chenopodium album* type | fat hen | 1 | 13 |
| *Chenopodium* sp. | goosefoot | | 4 |
| *Atriplex* cf. *patula* | cf. common orache | | 1 |
| *Atriplex* sp. | orache | | 7 |
| *Chenopodium/Atriplex* | goosefoot/orache | | 21 |
| Chenpodiaceae/Caryophyllaceae | goosefoot/pinks | 1F | 10 |
| *Sherardia arvensis* L. | field madder | 2 | 2 |
| *Lithospermum arvense* L. | field gromwell, mineralised | | 11 |
| cf. *Veronica* sp. | cf. speedwell | 1 | |
| *Mentha* sp. | mint | | 1 |
| *Centaurea cyanus* L. | cornflower | | 3 |
| *Centaurea* sp. | knapweed | | 3 |
| *Lapsana communis* L. | nipplewort | 2 | 6 |
| *Anthemis cotula* L. | stinking chamomile | 50 | 398 |
| cf. *Anthemis cotula* | cf. stinking chamomile | 4 | 15 |
| *Glebionis segetum* (L.) Fourr. | corn marigold | | 1 |
| cf. *Leucanthemum vulgare* | cf. oxeye daisy | | 1 |
| *Tripleurospemum* sp. | mayweed | | 1 |
| Asteraceae undiff. | daisy family | 5 | 8 |
| *Juncus* sp. | rush | | 27 |
| *Carex* sp. | sedge, two sided nutlet | 1 | 3 |
| *Poa* sp./*Agrostis* sp./*Phleum* sp. | meadow/bent grass/cat's tails | | 9 |
| Poaceae undiff. | grass family large seed | | 7 |
| Poaceae undiff. | grass family medium seed | 2 | 3 |
| Poaceae undiff. | grass family small seed | 1 | 13 |
| Indeterminate | seed/fruit/nut | 3 | 12 |
| Indeterminate | root storage organ | | 2F |
| Total | | 199.5 | 1070 |

Table 13: Quantities of charred plant items from fills of kilns 848 and 888, including number of germinated grains in parentheses (sample volumes = 40L) (F = fragment/s not included in sample totals)

| **Feature type** | **Roman** | **Medieval** | **Total** |
|---|---|---|---|
| ditch/gully | 30 | 1 | 31 |
| kiln | 0 | 95 | 95 |
| pit/posthole | 24 | 165 | 189 |
| well | 11 | 29 | 40 |
| Total | 65 | 290 | 355 |

Table 14: Number of animal bone specimens in different feature types

| Taxon | Roman | Medieval | Total |
|---|---|---|---|
| cattle | 9 | 48 | 57 |
| sheep/goat | 10 | 47 | 57 |
| sheep | | 1* | 1 |
| pig | 3 | 4 | 7 |
| horse | 1 | 57* | 58 |
| dog | 1 | 2 | 3 |
| cat | | 1* | 1 |
| red deer | | 1 | 1 |
| fallow deer | 1 | | 1 |
| deer sp. | 1 | | 1 |
| rabbit | | 1 | 1 |
| chicken | | 10 | 10 |
| goose | | 4 | 4 |
| large mammal | 16 | 43 | 59 |
| medium mammal | 5 | 42 | 47 |
| unidentifiable | 18 | 29 | 47 |
| Total | 65 | 290 | 355 |

Table 15: Number of animal bone specimens in Roman and medieval deposits (*includes one associated bone group, counted a single specimen)

| Context | Sample | Weight (g) | NISP | Identifications |
|---|---|---|---|---|
| 587 | 8 | 2 | – | medium mammal fragment/s |
| 809 | 5 | 10 | 2 | fish vertebrae spines |
| 833 | 7 | 12 | 3 | eel vertebrae x2; dog lower canine |
| 850 | 6 | 1 | 1 | possible rodent long bone |
| 1045 | 20 | 12 | 2 | cat/hare tibia; pig tooth |
| 1020 | 23 | 3 | – | medium mammal fragment/s |
| 1009 | 22 | 15 | – | medium mammal fragment/s |
| 1014 | 24 | 10 | 6 | herring vertebrae x5; sheep/goat incisor and 1st phalanx |
| 1043 | 21 | 15 | – | medium mammal fragment/s |
| 1026 | 25 | 113 | 1 | very worn sheep/goat lower deciduous 4th premolar; mostly ribs, carpal bones and a large number of ossified costal cartilage fragments (probably from the horse skeleton) |

Table 16: Summary of animal bones from sieved samples

| Context | Phase | Taxa | dp4 | M1 | M2 | M3 | MWS | Estimated age |
|---|---|---|---|---|---|---|---|---|
| 596 | Roman | pig | | | | C | 10-18 | 7–14 months |
| 596 | Roman | s/g | | g | e | c | 30 | 20–36 months |
| 521 | medieval | cow | b | | | | 4-6 | 0–6 months |
| 527 | medieval | cow | | | ? | C | 17-21 | 15–18 months |
| 731 | medieval | cow | | | | g | 41-43 | 40months–6.5 years |
| 873 | medieval | cow | | | | m | 51-55 | 12 years + |
| 833 | medieval | s/g | | f | e | c | 29 | 20–36 months |

Table 17: Estimated ages of cattle, sheep/goat and pig mandibles based on tooth wear patterns (estimated cattle ages follow Jones and Sadler 2012; sheep/goats follow Jones 2006; pigs follow Hambleton 1999)

| Age range | Element | Fused | Unfused | %Fused |
|---|---|---|---|---|
| 0 months | P metatarsal | 1 | | |
| *total* | | *1* | *0* | *100* |
| 7-15 months | scapula | 1 | | |
| | P radius | 1 | | |
| *total* | | *2* | *0* | *100* |
| 15-36 months | 1st phalanx | 1 | | |
| | D humerus | | 1 | |
| | D tibia | 1 | | |
| *total* | | *2* | *1* | *50* |
| 42-48 months | P tibia | | 1 | |
| | D femur | | 1 | |
| | P humerus | 1 | 1 | |
| Total | | *1* | *3* | *25* |

Table 18: Epiphyseal fusion data with age timings for cattle remains from medieval deposits

| Age range | Element | Fused | Unfused | %Fused |
|---|---|---|---|---|
| 0-10 months | P metacarpal | 3 | | |
| | pelvis | 2 | | |
| | 1st phalanx | 1 | | |
| *total* | | *6* | *0* | *100* |
| 15-24 months | D tibia | 1 | | |
| | D metapodial | 4 | | |
| *total* | | *5* | *0* | *100* |
| 42 months | D femur | 1 | | |
| | P tibia | 1 | 1 | |
| Total | | *2* | *1* | *50* |

Table 19: Epiphyseal fusion data with age timings for sheep/goat remains from medieval deposits

| Context | Phase | Taxon | Element | Sex | Criteria |
|---|---|---|---|---|---|
| 536 | Roman | fallow deer | antler | male | presence of antler |
| 699 | medieval | chicken | tibiotarsus | female | presence of medullary bone |
| 651 | medieval | sheep | pelvis (abg) | female | shape of ilio-pubic ridge |
| 1026 | medieval | horse | skull (abg) | male | presence of four canines |
| 718 | medieval | pig | mandible | male | presence of large canines |

Table 20: Animal bone sex data (note ‘abg’ = articulated skeleton)

| | Roman | | medieval | |
|---|---|---|---|---|
| **element** | **MNI** | **MNE** | **MNI** | **MNE** |
| mandible | 1 | 1 | 4 | 5 |
| scapula | 1 | 1 | 1 | 1 |
| humerus | | | 1 | 1 |
| radius | | | 1 | 2 |
| ulna | | | 2 | 3 |
| metacarpal | | | 1 | 1 |
| pelvis | | | 1 | 1 |
| femur | | | 1 | 1 |
| tibia | | | 2 | 2 |
| astragalus | 1 | 1 | 1 | 1 |
| calcaneus | | | 1 | 1 |
| metatarsal | 1 | 1 | 1 | 2 |
| Maximum | 1 | 1 | 4 | 5 |

Table 21: Minimum number of individuals (MNI) and minimum number of elements (MNE) calculated from cattle bones in each phase

| | Roman | | medieval | |
|---|---|---|---|---|
| **element** | **MNI** | **MNE** | **MNI** | **MNE** |
| mandible | 1 | 1 | 3 | 4 |
| scapula | 1 | 1 | | |
| humerus | 1 | 1 | 2 | 3 |
| radius | | | 2 | 2 |
| ulna | | | | |
| metacarpal | | | 2 | 4 |
| pelvis | | | 2 | 2 |
| femur | 1 | 1 | 2 | 2 |
| tibia | 1 | 2 | 3 | 4 |
| astragalus | | | 1 | 1 |
| calcaneus | | | | |
| metatarsal | | | 1 | 1 |
| Maximum | 1 | 2 | 3 | 4 |

Table 22: Minimum number of individuals (MNI) and minimum number of elements (MNE) calculated from sheep/goat bones in each phase

| Phase | Taxa | Element | Chop mark splitting bone in axial direction | Oblique chop through shaft or articulating end | Cut marks | Saw marks |
|---|---|---|---|---|---|---|
| Roman | deer sp. | tibia | x | | | |
| Roman | fallow deer | antler | | | | x |
| Roman | sheep/goat | femur | | x | | |
| Roman | sheep/goat | scapula | | | x | |
| medieval | cattle | astragalus | | | x | |
| medieval | cattle | femur | x | | | |
| medieval | cattle | humerus | x | | | |
| medieval | cattle | humerus | | x | | |
| medieval | cattle | humerus | | x | | |
| medieval | cattle | mandible | | | x | |
| medieval | cattle | metatarsal | | x | | |
| medieval | cattle | scapula | | | x | |
| medieval | cattle | scapula | | | x | |
| medieval | cattle | tibia | | x | | |
| medieval | cattle | tibia | x | | | |
| medieval | cattle | ulna | | x | x | |
| medieval | horse | scapula | | x | | |
| medieval | large mammal | pelvis | | x | | |
| medieval | large mammal | vertebra | x | | | |
| medieval | pig | femur | | | x | |
| medieval | pig | mandible | | | x | |
| medieval | red deer | antler | | | | x |
| medieval | sheep/goat | femur | | | x | |
| medieval | sheep/goat | mandible | | x | | |
| medieval | sheep/goat | mandible | | x | | |
| medieval | sheep/goat | pelvis | | x | | |
| medieval | sheep/goat | radius | | | x | |
| medieval | sheep/goat | tibia | | x | | |

Table 23: Types of butchery marks found on bones in Roman and medieval deposits

| Context/s | Phase | Taxon | Type | No. specimens |
|---|---|---|---|---|
| 822 | Roman | cattle | canid gnawing | 1 |
| 596, 1041, 1084 | Roman | sheep/goat | canid gnawing | 3 |
| 556, 718 | medieval | cattle | canid gnawing | 5 |
| 718 | medieval | cattle | rodent gnawing | 1 |
| 705 | medieval | sheep/goat | canid gnawing | 1 |
| 731 | medieval | chicken | human gnawing | 2 |

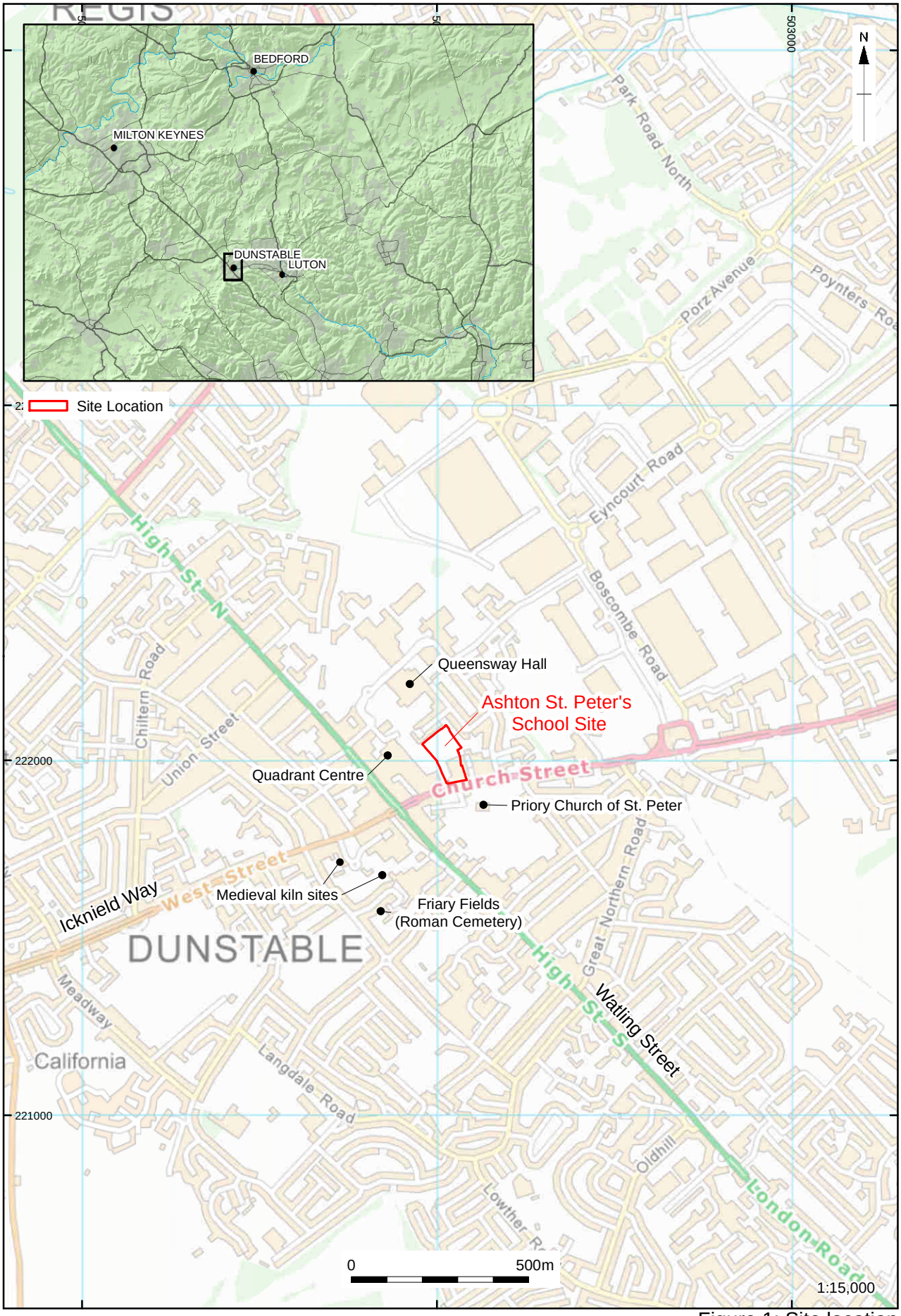
Table 24: Prevalence of gnawing on animal bones by type

| Sp. no. | Context | Phase | Taxon | Element | GL | Ll | Bp | Dp | BFp | SD | Bd | BFd | Dd | DFd | BT | HT | GB | GLP | LCR | CH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 138 | 596 | 1 | sheep/goat | humerus | | | | | | 11.9 | 26.4 | | | | 24.7 | 12.9 | | | | |
| 205 | 1009 | 1 | cattle | astragalus | 55.7 | 51.0 | | | | | | | | | | | 34.8 | | | |
| 140 | 511 | 2 | sheep/goat | tibia | | | | | | 13.3 | 23.4 | | 19.2 | | | | | | | |
| 159 | 527 | 2 | sheep/goat | metacarpal | | | 23.0 | 16.8 | | | | | | | | | | | | |
| 130 | 531 | 2 | sheep/goat | metatarsal | | | | | | 10.5 | 22.4 | | | 12.7 | | | | | | |
| 171 | 554 | 2 | sheep/goat | astragalus | 29.8 | 28.4 | | | | | | | | | | | 18.4 | | | |
| 91 | 639 | 2 | sheep/goat | metacarpal | 121.8 | | 22.7 | 15.7 | | 13.5 | 24.0 | | | 11.8 | | | | | | |
| 40 | 731 | 2 | sheep/goat | metacarpal | | | | | | 12.7 | 23.1 | | | 14.2 | | | | | | |
| 75 | 852 | 2 | sheep/goat | metacarpal | | | | | | 14.0 | 23.1 | | | 11.9 | | | | | | |
| 144 | 651 | 2 | sheep | metatarsal | 130.6 | | 19.5 | 19.3 | | 11.5 | 23.0 | | | 13.7 | | | | | | |
| 144 | 651 | 2 | sheep | humerus | | | | | | 13.6 | 27.8 | | | | 26.6 | 13.3 | | | | |
| 144 | 651 | 2 | sheep | radius | 149.2 | | 29.7 | | | 15.2 | 27.2 | 25.6 | | | | | | | | |
| 144 | 651 | 2 | sheep | humerus | 137.0 | | 37.0 | | | 13.7 | 28.0 | | | | 25.7 | 13.1 | | | | |
| 144 | 651 | 2 | sheep | astragalus | 26.3 | 24.7 | | | | | | | | | | | 17.6 | | | |
| 95 | 549 | 2 | dog | mandible | | | | | | | | | | | | | | | 71.9 | |
| 95 | 549 | 2 | dog | 1st molar | 21.0 | | | | | | | | | | | | 7.9 | | | |
| 83 | 701 | 2 | cattle | astragalus | | | | | | | | | | | | | 40.1 | | | |
| 237 | 1026 | 2 | horse | scapula | 315.0 | | | | | | | | | | | | | 100. | | |
| 237 | 1026 | 2 | horse | humerus | 310.0 | | 100.3 | | | 35.9 | 84.0 | | | | 78.0 | 41.0 | | | | |
| 237 | 1026 | 2 | horse | 1st | 85.6 | | 58.9 | | | 36.2 | 50.3 | 45.2 | | | | | | | | |
| 237 | 1026 | 2 | horse | metacarpal | 229.0 | 225.0 | 54.7 | 38.1 | | 34.9 | 52.0 | | | 33.8 | | | | | | |
| 237 | 1026 | 2 | horse | radius | 362.0 | 343.0 | 89.8 | | 81.5 | 39.7 | 85.3 | 70.7 | | | | | | | | |
| 237 | 1026 | 2 | horse | LPM3 | | | | | | | | | | | | | | | | 60.4 |
| 237 | 1026 | 2 | horse | LPM4 | | | | | | | | | | | | | | | | 78.4 |
| 237 | 1026 | 2 | horse | LM1 | | | | | | | | | | | | | | | | 68.7 |
| 237 | 1026 | 2 | horse | LM2 | | | | | | | | | | | | | | | | 75.0 |
| 237 | 1026 | 2 | horse | LM3 | | | | | | | | | | | | | | | | 73.3 |

Table 25: Biometric data (GL greatest length; Ll lateral length; Bp breadth of proximal end; Dp depth of proximal end; BFp breadth of the proximal articulation; SD shortest breadth of diaphysis; Bd breadth of distal end; BFd breadth of the distal articulation; Dd depth of distal end; DFd depth of distal end at fusion point; BT breadth of trochlear; HTC height of trochlear constriction; GB greatest breadth; GLP length of glenoid process; LCR length of cheektooth row, M3–P1; CH crown height)

| Context | Weight (g) | No. right valves (oyster) | No. left valves (oyster) | Other shells |
|---|---|---|---|---|
| 515 | 6 | 1 | | |
| 525 | 12 | | 1 | |
| 531 | 10 | 1 | | |
| 554 | 5 | | | 1 indeterminate oyster frag |
| 663 | 30 | | 1 | |
| 686 | 25 | 2 | 2 | |
| 759 | 81 | 1 | 2 | |
| 788 | 26 | | 1 | |
| 816 | 19 | | 2 | |
| 817 | 27 | | 3 | |
| 819 | 86 | 3 | 4 | |
| 852 | 602 | 31 | 59 | 4 small carpet shells |

Table 26: Summary of marine shells




Contains Ordnance Survey data © Crown copyright and database right 2018

Figure 1: Site location

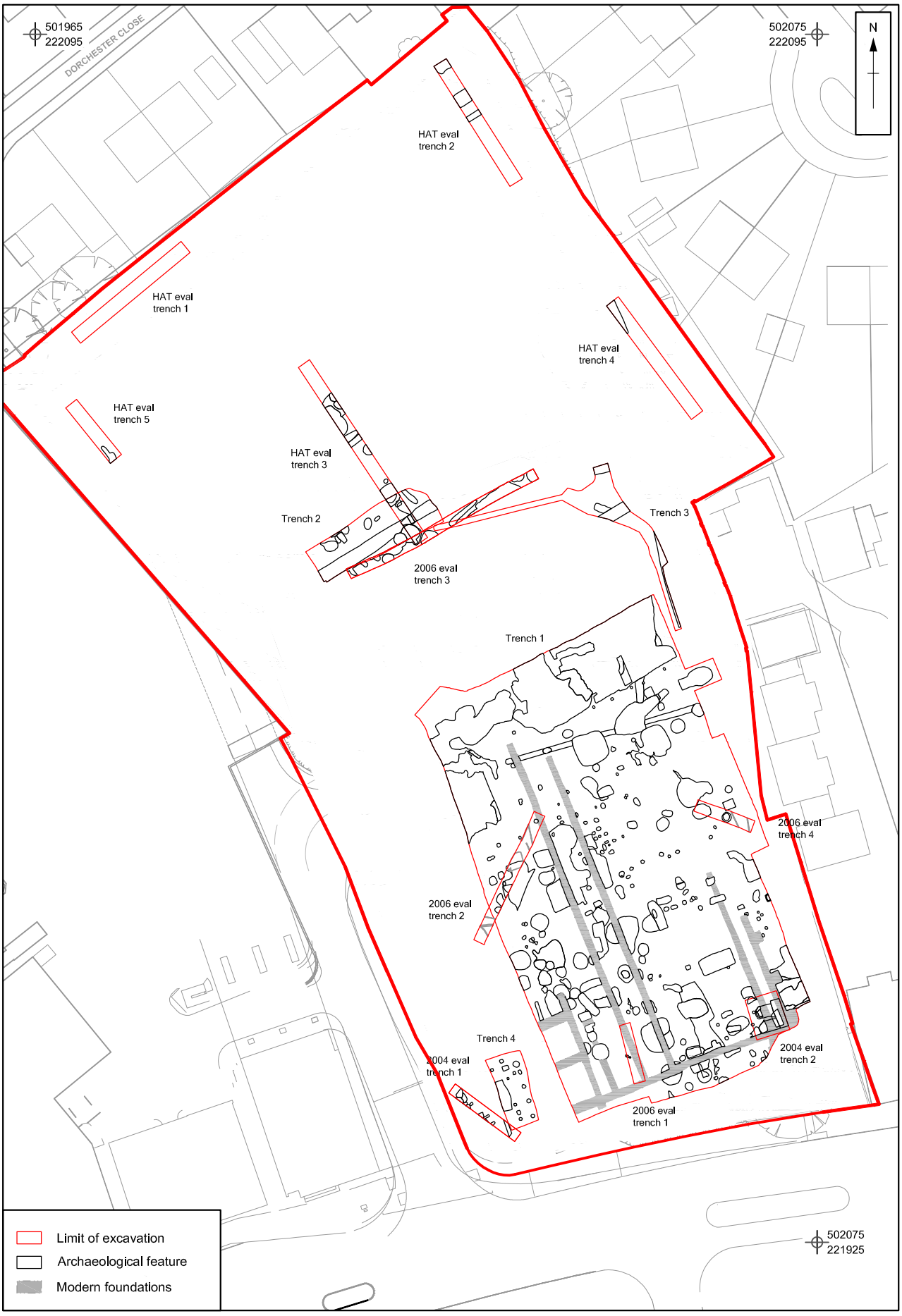



Figure 2. Trench locations

Figure 3. Phased plan

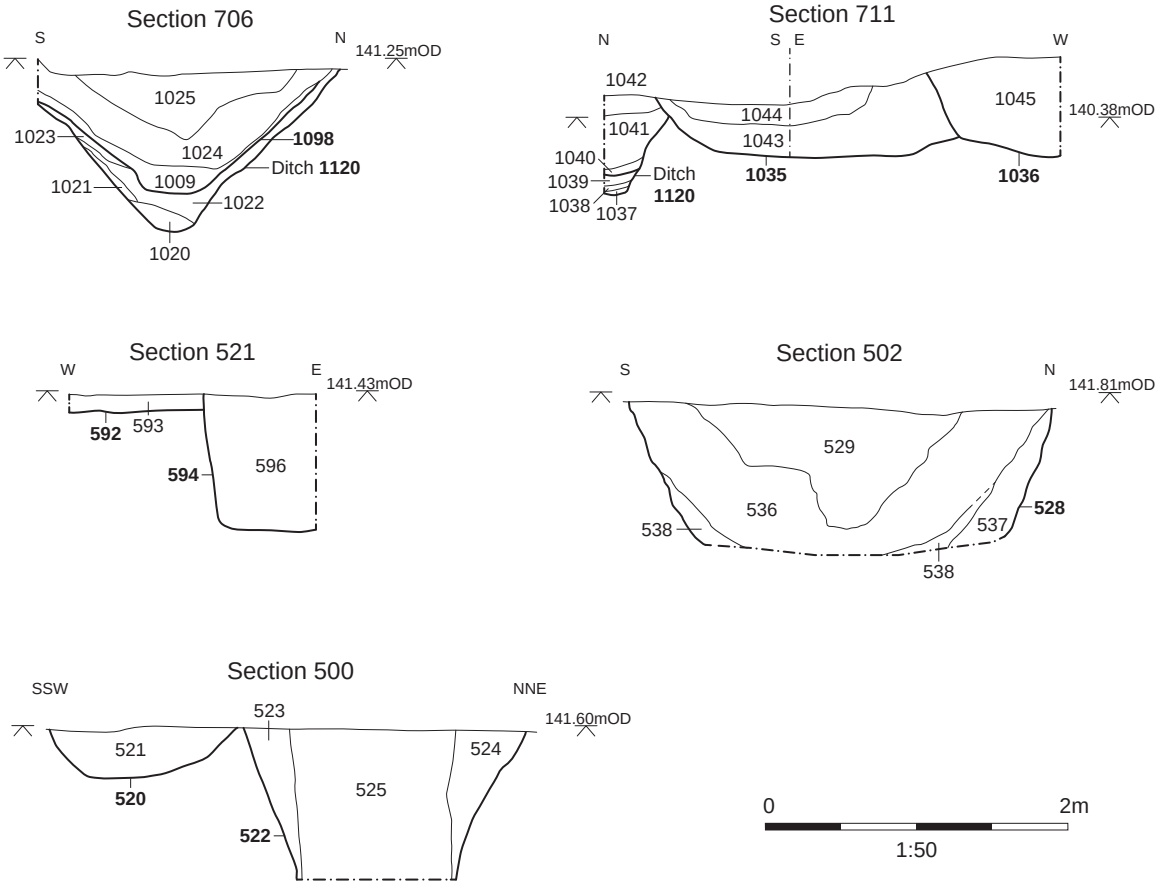
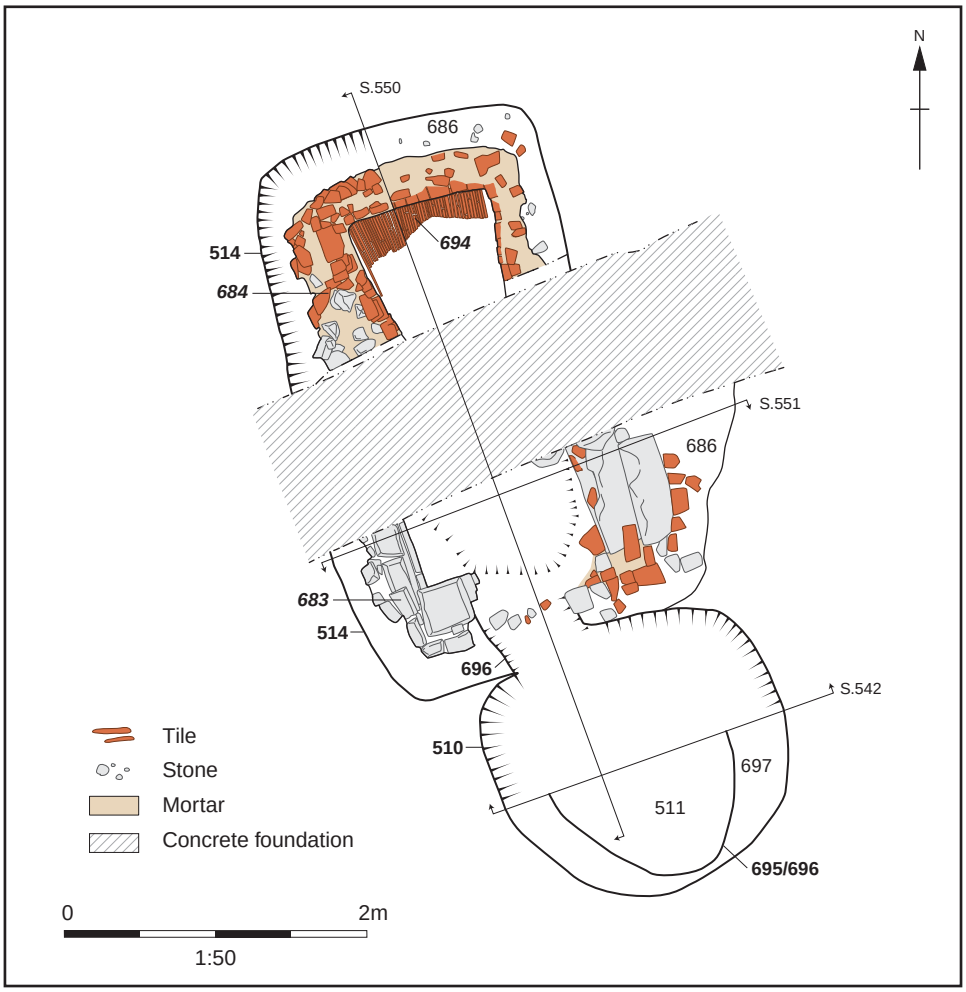



Figure 4: Roman features



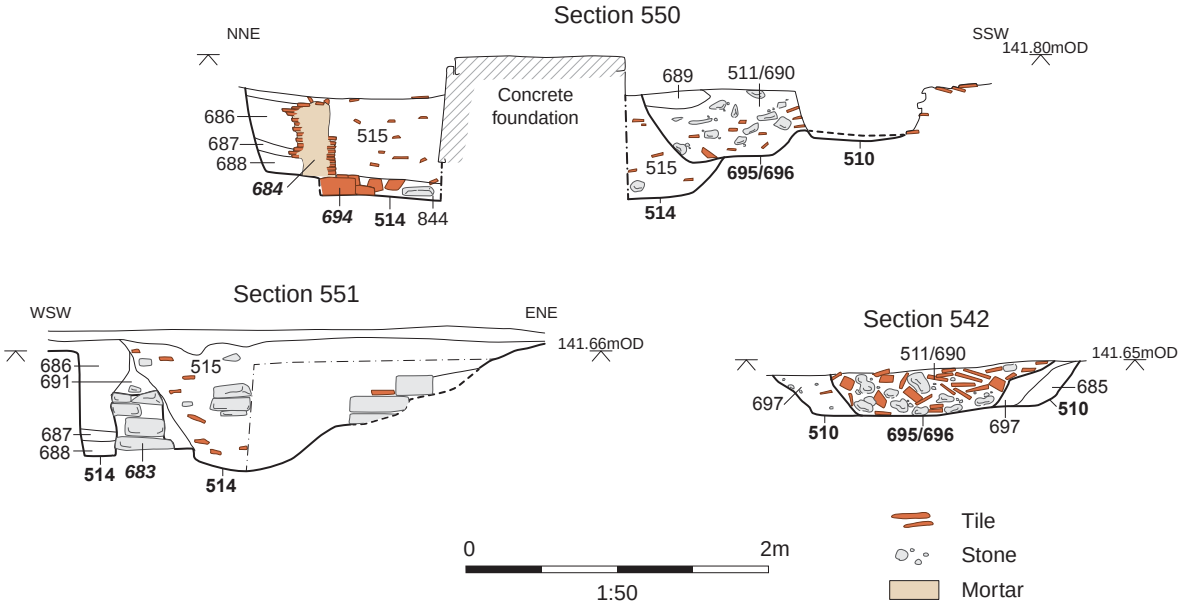




Figure 5: Detailed plan and sections of kiln 514

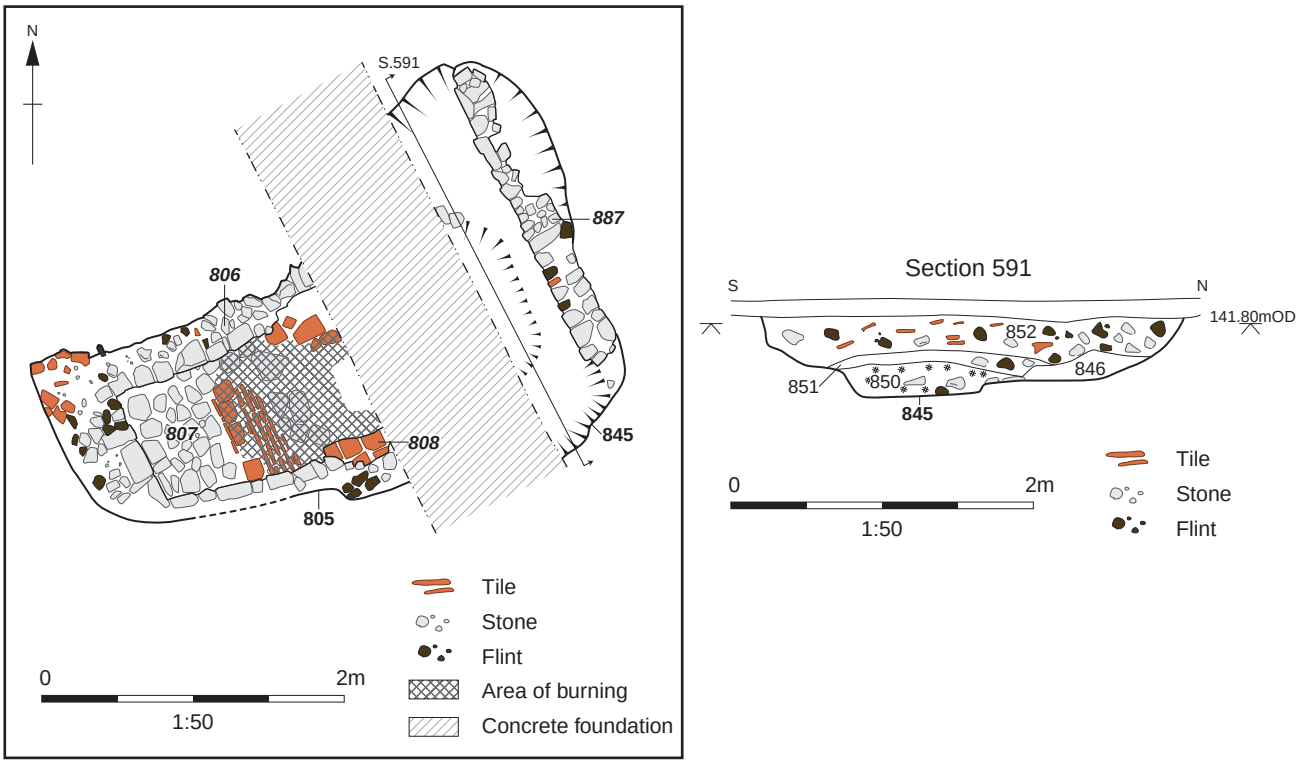



Figure 6: Detail plan and section of kiln 848

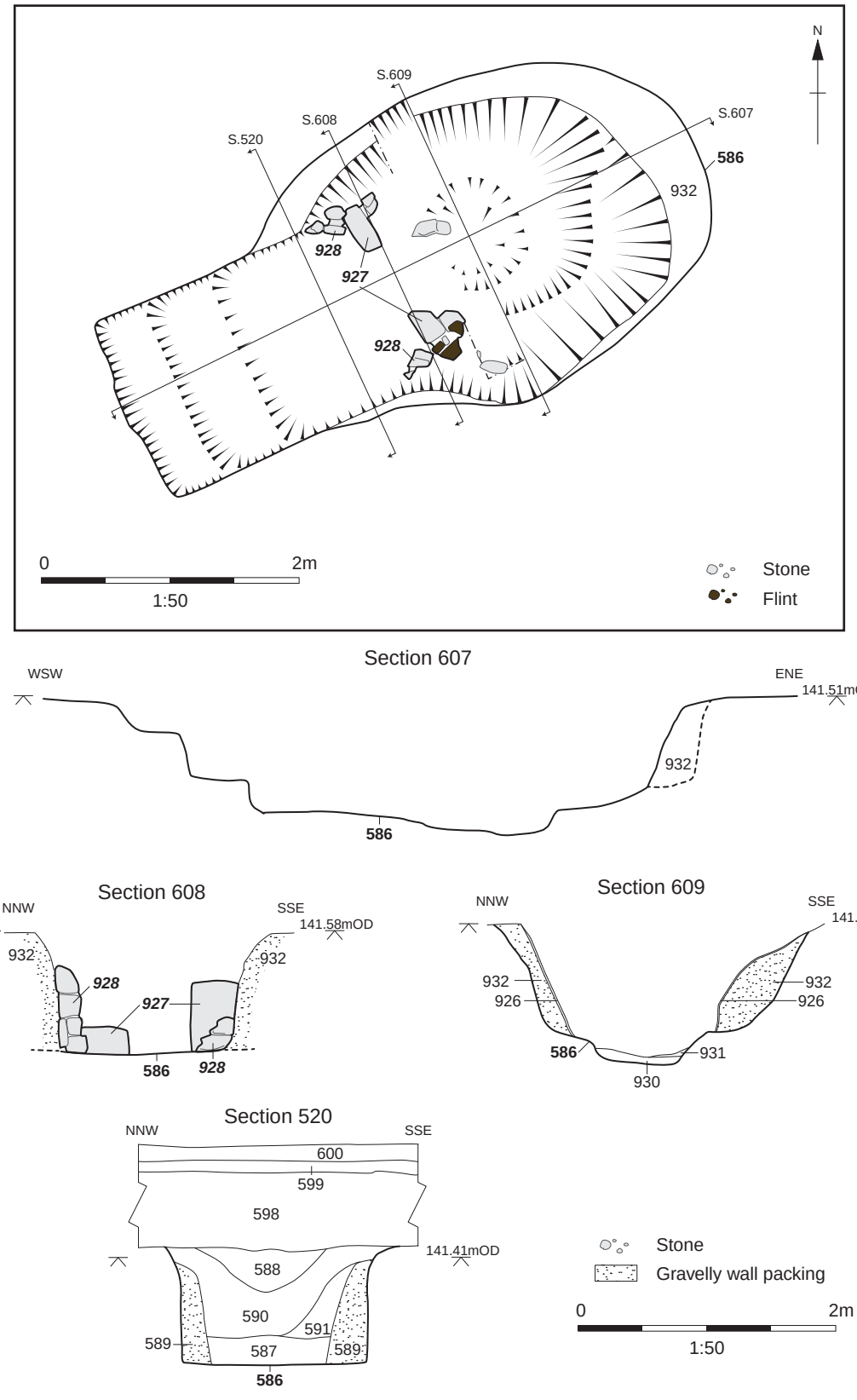



Figure 7: Detailed plan and sections of kiln 888

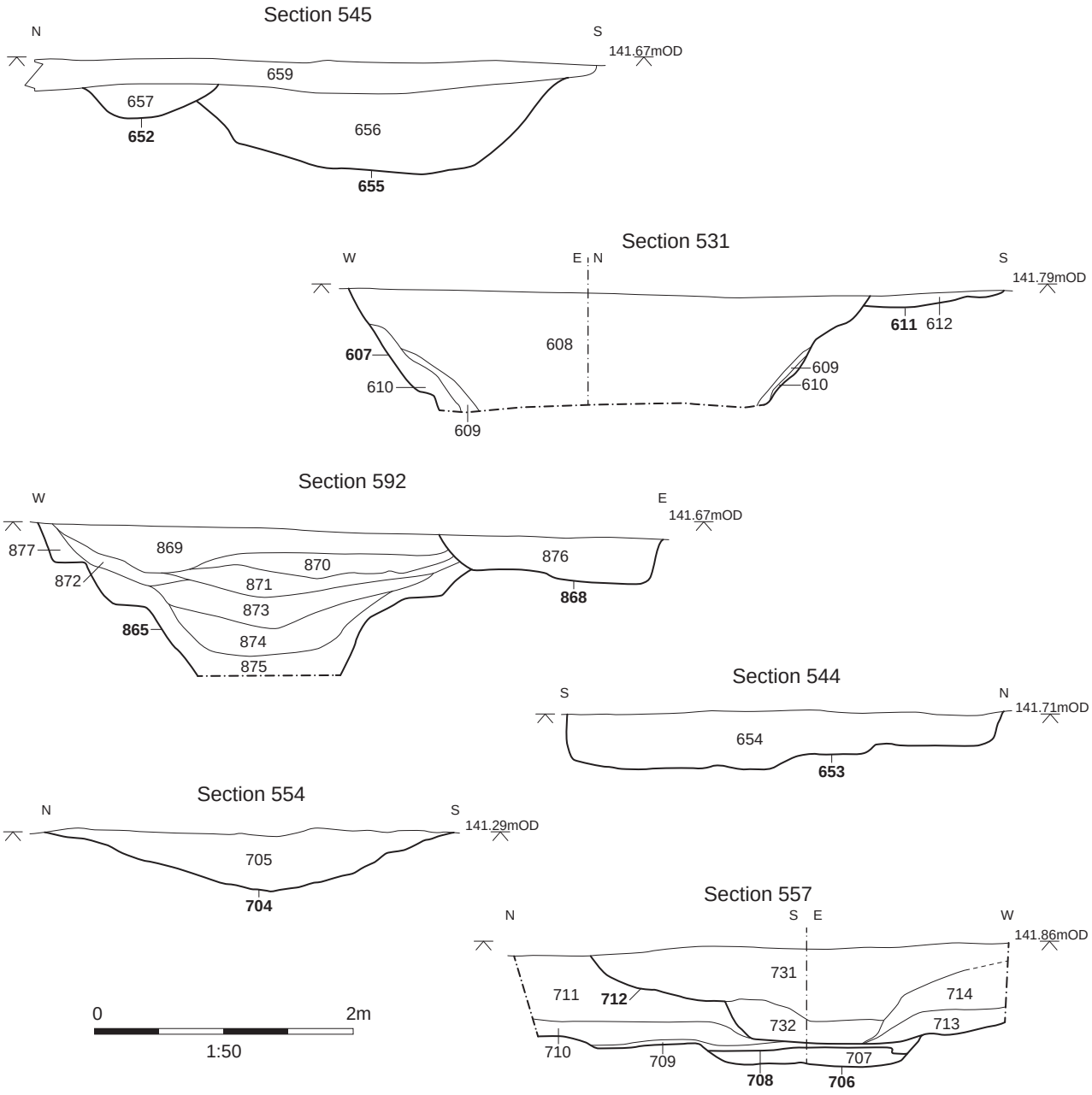



Figure 8: Medieval features

Figure 9: Medieval quarry pit 652 showing sheep skeleton

Figure 10: Medieval pit 1015 showing horse skeleton

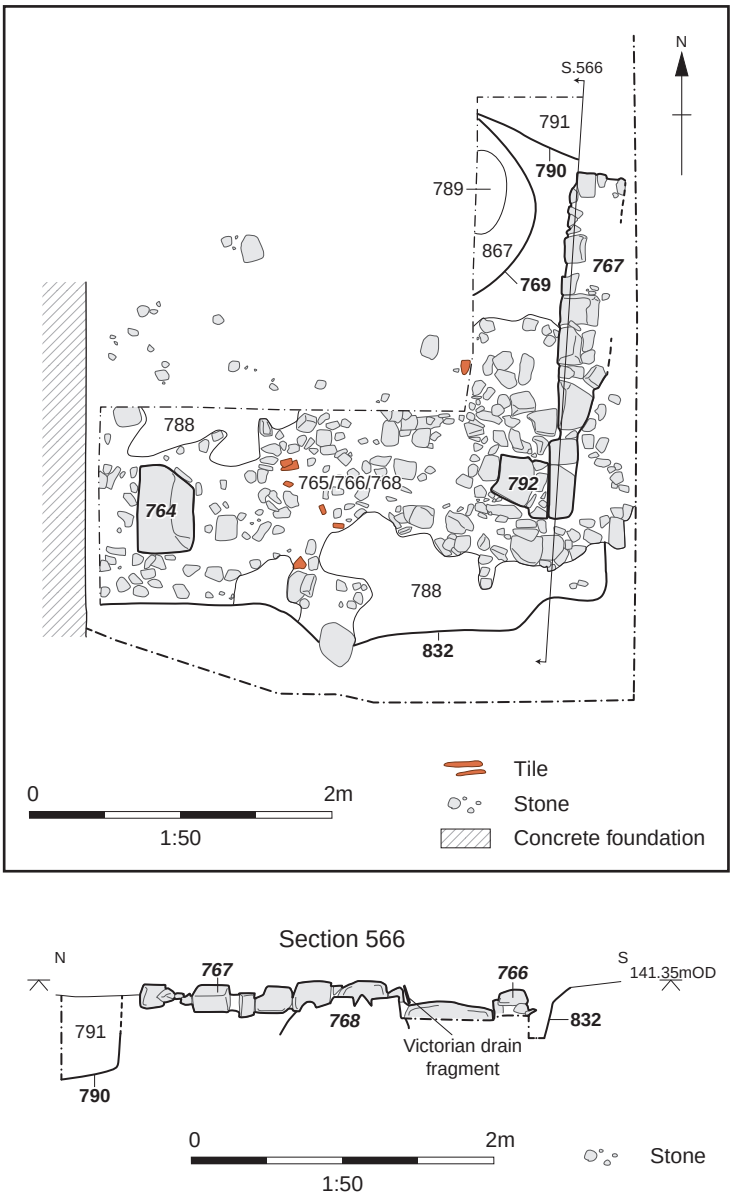



Figure 11: Detailed plan and section of post-medieval building 832

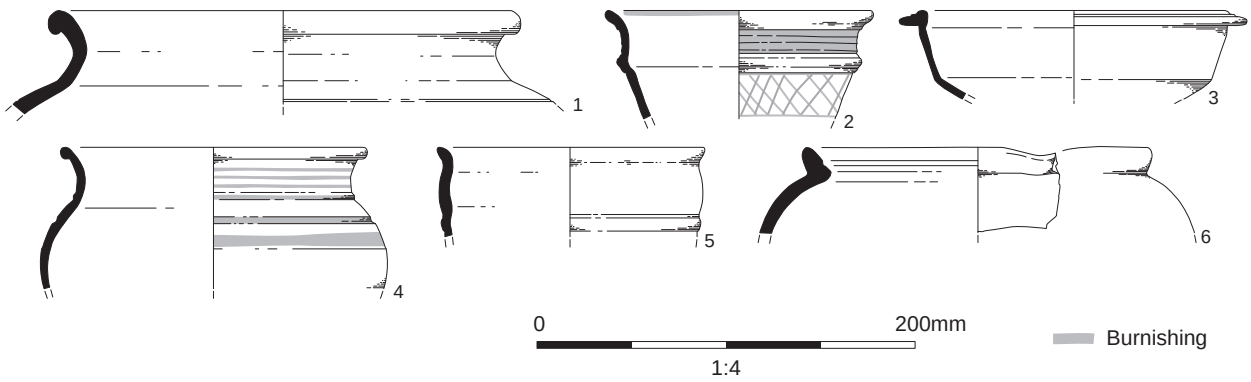



Figure 12: Roman pottery

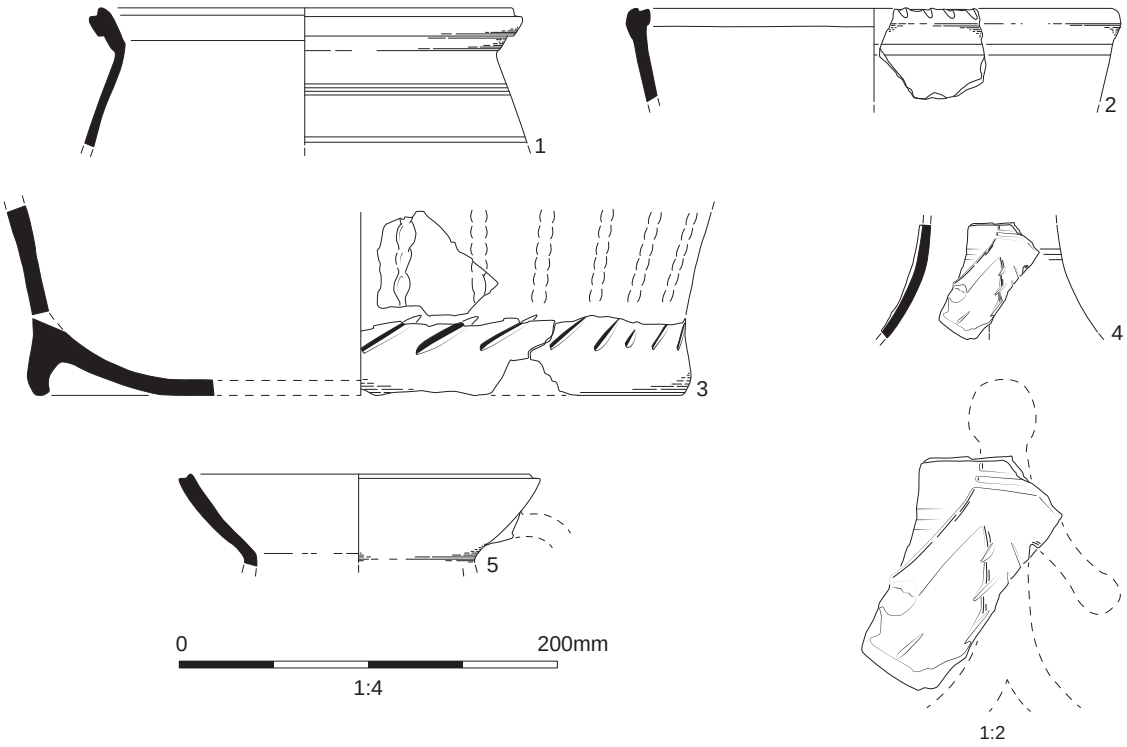



Figure 13: Medieval pottery

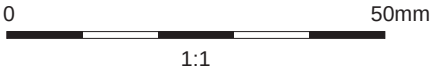



Figure 14: Medieval ceramic tiles

Figure 15: Small finds

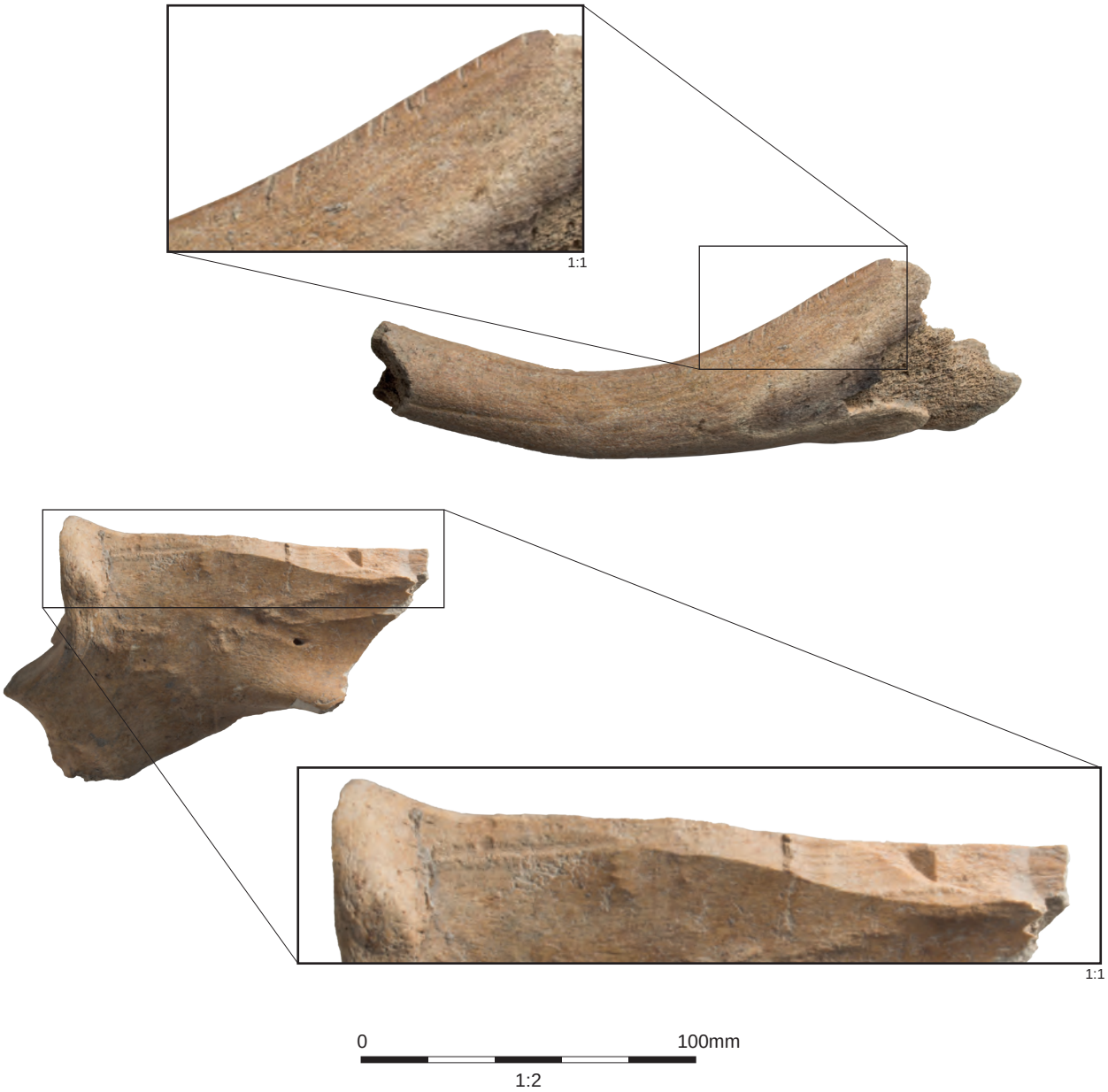



Figure 16: Fallow deer antler and butchered horse scapula

oxfordarchaeology


**Head Office/Registered Office/ OA South**

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@oxfordarchaeology.com
w: http://oxfordarchaeology.com

**OA North**

Mill 3
Moor Lane
Lancaster LA1 1QD

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: oanorth@oxfordarchaeology.com
w: http://oxfordarchaeology.com

**OA East**

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
e: oaeast@oxfordarchaeology.com
w: http://oxfordarchaeology.com



REGISTERED ORGANISATION CIfA

**Director:** Gill Hey, BA PhD FSA MCIfA

*Oxford Archaeology Ltd is a Private Limited Company, N^O: 1618597 and a Registered Charity, N^O: 285627*