Worcestershire Archaeology Research Report No.1

Excavation at

BATH ROAD WORCESTER, 2006

Tom Rogers

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Excavation at Bath Road, Worcester, 2006

(WCM 101447)

Tom Rogers

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Front cover illustration: demolition of tank 2 from the East

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Summary

An archaeological excavation and watching brief was undertaken at the former petrol storage facility, Bath Road, Worcester (NGR SO 8520052250). The petrol storage facility was built during the early years of World War II on a steep ridge of clay overlooking the River Severn. It comprised six large concrete tanks over 36m in diameter and partially covered with grassed earth, which acted as camouflage against air attack. The site was one of a number of similar facilities built in response to the threat to fuel supply from the action of German U-boats. Originally supplied by barges brought up the River Severn, it later formed part of a national network connected by pipeline until it was decommissioned in the 1990s.

Planning permission for demolition and redevelopment of the site was granted, subject to conditions including archaeological evaluation and possible further mitigation. Archaeological evaluation, carried out in June 2006, comprised the excavation of eight trenches in areas left undisturbed by the construction of the tanks, five of which revealed archaeological features. Iron Age pottery was recovered from the fills of a large ditch at the southern end of the site and Roman pottery was recovered from several small pits and ditches, largely concentrated to the south and east of the site. A mitigation strategy comprising excavation and watching brief was designed to investigate the nature, extent and significance of the settlement.

Archaeological excavation and watching brief of the site was undertaken between August 2006 and January 2007. In the centre of the site a cluster of pits was uncovered, three of which contained worked flint. The flint comprised largely unretouched flakes and blades and is thought to derive from a blade-orientated industry of Mesolithic or early Neolithic date. The presence of flint chips and a core showed that flint knapping was taking place on the site. Further flint tools found across the site were unstratified or residual in later contexts and included microliths and an early Neolithic leaf shaped arrowhead.

At the southern tip of the site, the Iron Age ditch exposed in the evaluation was revealed and shown to be 25% of a circular enclosure within the area of excavation (the remainder lying outside the development area). Features within the enclosed area included five postholes which formed no discernible structural pattern, a circular storage pit, a buried Malvernian ware pot and a series of shallow gullies identified as drip gullies of a roundhouse. Roman pottery was recovered from the upper fills of some of these features indicating that they were still open after the conquest.

To the south-east of the site, a concentration of industrial by-products such as coal ash, clinker, slag and hammerscale was identified in the fills of a small ditch running down a slight slope and a cluster of surrounding pits. The presence of hammerscale and the form of slag from these deposits demonstrates that smithing was taking place here. Three postholes to the west of the ditch may trace the outline of a rectangular building which might have been the forge itself or a shelter for fuel. No hearth bottoms were recorded but it is thought that these would not have survived truncation by later agriculture.

To the north west of this area, an Iron Age ditch and two Roman ditches crossing the site from east to west probably represent the edge of an enclosure constructed in the Iron Age and continued in the Roman period. These ditches were truncated to the west by tank 2

and to the east by a modern housing estate. Further Roman features included two large ditches and five smaller gullies which may have served as drains.

No further features were recorded during the watching brief in other parts of the site. A photographic survey of the petrol storage facility was undertaken prior to demolition.

It is thought that the site represents a small rural settlement spanning the transition from the Iron Age into the Roman period. It is one of a number of such sites in the hinterland of Worcester such as those at Ball Mill Quarry, Norton-Juxta-Kempsey, and at the West Mercia Constabulary, Hindlip.

Introduction

Archaeological investigations were undertaken in 2006-2007 at a former WWII petrol storage facility which lay to the west of Bath Road, Worcester (NGR 385200 252250). The fieldwork was commissioned by Persimmon Homes Ltd and carried out by Worcestershire Historic Environment and Archaeology Service in advance of residential redevelopment.

The site lies close to the southern edge of modern Worcester on a plateau of Keuper Marl sometimes referred to as Bunn's or Bund's Hill between Bath Road and the River Severn at 30.7m OD (in comparison to the river level of just under 10m OD). Immediately west of the site a steep wooded slope known as Ketch Coppice leads directly down to the River Severn. The site is a slight rounded hilltop bounded to the north and south by small valleys providing a gentler access to the river. The confluence of the River Teme and the River Severn lies on the opposite bank at the southern end of the site and there are extensive views westwards over the valley of the Teme towards the Malvern Hills.

In 1942 the site was chosen as one of a series of facilities for the storage of hydrocarbons to safeguard supply to the military following successful actions of U boats in the north Atlantic. The depot comprised six large (36m in diameter) partly buried concrete tanks as well as ancillary buildings including storage sheds, an air raid shelter, offices and a decontamination unit. The tanks themselves were covered with the upcast from their footprint to provide camouflage and protection from aerial attack and were not visible at ground surface. They were linked by a network of overground and underground steel pipes and other related services including electric cables and a fire prevention pipe. The depot itself was originally fuelled from barges on the Severn and a fuelling jetty still stands at the river's edge but in later years it became part of a national pipeline network and was joined to a pipeline carrying aviation fuel between Chester and Avonmouth (Payton Smith 1971). The site was decommissioned in the early 1990s and lay unused for over a decade until it was purchased by Persimmon Homes for redevelopment.

The site was considered to potentially contain significant archaeological remains due to its proximity to the line of a Roman road (WCM 96406; WSM 30539) built by Legion XX in the late AD 40s and 50s which is close to the eastern edge of the site (Fig 1). It is thought to have joined the legionary fortresses at Kingsholm, near Gloucester and Wroxeter, via the fort at Droitwich (WSP 2005). Although the exact line has not been identified in the southern part of the modern city, it can be traced in field boundaries south of Timberdine Farm.

Furthermore, the area around the site is recorded as playing a key role in the Battle of Worcester in 1651. On September 3rd of that year, Parliamentarian forces under General Fleetwood advanced on the Royalist army at Worcester in two columns from Upton. While the western column were engaged at Powick, the eastern column crossed the River Teme using a bridge of boats (WCM 91135) and engaged the Scots highlanders on the flat plain to the west of the Severn. A second bridge of boats (WCM 91136) was put across the Severn 'within pistol shot' (about 45m) to the north of the confluence of the two rivers. When fighting became entrenched on the banks of the Teme, Cromwell attacked the highlanders on the eastern side in the flank and then crossed the river here to join the front to the west eventually forcing the Scots to retreat (Atkin 1995).

Field evaluation (Rogers 2006) was undertaken in June 2006. The trenches were targeted to areas in which the original ground surface was accessible, between the concrete tanks where the considerable depth of upcast material could be penetrated. Five of a total of eight trenches revealed archaeological deposits of Iron Age, Romano-British and post-medieval date mainly to the south and west of the site. A small ditch with a fill rich in the by-products of metalworking including hammerscale was identified, as well as a V-shaped ditch with Malvernian pottery. A photographic survey of the extant buildings on the site was also carried out in which all significant buildings and a sample of ancillary structures were photographed.

Following the results of this investigation a programmed archaeological excavation was carried out between August 2006 and January 2007 in tandem with demolition of the tanks.

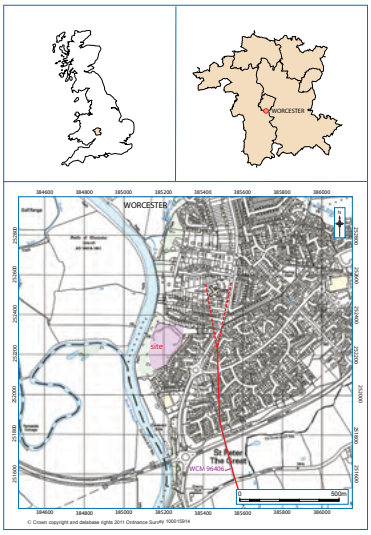


Figure 1: Location of the site

Methods

Fieldwork strategy

The fieldwork strategy comprised the excavation of an area of ground in the centre and south west of the site which remained undisturbed by construction of the petrol storage facility. This area was excavated in phases and in tandem with the demolition of the tanks and subsequent infilling and compaction. Other areas within the site were subject to watching brief and additional evaluation but no further archaeological features were uncovered in these areas.

Deposits considered not to be significant such as the redeposited natural from the footprint of the tanks and the buried pre 1940s topsoil and subsoil were removed using a 360º tracked excavator, employing a toothless bucket and under archaeological supervision. Subsequent excavation followed standard service practice and is described in the excavation report (Rogers 2010).

Post fieldwork analyses

Post fieldwork analyses followed standard Service practice and are described in the excavation report (Rogers 2010)

Excavation Results

Phase 1 Early prehistoric deposits

The earliest evidence for activity on the site was in the form of struck flint. This was recorded as unstratified finds recovered during hand cleaning of the site, in context within the fills of three pits and as residual finds in later contexts. Thirty-three flints were unstratified, largely recovered in cleaning back the northernmost area. Residual flints were recovered from 25 features including a leaf-shaped arrowhead recovered from the lowest fill of Iron Age ditch 2063.

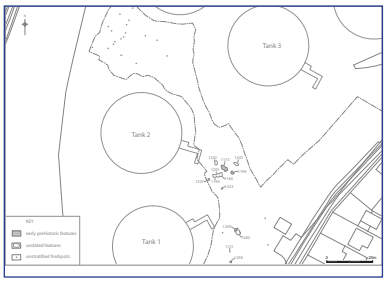


Figure 2: Early Prehistoric features

Four irregular pits in the central part of the site yielded struck flints from fills with no later dateable material (Fig 2). Two of these lay within a cluster of nine irregular pits in a narrow strip between tanks 1 and 2 at the centre of the site.
Pit 1173 (Fig 3) was an irregular oval in shape, 3.3m long with steep sides and an uneven sloping base with a maximum depth of 0.53m. The primary fill of this feature (1171) yielded 15 flakes (Fig 4) and the fill (1225) of a small pit (1228) cut into the top of the feature yielded a further five. Pit 1199, 2m to the south-east was smaller (c 1.5m length) and shallow but also irregular containing a single fill of mid brown, compact silty clay which yielded six struck flints. Two isolated pits 1259 and 1258 which lay some 25m (1259) and 38m (1258) south of this cluster also contained flint debitage the latter containing six flint flakes. Unfortunately, none of the environmental samples taken from these four pits yielded material suitable for radiocarbon dating.

Figure 3 :Pit 1173 from the west

Figure 4: Flint assemblage from pit 1173

Other lithics were recovered as residual material from later features. From analysis of the lithic assemblage as a whole it was concluded that the assemblage was Mesolithic or early Neolithic in date. It is thought probable that the four pits containing lithic artefacts and similar features represent elements of a Mesolithic or early Neolithic settlement or temporary camp.

Phase 2 Iron Age deposits

Features on the site from the Late Iron Age/Early Roman period comprised an enclosure ditch with associated features and a ditch approximately 60m northeast of the enclosure crossing the site directly from east to west (Fig 5).

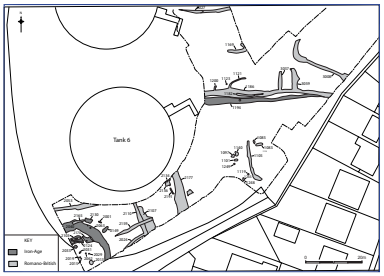


Figure 5: Roman and Iron Age features

The enclosure lay at the south-western edge of the excavation, close to the edge of the sharp incline descending to the Severn. (Fig 6). It comprised a sharply curving ditch (2063) forming a quarter circle from the western edge of the excavation area to the southern, the larger part of the enclosure presumably lying outside the excavated area. Four sections (Fig 7, Fig 8) were excavated across the ditch which was U shaped, up to 1.4m deep and a maximum of 3.2m wide at the top. The ditch contained a series of well-defined fills, largely comprising reddish brown to light brown clays containing variable amounts of animal bone and sparse charcoal. Malvernian pottery was present in fills throughout the sequence although 2nd Century pottery was recovered from three of the upper fills (contexts 2041, 2172, and 2173). A charred cereal grain (Triticum sp) from a tertiary fill of the ditch (2080) was dated by radiocarbon analysis to BC 380-170 demonstrating that the initial phase of this enclosure was at the latest Middle Iron Age in date. Assuming that the ditch continued with a similar curve, it would enclose an area of 320m^2 with an internal diameter of 20m.

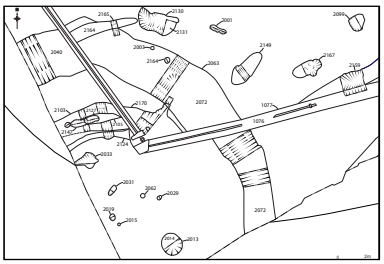


Figure 6: Iron Age enclosure and related features

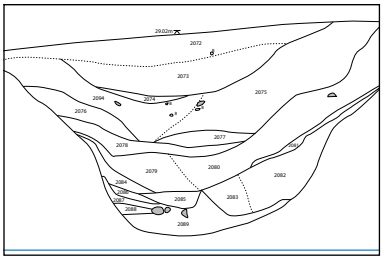


Figure 7 Enclosure ditch 2063

Figure 8: Enclosure ditch 2063 looking east

The ditch was cut by a small, undated gully (2165) and in two places by a metal pipe (1077), which was contemporary with the construction of the hydrocarbon tanks. The ditch sections in general suggest that the lower fills of the ditch had slumped from the area to the north-east, which lay slightly uphill from the enclosure.

Within the excavated section of the enclosed area, five postholes (contexts 2019, 2029, 2031, 2147, 2062), a circular storage pit (2013) and a larger irregular pit (2033) containing burnt bone were recorded, as well as a virtually complete Malvernian pot (2014, Fig 9) which was set into the natural substrate. Three of the postholes were undated although charred barley grains from the fill of posthole 2031 were dated by radiocarbon sample to BC 90-AD 80. The fifth posthole (2062) contained two fills, one of which (2060) included 1st Century pottery. The circular pit was 1.5m in diameter and contained two fills, the upper of which was cut by eight small circular pits possibly indicating that a small structure such as a pot hanger had been built into this feature once backfilled. The upper fill of this feature (2014) was dated by radiocarbon analysis to BC 50 - AD 120.

Figure 9: Iron Age pot 2062 in situ

The postholes form no discernible structural pattern but evidence for structural features within the enclosure can be inferred from three shallow flat bottomed gullies

(contexts 2103, 2104, Fig 10) situated just inside the ditch on the north side. These gullies survived for a length of approximately 8m (although cut in the centre by modern service 1077 in the centre) and performed slightly tighter curve than the enclosure ditch. They were filled by reddish-brown silty clay with charcoal and are dated from ceramic material to the Late Iron Age/ Romano British period. The gullies are interpreted as a succession of drip gullies created by water dripping from the eaves of a circular building, rebuilt on a number of occasions.

Figure 10: Western section of drip gullies 2103, 2105 and 2124 looking east

Two pits also containing Iron Age pottery (contexts 2130, 2001) lay slightly outside the enclosure to the north east although their irregularity and generally sterile fills may suggest that these were natural features such as tree bowls into which Iron Age pottery had been washed.

Within the area of the enclosure, the natural clay was overlain by a layer (2100) comprising mid orange brown silty clay with abundant greyish brown mottles charcoal flecks and degraded stone. Although this layer was not dated it is thought likely to represent an occupation layer concurrent with use of the enclosure. It was present both inside and outside the enclosure extending eastwards for a distance of 5.5m although it did not cover the ditch itself implying that it was formed while the ditch was still in use.

Only one other Iron Age feature was recorded on the site. This was a gently curving ditch (1194), which crossed the centre of the site from east to west, from tank 1 to the eastern edge of the excavation. It was up to 1.2m deep and a maximum of 2m wide containing up to five distinct fills. The five sections excavated across the ditch demonstrated that the feature was increasingly shallower to the east, probably due to truncation caused by post-Roman agriculture. The ditch ran roughly parallel to and immediately south of two shallower Roman ditches (contexts 1186 and 1182), forming a single boundary the three elements of which converged and diverged across the site (Fig 11, Fig 12). A shallow pit (1197) cut into the upper fill of the ditch was filled by a charcoal rich matrix with Roman pottery of 1st-2nd Century date, indicating that at this time the ditch was no longer in use.

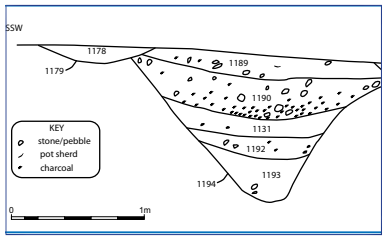


Figure 11: Section of ditches 1194, 1182 and 1186

Figure 12: Triple ditch boundary 1194 (foreground), 1182 and 1186 looking north

Residual Iron Age pottery was also recovered from ditch fill 2138, the primary fill of ditch 2110 a Roman feature.

Roman pottery was recovered from three of the upper fills (contexts 2041, 2172, 2173) of the curved enclosure ditch 2063, indicating that the ditch was partially extant or in use in this period. In addition two features within the enclosure also contained 1st Century pottery; a small oval pit (2127) cut into the top of the drip gullies and one of the post holes (2062).

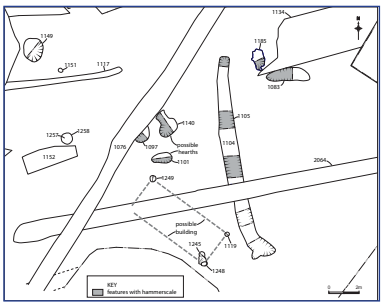


Figure 13: Smithing area

Phase 3, First - Second Century deposits

Toward the south and centre of the site a concentration of features containing industrial waste is interpreted as an area of industrial activity (Fig 13). The central feature of this area was a small gently curving ditch (1105), which ran for a length of 16m approximately north-south except at its southern extent where it curved sharply to the east. The primary fill of this feature was rich in charcoal, slag, ash and clinker as well as considerable quantities of Roman pottery. Analysis of environmental samples also demonstrated a significant presence of hammerscale suggesting that smithing was taking place in this area, either prior to or contemporaneous with the use of this feature. Sections across the larger part of this feature revealed only a single fill but to the south, a later recut was recorded. A similar fill was also recovered from six roughly oval, shallow pits in the vicinity of the northern half of the ditch (cuts 1083, 1085, 1097, 1001, 1119, 1140) and a further pit (2136) containing a similarly industrial fill was recorded some 28m to the west of this area (Fig 14).

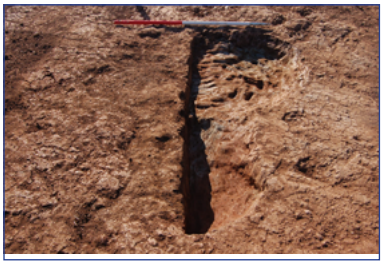


Figure 14: Pit 1140 from the east, a possible smithing hearth

To the west of ditch 1105, three postholes of similar character (1249, 1119 and 1245) may have supported a rectangular structure, the fourth corner having been truncated by furrow 2064. This building would have measured 6m x 2.6m and may have been a structure related to the smithing activity, possibly the forge building itself.

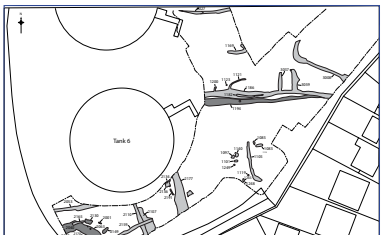


Figure 5: Roman and Iron Age features

Some 15m to the north of the smithing area, two intercutting ditches (1182, 1186, Fig 5, Fig 11, Fig 12) crossed the site from east to west. These were both relatively shallow (0.64m and 0.34m respectively) and ran parallel but slightly to the north of Iron Age ditch 1194. At the eastern and western edges of the excavated area, the ditches converged, effectively, the later ditch (1182) becoming a recut of the earlier, while to the centre of the site, they diverged, although never completely

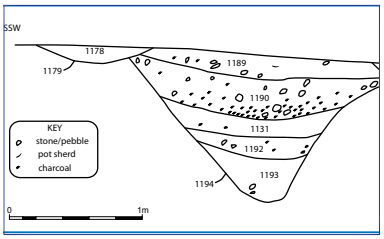


Figure 11: Section of ditches 1194, 1182 and 1186

Figure 12: Triple ditch boundary 1194 (in foreground), 1182 and 1186 looking north

parting. Slightly east of the centre of the site two offshoots from this ditch (cuts 3037, 3048) 3.6m apart branched northward for a length of roughly 5m before terminating sharply. The function of these offshoots is not clear but it may be that they formed a small enclosure such as a cattle pen. Sections across their interface with ditch 1186 showed that they were filled with identical material and were open at the same time. The easternmost of these offshoots (3048) measured 2.6m at its widest point and was notably rich in pottery and other finds including mortaria, amphora and a brooch of Colchester type. Also extending north from ditch 1186 was a small curving gully (1121) a maximum of 0.4m wide and filled by firm reddish brown clay. The function of this gully is not clear.

Slightly west of the gully, two post holes (contexts 1130 and 1123) one containing Roman pottery and packing stones and the other undated were recorded. These may have been part of a structure which was destroyed by a large modern oil pipe trench some 1.5m to the north or perhaps had a function related to the boundary to the south. Immediately north of the pipe trench an undated pit or post hole (1233) may have formed part of the same group.

Some 28m to the north of ditches 1186 and 1182, a smaller single ditch (1227) crossed the site for a length of 18m on a similar orientation. This was the northernmost limit of Romano-British features on the site and contained notably less pottery than features to the south and east. A similar ditch (3008) ran to the east of the site, cut at the very eastern edge of the site by a circular pit with a charcoal rich fill (3006). This feature was roughly straight for the majority of its length but curved sharply northwards at its eastern end. Again the density of pottery was notably sparser in this feature than in those to the west of the site indicating that these ditches lay apart from the area of occupation probably outside the area defined by the triple ditch boundary (contexts 1182, 1186 and 1194).

To the south of the site, between the probable industrial area and the Iron Age enclosure, a concentration of Romano-British activity was recorded in a narrow strip between the edge of the excavated area at the tree canopy to the south and tank 1 to the north. Here, two ditches approximately 15m apart crossed the site from NNW to SSE. The ditch to the east (2196) was V-shaped, measuring 1.2m deep and 2.8m wide. It is possible that this feature may have joined with one or both of ditches 1186 and 1182 to form two sides of a square enclosure, prior to truncation by tank 1. A small shallow gully with a U-shaped profile (2197) ran parallel to the ditch slightly to the west. The major part of ditch the westerly ditch (2110) was shallower but the top fill of this feature (2107) extended considerably to the east in a thin layer directly overlying natural mudstone clay.

Three smaller ditches (from north to south contexts 2053,2159 and 2024), each roughly 1m in width also crossed this section of the site from broadly southwest to northeast running down the slope toward the sharp incline to the river and it is probable, given the very impermeable ground conditions that these were part of a system of drainage. Two parts of a sandstone rotary quern were recovered from the central of these ditches (2159 see below) and imbrices were recovered from the southernmost ditch (2024).

Phase 5 Medieval deposits

Medieval features on the site were represented largely by furrows, the surviving element of ploughed-out ridge and furrow, the product of strip-field agriculture. These comprised shallow cuts of variable width, surviving in short intermittent lengths. They were filled by a later ploughsoil with frequent charcoal, medieval and post-medieval pottery. Within the site there were two distinct areas of orientation. Across the southern part of the site, approximately eight furrows (contexts 1080, 1089, 1134, 2113, 2122, 2064, 3035, 3045) were recorded crossing the site from ESE to WNW while at the northern end of the site, three furrows crossed from north to south (contexts 1009, 1011, 1013).

At the eastern edge of the site three oval pits (contexts 109, 3002, and 3004) were recorded, isolated from the main area of activity. Each pit contained a single fill of a largely sterile deposit with sparse charcoal and very occasional sherds of medieval pottery. It is thought that these features were probably refuse pits associated with medieval agriculture.

Phase 6 Post-medieval deposits

At the north western end of the site, 23 small post-medieval post holes were recorded. Five of these (contexts 505, 1024, 1033, 1029, 1028) formed a distinct north-south line but there was no discernible arrangement to the remainder. While some of these contained abraded Roman pottery, this is thought to be residual as the majority of the sherds recorded from this area were of 13th-19th century in date.

Frequent sherds of post medieval pottery were recovered from the buried topsoil and subsoil (1003 and 1004) and within the fills of the medieval furrows. A single musket or shot ball was retrieved from topsoil. This may have been a survival from the Civil War but may equally represent later hunting or birding (M Atkin pers comm).

Phase 7 Modern deposits

All modern features on the site related to the construction and function of the fuel storage facility. These consisted of numerous above and below ground oil pipes (contexts 1265, 1267) a water pipe for fire prevention (1077), buried electric cables, a small brick built pump house (1078) and several square machine cuts of unknown function (contexts 1093, 1095, 1269, 1271) as well as the tanks themselves. The six tanks were of nearly identical size and proportions. Each was 36m in diameter and approximately 6m high, being half buried into the clay in steep circular cuts (Fig 15). They were constructed of concrete with an inner lining of sheet metal and supported internally with steel props. It was apparent from the outward appearance of the concrete that it had been poured and hardened in situ within shuttering.

Figure 15: Demolition of tank 2 from the east

Redeposited clay from the footprint of the tanks had been mounded around each tank into which a concrete entrance was set. Metal cables were uncovered within the redeposited clay fairly frequently, thought to be snapped cables from the type of mechanical excavator used at the time. Various vents and other small undetermined structures protruded through the material mounded on top of the tanks. At the time of excavation, an immature topsoil had begun to form on top of the redeposited clay.

Other buildings on the site included a store and office at the north eastern corner of the site, a spirit pumphouse, a switchroom and an air raid shelter.

Undated deposits

Eleven undated pits of variable size and form were recorded across the site. These were largely irregular, with largely sterile fills although some contained charcoal. It is possible that a proportion of these were treeholes of uncertain date but also that they were contemporary with the cluster of pits containing Mesolithic or Neolithic tools.

The Iron Age enclosure ditch 2063 was cut by a small undated gully which ran east-west for 4.5m before, terminating at modern pipe cut 1077.

Specialist Analyses

Lithic artefacts

by (H. Lamdin-Whymark)

The excavation yielded a total of 93 flints (Table 1). The majority of these flints were either unstratified or recovered as residual finds in later archaeological contexts. Contexts 1170, 1171, 1225 and 1260 yielded flints in fresh condition that may be contemporary with the archaeological features. No diagnostic artefacts were recovered from these features, but the lithic technology suggests a broad Mesolithic or early Neolithic date; diagnostic Mesolithic and early Neolithic artefacts, including microliths and a leaf-shaped arrowhead, were recovered elsewhere on site.

category type	total
flake	45
blade	15
bladelet	5
bladelike	3
irregular waste	2
chip	5
microburin	3
multiplatform flake core	1
microlith	2
leaf arrowhead	1
end scraper	2
other scraper	1
notch	2
retouched flake	5
burin	1
total	**93**

Table 1: The flint assemblage

A total of 66 struck flints were recovered from 32 archaeological features; a further 27 flints were recovered from topsoil, subsoil and as unstratified finds. Twenty one contexts contained single flints, six contained two flints and five contexts contained between four and thirteen flints (contexts 1007, 1170, 1171, 1225 and 1260). The latter contexts are all potentially earlier prehistoric, with the exception of 1007 which is a fill of a post-medieval furrow

The raw material was flint that varied in colour from light and dark brown, with some grey pieces with cherty inclusions. Cortex was only present on a limited number of flints, but where present it was heavily abraded. The colour of the flint and condition of the cortex indicate the flint was collected as small pebbles from a secondary source, such as gravels.

The flint assemblage from Bath Road is largely composed of unretouched flakes and blades and the fresh groups of flintwork from contexts 1170, 1171, 1225 and 1260 were solely composed of flake debitage. Blades and bladelets (flakes with >2:1 length to breadth ratio) form a good proportion of the flake assemblage (c 29%), indicating the debitage is the product of a blade-orientated industry probably of Mesolithic or early Neolithic date. The flakes and blades frequently display platform-edge abrasion and many appear to have been struck using a soft hammer percussor, such as antler, indicating a considered and careful reduction strategy. The presence of five chips and two pieces of irregular waste provide some indication that flint knapping was being undertaken at this location. A single core, weighing 15g, was present. The core exhibited several small flake removals, but is too small to have produced the typical flake products present in the assemblage.

The retouched artefacts include two Mesolithic microliths and evidence for microlith production is provided by the presence of three micro-burins. The microliths are broken and their forms are unclassifiable, although both appear to be relatively broad backed blades. Other tools include five edge-retouched flakes, three scrapers, two notched flakes and a burin. The burin was struck on angle at the distal end of a small flake and probably dates from the Mesolithic. A minimally retouched and relatively crude leaf-shaped arrowhead, dating from the early Neolithic, was recovered from 2097.

The lithic technology demonstrated by the flake debitage indicates a broad Mesolithic or early Neolithic date for the assemblage. This date range is supported by the presence of diagnostic artefacts of both periods. There are, however, more diagnostic forms of the Mesolithic, with only a single diagnostic early Neolithic arrowhead. The majority of the assemblage may, therefore, date from the Mesolithic. The relatively broad forms of microlith and large size of the flake and blade debitage may further suggest an early Mesolithic date, although this must be considered as speculation.

The condition of the flint was variable with many pieces exhibiting some edge-damage. The flint from contexts 1170, 1171, 1225 and 1260 was in relatively fresh condition. The majority of the assemblage was free surface cortication, but a few pieces exhibited a light white surface cortication.

The Late Iron Age and Roman pottery

by Laura Griffin with C Jane Evans; specialist identification by Kay Hartley (mortaria), Steven Willis (samian) and David Williams (amphora)

Introduction

The evaluation and excavation at Bath Road produced a total of 4,012 sherds of pottery weighing 49,541g, the majority from Roman stratigraphic phases. A total of 3,886 sherds (97% of the assemblage by count) weighing 48,570g (98% of the assemblage by weight) were in Iron Age and Roman fabrics (Table 2). Only these are discussed in detail in the report that follows. One Iron Age fabric, handmade Malvernian ware (Fabric 3), was produced into the Roman period. This could be difficult to date if only base or body sherds were represented. It was not always possible, therefore, to separate Iron Age and Roman assemblages for quantification;

some of the Malvernian ware from Roman contexts is likely to be residual. Diagnostically Roman fabrics make up 78% of the assemblage and in actuality the percentage will be slightly higher than this.

phase	period	qty.	% qty.	wt. (g)	%wt.
phase 1	Early Prehistoric	1	0.0	2	0.0
phase 2	Iron Age	168	4.2	2	7.9
phase 2/3	Iron Age/ Early Roman	136	3.4	1046	2.1
phase 3	Early Roman	1672	41.7	21372	43.1
phase 4	Later Roman	1773	44.2	20247	40.9
phase 5	Medieval	9	0.2	35	0.1
phase 6	Post medieval	99	2.5	902	1.8
phase 7	Modern	100	2.5	1219	2.5
u/s		54	1.3	783	1.6
total		**4012**		**49541**	

Table 2: Summary of all pottery by Phase/Period

The dating of diagnostic sherds indicated that occupation of the site started during the late Iron Age. There was evidence for some 1st century activity, but the main occupation dated to the 2nd century, probably to sometime between c AD 120 and AD 165. There was only slight evidence for activity extending in to the late 3rd to 4th century. The range of fabrics and forms was fairly standard for a Roman rural site in this region. The assemblage was dominated by locally produced coarsewares, though a small proportion of unusual fabrics not currently present within the 'County fabric type series' was also included.

Methodology

The pottery was recorded, and most of the report written by Laura Griffin. The report was completed by C Jane Evans.

All hand retrieved finds were examined and identified, quantified and dated to period. Where possible a terminus post quem was produced for each stratified context, which was used for determining the broad date of structural phases. Records from both stages of fieldwork were entered into a single Microsoft Access 2000 database. Artefacts from environmental samples were examined, but none were worthy of comment and are not included in the overall quantification.

Pottery was examined under x20 magnification and recorded by fabric type and form. All fabrics were referenced to the fabric reference series maintained by Worcestershire Historic Environment and Archaeological Service (Hurst and Rees 1992; http://www.worcestershireceramics.org/). Sherds that could not be identified or were too small to be identified accurately by fabric were grouped within miscellaneous prehistoric or Roman fabric categories 97 or 98. The pottery was classified into form types on the basis of shape, size, rim type and decoration. Where possible forms were

types on the basis of shape, size, rim type and decoration. Where possible forms were categorised and dated using the appropriate published typology for the specific fabric type.

The preservation of sherds was generally good with well-preserved surfaces, even amongst the finer oxidised fabrics that generally display higher levels of abrasion and softening. It was therefore possible to comment on the surface treatment of the majority of sherds. The assemblage also contained a high enough number of diagnostic sherds to enable a measure of 'Estimated Vessel Equivalent' (EVE) using rim measurement.

Where possible, the results from analysis of this assemblage have been compared to assemblages from other local and regional sites in an attempt to identify any common themes.

Selected forms are illustrated in Figs 16 and 19-20, 1-24.

Fabrics

The range of fabric types identified was wide and varied, consisting of the main groups described below and quantified in Table 3.

fabric	fabric common name	qty.	% qty.	wt. (g)	% wt.
1	Sandy briquetage	25	0.6	103	0.2
2	Organic briquetage	4	0.1	62	0.1
3	Malvernian ware	568	14.6	9110	18.8
3.1	Slab built Malvernian ware	26	0.7	647	1.3
4.1	Palaeozoic limestone ware	26	0.7	647	1.3
5.1	Sand tempered ware	20	0.5	94	0.2
5.2	Sandstone tempered ware	23	0.6	202	0.4
?5.1/?5.6	Sand tempered ware	4	0.1	114	0.2
9	Mudstone tempered ware	47	1.2	50	0.1
16.2	Handmade grog tempered ware	4	0.1	114	0.2
12	Severn Valley ware	1667	42.9	21069	43.4
12.1	Reduced Severn Valley ware	126	3.2	1946	4.0
12.2	Oxidised organically tempered Severn Valley ware	401	10.3	5542	11.4
12.3	Reduced organically tempered Severn Valley ware	45	1.2	464	1.0
12.4	Severn Valley ware variant	1	0.0	11	0.0
12.6	Severn Valley ware variant	60	1.5	1259	2.6
13	Sandy oxidised ware	32	0.8	382	0.8
14	Fine sandy grey ware	47	1.2	369	0.8
15	Coarse sandy grey ware	4	0.1	34	0.1
16	Grog tempered ware	3	0.1	24	0.0
19	Wheel thrown Malvernian ware	4	0.1	45	0.1
20	White slipped ware	10	0.3	159	0.3

fabric	fabric common name	qty.	% qty.	wt. (g)	% wt.
21.3	Early micaceous ware	63	1.6	612	1.3
22	Black-burnished ware, type 1 (BB1)	519	13.4	2837	5.8
153	South-west BB1	1	0.0	8	0.0
29	Oxfordshire red/brown colour coated ware	3	0.1	33	0.1
30	Oxfordshire white colour coated ware	7	0.2	41	0.1
31	Brown colour-coated ware	1	0.0	11	0.0
32	Mancetter/Hartshill mortarium	4	0.1	233	0.5
33.1	Oxfordshire white mortaria	6	0.2	104	0.2
37	Severn Valley mortaria	11	0.3	109	0.2
37.2	South-west England	2	0.1	71	0.1
37.3	South-west England mortarium	1	0.0	28	0.1
38	Oxfordshire white ware	5	0.1	30	0.1
40	Oxfordshire parchment ware	11	0.3	24	0.0
41	Unprovenanced white ware	5	0.1	27	0.1
42	Amphorae	9	0.2	233	0.5
42.1	Dressel 20 type amphora	6	0.2	1497	3.1
43	Samian ware	1	0.0	1	0.0
43.1	Samian South Gaulish	1	0.0	7	9.9
43.1a	Samian: South Gaulish La Graufesenque	2	0.1	9	0.0
43.2	Samian: Central Gaulish	1	0.0	1	0.0
43.2a	Samian: Central Gaulish Lezoux	24	0.6	233	0.5
43.2b	Samian: Central Gaulish Les Martres-de-Veyre	3	0.1	13	0.0
?115	?New Forest ware	7	0.2	30	0.1
97	miscellaneous prehistoric wares	5	0.1	32	0.1
97/98/other uncertain	miscellaneous prehistoric/ Roman wares	18	0.5	171	0.4
98	miscellaneous Roman wares	23	0.6	252	0.5
	total Iron Age and Roman	**3886**	**100**	**48570**	**100**

Table 3: Quantification of the Roman pottery by fabric type

Local/Regional wares

A total of 25 fragments of sandy briquetage (fabric 1) were identified within the assemblage, all from contexts with a late Iron Age or early Roman terminus post quem. Vessels of this fabric were produced in Droitwich as containers for the transportation of salt and sherds are commonly identified within assemblages of Iron Age and early Roman date.

Just four sherds of organic briquetage (fabric 2) were retrieved from the site. As with the sandy fabric above, vessels of this type were produce d in Droitwich between the Iron Age and early Roman periods.

Vessels of Malvernian wares (fabric 3, 3.1 and 19) comprised 592 sherds of the handmade fabric (fabrics 3 and 3.1) and just four of the wheelmade (fabric 19). In general, vessels of the handmade fabric date between the late Iron Age and 2nd century AD, whilst those of the wheelmade version were produced later in the period between the 2nd and 3rd centuries. The fragments identified as Fabric 3.1 ‘slab built vessels’ included two rims which are most likely from large storage jars, rather than slab built oven material.

Twenty four sherds of Palaeozoic limestone tempered ware (fabric 4.1) were present within the assemblage, all fragmentary and abraded. Two displayed decoration on the form of burnishing and incised lines (contexts 2083 and 2109). All but one residual sherd came from contexts dating between the late Iron Age and 2nd century AD.

The source of this pottery is still uncertain but has usually been ascribed to the Woolhope area of Herefordshire (Morris 1983, 120). Pottery of this type is found within a 40 mile radius of this part of Herefordshire (Morris 1982, 3.3) and only found in Worcestershire in small amounts, being more common to the west of the Malverns.

A total of 20 sherds of sand-tempered ware (fabric 5.1) were identified, once more within contexts of late Iron Age to early Roman date. Again, the majority of sherds were fragmentary, although five rim sherds were present and could be ascribed to jar forms similar to those identified in Malvernian fabric (1184, 1185, 2023, 2108 and 2182). No production site has yet been located but it is thought that this fabric may have originated from South Worcestershire.

Twenty four sherds of Sandstone tempered ware (fabric 5.2) were present. Once more, diagnostic sherds were from jar forms which could be dated between the late Iron Age and early Roman periods. Again, no production sites have been identified but it is thought that they were located either in Worcestershire or Herefordshire.

A fairly significant assemblage of 47 of sherds of Mudstone tempered ware (fabric 9) was retrieved from the site. Although the majority were highly abraded fragments, two contexts (2000 and 2104) contained a substantial amount of sherds from single vessels. Sherds of this fabric found at Bath Road were all late Iron Age in date and vessels are thought to have been produced in the Martley area of Worcestershire.

Oxidised Severn Valley wares (fabrics 12, 12.2 and 12.6) formed the largest proportion of the local wares totalling 2127 sherds. A significant proportion of these sherds was also diagnostic and could therefore be dated accordingly. Those that were undiagnostic were dated to the general established date range for the production of Severn Valley ware between the mid 1st and 4th centuries.

The range of forms which could be identified was narrow, consisting of commonly identified vessel types. Vessels of this fabric remained the dominant ware throughout the period of occupation. In general, sherds of the organically tempered type (fabric 12.2) were earlier being of 1st-2nd century date and diagnostic forms of this fabric also indicated a higher occurrence of large vessels within the group. Those of variant

fabric 12.6 were generally identified within contexts with a terminus post quem of 2nd-3rd century.

Reduced Severn Valley wares (fabrics 12.1 and 12.3) formed a far smaller proportion of the assemblage than their oxidised counterparts at just 176 sherds. However, the similarity in inclusions between some of the oxidised and reduced fabrics would indicate that a number were produced on the same kiln sites using the same clay source under different firing conditions. Once more, those of the organically tempered variant (fabric 12.3) are thought to be of earlier date.

The range of forms identified was very narrow, consisting of a small number of rusticated jars and tankards.

A total of 11 sherds of Severn Valley mortarium (fabric 37.1) from two separate vessels were retrieved from the site (contexts 1232 and 3052). Those from 1232 were from a hook-rimmed form which could be dated to between the 1st and early 2nd centuries. Sherds of this mortaria type have been found on the kiln site at Newland Hopfields, Great Malvern and are thought to have been kiln products (Evans et al 2000, 43).

Thirty sherds of Sandy oxidised ware (fabric 13) were present, the majority of which were undiagnostic. However, identifiable forms consisted of everted rim jars, tankards and a single bead rimmed beaker.

No production sites for this fabric type have so far been found. However, the range of forms identified includes types with affinities to Gloucester Glevum ware and therefore it is thought that they may originate from Gloucestershire (Rawes 1972; Timby 1991). Sherds of this type generally date between the mid 1st and 2nd century.

A small group of 47 sherds were identified as being of fine sandy greyware (fabric 14). The source of this fabric is not clear and evidence that exists appears to suggest a number of production areas, possibly in Gloucestershire and Warwickshire.

Diagnostic sherds consisted primarily of rusticated and everted rim jar forms, although a single flange-rimmed bowl which appeared to be imitating Black-burnished ware 1 form WA type 22, was also present.

Only 4 sherds of coarse sandy grey ware (fabric 15) were retrieved from the site, none were diagnostic. Vessels of this fabric are commonly found in small amounts on Roman sites in Worcestershire and are likely to have been produced at more than one source with forms and decorative techniques indicating affinities with both Gloucestershire and Warwickshire products (Bryant and Evans 2004, 33). In general, vessels of this fabric date to the 1st and early 2nd centuries.

A total of 7 sherds of Grog-tempered ware (fabric 16) were identified, forming a very low proportion of the total assemblage for a rural site within this region.

At present, a source for this fabric is not known, although it is thought to have been produced within the Worcestershire region. Likewise, a date range for production is unknown, although on present evidence it would appear to date from the late 1st-3rd century (Bryant and Evans 2004, 34).

A small group of ten sherds coming from six different vessels were identified as being of White slipped ware (fabric 20). All diagnostic sherds were from flagon forms and included handle and rim fragments.

The distribution of this fabric is not understood at present. Sherds appear to have affinities with those of both the Severn Valley tradition (Rees 1992, 48) and products from the late Neronian kilns relating to the earliest military occupation of Gloucester (Timby 1991, 246). However, the main period of use in Worcester appears to be from the earlier 2nd to early 3rd century.

A total of 63 sherds of variant micaceous ware (fabric 21.3) were present within the assemblage. This fabric type was first identified on the New Police Station (Griffin 2002) and Magistrate's Court (Jones and Vyce 2000) sites on Castle Street, Worcester. A single waster sherd was also identified within the assemblage from the latter (Jeremy Evans, pers comm.), although a specific source of production has not been ascertained. Identifiable forms from both of these sites were consistently of an early Roman date, with forms of 1st-2nd century predominating. This dating has been further reinforced by forms identified within the assemblages from the Wyre Piddle Bypass excavations (Griffin forthcoming) and from Wellington Quarry, Herefordshire (Griffin 2004).

The range of forms present from the site at Bath Road was standard for this fabric type with rusticated and everted rim jars predominating with beaker and wide-mouthed jar/bowl forms seen in smaller quantity.

Non-local/traded wares

The non-local assemblage was heavily dominated by Dorset Black-burnished ware 1 vessels (fabrics 22 and 153), with 519 sherds in total. A large proportion of sherds displayed sooting and/or evidence of burning attesting to use of the vessels over a fire, presumably for cooking purposes.

The majority of sherds were diagnostic and displayed a range of forms commonly identified on rural sites in this region, ranging from 2nd-3rd century in date. (see table 5 below). Just 12% of sherds were undiagnostic and these were datable from AD 120 onwards, the established date for the first occurrence of this ware in the midlands region.

In addition to the Dorset Black-burnished ware I, a single sherd was identified as being of South West production (fabric 153). Sherds of this fabric type are far less commonly identified within assemblage from Worcestershire and therefore the lid fragment identified within context 2108 was of particular note.

Due to the site being primarily of earlier Roman date, with the latest features appearing to be of 3rd century, only a very small assemblage of 32 sherds of Oxfordshire wares (fabrics 29, 30, 33.1, 38 and 40) were identified within the assemblage. Red/brown colour-coated wares (fabric 29) amounted to three sherds, two from a bowl of type C45 or 46, dating from AD 270 onwards (Young 1977).
In addition, 7 sherds of white colour-coated wares (fabric 30) were identified and consisted of a single fragment of a flagon of type WC1 dating from the 3rd century onwards (ibid) and three from a flanged bowl of unidentified form.

A total of nine sherds were identified as being from mortaria of white-firing fabric (fabric 33.1), all of which were heavily abraded (fabric 33.1). However, three could be identified as coming from a single hook-rimmed form of indeterminate type datable to between the 2nd-4th centuries.

Remaining sherds consisted of two small fragments of whiteware (fabric 38) and 11 thought to be of parchment ware (fabric 40), although the latter are so abraded that any red painted decoration is no longer visible.

Just one small, undiagnostic sherd of Brown colour-coated ware (fabric 31) was identified within the assemblage (3046) and could be dated to the 3rd century based on the terminus post quem of the context from which it came.

This fabric is thought to be South-west colour-coated ware. Small amounts have been identified previously within assemblages from Worcestershire but it is generally found in greater number on sites in Gloucester and Cirencester which has led to the assumption that it is likely to have been produced somewhere in Gloucestershire (Rawes 1982, 44).

Forms generally replicate those seen in Oxfordshire colour-coated ware, the fabric of which is also very similar. On this basis, sherds of this fabric are generally dated to between the late 3rd and late 4th centuries.

A total of four sherds were identified as being of Mancetter-Hartshill mortarium (fabric 32). Two forms were identified, the first being of a hooked rim form which could be dated to between AD 180-250. The second, a more unusual stamped vessel dated to AD 150-160 by Kay Hartley, is illustrated below with Kay Hartley's detailed description.

Two highly abraded sherds of South-west England mortarium (fabric 37.2) were identified from a single vessel resembling an Oxfordshire M2 form (Young 1977) and which could be dated between AD100-170.

Five very small fragments of white ware of uncertain provenance (fabric 41) were retrieved from the site and grouped under this fabric heading.

Seven sherds from two contexts (3046 and 3047) were identified as coming from a single folded beaker of a very fine, high fired fabric provisionally identified as being New Forest ware (fabric 115). The exterior surface was distinctive, having a lighter grey wash or slip.

Sherds of this fabric date between the late 3rd and 4th century and are rare in Worcester with only small quantities found on sites across the City.

Imported wares

Fifteen sherds of amphora fabrics (fabric 42) and forms were present, all from contexts of 2nd-3rd century date. Six, including a handle stump, could be identified as being of Dressel 20 type (fabric 42.1; contexts 1232, 2201 and 3055), the most commonly found amphora type in this region. The remainder were more problematic, and were sent to David Williams for identification. These included a basal spike in a

fine-grained dark buff fabric (1183), which could not be attributed to a specific form or source.

A total of 32 sherds of samian ware (fabric 43.1a, 43.2a, 43.2b) were recovered. These were catalogued with specialist identification by Steve Willis. The majority came from the Central Gaulish production site at Lezoux (fabric 43.2a). Most of these vessels fell within a general date range of c AD 120 to c AD 165, with less closely datable base and body sherds dated more broadly to c AD 120 –200. Three further sherds of Central Gaulish samian, from Les-Martres-de-Veyre, were dated to between c AD 100-130. Only three sherds of diagnostically first century samian were identified, both from La Graufesenque in South Gaul. These were dated to c AD 40-100 and c AD 70-100, but well have remained in use into the early second century. This group is only a small sample, but includes a strong representation of decorated bowls, which may be an indicator of comparatively wealthy consumers (Steve Wills pers comm).

Miscellaneous unidentified sherds of note

Of the miscellaneous Roman wares, a group of 16 sherds of the same distinctive fabric particularly stood out. All were of a fine, highly micaceous fabric with red inclusions and orange-brown in colour. All were identified within contexts of 2nd-3rd century date with a single rim sherd present which is thought to have been from a large bowl imitating a Dragendorff 37 form. No parallel for this fabric type could be identified within the County fabric type series but it does bare a distinct resemblance to that of Brown slipped ware (fabric 31) and it is therefore possible that these sherds are of Gloucestershire origin.

A further sherd of particular note was that of a roughly shaped disc of coarse poorly mixed clay. It is not clear what this object would have been used for but it has been suggested that it may have been the stopper from an amphora.

The Late Iron Age pottery

Iron Age features produced a total of 168 sherds, the majority of which were in handmade Malvernian ware (Fig 16). A high proportion of these (68 sherds, 2206g) came from the lower half of a single, in situ vessel (2060). The absence of a rim meant the form could not be identified, or dated with any precision. Apart from this vessel, most of the phase 2 assemblage came from ditch fills; ditches 2040, 2063, 2171, 2210 from the excavation and particularly ditch 219 from the evaluation (48 sherds, 1299g). The remainder came from pits 2001, 2130, 2149, 2062 and stakeholes 2015, 2017. Other Malvernian forms included a large bowl/jar (Fig 16.1), a globular jar (217) and body sherds from straight sided tubby cooking pots.

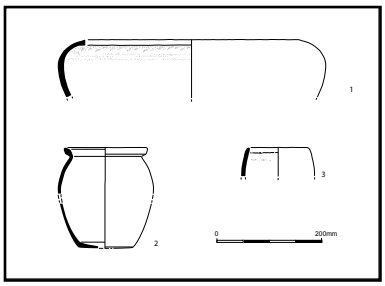


Figure 16: Iron Age pottery

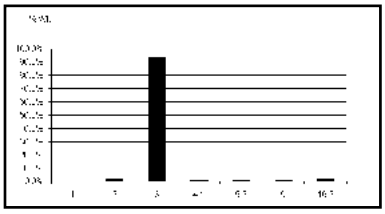


Figure 17: Pottery fabrics from Iron Age contexts by % weight

A range of other Iron Age fabrics was recorded. Mudstone tempered ware Fabric 9 (Morris 1982, Group D) is thought to have been produced from the mid 5th

century BC through to the latest Iron Age (Morris 1983; Tomber 1985, 113-5). Near to its source, thought to be in the Martley area of Worcestershire, it is found throughout this period (Tomber op cit). The Palaeozoic limestone tempered ware (Fabric 4.1) is increasingly common in late Iron Age contexts at Beckford (Evans et al forthcoming), and is considered residual there by phase H, late 1st to early 2nd century. This end date is consistent with evidence from Ariconium in Herefordshire, which indicated that production ceased by cAD 60 (Willis forthcoming). The handmade grog tempered ware (fabric 16.2) is described at Beckford as a 'latecomer to the late Iron Age and early Roman sequence' possibly dating to the latter half of the first century AD, though the absence of Severn Valley ware in any of the phase 2 features suggests an earlier date here; no later than the conquest period. Other fabrics included sandstone tempered ware (fabric 5.2) and briquetage (fabrics 1 and 2).

Small quantities of Iron Age pottery, including some forms, were residual in a number of Roman and later contexts (Table 4).

Phase	type	qty.	% qty.	wt. (g)	% wt.	av. wt. (g)
2	late Iron Age	47	12.3	1247	21.8	27
2	late Iron Age-Roman	120	31.3	2675	46.8	22
2/3	late Iron Age	16	4.2	399	7.0	25
2/3	late Iron Age-Roman	83	21.7	355	6.2	4
3	Iron Age?	1	0.3	27	0.5	27
3	late Iron Age	7	1.8	112	2.0	16
3	late Iron Age-Roman	50	13.1	423	7.4	8
4	late Iron Age	7	1.8	90	1.6	13
4	late Iron Age-Roman	42	11.0	317	5.5	8
6	late Iron Age-Roman	2	0.5	4	0.1	2
7	late Iron Age	3	0.8	9	0.2	3
7	late Iron Age-Roman	4	1.0	28	0.5	7
u/s	late Iron Age-Roman	1	0.3	29	0.5	29
total		**383**		**5715**		**15**

Table 4: Summary of the Iron Age and late Iron Age-Roman pottery by Phase

These included a rather ambiguously dated Malvern jar (Fig 16.2) and a tubby cooking pot form in a local sandy ware (Fig 16.3). Much of the 'Late Iron Age-Roman' pottery from Phases 3 and 4 is in handmade Malvernian ware and may be Roman. Residual material in later phases is more fragmentary.

Catalogue of illustrated Iron Age pottery

Fabric 3 Malvernian ware, handmade

1. Rim and shoulder from a very large bowl/jar. The rim is in-turned, giving the vessel a pronounced shoulder, and sharply flattened. There are wipe marks inside the vessel. It is sooted internally and above the shoulder, most likely as a result of firing. This is a very unusual form. One possible parallel comes from Blackstone, Worcestershire. Diameter 500mm (5%). Phase 2, Iron Age Ditch 3018, context 3021 (Database record no. 1759)

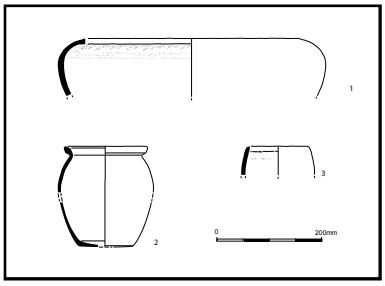


Figure 16: Iron Age pottery

2. Everted rim jar, decorated with crudely executed cross hatch burnish. There is a thick deposit of burnt residue on the neck, externally. This looks like a late Iron Age vessel; similar forms are diagnostic of the late Iron Age assemblage from Beckford, Worcestershire (C Jane Evans pers. comm.). However, it could be a crude copy of a BB1 jar, and is associated with diagnostically roman pottery. Diameter 220mm (36%). Phase 4, primary fill of ditch 3048, context 3047 (Database record no. 1408)

Fabric 5.1 Sand tempered ware, handmade

3. Gently in-turned, plain rim from a jar; very abraded. The vessel is undecorated and is not very diagnostic form. Similar vessels are included in mid and late Iron Age assemblages at Beckford, Worcestershire (C Jane Evans pers. comm.), but the form is produced in Malvernian ware into the first and second century AD (Peacock 1967, fig 8.1, 2). Diameter 120mm (8%). Phase 4, secondary fill of Roman ditch 2110, context 2108 (Database record no.1371)

Late Iron Age-Roman

136 sherds of pottery came from contexts associated with the Iron Age ditch (1194, 1209, and 1217), thought to be a transitional Late Iron Age-Roman feature. This included some diagnostically Iron Age pottery, some sherds of indeterminate Malvernian ware and from upper fills, some sherds in Roman fabrics.

The Roman pottery

Stratigraphic Phases 3 and 4 produced near equal quantities of Roman pottery, with further small quantities residual in post-Roman Phases (Table 5). Surprisingly, the pottery from post- Roman Phases does not seem any more fragmentary than from Roman Phases, based on average sherd weight. The largest concentration of pottery came from ditch 3038, which produced 412 sherds of pottery.

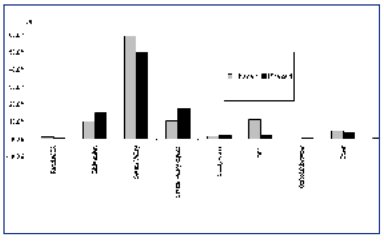


Figure 18: Roman pottery fabrics by phase (% Wt.)

phase	type	qty.	% qty.	wt. (g)	% wt.	av. wt. (g)
2/3	Roman	35	1.0	282	0.7	8
3	Roman	1561	44.5	20148	47.0	13
3/4	Roman	33	0.9	605	1.4	18
4	Roman	1724	49.2	19840	46.3	12
5	Roman	4	0.1	6	0.0	2
6	Roman	44	1.3	512	1.2	12
7	Roman	54	1.5	739	1.7	14
u/s	Roman	49	1.4	728	1.7	15
total		**3504**		**42850**		**12**

Table 5: Summary of the Roman pottery by Phase

Dating of the assemblage

The closest dating evidence for Roman activity came from the samian, which suggests a fairly discrete period of activity on the site. Most dated to within a period c AD 120 to c AD 165, with less diagnostic sherds dated more broadly to c AD 120 –200. Another well-dated vessel is the stamped Mancetter Hartshill mortarium (Fig 21.24), which dates to c AD 150-160 (Hartley below). Only a small quantity of first century samian was recorded, dated to c AD 40-100 and c AD 70-100. This may have remained in use into the early second century and need not therefore reflect first century activity on the site. The paucity of first century samian contrasts with evidence from sites in Worcester city centre, such as Sidbury (Dickinson 1992) and Deansway (Bryant and Evans 2004), as does the absence of diagnostically later Antonine samian (dated AD 170-190). The samian from both of these phases shows similar date ranges.

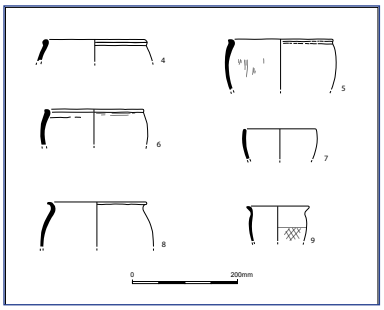


Figure 19: Romano British pottery

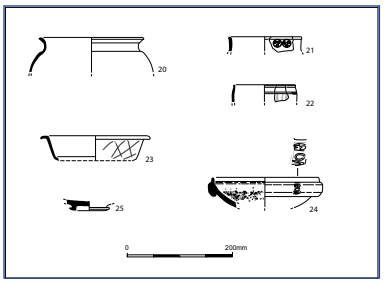


Figure 21: Grey ware BB1 and samian

The pottery from the two main phases was quantified separately, to see if any chronological distinctions were apparent in the coarse ware assemblages (Fig 19). No clear chronological trends are evident in the proportions of fabrics, diagnostically early fabrics; such as the organic tempered Severn Valley wares (Fabrics 20.2, 20.3) are actually more common in Phase 4. Some slight variations can be seen in the occurrence of some forms, discussed below. Very little diagnostically later Roman material was recovered from subsequent stratigraphic phases, most appearing to be residual pottery from these two main stratigraphic phases. For this reason the Roman assemblage is treated as a single group in most of the following discussion.

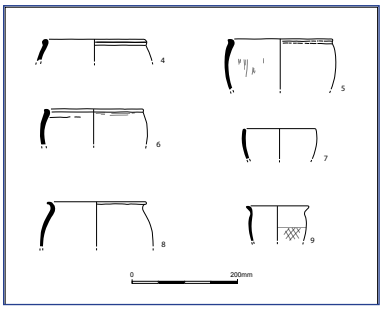


Figure 19: Romano British pottery

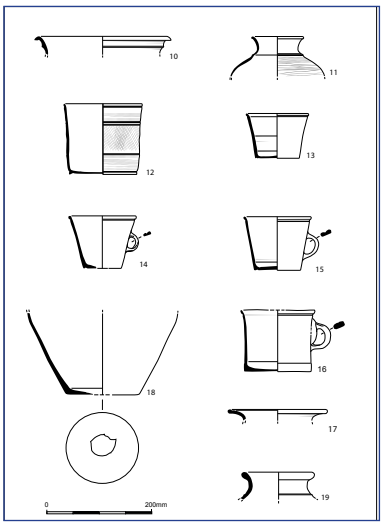


Figure 20: Severn valley ware

The coarse ware forms are consistent with the date range indicated by the samian, though they are not in themselves so closely datable. There were a number of handmade Malvernian tubby cooking pots (Fig 19, 4-7), typical of first and second century assemblages in this region. The Severn Valley ware forms (Fig 20, 10-19) dated broadly to the first to second or second to third, overlapping the main period of occupation indicated by the samian. A number of sherds from upright walled tankards were recorded (Fig 20.12), a first century type. Simple rimmed, wide mouthed jars and small carinated bowls are typically first to early second century types (Webster 1976 fig 4 C19 and 20, fig 9 H59, 60 respectively), perhaps contemporary with the earlier samian, as are the twenty nine rusticated body sherds in reduced Severn Valley ware and micaceous grey ware (Fabrics 12.1 and 21.3, not illustrated but cf Bryant and Evans 2004, 254, fig 158.2). Other forms in the micaceous ware also date to this period. The remaining Severn Valley ware forms date to the second or second to third centuries. In addition to the forms illustrated, these comprised jars (Webster 1976 A3-A6, B16, C22), small bowls (op.cit. D34, 35, 36, I61, J65), tankards (op cit E39, 40, 42). Phase 3 deposits produced only one form dating more specifically to the late second to third century (Webster E43). A wider range of forms providing a mid/late second to third century TPQ came from Phase 4, perhaps hinting at a slightly later date. These included jars with overhanging rims (op. cit C23, 25) and large bowls (op cit F50). The BB1 included a number WA type 1 and 2 jars (not illustrated), dating to the second century (Seager Smith and Davies 1993, fig 122), which were copied in Malvernian ware (Fig 19, 8, 9) and the fine sandy grey ware (Fig 20.20). Other forms included a number of mid to late second century, WA type 22 and 23 flange rimmed bowls and dishes (Fig 20.23; op cit Fig 123), and a typically second century WA type 10 small jar or beaker (op cit fig 123).

Only three Severn Valley ware vessels have later dates. The primary fill of ditch 3048, 3047, produced a third century jar (op cit A8), and the upper fill, 3046, a late third to fourth century bowl (op cit D37). Context 2107, thought to be the overflow from ditch 2110, produced a third to fourth century jar (op cit A9). Interestingly, the seven sherds of possible New Forest ware (Fabric 115) also came from these two contexts. These also date to the late third or fourth century. The only other evidence for later Roman activity comes from three sherds identified as Oxfordshire red colour coated ware. Two of these, very abraded and unstratified body sherds, are thought to be from a Young C45 or C46 bowl (Young 2000, fig 58) which, if the identification is correct, would date to the late third or fourth century. A small body sherd (2g) from pit 2133 dates broadly to c AD 240 or later. No later vessels were evident amongst the BB1. All pattern burnished sherds from BB1 jars are recorded as having acute cross hatch burnish, typical of the second century; none are recorded with right angle burnish,

the appearance of which is dated to the end of the second century at Vindolanda and Exeter (Bidwell 1985, 175; Holbrook and Bidwell 1991, 96). Nor are there any WA type 24 bowls or dishes with flat grooved rims (Seager Smith and Davies 1993, fig 123), found on sites in the south west from the late secondary to the mid-to-late third (Owen 1979, fig 44.21; Holbrook and Bidwell 1991, 98). There are no late third to fourth century types, such as WA types 3, 21 or 25 (Seager Smith and Davies 1993, fig 122-4) or jars with obtuse cross hatch.

Catalogue of illustrated Roman pottery

4. In-turned bead rim from a tubby cooking pot, probably dating to the first or early second century AD (Peacock 1967, fig 1.8). Diameter 200mm (9%). Secondary fill of Roman ditch 2110, context 2108 (Database record 1751)

5. Near-upright, slightly beaded rim from a tubby cooking pot. Decorated with horizontal burnish over the rim and down to the shoulder, and vertical linear burnish below. Burnt residues internally. Peacock dates this type to the second century, but subsequent evidence suggests the form was also in use in the first century AD (Peacock 1967, fig 1.6; Green et al 2001, 105). Diameter 200mm (17%). Primary fill of earlier Roman ditch 3019, context 3024 (Database record no. 355)

6. Similar form with more pronounced bead rim (Peacock 1967, fig 1.9). Diameter 190mm (16%). Fill of recut 3020 within ditch 3010, context 3015 (Database record no. 376)

7. Similar form with a plain rim (Peacock 1967, fig 1.1 and 2). Diameter 140mm (17%). Primary fill of northern extension from triple boundary ditch 2059, context 3058 (Database record no. 680)

8. Rim from a Malvernian copy of a BB1 cook pot, with a near upright neck (Peacock 1967, fig 1.14). Abraded. The BB1 form it is copying, (Saeger Smith and Davies 1993, fig 122, WA type 1) was widely distributed after c AD 120 and dates broadly to the second century. Diameter 190mm (22%). Secondary fill of Roman ditch 2110, context 2108 (Database record 1755 (11%). Fill of industrial ditch 1211, context 1210 (Database record no. 859)

9. Similar, fine walled jar, decorated with acute cross hatch burnish. Diameter 120mm (11%) Fill of industrial ditch 1211, context 1210 (Database record no. 859)

10. Rim from a handled jar/flagon with a collared neck. Similar forms were produced at the Newland Hopfields kiln site (Evans et al 2000, type 1, fig 19), dated to the mid to late second or early third century, and Great Buckmans Farm (Waters 1976), dated to the mid to late second century. The form, however, derives from collared flagons found on first century military sites, so this example could well be earlier. Diameter 260mm (6%). Fill of recut 2197 in ditch 2196, context 2201 (Database record no. 741)

11. Rim from a narrow mouthed jar with a bead rim. Plain burnish on shoulder, below cordon. Webster dates similar jars broadly to the first to fourth century or more precisely to the late first to mid second (1976, fig 1 A1, A2). The latter date is consistent with the other Roman forms recovered. Diameter 100mm (90%).

Primary fill of ditch 3048, context 3047 (Database record no. 719)

12. Complete profile of an upright walled tankard, decorated with grooves and a band of fine lattice burnish. A first century type (Webster 1976, 7 E38). The base has been re-turned, to form a well-defined foot ring, a characteristic of first century tankards (Webster 1993, 291). Diameter 150mm (35%). Primary fill of ditch 2196, context 2200 (Database record no. 370)

13. Complete profile of a plain tankard with moderately splayed walls and a bead rim. The base is crudely retooled forming a ring around the underside edge. A broadly second to third century type (Webster 1976, fig 7 E41). Diameter 120mm (35%). Fill of recut of industrial ditch 1146, context 1147 (Database record no. 368)

14. Joining sherds from a similar plain tankard dating to the second or third century. Base retooled forming a ring around the underside edge. Diameter 13mm (35%). Fill of industrial ditch 3048, context 3047 (Database record no. 769)

15. Complete profile and strap handle from a similar plain tankard. Base retooled forming a ring around the underside edge. Diameter 130 (24%). Tertiary fill of ditch 2177, context 2180 (Database record no. 367)

16. Complete profile of a similar tankard. The vessel is badly misfired, with a warped rim and two areas of bloating, where trapped air has expanded pushing layers of clay apart. The vessel is partially reduced, and has been recorded as fabric 12.1, though this undoubtedly results from misfiring. Diameter uncertain because of distortion. Fill of recut 3020 within ditch 3010, context 3015 (Database record no. 369)

17. Rim from a shallow dish or platter with a flaring rim. A retooled groove defines the bead rim. This is not a common form, but has parallels in the Newland Hopfield kiln assemblage and other Worcester sites (Evans et al 2000, fig 30 DP8). A predominantly second century type. Diameter 190mm (17%).
Upper fill of ditch 1182, context 1180 (Database record no. 1778).

18. Perforated base from a large storage jar, dating broadly to the mid 1st-4th century AD. The function of this perforated jar is uncertain, but it is perhaps relevant that the base is associated with industrial material. Primary fill of ditch 1229, context 1230 (Database record no. 1756) Fabric 12.3 Reduced, organically tempered Severn Valley ware

19. Rounded, thickened rim from a narrow mouthed jar, dating to the late first to mid second century (Webster 1976, fig 1 A2). Diameter 140mm (35%). Upper fill of ditch 1182, context 1180 (Database record no. 1306)

20. Rim of a necked jar copying BB1 form WA type 1 (Saeger Smith and Davies 1993, fig 122). Diameter 200mm (13%). Fill of ditch 1229, recut of linear boundary 3010, context 1230 (Database record no. 243) Fabric 21.3 Early micaceous grey ware

21. Rim from a necked/carinated bowl or jar, decorated below the rim with a repeated stamped motif comprising large circles containing three smaller circles. The fine micaceous fabric and decoration are both typical of London type ware

(Marsh 1978), dating characteristically to the late first or early second century. Diameter 140mm (10%). Fill of pit 2127, context 2128 (Database record no. 900)

22. Rim from a bead rim bowl, decorated with vertical white barbotine lines. The fabric and form are similar to types produced in Gloucester in the late first to early second centuries (Ireland 1983, 100, fig 69.180-2). Diameter 120mm (5%). Fill of pit 2115, context 2114 (Database record no. 1318)
Fabric 22 Black burnished ware, type 1

23. Complete profile from a flange rimmed dish, decorated with intersecting burnished arcs on the side (Saeger Smith and Davies 1993, fig 132 D17) and burnished loops on the base (ibid D21). A mid to late second century type (ibid WA type 22). Diameter 210mm (4%). Fill of ditch 1229, context 1230. (Database record no. 239)
Fabric 32 Mancetter-Hartshill mortarium (described by Kay Hartley)

24. Two joining sherds (205g) from a stamped mortarium rim. The flange has been folded down and back to the body to form a curved wall-side with a high, prominent bead. Hard, cream fabric with self-coloured slip. Inclusions fairly frequent, very ill-sorted, mixed but mostly transparent and pinkish quartz with red-brown, orange-brown and black material and rare quartz sandstone. Trituration grit virtually all, hard, angular red-brown material, perhaps re-fired pottery. The vessel is heavily worn, with a patch of burning on the upper part and another on the inside surface. The fabric and trituration grit point to manufacture in the Hartshill-Mancetter potteries, and the form to a date more likely to be after AD 150 than earlier. The potter's stamp is partially impressed down the rim and its position suggests that it is probably the right-facing stamp (when viewed in relation to the spout looking from the outside of the mortarium). The letter O and part of the border are clearly impressed with parts of the preceding and succeeding letters, both of the M, N or A types. While the stamp cannot be attributed with complete certainty, there is virtually no doubt that it is from one of the seven dies used by Minomelus, which gives stamps reading MINOM when complete. The number of his mortaria in Antonine Scotland compared with those on Hadrian's Wall, and on Pennine sites believed to have been abandoned when the Antonine Wall was built (Hartley 1972), point to primary activity within the period AD 140-160. It is believed that Bearsden was occupied for only a few years during the 150s. Minomelus' rim-profiles and trituration grit fit generally with a date of AD 140-160, perhaps marginally earlier. If this identification is correct, this mortarium is of particular interest. It would be the first of the many mortaria recorded for this potter which has the wall-sided form, more common in the work of Maurius and Iunius 2 whose date is somewhat later, mainly AD 150-170. The wall-sided form was also used for a few of Sarrius' mortaria, notably in his subsidiary workshop at Bearsden (Hartley in prep). It, therefore, seems likely that this mortarium was among the latest ones made by Minomelus, unlikely to be earlier than AD 145 and more likely to belong to the period AD 150-160. The extent of wear on this vessel points to it having been in use for some time since the hard fabric produced in the Mancetter-Hartshill potteries is very robust. Diameter 220mm (25%). Fill of recut ditch 1229, context 1230. (Database record no. 235)

25. Base from a DR 37 bowl dating to c AD 120-200. The sherd is deliberately rounded and the pad-like, footring base is heavily worn indicating subsequent reuse.

Primary and only fill of recut 2183 within ditch 2177, context 2184. (Database record no. 1560)

Forms

Functional composition of the assemblage

The rim sherds present within the assemblage amounted to a Rim Equivalent (RE) total of 32.13. Nine main categories were identified and classified according to the accepted definitions (Millet 1980; Evans 1993). These were beaker, cup, bowl, dish, flagon, jar/bowl, jar, lid and tankard. The jar/bowl category consists of a discrete group of wide-mouthed vessels as categorised within the Severn Valley ware typology published by Webster (1976, 28).

Range of forms

The relative proportions of vessels of each form as established by EVE rim equivalent (RE) can be seen in Table 6 below. From these figures, it can be clearly seen that the jar (including jar/bowl) was the dominant vessel type present, accounting for 54.5% of diagnostic forms identified. This figure, along with the relatively small proportion of bowl and dishes at just 12.59%, is consistent with that frequently noted within assemblages from rural sites where jars commonly constitute over 50% and bowls under 30% of forms identified (Jeremy Evans pers comm.). This high frequency of jar forms can be attributed to the versatile nature of the form serving a variety of functions including the storage, cooking and serving of foodstuffs.

form	RE total	% of group
beaker	1.22	3.8
bowl	4.01	12.5
dish	0.03	0.09
flagon	0.67	2.0
jar/bowl	1.91	5.9
jar	15.6	48.6
lid	0.10	0.3
tankard	8.59	26.7
	32.13	**100**

Table 6: Relative proportions of vessel types within the assemblage by Rim Equivalent EVE

Drinking vessels constituted 30.5% of EVE's by RE. This figure includes tankards, by far the most common type, and beakers, but does not include the samian cups, which were represented only by body and base sherds. This figure is high for established patterns of rural assemblages, the presence of an unusually large proportion of tankard forms having significantly increased the total. Tankards are a regional anomaly, their production being confined largely to the Severn Valley area (Evans 2001, 30). As illustrated in the case of this site, the occurrence of this vessel type in rural assemblages from this region can raise the drinking vessel proportion of an assemblage to the point where it no longer fits into established functionality patterns.

Vessel form in relation to fabric

Analysis of diagnostic sherds within the assemblage revealed only a narrow range of forms, even in locally produced fabrics. A table displaying the relationship between fabric and form by EVE RE measurement can be seen in Table 6. Forms of Severn Valley ware, Malvernian ware and Black burnished ware I, the most commonly identified fabric types are discussed in more detail below.

***Se**vern Valley ware*

Vessel forms within these locally produced fabrics were identified according to the main groups identified by Webster (1976). The variety of forms recorded was relatively wide with a variety of common and more specialised form types identified (Table 7).

form	12	12.1	12.2	12.3	12.6
bowl	10		7		
flange-rimmed bowl	5				
dish/platter	1				
bead rimmed jar	2		2		
storage jar	30	2	9	4	1
rusticated jar		7		1	
wide-mouthed jar	14	1	6		1
wide-mouthed jar/ bowl	2				
tankard	48	6	8		
colander	1				
handled jar/flagon	3				
carinated cup	4		1		
beaker	1				

Table 7: Quantification of Severn Valley ware forms by fabric (minimum no. of vessels)

Forms comprised mainly narrow-mouthed jars, wide-mouthed jars, tankards and flanged bowls, with more specialised forms including carinated cups, colander and handled jar/flagon forms (see table 8 below). Jars were the most common form type amongst the Severn Valley ware fabrics with narrow-necked types numbering over double those of the wide-mouthed variety. In contrast to the more versatile jar forms only 17 bowls could be identified, possibly as a result of wide-mouthed jars being able to serve the same function adequately as illustrated by the wide-mouthed jar/bowl category.

Tankards of Severn Valley ware were the main specialised drinking vessel form retrieved from the site, with five carinated cups and one beaker in the form of a miniature jar being the only additional specific drinking forms, although other vessels may have doubled up to serve this function also. Other specialised forms amongst the Severn Valley wares, consisted of a single colander and three handled jar/flagons.

fabric	form	type no.
12	narrow mouthed jar	Webster 1976, nos.1, 2, 3, 4, 5, 6, and 8
12	bead or everted rim jar/beaker	Webster 1976, no.15
12	wide-mouthed jar/bowl	Webster 1976, nos.19 and 20
12	wide mouthed jar	Webster 1976, nos.22, 23 and 25
12	straight necked jar	Deansway 249, fig 155 no7
12	bowl/wide mouthed jar with beaded oe reverted rim	Webster 1976, nos.34 and 36
12	bowl	Webster 1976, nos.50, 61, 65 and 73. Newland Hopfields, types BT13 and BT54
12	tankard	Webster 1976, nos.38, 39, 40, 41, 42 and 43
12	shallow dish or platter with flaring rim	Newland Hopfields DP8
12	colander	Webster 1976, no.58
12	carinated cup	Webster 1976, nos.59 and 60
12	beaker	Deansway 252, fig.157, no.6
12	handled jar/flagon	Newland Hopfields, F8. Dressel 28 imitation
12	open mouthed flagon or handled jat	Newland Hopfields, Type 2, F11
12.1	narrow mouthed jar	Webster 1976, nos.1 and 4
12.1	rusticated jar	Deansway 254, fig.158, no.2
12.1	wide-mouthed jar/bowl	Webster 1976, no.19
12.1	tankard	Webster 1976, no.38, 40, 41 and 43
12.1	lid	Similar to Webster 1976, no.78
12.2	narrow mouthed jar	Webster 1976, nos.2, 3, 4, 5, 6
12.2	bead rim jar	Webster 1976, no.16
12.2	bowl	Webster 1976, nos.34, 35, 36 and 37
12.2	wide-mouthed jar/bowl	Webster 1976, nos.19, 20 and 21
12.2	tankard	Webster 1976, nos.38, 39, 40 and 43
12.2	diah/platter	Webster 1976, no.74
12.3	narrow mouthed jar	Similar to Webster 1976, no.2
12.3	rusticated jar	Deansway 254, fig.158, no.2
12.6	narrow mouthed jar	Webster 1976, no.5
12.6	wide-mouthed jar	Webster 1976, no.23
12	narrow mouthed jar	Webster 1976, nos.1, 2, 3, 4, 5, 6, and 8
12	bead or everted rim jar/beaker	Webster 1976, no.15
12	wide-mouthed jar/bowl	Webster 1976, nos.19 and 20
12	wide-mouthed jar	Webster 1976, nos.22, 23 and 25
12	straight necked jar	Deansway 249, fig.155 no7
12	bowl/wide-mouthed jar/bowl with beaded or everted rim	Webster 1976, nos.34 and 36
12	bowl	types BT13 and BT54Webster 1976, nos.50, 61, 65 and 73. Newland Hopfields,
12	tankard	Webster 1976, nos.38, 39, 40, 41, 42 and 43
12	shallow dish or platter with flaring rim	Newland Hopfields DP8

Table 8: Range of forms present amongst the Severn Valley wares (fabrics 12, 12.1, 12.2, 12.3 and 12.6)

Malvernian wares (fabrics 3, 3.1, 3.2 and 19)

Vessel forms within the Malvernian wares were classified according to the classes defined by Peacock (1967). The range of forms identified was narrow but comprised a standard range of types commonly seen on rural sites of this nature.

form	3	3.1	19
beaker	1		
bowl	7		1
everted rim jar	5	1	1
tubby cooking pot	24		
globular jar	7		
lid	1		

Table 9: Quantification of Malvernian ware forms by fabric (minimum no. of vessels)

The most commonly identified form type amongst the sherds of handmade fabric was the tubby cooking pot. Other handmade vessel types included globular jars, and inturned beaded rim jar lids and a number of forms imitating those commonly seen in Black-burnished ware I such as everted rim jars, flange rimmed bowls and flanged and a single carinated bowl.

In addition, a single lid of handmade fabric was identified. Lids were probably intended for use with other Malvernian vessel forms, however, it is likely that where they fitted, they were also used with cooking vessels of other fabrics such as Black-burnished ware.

There were two identifiable forms within the wheelmade fabric, consisting of an everted rim jar which once again appears to have been a Black-burnished ware I imitation and a bowl (see table 10 below).

fabric	form	type no.
3	globular jar	Peacock 1968, nos. 10 and 11
3	tubby cooking pot	Peacock 1968, nos. 1, 2, 5 and 8
3	inturned beaded rim jar	Peacock 1967, no. 11
3	everted rim jar	Peacock 1968, no. 89
3	lid	Peacock 1968, no.18
3	everted rim jar	Imitation BB1, WA type 2
3	everted rim beaker	Imitation BB1, WA type 10
3	bowl	Imitating BB1, WA type 20
3	flange-rimmed bowl	Imitation BB1, WA type 22
3	carinated bowl	Imitation BB1, WA type 23
19	jar	Imitation BB1, WA type 2
19	bowl	Peacock 1968, no.17v

Table 10: Range of forms present amongst the Malvernian wares (fabrics 3 and 19)

Black-burnished ware I (fabrics 22 and 153)

Black-burnished ware vessel forms were classified according to the main groups within the Wessex Archaeology (WA) form series (Seager Smith and Davies 1993). Only a narrow range of forms was present, the majority being of jar and bowl types commonly identified on sites across the West Midlands region.

form	22	153
groove rimmed bowl	1	
flange rimmed bowl	6	
flange rimmed bowl with chamfered base	4	
everted rim jar	25	
miniature jar/beaker	2	
high shouldered jar	2	
pulled rim jar	1	
lid		1

Table 11: Quantification of Black burnished ware I forms by fabric (minimum no. of vessels)

The most common form type was the everted rim jar, all of earlier typology (WA types 1 and 2) with none typical of the later period present (WA type 3). Likewise, only earlier bowl forms were present with none of the later drop-flanged rim type identified (WA type 25). The absence of both of these later forms within the assemblage would support an end date of the earlier 3rd century for settlement on the site.

Slightly more unusual forms within the group consisted of three miniature jar/beakers (WA type 10), one pulled rim jar (WA type 9) and two high-shouldered jars (WA type 60). The occurrence of beaker forms is relatively uncommon in this region due to the heavy presence of the tankard form serving the same function. The high-shouldered jar form (WA type 60) was of particular interest being of a form not usually identified within assemblages from Worcestershire.

fabric	form	type no.
22	everted rim jar	WA type 1
22	everted rim jar	WA type 2
22	pulled rim jar	WA type 9
22	beaker	WA type 10
22	flange rimmed bowl	WA type 22
22	flange rimmed bowl with chamfered base	WA type 23
22	groove rimmed bowl	WA type 20
22	high shouldered jar	WA type 60

Table 12: Range of forms present in Black-burnished ware I (fabric 22)

Samian (Fabrics 43.1a, 43.2a and 43.2b)

The three 1st century vessels, in South Gaulish samian. (43.1/1a), and early 2nd century vessels, from Les-Martres-de-Veyre (43.2b) provided a similar range of

forms: a platter or dish, a decorated bowl and a cup. A slightly wider range of types was represented in the larger Lezoux assemblage (43.2a), dated broadly to c AD 120 to 165/200, though the overall repertoire remained the same. The emphasis was on bowls, particularly decorated bowls. Dragendorff 18/31 and 18/31-31 dishes and Dragendorff 33 cups were represented in roughly equal numbers.

form	type no.	43.1/1a	43.2a	43.2b
platter	Drag 18	1		
dish	Drag 18/31		3	1
dish	Drag 18/31-31		1	
decorated hemispherical bowl	Drag 37	1	4	1
decorated bowl	Drag 30 or 37		2	
hemispherical, flanged bowl	Drag 38		1	
campanulate cup	Drag 27	1		
conical cup	Drag 33		3	1

Table 13: Quantification of samian forms by fabric and range of forms (minimum no, of vessels)

Pottery supply and use at Bath Road, Worcester

The assemblage adds to the growing body of published, quantified data from rural sites in the county, which can contribute to future syntheses. The Bath Road site is located on the edge of modern Worcester, but in Roman times would have been a rural site in the hinterland of the Roman small town. In contrast to sites excavated in the centre of Worcester, often affected by issues of residuality, this assemblage appears to reflect a fairly discrete period of occupation. There was a small late Iron Age assemblage and some typically first century Roman pottery. The main focus of occupation, however, was probably the period c AD 120-160. Very little material of 3rd century date or later was identified, indicating a steep decline in occupation around this date. The assemblage therefore provides a snap shot of pottery use on a 2nd century rural site.

As has been described above, the range of fabrics and forms is in most ways typical of rural sites in the region. There is an emphasis on relatively locally produced fabrics, and on utilitarian forms, in particular jars and tankards. A report on the Linacres Farm rural assemblage provides some useful comparative data for rural and urban Roman assemblages in Worcestershire (Dalwood et al 1998, table 5). The report tabulates data from three other 2nd to 3rd century rural sites (Strensham, Norton and Hawford), a late 3rd to 4th century rural site (Linacres Farm) and three long lived Worcester sites (Deansway, Sidbury and Farrier Street). The proportion of Severn Valley ware from Bath Road (62%) is most comparable to the assemblages from Linacres Farm, near Worcester, Deansway and Sidbury. No other clear patterns emerge.

The site is broadly contemporary with the Newland Hopfields Severn Valley ware kiln site in Great Malvern (Evans et al 2000). This may well be the source of some of the pottery found here as a number of forms can be paralleled there. There are differences between the production site assemblage and the assemblage deposited

at Bath Road, which may reflect biases in the function of this site, or differential breakage of the vessels used. They are worth noting for future comparative studies. Jar were the most common vessel class produced at Newland Hopfields and found at Bath Road (Fig 22), The emphasis there, however, was very much on wide mouthed jars rather than the narrow mouthed storage jars that dominate this assemblage (op. cit fig 11).

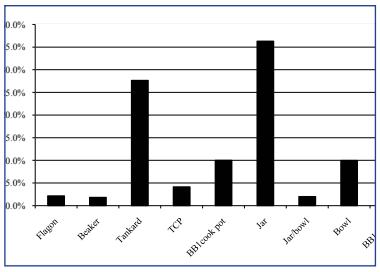


Figure 22: Vessel classes (% rim EVE)

Tankards are the second most common vessel class found in this assemblage. The evidence from Newland Hopfields suggests that tankards were produced in similar quantities to bowls, which are far less common here. The most common bowls produced at Newland Hopfields, by far, were the medium to large flanged bowls (op cit 35-9, fig 12g Type 2 and Type 3), thought to have been intended for food preparation. In this assemblage small to medium bowls with everted rims (op cit Type 4; Webster 1976 D34-7) were more common.

Although local fabrics are most common, the site clearly had access to pottery from a range of sources. As at Worcester Deansway (Bryant and Evans 2004, 265) and Sidbury (Darlington and Evans 1992 table 1), Dorset Black burnished ware (BB1) is the most common traded ware and the only traded ware to represent more than 1% of the assemblage. It is difficult to directly compare the proportions here with the proportions in contemporary groups from Worcester sites. The latter generally contain quantities of residual pottery that affect the overall proportions. At Deansway BB1 represents 3.5% by count of the Period 4 assemblage (dated broadly to c AD 120-240). At Sidbury the occurrence of BB1 increases markedly from Phase 4 (op. cit, fig 9) and Phase 5.1 (op cit fig 10), Phase 3 having a TPQ of c AD 140-170 and Phase 5.1 dated to the early to mid third century. The proportions in the latter are more similar to this assemblage. Evidence from other rural sites within the county shows that proportions of BB1 vary greatly, ranging from just 5.8% at Throckmorton (Griffin forthcoming a) to 17% at Hoarstone Farm, Kidderminster (Hurst 1994). This probably reflects a variety of influences; access to transportation routes, site status, identity and exchange relationships (Willis 2000, 86; Allen and Fulford 1996; Fulford and Allen 1992). Jars, probably used for cooking, were the most common BB1 form found at Bath Road.

Other traded ware comprised mortaria from Mancetter Hartshill and Oxfordshire, and small quantities of table ware, also mainly from Oxfordshire. Imported Samian represents less than 2% of the site assemblage by weight, which is consistent with the evidence from other rural sites (Willis 2005). However, Willis (pers. comm.) noted a strong representation of decorated bowls within this assemblage, which he suggests might indicate comparatively wealthy consumers on the site. The proportion of amphorae, based on sherd count, is also consistent with the expected pattern for a basic rural site (Evans 2001).

Ceramic building material
by Laura Griffin

The evaluation and excavation produced a total of 465 pieces of brick and tile, with a total weight of 13.389kg (Table 14). This table illustrates some of the difficulties of identifying brick and tile. Although the pottery and other finds indicate that Roman contexts dominated the site, substantial amounts of ceramic building material could not be conclusively sorted as brick or tile, or by period.

material	type	total	weight (g)
brick	Roman	7	1896
brick/tile	Roman	8	412
brick/tile	undiagnostic	294	2330
tile	medieval	2	18
tile	post-med/modern	1	8
tile	Roman	56	5495
tile	undiagnostic	97	3230
	totals	**465**	**13389**

Table 14: Summary of the brick and tile assemblage

Fabrics

The various brick and tile fabric types are quantified by phase in Table 14. It can be seen that the Roman oxidised, orange-brown Fabrics 2a and 2b (as described in the Deansway series) dominated the assemblage. However, the division between 2a and 2b fabrics was somewhat arbitrary, since this was based on the observation of coarser sub-rounded inclusions (mainly quartz) in the latter, rather than fundamental differences in clay composition.

Most of the 2a and 2b fabrics also contained sparse inclusions of mica, iron-rich, and white non-calcareous material. Their clay microstructures were therefore similar to that of locally-made Severn Valley Ware pottery, but, presumably as a consequence of using higher firing temperatures, the tile and brick fabrics were generally harder (and would therefore have been better suited to exposure to the elements). However, it was noted that the 2a and 2b fabrics were also very similar to those of brick and tile produced locally during medieval or post-medieval periods. Therefore, unless accompanied by form or decorative evidence, these fabrics are not necessarily useful as an independent means of dating.

The Roman fabric 2c, which included off-white clay pellets and streaks, was present in lesser amounts in all the major phases. However, this fabric appeared to be the result of different tempering additions, in a clay matrix common to the 2a and 2b fabrics, rather than the product of an alternative source of clay. Roman fabrics 2d, f, g and j, reported at Deansway (2004) were not observed in the present assemblage, with the absence of any shelly limestone being noted particularly.

A number of minor fabrics were assigned to the 10 (miscellaneous) type, which constituted approximately 7% (by weight) of the total ceramic building material.

Included in context 2090 were two small tile fragments, with Malvernian fabrics and traces of glaze (this context also yielded Roman and post-medieval finds). A further three small, very abraded fragments, which had a fabric similar to this (with a high density of sub-rounded quartz, but no glaze), were found in 2102, which also yielded Roman and post-medieval finds. Apart from a single thin tile fragment that had a very hard, dark red fabric, and was found in 104, the remainder of the miscellaneous fabrics appeared to be based on the Roman type 2, with variations in either quartz inclusions or matrix colour (ranging from light browns to dark greys).

Forms

The main diagnostic Roman tile forms were provided by (a), tegula fragments, where these incorporated flanges or cutaways, and (b), curved imbrex fragments, as shown in Fig 23. Although some 60% of the brick and tile assemblage was undiagnostic in terms of form, the pottery and other finds indicated that most of this building material was Roman in origin.

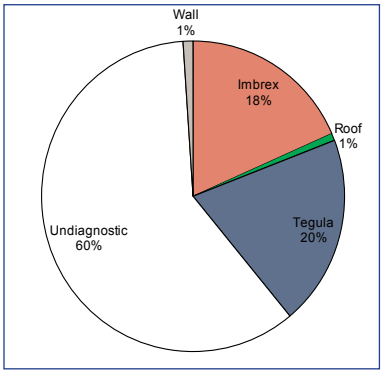


Figure 23: Summary of tile material by form

Tegula roof-tile fragments were identified by their flanges and angled lower cutaways, the latter features being incorporated into the tegula design as a means of achieving meshing between overlapping tiles. However, many pieces of tegula may have also survived as flat, undiagnostic fragments, but with sandy oxidised fabrics that were impossible to distinguish from those of medieval or post-medieval roof tiles.

All of the five tegula fragments that survived with parts of flanges attached (from 2203, 3015, 3046, 3047 and 3055) had the 2a fabric. Only three of these were sufficiently intact for the thickness of the flat sections to be measured (the average being approximately 20mm). The surviving flange depths of two of these, and one other whose flat thickness could not be determined) averaged 52mm. Two examples of lower cutaways were observed, on tegula fragments from 3046 and 3055, and both had an angled Type 6B cutaway, the most common form in the West Midlands (Warry 2006). In addition, these had single finger grooves adjacent to the internal/ lower flange angle. The more intact flange cross-sections appeared to be based on rectangular forms, but with the inner/upper corners smoothly rounded off (3046, 3047) or chamfered (3015).

One possible tegula fragment exhibited signs of deliberate marking. This took the form of a signature mark consisting of a curved sweep made by two adjacent fingers on the top surface of a 20mm thick tile from 2108.Unfortunately, the tile was too fragmentary to reveal whether this mark would have taken the form of a more complex pattern when complete.

Imbrices, which capped tegula flange joints, were identified by their curved shapes, but flat fragments of Roman wall tiles, if present without combed or scored surfaces, were very difficult to distinguish from thinner tegulae. There was only one instance, from 1160, of a flat tile bearing possible lattice scoring as a key for wall plaster, as might be found on tubulus box-tiles. Fabrics 2a, b and c were all evident among the imbrex fragments.

Seven Roman brick fragments were identified primarily by their thicknesses, which ranged from 36 to 61mm. The smallest of these, 36mm thick (from 2200) was identified as from a brick rather than a tegula by its surviving plain corner. It is noted that, in the absence of corners, thicknesses below this range do not in themselves provide a means of detailed identification of Roman brick forms. The lower end of the thickness range for Roman bricks (25mm) overlaps the range of tegula thicknesses (not usually more than 35mm), which in turn, at their lower range (approximately 20mm) overlap the wall tile thicknesses.

Finds associated with industrial and other high temperature activities

by C Jane Evans and D Williams,
with specialist analysis of slag forms from David Starley

The excavation produced quantities of iron slag, hammerscale, fuel ash slag, fired clay, coal and fire-cracked stone. Much of this waste material came from a concentration of features associated with industrial activity in the south and centre parts of the site. The fired clay was very fragmentary and not, in itself, diagnostic in terms of possible structures, e.g. ovens, kilns, hearths or furnaces. However, out of a total of 187 fired clay fragments, seven had small pieces of low-density slag adhering, which suggested they came from Roman iron smithing hearths.

Iron Age features produced small quantities of fuel ash slag (143g). Of this, all but a tiny fragment came from ditch 2063, and was associated with a small quantity of fired clay. The fuel ash slag was possibly a by-product of domestic activity, since it may have been produced by one of a range of high temperature processes, including the overheating of oven walls. Therefore, fuel ash slag could explain the presence of fired clay in Iron Age features. There was no evidence for metal working in Iron Age features, while the distribution of fuel ash slag by phase shows no correlation with the main phase of industrial activity on the site.

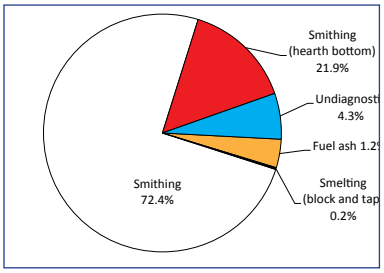


Figure 24: Slag types, by weight %

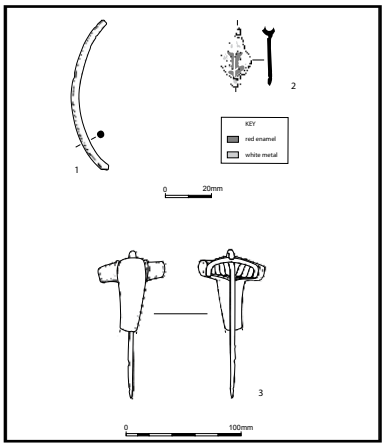
The main evidence for industrial activity came from Roman features. This points to smithing rather than smelting of iron on the site. Seven features produced hammerscale, indicative of smithing in the immediate vicinity. There was no clear correlation between the quantities of hammerscale and slag recovered from the various features. High quantities of hammerscale were noted in soil samples from the central feature in the industrial area of the site, ditch 1105 (primary fill 1104). This was associated with the highest quantity of slag recorded from a single feature (6902g), which included four smithing hearth bottoms. Hammerscale was particularly abundant in samples from nearby pit 1140 (fill 1139), a feature that produced only

small quantities of slag (617g). Coal was recorded from a number of features (ditch 310, pit 1083, ditch 1146, ditch 1211, ditch 1229, pit 1246, pit 1259, drain 2053, pits 2133, 2136, 2143, and ditches 2177, 2191, 2196, 2197). It was usually associated with slag, but only occasionally with hammerscale (pit 1101 and ditch 1115). Coal was also noted, attached to fragments of slag, as discussed below. In contrast, only 4g of charcoal was recorded, from ditch 2197 (fill 2201). This supports the evidence for smithing on the site; either coal or charcoal may have been used for reheating blooms during smithing, but only charcoal would have been used for smelting (David Starley pers comm).

The most extensive evidence for smithing came from the slag itself, 87% of which was recovered from Roman features. This slag generally comprised discrete, low-density fragments typical of smithing waste. In addition to ditch 1105 mentioned above, a number of other contexts produced pieces of hearth base slag. These included ditch 310 (fills 308 and 309), pit 1140 (fill 1139), ditches 3048 (fill 3047), 1124 (fill 1125), 1146 (fill1147) and 1229 (fill 1230). A number of fragments of slag from these contexts were noted as having coal attached. Only two contexts yielded the high density slag expected from smelting. Ditch 2196 (fill 2203) contained a small fragment of tap slag with pre-solidification flow lines clearly visible, and ditch 2197 (fill 2201) a dense block of slag that had probably solidified within the smelting furnace.

Iron and Copper alloy objects

by C Jane Evans with specialist comment from K. Abbott



A small assemblage of metal artefacts was recovered from Roman contexts (Table 15). Where these were closely datable, the dates were consistent with the pottery evidence. The assemblage included two brooches, described in detail below,
(Fig 25, 3) and the pin from a third brooch. Brooches are common finds on other sites in Worcester, for example at Deansway (Crummy 2004, 409) and Sidbury (Mackreth 1992). Of particular interest is a small decorative pendant, probably from a belt (Fig 25, 2), which may have military associations (Lloyd Morgan 2000, 379).
The bracelet fragment (Fig 25, 1) was not datable, but came from the same Roman ditch as the bracelet.

The iron finds associated with Roman activity, all badly corroded, mainly comprised incomplete nails, which came from pits (1097,1140 and 1246) and ditch 2110. Ditch 2110 also produced a possible chisel. Five other fragments were x-rayed, but could not be conclusively identified. Pit 2133 produced two probable nail fragments and two unidentifiable lumps, and ditch 2137 a fragment of plate.

phase	material type	description	qty.
3	cu alloy	brooch	1
3	cu alloy	brooch pin	1
3	iron	hobnails?	3
3	iron	nail	6
3	iron	object	1
4	cu alloy	bracelet	1
4	cu alloy	brooch	1
4	iron	chisel?	1
4	iron	fragment	1
4	iron	nail	1
topsoil	cu alloy	pendant	1

Table 15: Summary of metal artefacts from Roman contexts and topsoil

Catalogue of iron and copper alloy objects

1. Brooch in leaded bronze. This falls within the family of Colchester derivatives typically associated with western England (cf Mackreth 2000, 148, fig 4.32.3). The spring is attached in the Polden Hill manner; an iron axis bar is mounted in pierced plates at the ends of the wings, and the chord secured by a rearward, hooked claw. The wings are moulded at the ends, their junction with the bow being masked by a curved moulding rising from the wings. The head of the bow is a heavy, rounded 'Dolphin type', with no other decoration. The bow is broken approximately half way down, so no evidence survives of the catch plate. This makes precise dating difficult as Mackreth identifies the earliest examples to be those with pierced catchplates (op cit).
   The broad type dates from c AD 75/85 to 175 (op. cit), though the Polden Hill spring attachment is most commonly associated with brooches from deposits dated c AD 80-120 (Bayley and Butcher 2004, 160). The use of leaded bronze is typical for Polden Hill style brooches (op cit 159). Length extant 64mm, width at wings 29mm. SF 36. Ditch 3048, primary fill 3047 Conservation No. C200858

2. Brooch in copper alloy. A variant of a Polden Hill Colchester Derivative with a separate, sprung pin, fixed by an axial bar within a semi-cylindrical cross bar. The chord is internal, within the cross bar, and is not visible. The narrow, gently curving bow has fine relief decoration. The attachment of the bow is unusual; appearing quite separate from the cross bar, resting against it as if soldered on. The type dates broadly to the mid first to second century. Length 52.2mm, width at wings 17.7mm. SF 32. Ditch 1211, fill 1210 Conservation No. C200853

3. Spear/leaf shaped pendant in copper alloy. Similar pendants were used to ornament belts and horse harnesses and as apron mounts (Lloyd Morgan 2000, 168; Allason-Jones and Miket 1984, 3.661); the small size of this object makes the former more likely. At the head are two pointed prongs, presumed to have originally joined to form a suspension loop at right angles to the plane of the pendant. The pendant is decorated with two zones of red enamel, divided by a central raised line.

Both areas of enamel have a series of pits, perhaps where further inlay has been lost. Conservation indicated that in some areas at least the surface was originally decorated with white metal. Similar pendants, though with the suspension loop at the other end, are illustrated from Caerleon (Lloyd Morgan 2000, fig 92.168; Zienkiewicz 1986, fig 58.56), dated to c AD 160-230, which is broadly consistent with the pottery dating for this site. Length 26.3mm, maximum width 13.2mm, thickness 2mm. Evaluation Trench 9, Topsoil 901. Conservation no C200852

4. Fragment of a bracelet (roughly 25%) missing both terminals; ?leaded bronze. Round section, undecorated. Internal diameter 90mm, thickness 3.7mm. Not closely datable. SF 37. Ditch 3048, primary fill 3047 Conservation No. C200859

5. Splayed blade and rectangular sectioned tang from a ?chisel. Dimensions (based on the x-ray): Length 30.7mm, width at tip 11.6mm, tang c 4.3mm by 4.3mm

6. Brooch pin in copper alloy. Length 39.5mm, thickness 2.3mm. SF 23. Ditch 2159, fill 2160 Conservation No. C200857 (not illustrated)

The remaining finds, from post Roman contexts, consisted predominantly of fragments of modern iron nails, copper alloy buttons, a few strap or belt buckles and unidentifiable objects. Some lead waste was recovered, and a single example of pistol shot, again of modern date.

Stone

by Fiona Roe

Two fragments of a rotary quern were recovered from context 2160, fill of a small east-west running ditch (2159), to the west of the site. No datable artefacts are associated with the quern, but the ditch is dated to the Roman period on stratigraphic evidence.

The two quern fragments, not joining but likely to be from the same lower stone of a rotary quern, are of Roman disc type. The grinding surface is convex and has been worn smooth with faint traces of rings but retains traces of pecking to prepare the surface for grinding. The quern was fully pierced by a central hole to take the spindle. The underside has been roughly chipped into shape and the fragments are partly burnt. The rim is damaged but the diameter was approximately 410 mm. The thickness at the rim is not measurable but the greatest thickness, in the centre, is 65 mm.

The quern was made from pebbly sandstone from the Upper Old Red Sandstone from the Forest of Dean/Wye Valley area. This variety of Old Red Sandstone, together with quartz conglomerate from the same area, was widely used for rotary querns found on Roman sites in southern England (Shaffrey 2006). In Worcestershire sites where they have occurred include Beckford, Broadway, Newland Hopfields and Ryall and in Worcester itself sites such as Blackfriars, Farrier Street, Friar Street and Sidbury.

Other finds

Other finds consisted of a few fragments of modern glass, shell and tobacco pipe were also recovered. No clearly dateable tobacco pipe forms were recovered and as such the assemblage is of little worth beyond a general dating of post-medieval to modern contexts.

Animal bone analysis

by S Warman

Introduction

Of the identifiable material from deposits dated to the Iron Age and Roman periods the dominant taxa was cattle, followed by sheep and sheep/goat and horse, a small quantity of pig and dog bones were also present.

Iron Age

The smaller Iron Age assemblage includes horse, cattle, sheep/goat, sheep and pig. The range of elements present is interesting; over half the identified specimens are teeth or elements containing teeth. This may well be a preservation bias, as in poor soil conditions, teeth having a lower organic component than bone, are more likely to survive.

In terms of feature types, the Iron Age assemblage was dominated by ditch fills although a single pit, 2127, filled by deposit 2129 contained animal bone. A skull fragment from fill 3025 of ditch 3019 was sufficient to get a positive identification of sheep (rather than sheep/goat) following Boessneck 1969. Additionally a skull and horncore fragment from deposit 2075 the fill of ditch 2063, and a juvenile sheep mandible from deposit 3021, the fill of ditch 3018 were identified (the latter using Payne 1985). Most of the animal bone was moderately to poorly well-preserved and some signs of weathering were seen. At odds with this general trend was a cattle mandible from fill 2080, from ditch 2063, that is very fresh in appearance compared to the other items from this deposit, it may well be intrusive. The specimens identified as pig included several canine teeth which were positively identified as male, due to the sexually dimorphic nature of this tooth type (Hillson 1986).

Late Iron Age/Roman

A single deposit 2004, the fill of pit 2005 produced a sheep/goat ulna.

Roman deposits

The greater part of the Bath Road assemblage derived from deposits assigned to the Roman period. This assemblage showed the widest range of species; horse, cattle, sheep/goat, sheep, pig and dog. Pig remains included a male canine tooth from fill 1104 of ditch 1105. Fill 1137, in ditch 1138 included a fragmented dog maxilla (upper jaw), whilst fill 3047 of ditch 3048 included a dog tibia. A horse metatarsal from ditch fill 2180 (2177) was broken into two pieces but was reconstructed sufficiently to

obtain a length measurement. Ditch 2181, filled by deposit 2182 produced a sheep metatarsal, whilst fills 2202 and 2203 of recut 2198 of ditch 2196 contained sheep horncore fragments. Fill 3036, from ditch 3037 included a horse metatarsal (cannon bone) with possible joint disease.

In terms of feature type almost all but two of the Roman deposits which produced animal bone were ditch fills. The exceptions were pit 2133/2134, filled by 2132 which contained a sheep/goat upper molar and layer 2107 associated with the overflow from ditch 2110 which contained a sheep/goat lower molar.

Age at death

Estimating age at death can be done by two methods; the fusion of the long bone epiphyses and the state of eruption and wear of the mandible teeth. Almost all epiphyses were fused indicating adult and occasional sub-adult individuals. The only younger specimen was a sheep mandible from fill 3021, of 3018 a ditch of Iron Age date. Sufficient teeth were present for the mandibular wear stage to be calculated following Grant 1982. A wear score of 11 and the first two molars were present and the fourth deciduous premolar had not been lost thus an age at death of 18 months is as reasonable estimation.

Metrics

Only one bone was measurable; a horse metatarsal (cannon bone) from 2180 (fill of Roman ditch 2177), although the bone was in two pieces it could be reconstructed and the measured following von den Driesch (1976) the lateral length was then multiplied using the factors of Kiesewalter, (given by von den Driesch and Boessneck 1974). The withers height calculated was 1189mm or approximately 11 hands 2 inches; the size of a small modern pony such as a Welsh mountain breeds.

Pathology

A horse metatarsal from deposit 3036 showed signs of infection and possible joint disease at the proximal end (where the bone articulates with the distal tarsals). The pathological changes observed were additional disorganised bone growth, both on the joint surface and just below on the dorsal surface of the shaft. It is not uncommon for joint problems to develop in this region of the hind limb and the fact the changes are visible in the bone may indicate lameness at the time of death.

Weathering

Only 12 specimens showed signs of surface weathering around 11 percent of the assemblage. The general poor condition of the bone is a reflection of the post depositional environment, rather than exposure prior to burial.

Butchery

Evidence for butchery, in the form of chop marks and bones with shafts completely chopped through was seen on cattle and sheep/goat bones from five Iron Age and Roman deposits. This is approximately four percent of the assemblage.

However, finer marks such as knife cut marks may have been obscured by the poor condition of the bone.

Gnawing

Gnawing by dogs was noted on five specimens; horse and cattle bones from Iron Age and Roman deposits. This is under four percent of the assemblage and suggests that most of the animal bone was buried rapidly and wasn't available for dogs to scavenge.

Discussion

Both the Iron Age and Roman assemblages show a fairly restricted range of species; cattle are the most numerous by both count and weight. Horse, as a large mammal is the second most common by weight, whereas sheep/goat is the second most common by count. Pig, sheep and dog make much smaller contributions both by count and weight. Bird and fish bone was present in very small quantities in residues but was too small to include in analysis and was not examined. The species seen, particularly the dominance of cattle is a pattern commonly seen in Late Iron Age (Hancocks forthcoming) and Roman assemblages (Dobney 2001). Large quantities of cattle and horse are seen in the assemblage at George Lane, Wyre Piddle (Warman 2007). Other small assemblages from recent excavations in the area show a similar range of species. The appearance of dog in the Roman assemblage is consistent with the importance of this domestic species at this time. At Stonebridge Cross, Westwood to the north of Worcester a dog jaw was recovered and was described at the time as a rare find for Worcestershire (Miller et al 2004, 31). Thus the Bath Road dog increases the findings of this species from Roman deposits in Worcestershire.

The size of the horse indicated by the withers height is quite small more in keeping with the Iron Age type than later imported and improved Roman Breeds. The larger assemblages from later Iron Age and Roman deposits at Walton Cardiff in Tewkesbury included both the small 'Celtic' type ponies at 12 hands and a larger 'improved' Roman type of around 14 hands (Warman forthcoming).

Of the 28 element types recorded 14 are tooth types or jaws which contain teeth. This may well be the result of differential preservation as teeth are more mineralised than bone and may survive in conditions where bone is destroyed. The preponderance of teeth from the larger species (cattle and horse) appears to support this. At Linacre's Farm, North Claines the only identifiable animal bone to survive excavation were cattle teeth (Dalwood et al 1998, 13).

Comparison with sites in Worcester such as Deansway is more problematic in that the Roman features at Bath Road which produced animal bone were largely ditches whilst this period of occupation at Deansway the animal bone is recovered mostly from pits (Nicholson and Scott 2004). However the Bath Road animal bone assemblage compliments that from Deansway, in that it provides evidence of Roman occupation in a more rural setting outside of the town.

Environmental remains

by E Pearson

Phase 1 Early prehistoric

Three samples (Contexts 1233, 1263 and 2034) were assessed. Only one charred unidentified legume (Fabaceae sp indet) seed was noted in context 2034 which is likely to derive from crop waste thrown on to fires, or possibly as a result of crop processing, and occasional unidentified seeds or spores in context 1263. A small quantity of fragmented (undiagnostic) large mammal bone was also noted in one context.

Phase 2 Iron Age/Roman

Eight contexts were assessed. A thin scatter of charred cereal crop waste was noted in contexts 2032 which included occasional grains of emmer/spelt wheat (Triticum diccocum/spelta) and hulled barley (Hordeum vulgare), in association with small weed seeds such as blinks (Montia fontana ssp chondrosperma), corn salad (Valerianella dentata), sedge (Carex sp) and possibly meadow grass (cf Poa sp). One fragment of spelt wheat chaff (Triticum spelta glume base) suggests that the wheat grain is most likely to be spelt wheat.

A small quantity of fragmented undiagnostic large mammal bone was noted.

Phases 3 and 4 Romano-British

A thin scatter of charred cereal crop waste was similarly evident in samples from this period. Emmer/spelt wheat (Triticum dicoccum/spelta) and hulled barley (Hordeum vulgare) grains were associated with small weed seeds, similar to those noted in Iron Age contexts and also weeds of scentless mayweed (Tripleurospermum inodorum), sheep's sorrel (Rumex acetosella), vetch (Vicia sp) melilot/medick (Melilotus/Medicago sp), buttercup (Ranunculus acris/repens/bulbosus) and spike-rush (Eleocharis sp). Seeds of a similar range of weeds were also recovered during evaluation. These included possible common vetch (cf Vicia sativa), sheep's sorrel (Rumex acetosella), and bistort (cf Polygonum sp). Sedge (Carex sp) may have been growing in damp areas around the site or in arable fields.

A small quantity of fragmented large mammal bone, small mammal bone, bird bone and fish scale was also recovered.

Phase 6 Post-medieval

Only a small number of features were excavated from this phase, of which three postholes were sampled. This phase is relatively of low significance, and as the samples are unlikely to be productive, they were not included in the analysis.

Overview of environmental evidence

by E Pearson

Introduction

Overall the small assemblages of hand-collected animal bone and macrofossil remains from bulk samples are poorly preserved and, in the case of the animal bone, may indicate exposure on the surface for some time before burial. The sparse scatter of domestic waste may indicate a low intensity of activity on the site but the sparseness will have been amplified by poor preservation.

Phase 1 Early prehistoric

The only material recovered came from bulk samples from which limited interpretation could be made. Environmental remains from deposits of this date are frequently very sparse and to date there are few contexts of comparable date locally.

Phases 2, 3 and 4 Iron Age and Roman

The environmental evidence recovered was sparse and appears to reflect a low level of waste that is most likely to relate to agricultural or domestic activities, or in the case of the artefactual material from samples of Roman date, could indirectly relate to metalworking on the site. Weed seeds from local vegetation and fragmented bone distributed in the soil across such an area are likely to become accidentally incorporated into hearths, while some crop waste may have been introduced in crop waste used as tinder. This waste is likely to reflect a location which would have been semi-agricultural in character that is a mosaic of mixed small-scale agricultural and industrial areas.

The charred plant remains were the most ubiquitous in Iron Age and Roman contexts, but even these remains are likely to represent only around 1 to 2 items per litre of soil. Samples containing a similar density of remains from Deansway, nearby in Worcester, were scanned (Moffett 2004), and hence the treatment of the samples from Bath Road is comparable.

The majority of the animal bone assemblage derived from Roman contexts. The dominance of cattle in Iron Age to Roman contexts is characteristic of material of this date, and the overall composition was comparable to other small assemblages locally.

Discussion

Phase 1 Early prehistoric

The group of four pits containing Mesolithic lithics, together with undated features and a more extensive scatter of contemporary lithics, is interpreted as a Mesolithic settlement site. Artefactual evidence for Mesolithic activity was limited to stone tools and debitage, the majority of which were unstratified or residual in later features; no other Mesolithic artefacts and no environmental evidence were recovered. The presence of largely Mesolithic diagnostic forms together with relatively broad forms of microlith and large size of the flake and blade debitage is interpreted as indicating a probable Early Mesolithic date. Early Mesolithic assemblages are relatively rarer than Late Mesolithic assemblages in the region, although the disparity needs to be treated with caution (Myers 2007, 32).

Unstratified tools were largely recovered from the northern part of the excavation where the only surviving features were 18th century postholes. This may suggest that Mesolithic activity was concentrated in this area, but it is possible that in other parts of the site the evidence was disturbed by later Iron Age and Roman activity.

The pits were irregular in form and it is possible that they may simply represent treeholes into which the tools were washed at a later date, perhaps even trees which provided shelter or shade. Although the majority of Mesolithic ‘sites’ in the region are simply artefact scatters, it has been noted that excavations have fairly often revealed that lithic scatters are associated with probable Mesolithic features (Myers 2007, 32; Jackson 2007, 63). The small group of features at Bath Road, associated with a lithic assemblage, can be identified as a hunting camp. There are useful comparisons to be made with the Mesolithic site at Lightmarsh Farm, near Kidderminster, where a number of features were excavated, and lithics and environmental evidence were recovered (Jackson et al 1996). The lithic assemblage at Lightmarsh Farm, from a partial excavation of the site, comprised 1,482 items and included microlith points, probably used for tipping arrows, together with scrapers and blades probably used for the preliminary processing of animal carcasses; as well as evidence for flint working. The site was interpreted as a hunting camp, probably occupied by a small group for as little as two to three nights (Jackson et al 1996, 111). The Mesolithic site at Bath Road can also be interpreted as a short-lived hunting camp, with evidence for both hunting equipment (microliths) and butchery tools (scrapers and blades), together with definite but limited evidence for flint working. However, no environmental evidence was recovered here, which precludes discussion of the natural resources utilised and the local environment.

As a hunting camp, the hilltop location had obvious advantages: the long views across the floodplains of the Severn and Teme would have enabled hunters to observe animals approaching the river to drink, and preference for such natural vantage points for hunting camps has been noted previously (Jackson 2007, 56; Myers 2007, 33).

Mesolithic sites and lithic scatters are relatively rare in Worcestershire and in the West Midlands region in general, which may be due to a number of reasons, including a lack of systematic field research, modern landuse patterns, alluviation (burying

occupation sites), and problems in recognising or appreciating small lithic scatters. It is also possible that the distribution represents a real pattern of relatively sparse populations in the Mesolithic. The evidence has not yet been sufficiently systematically investigated and characterised in order to reach any firm conclusions (Myers 2007, 28-9; Jackson 2007, 56-7).

One review of Mesolithic evidence from Worcestershire has noted the concentration of Mesolithic lithics in the north of the county, on the southern edge of the Birmingham plateau associated with free-draining soils on sandstone geologies, typified by the Lightmarsh Farm site (Jackson 2007, 56). But this distribution pattern is likely to be somewhat biased. Although rather limited Mesolithic archaeological evidence has been recovered from the Severn, Avon, Salwarpe and Stour valleys, these floodplains have been identified as important landscapes in the Mesolithic and as having high research potential (Jackson 2007, 58, 61). A Mesolithic assemblage was recorded during trial trenching at a proposed park and ride at Whittington, 2.3km east of the Bath Road site, where a scatter of flint tools including a fragment of a tranchet axe were recorded (Patrick et al 2003), although no associated features were found.

The evidence for the distribution of Mesolithic settlement sites in Worcestershire is developing slowly (Myers 2007, 33), and the discovery of the Bath Road site is a significant contribution to the current research framework. Myers has noted that discoveries of Mesolithic lithic material and deposits are often recorded from excavations undertaken to investigate sites of other periods (Myers 2007, 29), and this was certainly the case at the Bath Road site where the evaluation trenches did not locate any of the Mesolithic pits nor any unstratified Mesolithic lithics. The difficulty of identifying Mesolithic occupation during field evaluations was clearly demonstrated.

The Neolithic leaf shaped arrowhead, recovered from the base of the Iron Age ditch, can probably be interpreted as residual deposition in the form of a very old tool washing into the ditch from the surface. Neolithic arrowheads are most common as isolated finds, interpreted as lost during hunting rather than associated with occupation sites or monuments.

Phase 2 and 3, Iron Age/early Roman

Surviving elements of Iron Age and early Roman occupation were concentrated to the west of the site on the cusp of the steep scarp above the River. Although it is clear that a proportion of the site lay outside the excavated area and some elements had been destroyed by Tank 1 to the east, the limited structural, artefactual and environmental evidence is suggestive of a small to medium sized rural farmstead, perhaps comparable in size to the settlement excavated at Stonebridge Cross, near Droitwich (Miller et al 2004). What might set this settlement aside is its location. Iron Age settlement has long been associated with gravels and light soils, often in valleys and adjacent to rivers, a pattern recognised both through archaeological investigation and aerial photographs. Here, a ridge of poorly drained heavy clay was preferred to the lighter flat land across the river to the west and it may be assumed that in this case the site was chosen as a location within easy reach of the river while remaining above the flood line with the added advantage of a long sightline across the Severn and Teme Valleys to the Malvern Hills and the hillfort at British Camp.

Iron Age occupation appears to have been focussed around the enclosure ditch where drip gullies are evidence that at least one roundhouse existed which was probably replaced more than once. Also within the enclosure other post-built buildings or structures existed and pits inside and without the enclosure were dug and backfilled with material including cultural remains. The extent to which the enclosure and features within it extended to the south is not known. No structural form can be distinguished in the scatter of five post holes (2019, 2029, 2031, 2062, 2147) within although it may be that the pattern would be more apparent if the remainder of the interior (now preserved in situ) had also been excavated. At sites in the south of the county, timber or stone features are rarely observed and Lockett (2002, 3) suggests that buildings of this period were constructed from cob or mud brick and this is possible here. The nearly complete Malvernian pot set into the ground is likely to have been part of the solution to the inherent problem of water supply on this site, and a circular, round bottomed pit is likely to have been used for storage. Charred cereal grains and the bones of cattle, pig sheep/goat and horse are indicative of a mixed economy.

Radiocarbon dating of cereal grains from a tertiary fill of the enclosure ditch is the earliest evidence of the occupation of the Iron Age site, providing a date of 170 BC at the latest. Dating of the ceramics is less certain as local Malvernian pottery from the late Iron Age continued to be used into the Roman period but it is clear that occupation of the enclosure continued into the Roman period where a number of features on the site appear to span the conquest. Roman pottery was recovered from the upper fills of the enclosure ditch 2063 implying that, though largely silted up, the ditch was still partially open in the early Roman period. The westernmost section through the ditch shows a clear recut (2210) the primary fill of which contained 2nd century pottery. Furthermore several features within the enclosure, post hole 2062 and a small pit 2127 which were cut into the top of the drip gullies contained Roman pottery.

Ditch 1194 which crosses the site from east to west is likely to represent the northern boundary of the Iron Age settlement. This boundary is truncated east and west by the fuel tanks and its relationship to the round enclosure is unknown, but it is possible that it ran as far as the crest of the river cliff to enclose an outer area to the settlement, perhaps for the keeping of animals. This boundary also seems to have continued to be important well into the Roman period although replaced by parallel ditches rather than recut. The ditch itself appears to have silted up by the time it was cut by a shallow pit or hearth (1197) containing 1st-2nd Century pottery.

Phase 3 and 4, Second Century deposits

The settlement appears to have changed little in the years immediately following the conquest. The focus of settlement may have shifted to another part of the hilltop in the later 1st Century or disappeared altogether for some decades. However, from about 120 AD there is renewed activity slightly to the east of the enclosure where waste material from features centred on ditch 1105 contained significant proportions of waste material from a metalworking process, including slag, ash, coal, charcoal and clinker. The porosity of the majority of slag samples recovered from these features and other Roman contexts suggests that the activity taking place was smithing (David Starley

pers comm). This is reinforced by the presence of hammerscale within deposits centred on ditch 1105 as well as the presence of fragments of coal within the slag. Coal or charcoal is a suitable material for a smithing hearth but the sulphur content of coal rendered it unsuitable for the smelting process prior to the 18th Century. Furthermore burnt clay which is present on many of the slag fragments is likely to represent the dripping of molten metal onto the natural substrate rather than part of a hearth lining.

Analysis of slag from the extensive excavations at Deansway in Worcester (McDonnell and Swiss 2004) as well as recent excavations at The Butts (David Starley pers comm.) has demonstrated that the principal metal industry in this area was the smelting of ores. It is suggested that smelting was carried out on a large scale in the centre of Worcester, possibly in conjunction with the further process of bloom refining in which impurities are removed from the bloom, while at Roman rural settlements in the hinterland of Worcester such as Bath Road and Linacres Farm, North Claines (Dalwood et al 1998), smithing is taking place on a domestic scale.

Hammerscale in relatively high proportions was noted in the fills of a cluster of three pits (1097, 1101, 1140), and the northern sections of ditch 1105 slightly to the east, from which four smithing hearth bottoms were also recovered. East of the ditch a further two pits (1083, 1085) were also relatively rich in hammerscale. Schrüfer-Kolb (2004) points out that the archaeological recognition of smithing hearths can be difficult as only the base of the hearth generally survives. Furthermore forging does not require a special furnace, but can be done on a hot open fire. However she describes hearths that have been identified in the East Midlands as having an elongated bulbous shape occasionally constructed of stone and clay lined, typically 1-2m long with a flat or slightly concave bottom. Such a description could be applied to several of the pits in the smithing area, in particular pit 1140 (Fig 13, Fig 14) from which the greatest proportion of hammerscale was recovered. It is thought likely that this pit at least was a smithing hearth while others in the vicinity might also have functioned as hearths or as quenching pits.

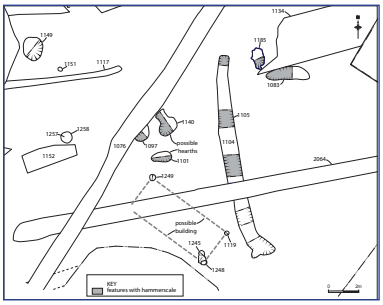


Figure 13: Smithing area

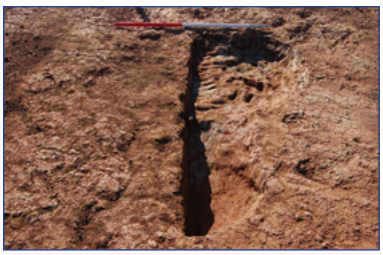


Figure 14: Pit 1140 from the east, a possible smithing hearth

The function of ditch 1105, as part of the smithing process is not clear. The land here fell gently to the south and water deposited within the ditch would drain immediately so it may have had the function either of carrying water away from the smith's area or perhaps, as seems more likely, collecting rainwater to fill the pits for quenching. A recut of this ditch is well dated to AD 150-160 by the presence of two parts of a mortarium rim from the Mancetter-Hartshill potteries.

Three postholes (1119, 1245, 1249) to the west of the ditch form a rectangle with the fourth corner truncated by furrow 2064 (Fig 13). This may have formed a building 6m long and 2.5m wide that may have been a shelter for fuel.

Also in the Second Century, there was increased activity in the interior of the hilltop. The northern boundary of the Iron Age settlement was renewed and a further large ditch of similar nature built or recut to replace an earlier boundary. A network of small gullies was built to act as field boundaries, drainage ditches or both.

The continuation of the boundary line first represented by Iron Age ditch 1194 and subsequently followed by Roman ditches 1186 and 1182 (Fig 5, Fig.11) demonstrates that this boundary was of importance over a long period of time, perhaps as the northern defensive edge of the settlement and this implies that the size of the settlement did not change in this direction but was simply used more intensively. Had this boundary continued to the west it would have joined the top of the river cliff almost at a 90 degree angle and it may be that it would have formed a squared enclosure with the western edge defined by the river cliff. Alternatively it may have joined either with ditch 2177 or 2110 to form a squared enclosure set back from the river cliff. Either of these ditches may originally had an Iron Age predecessor which was destroyed by recutting (residual Iron Age pottery was recovered from the Primary fill of ditch 2110). It is a slight enigma that the boundary formed by ditch 1194 on the northern edge of the site was reinforced at a later date by the excavation of shallower ditches running parallel rather than a recutting of the existing material from the original ditch but this may simply reflect the extent to which the heavy clay compacts .

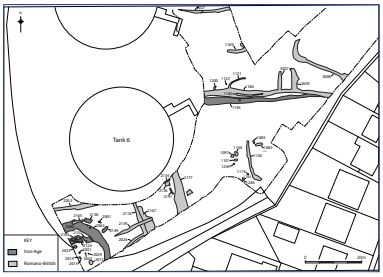


Figure 5: Roman and Iron Age features

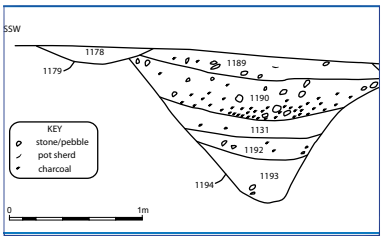


Figure 11: Section of ditches 1194, 1182 and 1186

The expansion of activity to the east also included the cutting of five smaller gullies of approximately 1m width and 0.3-0.4m depth. Three of these (2053,2159 and 2024) ran parallel down the gentle east facing slope to the top of the river cliff while two similar ditches (1227, 3008) defined the northern and eastern edges of Roman activity on the site and may have been part of the same feature prior to truncation by tank 2. The function of these ditches is likely to relate to drainage which would have been a perennial problem on a site standing on impermeable clay but they may also have delineated small fields or paddocks.

Extent and focus of the settlement

Prior to the excavation, a proportion of the site had been destroyed by a combination of post-Roman agriculture, the construction of the WWII tanks with associated service lines and the pre-PPG16 construction of the housing estate to the south. The exact proportion, particularly the extent to which the settlement extended to the south and east will never be known. Trial trenching within the garden of no 2 Perch Road in advance of the construction of a site entrance, demonstrated that the level of build was considerably below the surviving Roman features on the other side of the fence

and the ground had been considerably reduced during construction. Five large linear features terminate at this boundary.

The northern limit of Roman activity on the site was represented by two shallow ditches, 1227 and 3063. These were similar in scale and profile and contained notably fewer finds than features to the south and it seems likely that these were a single feature perhaps a field boundary, or part of the same system of drainage which operated outside the settlement to divert water around the occupied area, possibly converging on an entrance to the north-east.

It is clear, therefore that the focus of earlier settlement lay either within the excavated area or to the south and this hypothesis is reinforced by the presence of an indentation into the river cliff that lies immediately south of the area of excavation, in a wooded strip untouched by the development. Here a large holloway, over 4m deep in places and presently overgrown, provides a relatively gentle access to the river when compared to the slope within Ketch Coppice immediately adjacent. Although the holloway in its present form may be the product of more recent erosion, it is possible that its origins lie with the Iron Age and later Roman settlement. If this were the case, given the importance of the river for water, transport and food, it is possible that the settlement was located around the head of this feature and the enclosure entrance in the unexcavated area to the south may face onto it.

Proximity to such an important route as the Severn would doubtless have been an advantage to the occupants of the settlement, and it is likely that the coal used for smithing came by boat on the river, either upstream from the Forest of Dean beds or downstream from the Stourport area. The presence of the quernstone from the Wye Valley or Forest of Dean area is evidence of trade links with the former area. The pottery assemblage reveals a predominance of local forms typical of Iron Age/ Romano-British settlements, in this case Malvernian and Severn Valley Wares from the Malvern area. However other regional forms demonstrate trade links with Oxfordshire, Gloucestershire, the Woolhope area of Herefordshire and later Dorset. A small proportion of imported wares such as Samian and amphora is also typical of Roman sites in Worcestershire. Some of these forms were doubtless exchanged in the larger trade hub of Worcester which lay only a mile distant.

The range of species identifiable from animal bone in the later the Roman period is similar to Iron Age although slightly expanded with the inclusion of dog, a rare find from Roman sites in Worcestershire (Miller et al 2004). The presence of charred cereal grains from a range of contexts as well as two fragments of a quern stone discarded in a gully suggest that the mixed economy persisted from the Iron Age and the presence of fish bones demonstrates that the river was also a source of food. It is speculated that the heavier land close to the settlement may have been used intensively for the rearing of animals while crops may have been grown on the lighter soils of the floodplain below but there is no evidence to support this theory.

Dating of the settlement

Radiocarbon dating from the enclosure ditch demonstrates that the ditch was in use from the Middle Iron Age and the presence of early Roman pottery forms from the

upper fills of this ditch demonstrate that it had largely silted up by this time. There is little clear evidence of later 1st Century Roman activity on the site. This hiatus may represent a gap in occupation or a change in the focus of settlement at this time but may also represent the continued use of local pottery types. The main focus of occupation appears to have been 120-160AD beyond which there is scant evidence for activity. Third century forms were noted from the primary fill of ditch 3048 (3047), and late 3rd to 4th century material was identified from the upper fill of ditch 3048 (3046); context 2107, the overflow from ditch 2110; and pit 2133. It is possible that later activity on the site shifted in focus to the interior of the hill and was destroyed by the large single cut for tanks 3-6 which lay immediately to the north.

Phase 5 Medieval

The remains of ploughed out furrows demonstrates that in the medieval period, the area had returned to agriculture and was under strip field tillage. The distinct orientations of the furrows show that the site fell within at least two different furlongs, perhaps separated by a headland that lay at the southern end of the northerly furrows. The fills of the furrows contained post medieval as well as residual Roman pottery, which shows that even the base of the ridges remained within the ploughzone after the fields were enclosed.

Phase 6 Post-medieval

In the 18th century, postholes were dug across the northern part of the site including one distinct north-south line (contexts 505, 1024, 1033, 1029, 1028) which presumably formed a fence. The remainder may have been temporary stock enclosures or pens which implies that following enclosure, the land was used for animal husbandry rather than tillage as previously. The line of posts follows the orientation of the ridge and furrow, which probably still existed as earthwork ridges at this time.

Apart from a musket ball, no features were uncovered which might relate to Civil War activity.

Phase 7 Modern

Cartographic evidence demonstrates that the site was agricultural until the beginning of the Second World War. At this time the field still lay some distance from the edge of Worcester although 1920s and 1930s housing was approaching, particularly on the western side of the Bath Road.

The storage facility at Bath Road was clearly chosen as a site accessible to the river and to the fuelling barges, proximity to a centre of population without being close enough to pose a danger. Crucially the site was also high above the river well out of the reach of floodwaters. Construction of the storage facility under wartime conditions required considerable modification of the topography. A large amount of clay was excavated to house the concrete tanks, which was then mounded around the upper parts of the tanks which stood above the original ground surface. It was clear during excavation that the material was placed directly over grass, rather than ground

stripped of topsoil, which is perhaps testament to the hurried nature of construction. Further disturbance was caused by the ancillary buildings including an air raid shelter and related services. In this process a considerable portion of the Iron Age/Romano British settlement was destroyed in the footprint of the tanks and services, but excavation showed that archaeological deposits to the west of the site, even between the tanks, remained largely unscathed.

The facility was a good example of a wartime response to a particular danger; interruption of the vital fuel supply to the armed forces as a direct result of the action of U boats in the Atlantic. After the war site continued to be used for the duration of the Cold War, during which time it was connected to a much larger national network of hydrocarbons.

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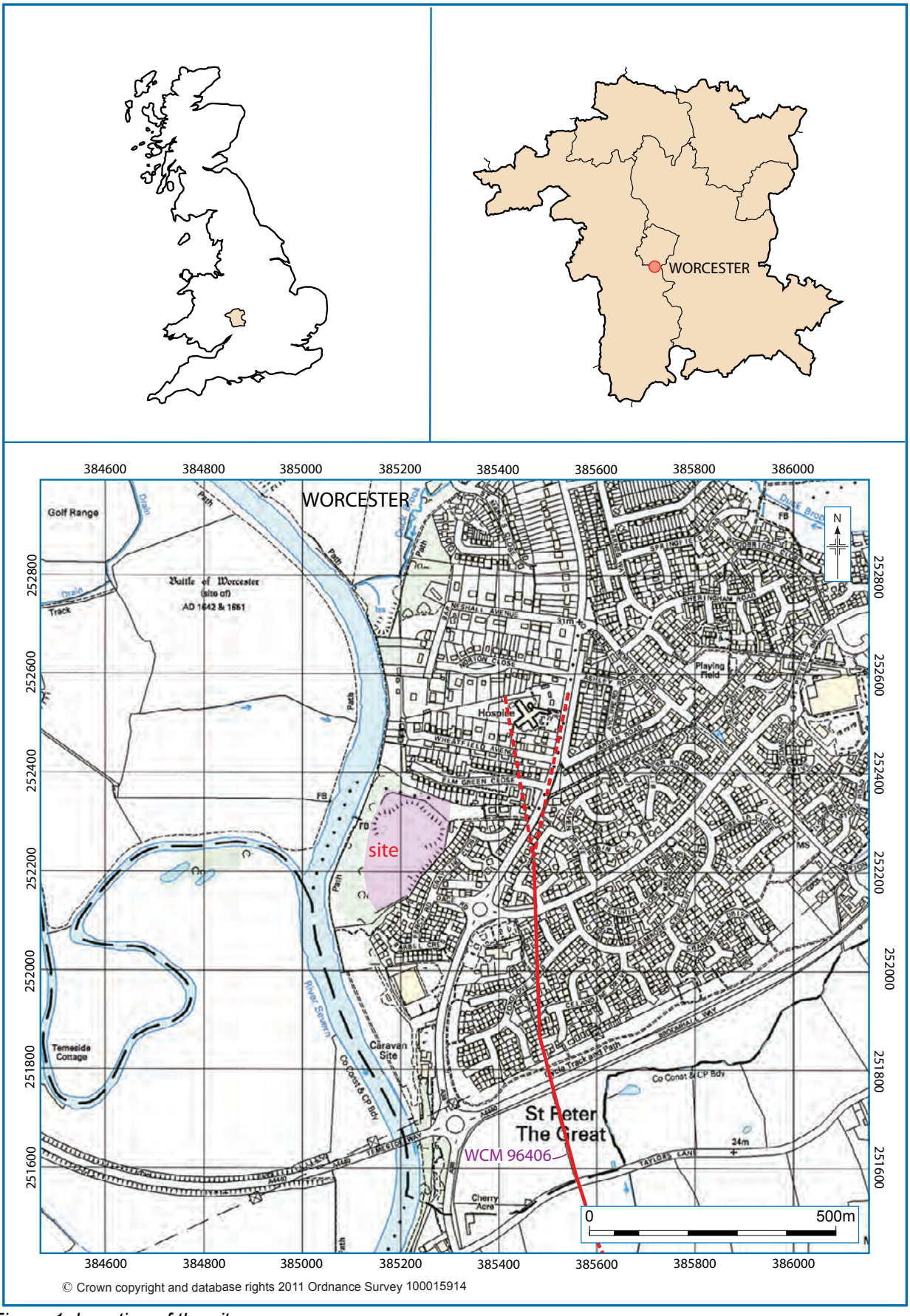

Figure 1: Location of the site

Figure 2: Early Prehistoric features

Figure 3: Pit 1173 from the west

Figure 4: Flint assemblage from pit 1173

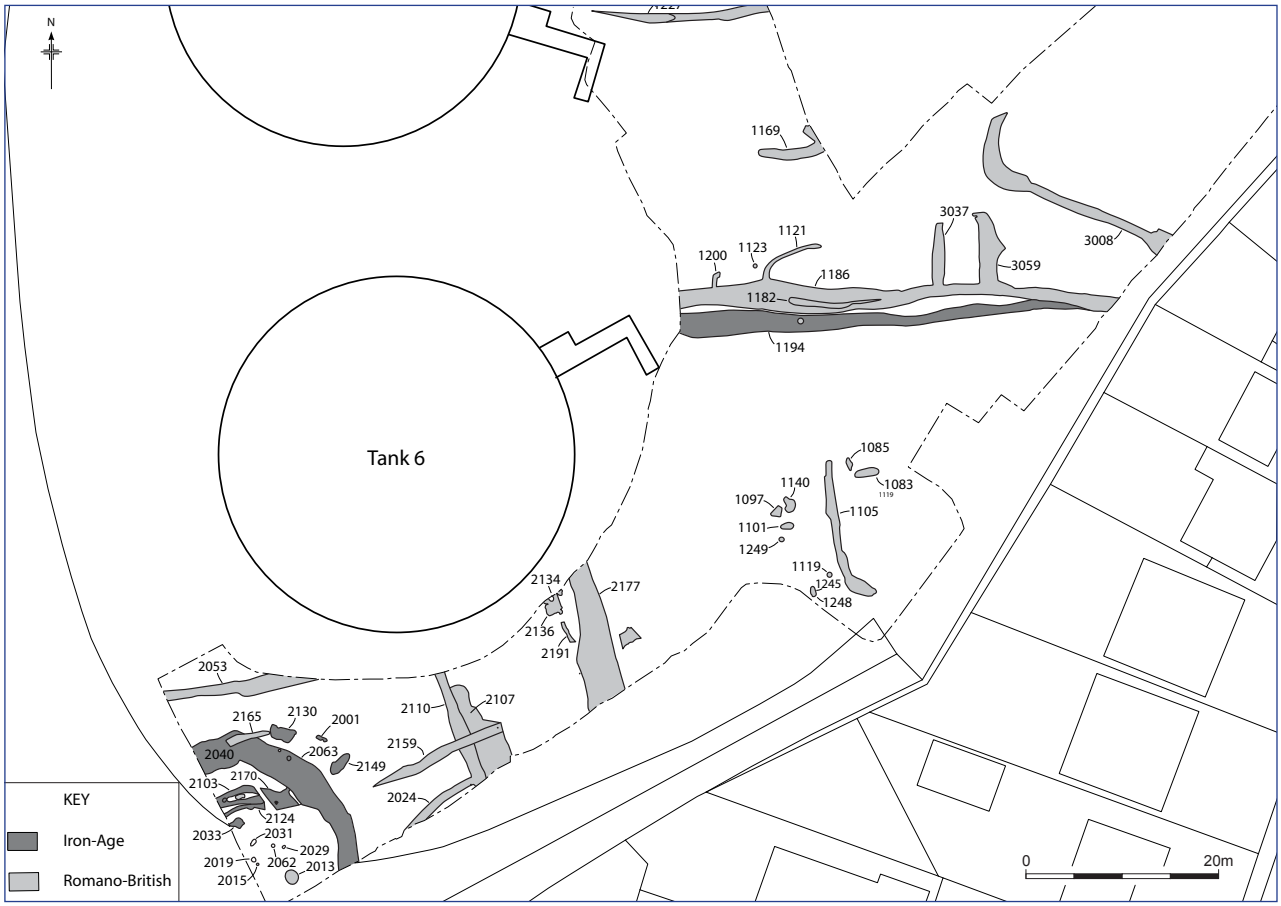

Figure 5: Roman Iron Age features

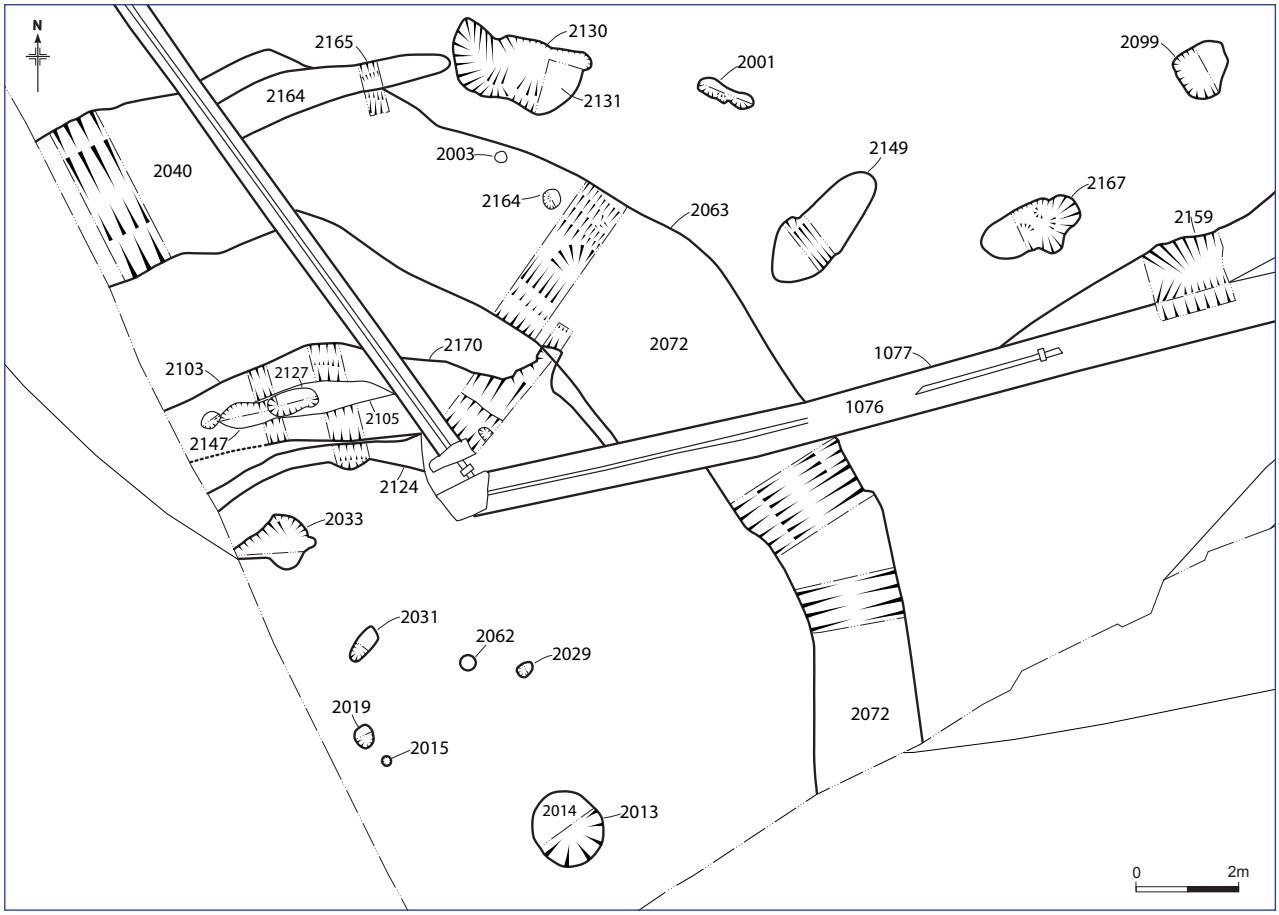

Figure 6: Iron Age enclosure and related features

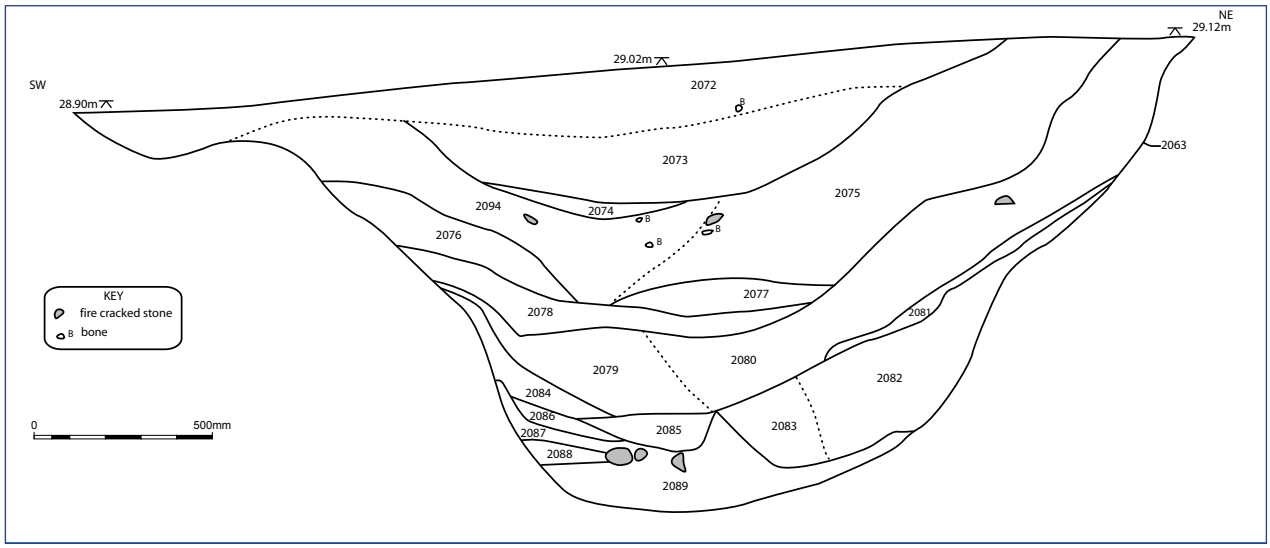

Figure 7: Enclosure ditch 2063

Figure 8: Section through enclosure ditch 2063 looking east

Figure 9 : Iron Age pot 2062 in situ looking north west

Figure 10: Western section of drip gullies 2103, 2105 and 2124 looking east

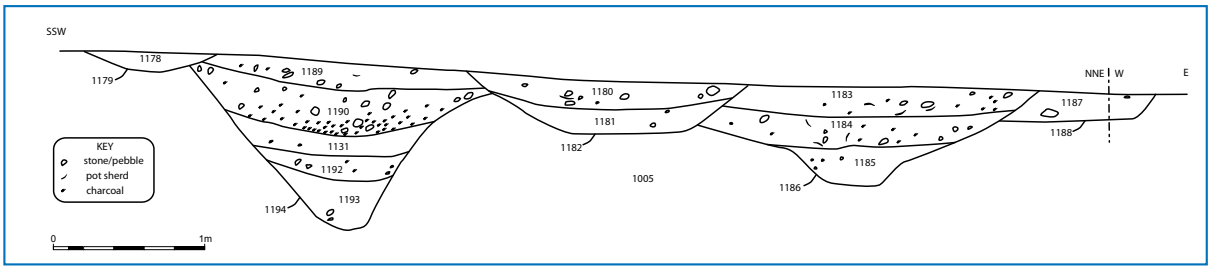

Figure 11: Section of ditches 1194, 1182 and 1186

Figure 12 : Triple ditch boundary 1194 (foreground), 1182 and 1186 looking north

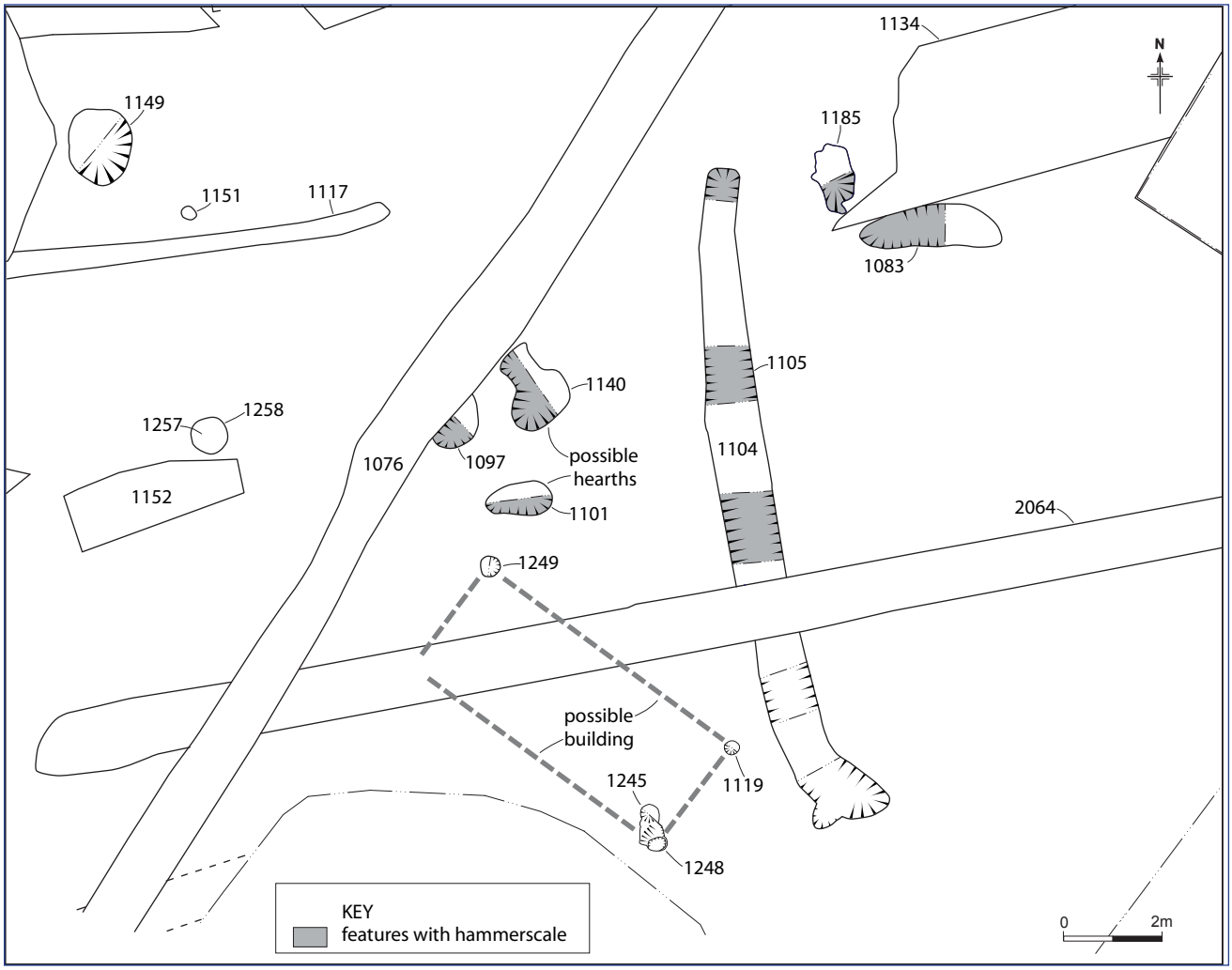

Figure 13 Smithing area

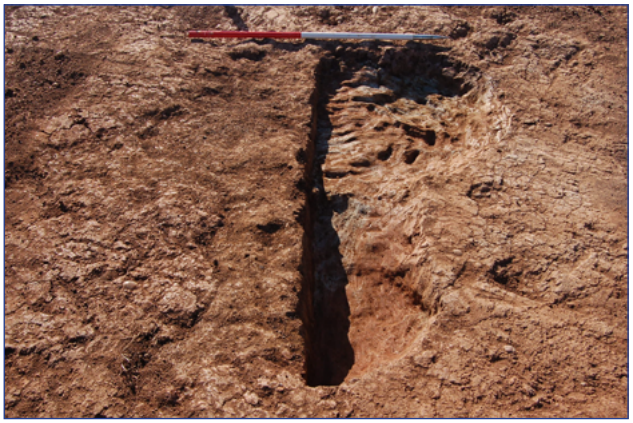

Figure 14: Pit 1140 from the east, a possible smithing hearth

Figure 15 : Demolition of tank 2 from the east

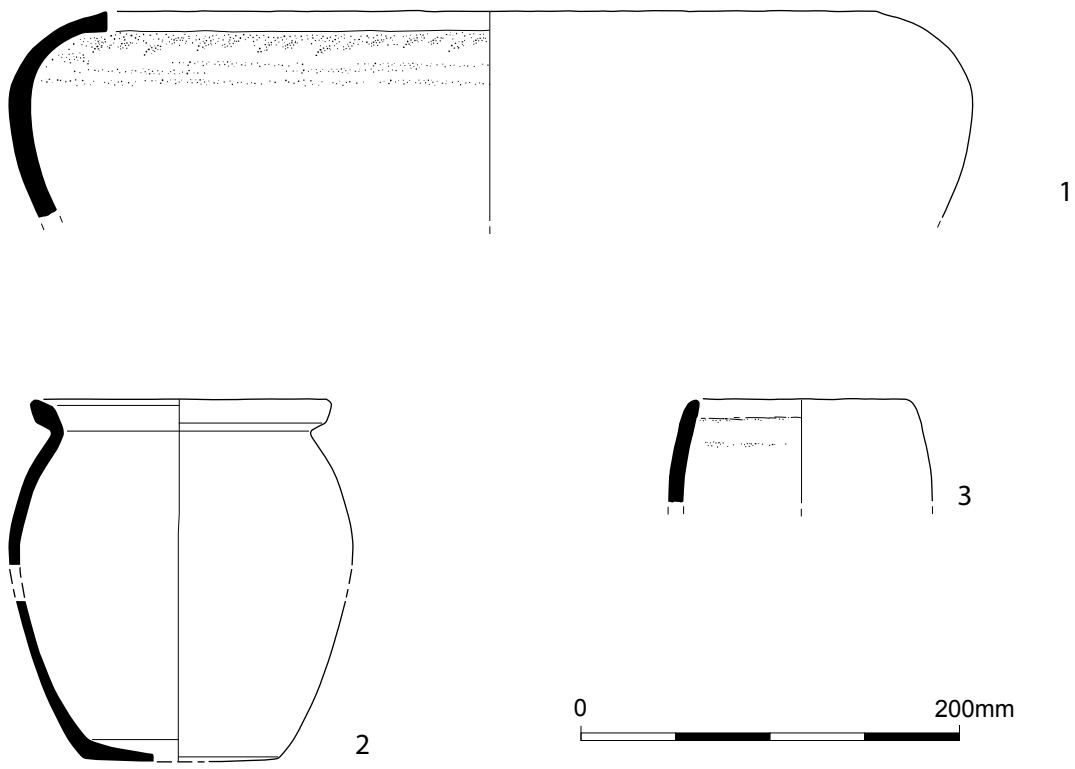

Figure 16 : Iron Age pottery

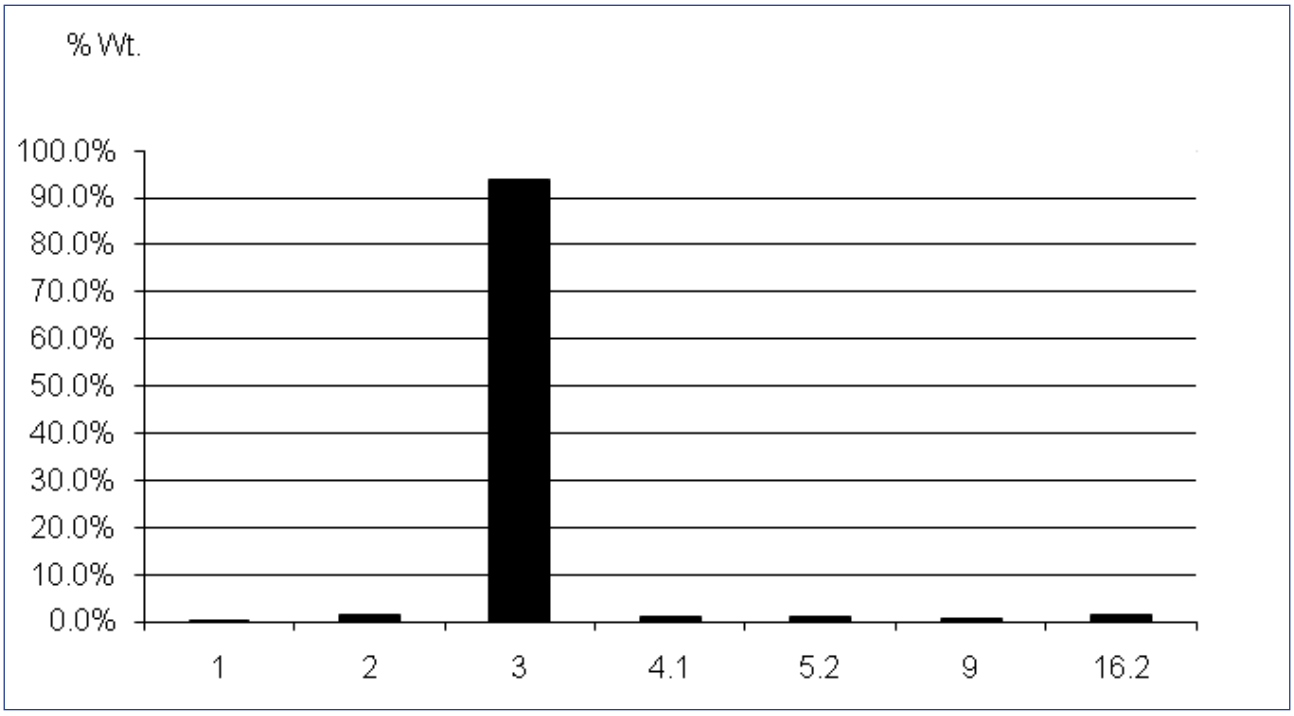

Figure 17: Pottery fabrics from Iron Age contexts by % weight

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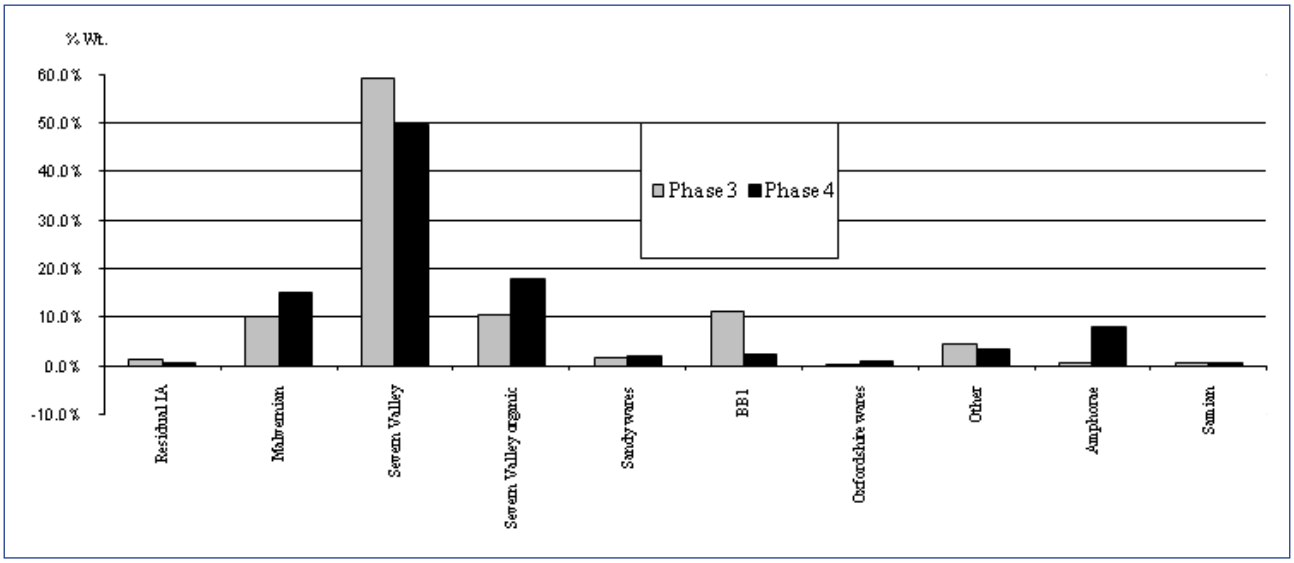

Figure 18: Roman pottery fabrics by phase (% Wt.)

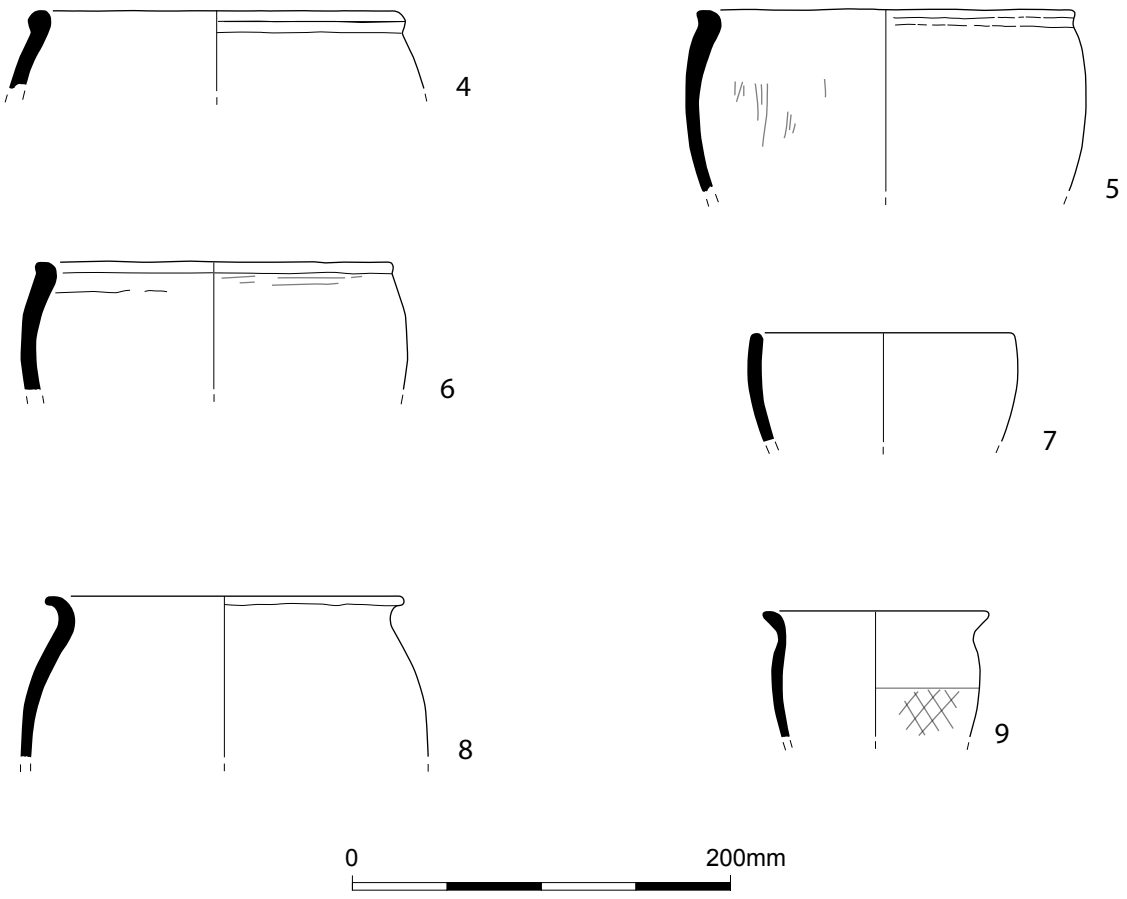

Figure 19: Romano British pottery

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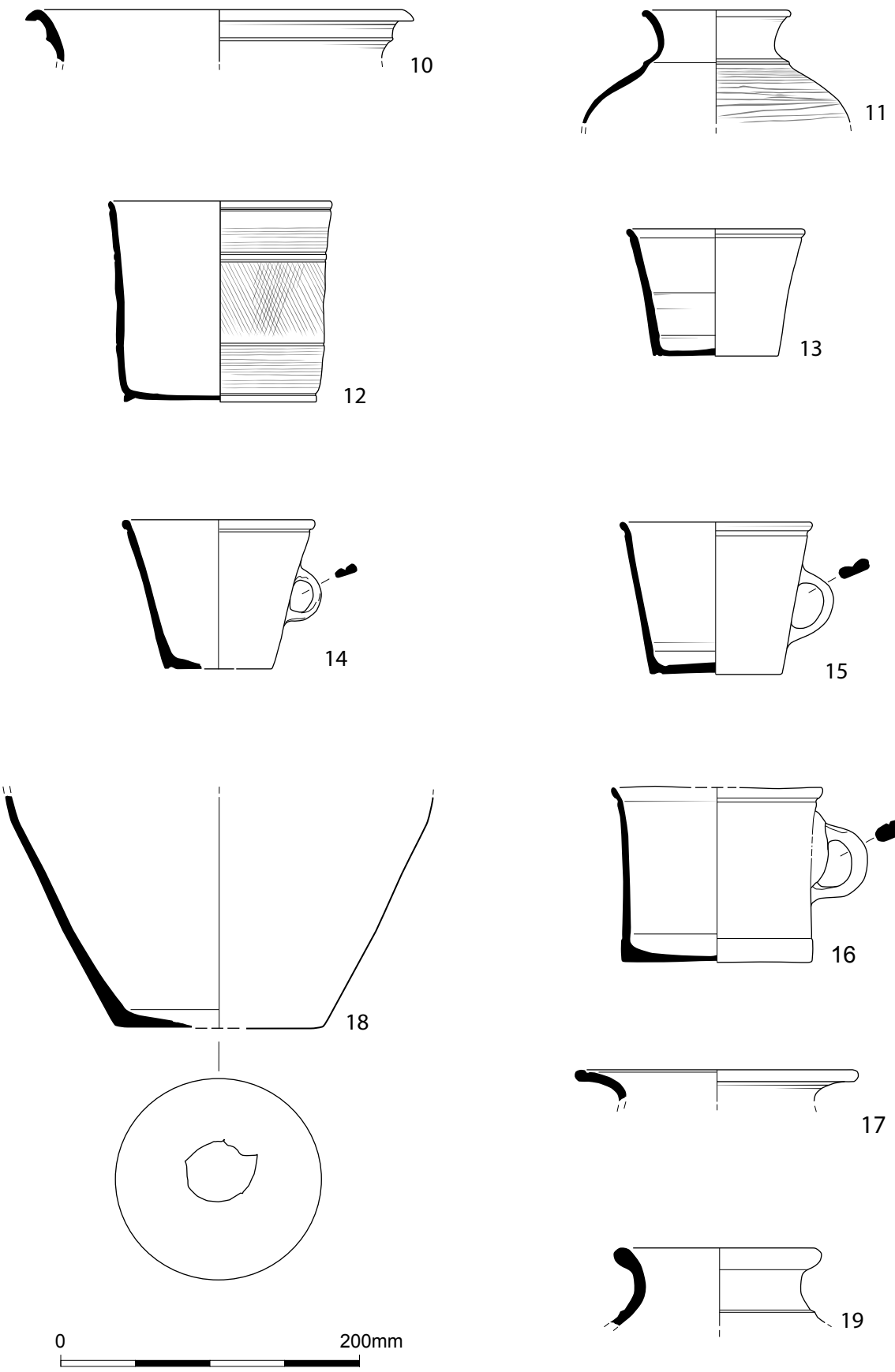

Figure 20: Severn valley ware

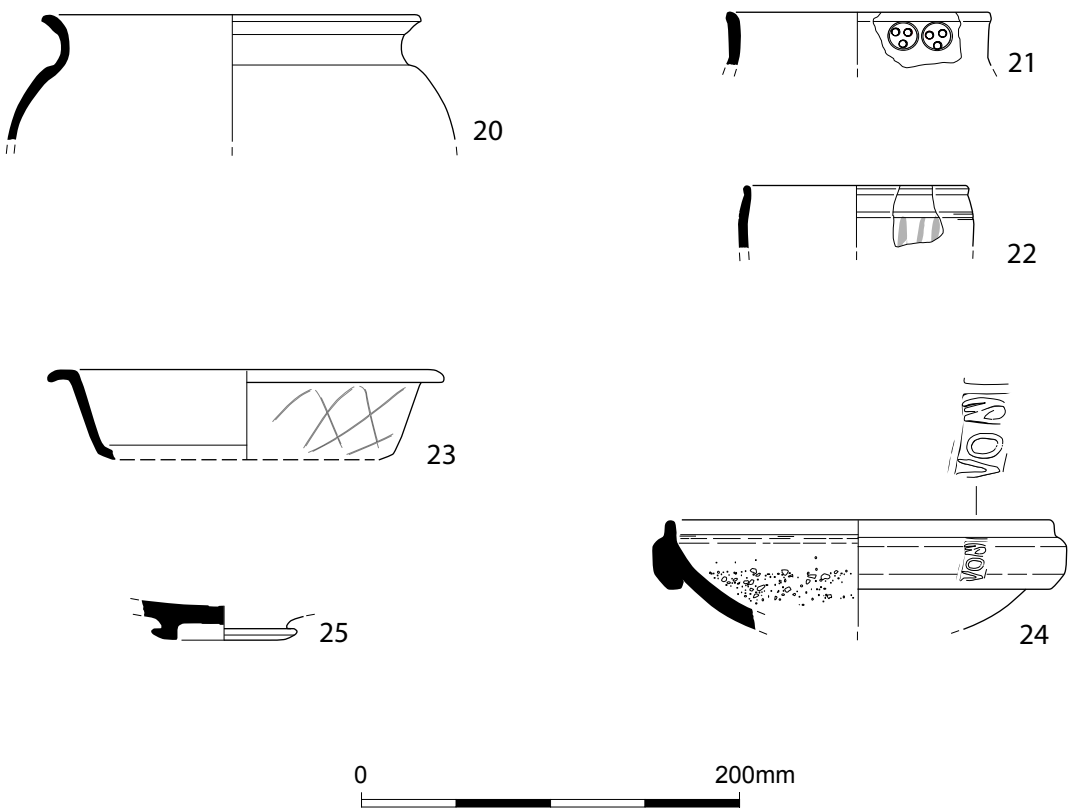

Figure 21: Grey ware BB1 and samian

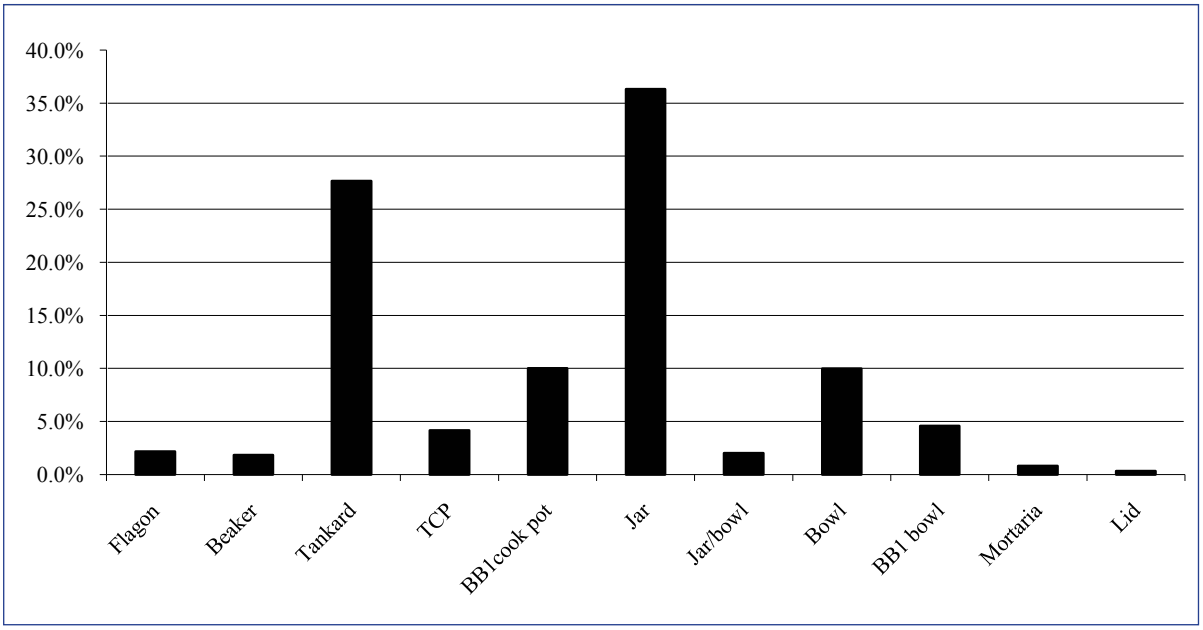

Figure 22: Vessel classes (% rim EVE)

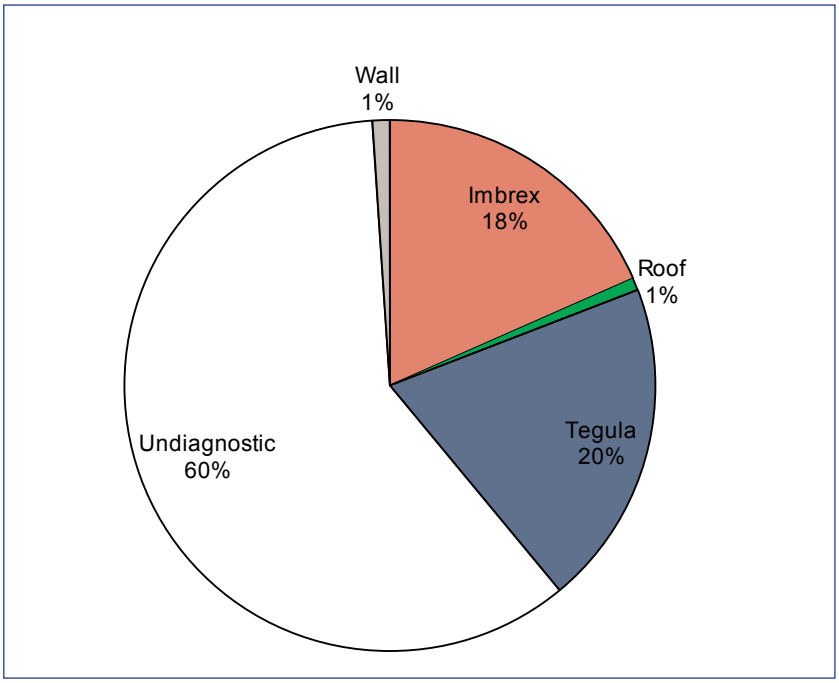

Figure 23: Summary of tile material by form

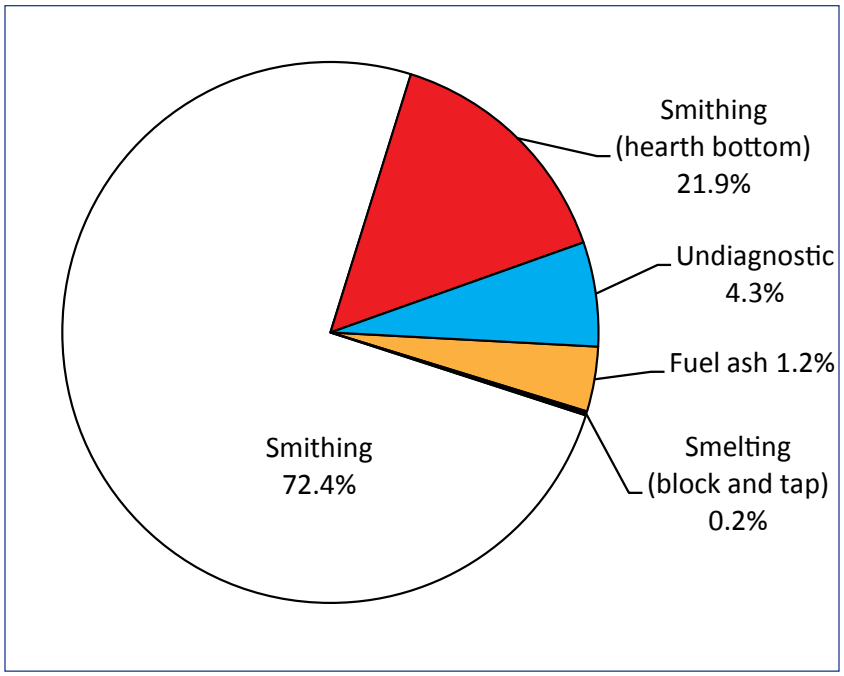

Figure 24: Slag types, by weight %

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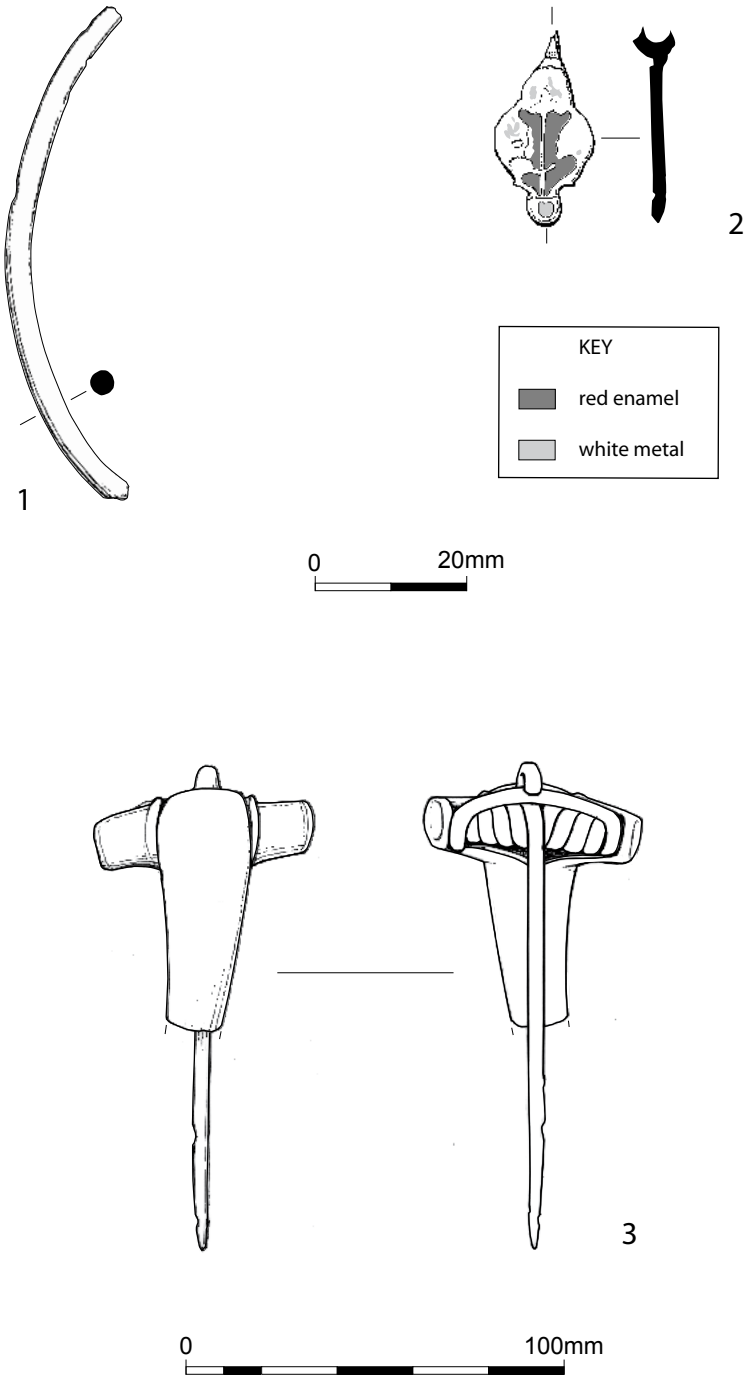

Figure 25: Copper alloy

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