The newsletter of the Roman Antiquities Section

ROMAN YORKSHIRE

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A community at rest

York's Hungate Romans

A report on a Roman cemetery is, even for a Romanist, not normally a great event. York alone has over twenty named Roman burial grounds, and the protocols and procedures for investigating and reporting on them are well established. A new cemetery report is, therefore, unlikely to uncover many novel minutiae.

Of course this is not the way archaeology works. Any new site will reveal entirely individual features and any new report will be of enormous interest to many readers. They will not be disappointed here. This report is the result of 18 years' work—the actual excavations from October 2006 to the end of December 2011 were just the beginning—and it is only fair to say immediately that it does the site justice.

Hungate is a low-lying area, damp and close to the River Foss. In the nineteenth century it was a poverty-stricken area of poor housing, which was the subject of Seebohm Rowntree's classic report *Poverty, A Study of Town Life* in 1901. Cut off from the heart of the city, it was an ideal candidate for a modern community development and planning permission was granted in 2005 for a 4-hectare-plus mixed-use scheme including offices, housing and shops. The vast majority of the archaeology was preserved in situ, but in the 0.4 ha area of Block H it was necessary to excavate down to natural and this produced archaeology running from the Neolithic to the Edwardian. It was the biggest excavation in York for 25 years, and the Roman cemetery discussed in this report, which is just a part of a larger cemetery, is one of the largest in York to benefit from a modern excavation.

Front cover

The Hungate excavation in progress, from the south-east.

The report is welcome, if only because interim reports have been few. It is laid out conventionally, with an introduction covering on-site techniques as well as the archaeological background, pre-cemetery findings, separate chapters for the cremation and inhumation cemeteries, followed by the late/post Roman activity, specialist chapters and a final chapter, 'The Cemetery and Burial Rites', which is a discussion and summary, and itself includes specialist sections.

The largest Roman period feature excavated was a late first/early second century ditch, up to 4 metres wide and probably 1.8 metres deep, running roughly south-west to north-east, roughly parallel to the fortress south-east rampart 250 metres away. Additional sections were encountered in excavations to the north-east and south-west and it may be a military solution to cut off the bend in the River Foss. It began to attract rubbish in the mid-second century and by the late second century it had almost

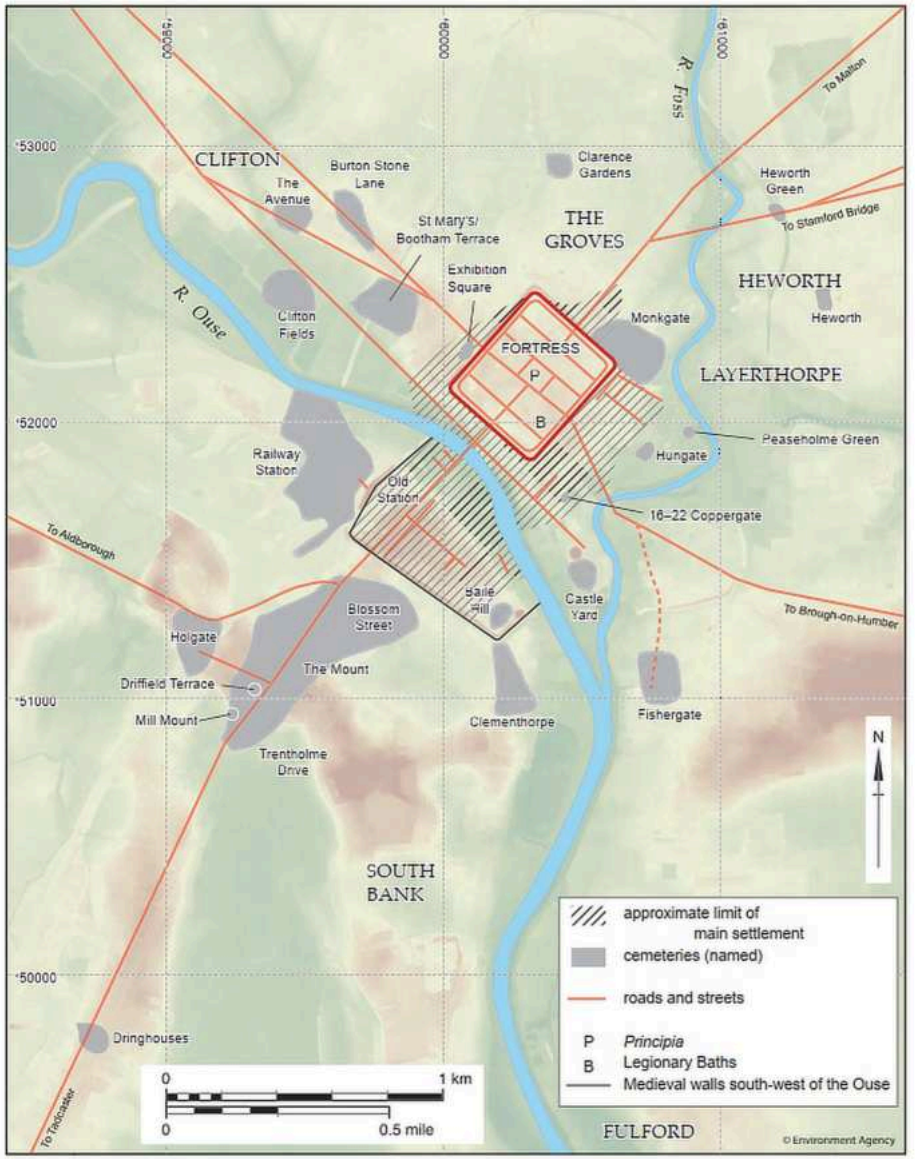


Fig. 1.3 Eboracum showing location of cemeteries with background topography (based on Environment Agency LIDAR DTM: © Environment Agency). Scale 1:20 000

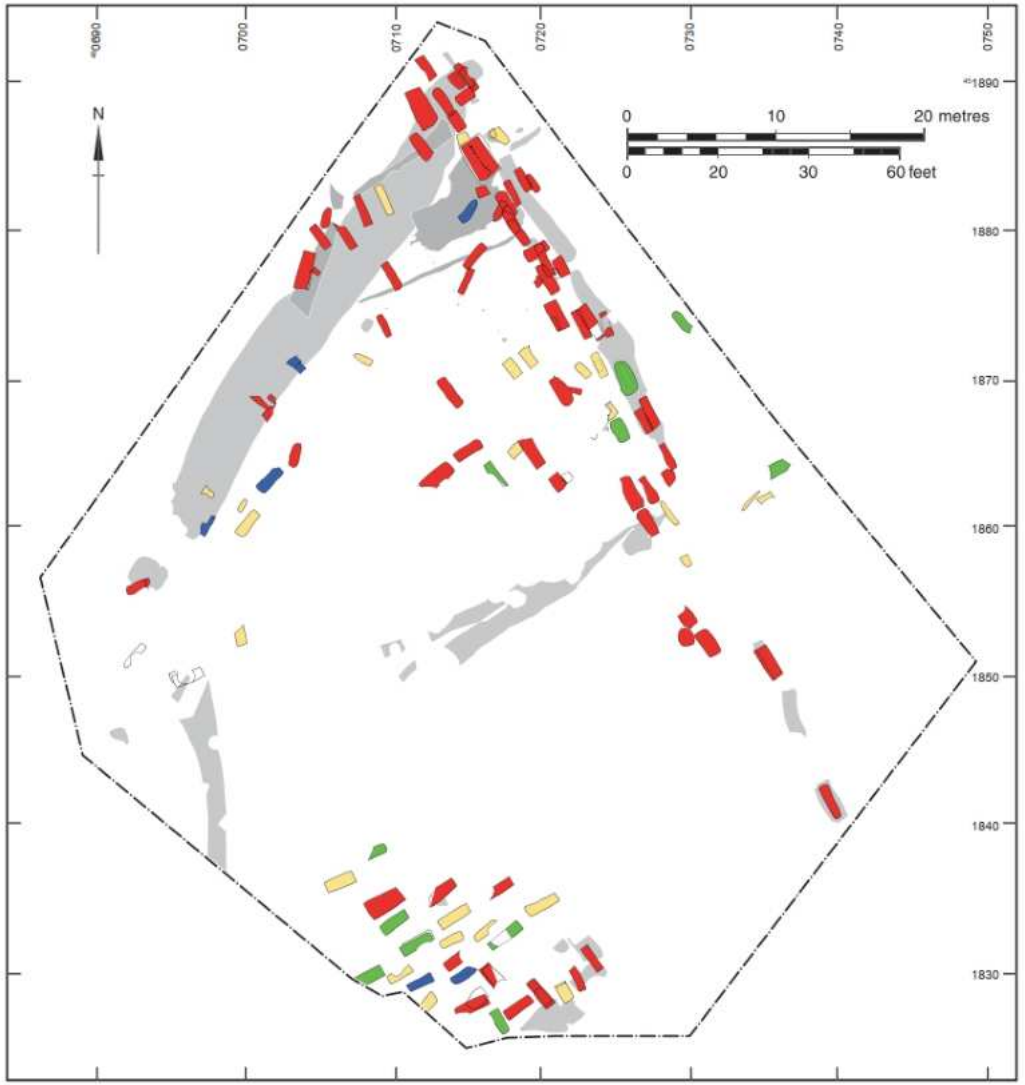


Fig. 4.3 Chronological distribution of Roman inhumations overlaid on to Period 1 and 2 features. Mid/Late 2nd to mid-3rd century graves in green; mid-3rd to mid-4th century graves in red; mid-4th to early 5th century graves in blue; graves with no closely defined date in yellow. Scale 1:400

disappeared. Later ditches included an eastern boundary, cut around AD 200, which had passed out of use half a century later. Rubbish thrown into the ditch included a high proportion of samian decorated vessels and cups, possibly from graveside meals. These ditches are seen as evidence of a mid-second century landscape re-organisation around York, stimulated by an increasing population.

In the later second century a cremation began the long sequence of burials in this peripheral area. A total of 11 cremations were found, initially roughly grouped together and dating into the mid-late third century but with the last, dated late third-mid fourth century, on its own, added to an earlier coffined inhumation. There is no intercutting and is likely that, even at an early stage, the burial sites were marked.

Inhumations began about the same time as the cremations, with just 10 burials from the mid/late second to the mid-third century, peaking between the mid-third and mid-fourth centuries with 74 burials and then declining, with only 7 burials firmly dated to c.70 years from the mid-fourth century through to the early fifth century. The cemetery probably extended to the south and west, and took the form of a 'linear' group parallel to the eastern boundary, mostly aligned north-west to south-east, and a southern group mostly south-west to north-east, plus a more random, possibly late/sub-Roman, group to the west and north. Most of the burials in the 'linear' group belong to the busier mid period, mid-third to mid-fourth centuries, whereas the southern group was in use throughout the life of the cemetery. An open area to the centre of Block H was maintained throughout the life of the cemetery, reason unknown.

Detailed analyses include grave shape and size, body position, use of coffins, plaster and stone-lined burials, stones and pillows, prone burial, flexed burials, multiple graves and groups, management including markers, and late/sub-Roman burials. There were roughly similar proportions of male and female burials—(38% male, 32% female, 30% not determinable. By far the majority of individuals from Hungate reached adulthood before death.

Half the burials had grave goods, an unusually high provision and an indication, perhaps, of the relative wealth of the former owners. Seven of the graves (6.0%) were quite richly furnished, with gold thread found in one grave, although eg. only one lead coffin was found. Hungate provides an opportunity to investigate small finds with burials, which most York cemeteries do not. Several of the graves suggest that the deceased was buried with the jewellery they were wearing. Some finds may well suggest military mourners.

Indeed, the pots themselves are of great interest, in their associations and uses. Most of the ceramic vessels were probably put in the grave after the coffin. They were normally ordinary domestic medium-mouthed jars and beakers and proportions of beakers, bowls/dishes and special vessels such as tazze, Castor boxes, headpots and candlesticks suggest that some of this material derived from graveside rites. Beakers are more prevalent amongst children and young people whilst babies and infants were not given accompanying vessels.

Among the rare finds Hungate has



Hexagonal base from glass inkwell.

© York Archaeology

Inscribed straight-sided cup: fragment.



produced is a very rare example of a hexagonal blue/green glass inkwell, dating from the later first to the early second century. The only other hexagonal example came from the vicus at Castleford and implies a military character to the assemblage. The early blue/green unguent bottles are of a type with specific York characteristics and were probably made there. A straight-sided colourless glass cup, deposited after the end of the third century, carries an inscription with the letters LISSO and the letter S followed by an engraved hand and arm. Colourless cylindrical cups are in themselves rare, and normally carry a design of swimming dolphins (one came from Wellington Row, York), but only a few inscribed cups are known, one from Bishophill, York. There are similarities between the York cup and one from Trier. Some 40 pieces of carved antler were recovered from two late second–late third century cremations and are interpreted as decorative strips from funerary biers or couches.

The pottery assemblage included types that are uncommon in York, such as certain Dales ware jars, which were associated with chicken bones. Two very unusual vessels resembled handleless tankards, in fine grey ware. There are a few rarer forms including Terra Nigra and Lyons ware and a samian bowl with barbotine decoration from Rheinzabern. The overall character of the samian assemblage is interpreted as ‘military’: confirming this is a second, samian, inkwell. These are normally found at military sites, including Castleford (fort and vicus), Piercebridge, Ilkley and Malton.



Grave of a ?gallus (S47637): jet multi-bead necklace, jet segmented bracelet and shale carved bracelet.

© York Archaeology

Some of the burial rituals are uncommon, rather than rare. One lead coffin was provided, with rich furnishings, for a child, and a plaster burial was also for a juvenile. A single grave was stone-lined, which is unusual in an urban setting, and a single burial was probably shrouded instead of coffined. One skeleton showed a probable stab wound to the throat but this is the only evidence of violence noted, and none of the dead appears to have been decapitated, a practice which is unusual in urban cemeteries in any case. Prone burial is also uncommon, and only four Hungate burials were buried this way. The presence of hobnailed shoes in various burials suggests a specific burial rite.

One young adult could not be sexed but the grave goods suggest similarities with a burial from Catterick who has been seen as a 'gallus', an male devotee of Cybele. Both burials include necklaces of jet, a segmented jet bracelet, apparently new, an annular shale bracelet and a simple copper alloy twisted wire bracelet. A pair of shoes in a box at the foot of the coffin were rather larger than usual for females at the time but this is all there is to suggest that the otherwise arguably-overdressed owner was a man.

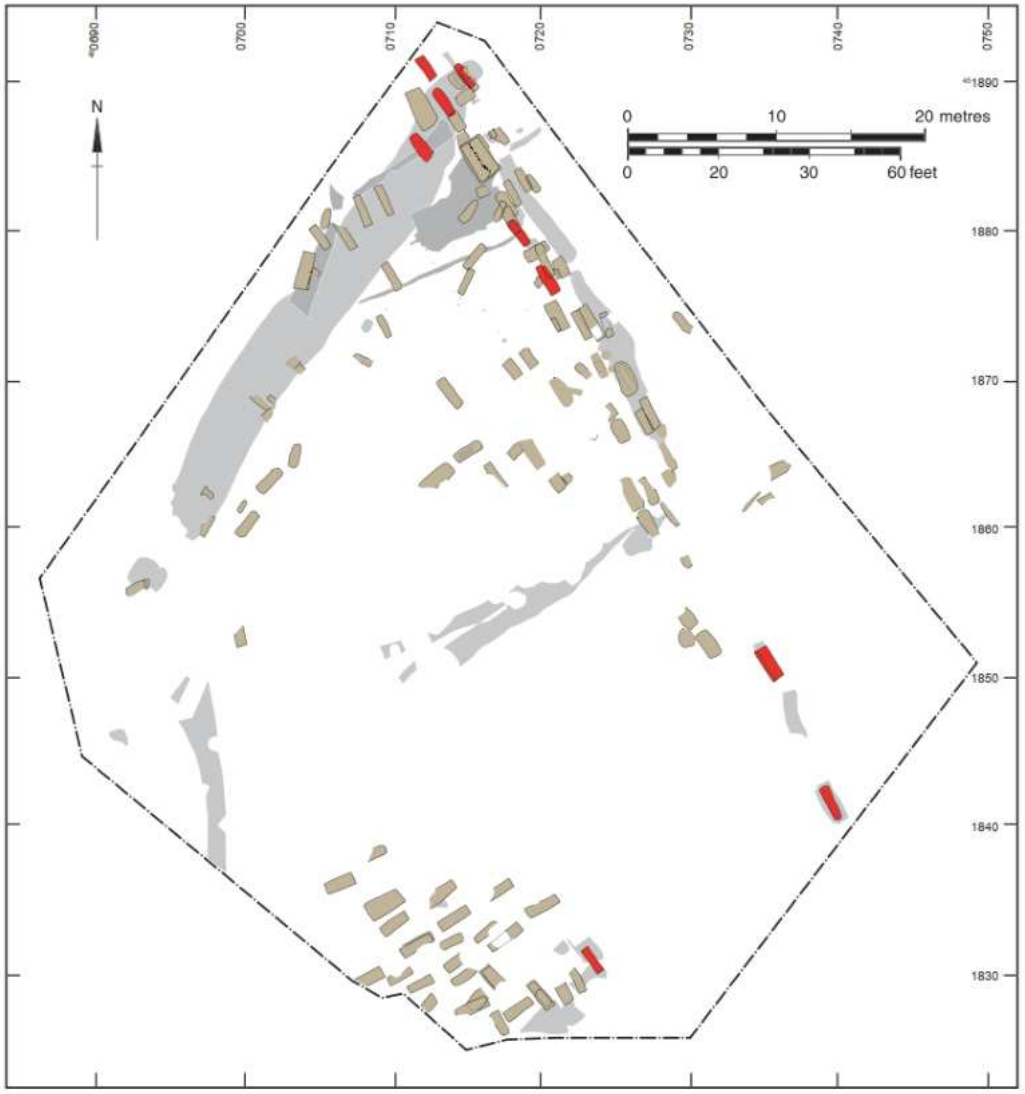


Fig. 12.31 Distribution of Roman inhumations buried with birds in pots (in red) overlaid onto the Period 1 and Period 2 features (in grey).

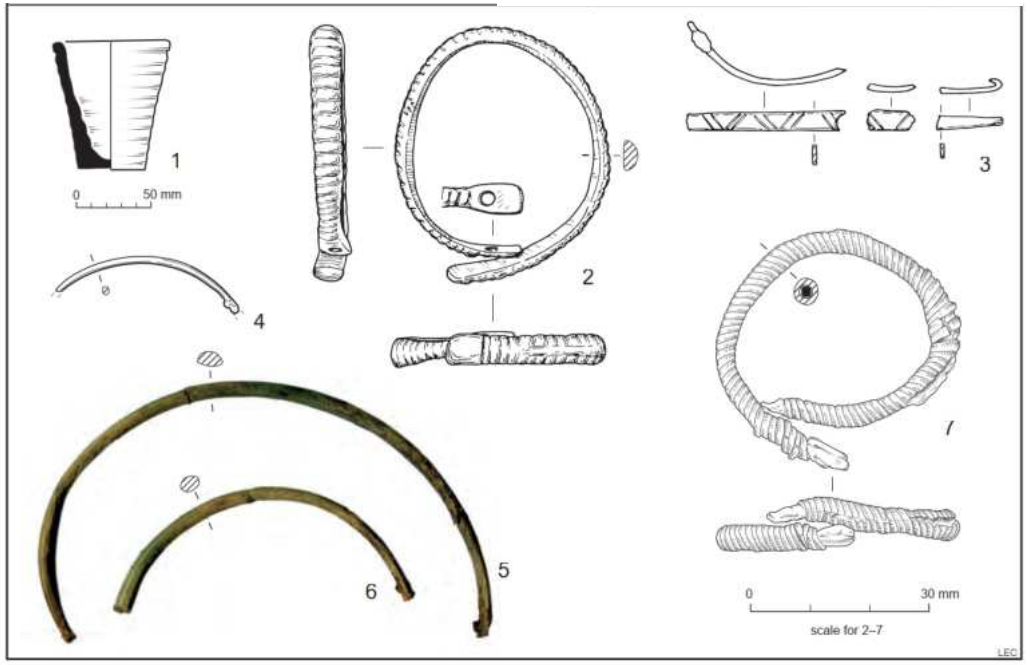
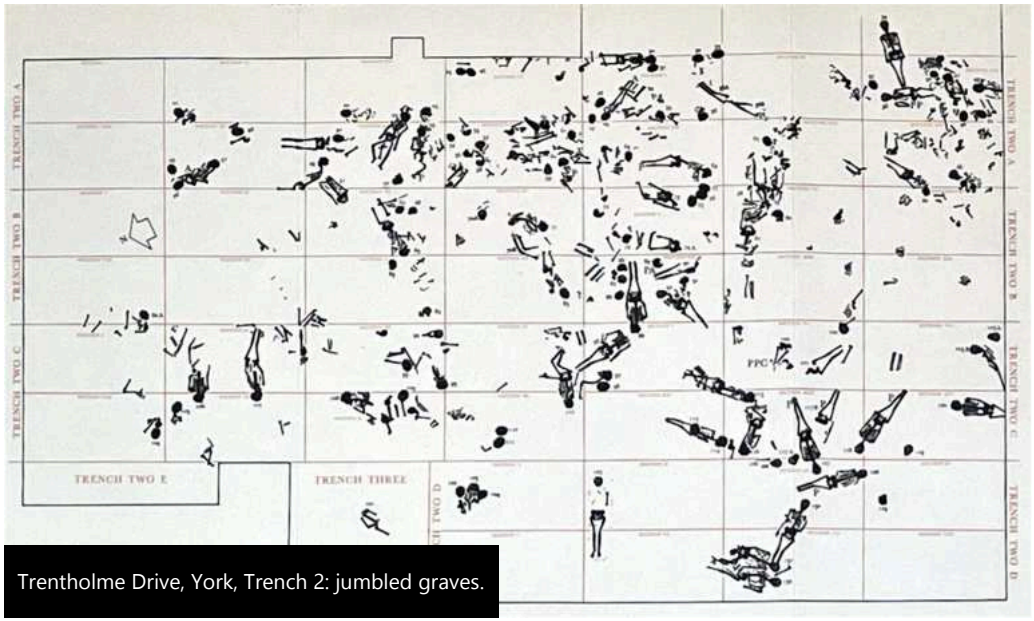


Fig. 4.47 S47666 with grave goods 1–7

Third-early fourth century burial groups are dominated by items made of either jet or shale, and one infant held a jet baton with imagery that can be explicitly linked to gods associated with mystery cults, together with a cockerel probably sacrificed to Mercury. This is one of nine burials, all dated mid third to early fourth centuries, contained chicken/cockerels in pots, assumed to be also associated with mystery religions. This is by no means unusual in York cemeteries and leads to some fascinating deductions. Another indication of ritual activity is provided by a bent copper-alloy miniature, votive 'spear', similar to others from the temple at Uley in Gloucestershire, where Mercury was also worshipped.

Non-burial votive features were also present: a number of examples of pots had been placed without accompaniment. Most striking was the apparently empty grave furnished with items of jewellery (rings in jet, bone and ivory) and a pierced coin, along with fittings of a probable box or tray. There is also an interesting discussion of the source of 'special' objects— candlesticks, lamps, drinking cups and glass vessels—which may represent ritual feasting and deposition of the remains on burial mounds.

As an example of the sea of troubles that archaeologists attempting to date sub-Roman assemblages can encounter—and the value of the Hungate assemblages in interpreting them—it would be difficult to improve on Inhumation S47666. This body was buried with an otherwise-unknown type of 'tankard', and a number of copper-alloy and antler bracelets. These can be interpreted as late Roman—late fourth/early fifth century, say, but there is nothing that need be later than AD 410. Nevertheless, radiocarbon dates for the burial emerge as 425–535calAD



Trentholme Drive, York, Trench 2: jumbled graves.



Western Road, Leicester: late Roman belt set.

© University of Leicester Archaeology Services

(68.3%) or 416–545calAD (95.4%). This apparently Roman burial could be sixth century! It is one of a small group with similar unexpected alignments, of which one, S47733, has produced a similar rare vessel. Maybe these are all very late, potentially sub-Roman, burials. If so, what does it say about late antique occupation of York? And how should we interpret other assemblages with late Roman characteristics? Whatever the answers, it underlines the value of this excavation.

Burials can imply identity: soldier? civilian? immigrant? merchant? wealthy? poor? How did the cemetery change over time? Why? Such comparisons are difficult: cemeteries are all different, serving diverse communities at different times. Other York cemeteries are similar but not the same. At 16-22 Coppergate, just 300 metres south-west, a small excavation found six burials within a fourth century larger cemetery, also within a ditched enclosure, of which five were within coffins. It was also organised into rows, and had been re-planned at some stage. Three of the burials were accompanied by grave goods, including a jet ring, beads, a hone, hobnailed boots and coins.

Trentholme Drive was the first modern (1951-59) excavation of a Roman cemetery in York. It also contained cremations and inhumations, but was larger, with a total of about 350 burials, and cremations were followed by inhumations. These were not, however, so carefully organised, but were unplanned, on differing alignments. It was in use for a shorter period, from about AD 140 to around AD 280: this might explain to some extent the lack of organisation, since later cemeteries tend to be more formal. It may have been serving a particular community of *Eburacum:* it is almost a kilometre south-west of the colonia, and there were four times as many males buried here as female. Personal ornaments were few, and much of the pottery was 'seconds', but there were two stone coffins. At the adjoining Newington Hotel excavation the burials were also jumbled and grave goods poor; in this area around half of the adults were male, while less than one fifth were identified as females.

In spite of the potentially normalising effect of Roman culture, even urban cemeteries can be so different that summarising them is complicated, and it is some time since the last survey. Any attempt to classify is hedged around with exclusions. The 2020-2015 excavation of part of a cemetery at Western Road in Leicester found 83 burials, dated early second century to early fifth, and all inhumations. Unusually for Leicester, they appeared disorganised, although some family groupings were recognised. Nearly a quarter were non-adults as against 32% at Hungate and 15% were prone, compared with just 4% at Hungate. Nearly half had grave goods, about the same as Hungate and at least a quarter were buried with their shoes, compared with 20% at Hungate. At least one burial was very late, since it had a late Hawkes and Dunning belt set. Similarities can be recognised here, in a city which, although lacking a formal military component, has many other parallels.

But at Canterbury's Rhodaus Town fourth-century-only cemetery, excavated in 2015-16, the minimum 219 inhumations were buried in compact, organised rows aligned on the boundary ditches; there was one late fourth century cremation. 80% of the graves had coffins and/or stone linings and all but one were laid out in a supine position. As at Hungate and Western Road, two-thirds were adults, and there were two decapitation burials. 16% of the inhumations had grave goods but none



Unguent bottle; unique ?local design with handle.

© York Archaeology

pottery, less than both Hungate and Western Road; like the 'Gloucester Goth', one grave had a very late fourth/early fifth century silver buckle paralleled by types from the Danube and Black Sea region.

The cemeteries in Leicester and the fourth century Rhodaus Town are comparable with Hungate, including the unexpected evidence for late occupation. In this tiny sample, it is the organisation which carries the Roman culture; the jumbled Trentholme Drive burials look to come from a rather different world.

Of course, any report exists to provoke further questions and Hungate is no different. Who was buried here? Were they locals or immigrants—administrators, slaves? Why were they so short? How did they decide whether to cremate or inhume? Where did they get the rituals from? Was there a burial fund? Were there any soldiers buried here? What is the reason for the central space? Why are there no tombstones—even broken? Some of these questions might be answered by a programme of genetic and isotopic analysis, but that would need investment. Well-targeted additional radiocarbon dating could bring out some interesting additional information.

It is a pity that some archaeologists may disregard this report as 'just another Roman cemetery report'. While some of the findings are predictable, there is much that is unexpected and exciting in this sample of an undoubtedly larger cemetery. The 14-page Bibliography is itself an asset, incorporating as it does the specialist bibliographies as well as the main report. There are very few obvious mistakes and the book is well presented, with many helpful illustrations, including some colourful graphs. And it has an index!—which is something very much to be encouraged in archaeological reports. It is excellent value—382 pages for £20!—and is unreservedly recommended.

Further reading

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The archaeology of modern poverty; Various authors, 2008, Current Archaeology, Issue 215

Sewer Diversion Phase 2 Hungate Development York; Hunter-Mann, K., 2008, York Archaeological Trust Archaeological Watching Brief Report Number 2008/20

HUNGATE: digging in the heart of York; Connelly, P.A. 2011, The Archaeologist, Number 80

Archaeological Excavations at Block F Car Park, Hungate Development, York; Johnson, A, 2017, York Archaeological Trust Assessment Report Number 2017/61

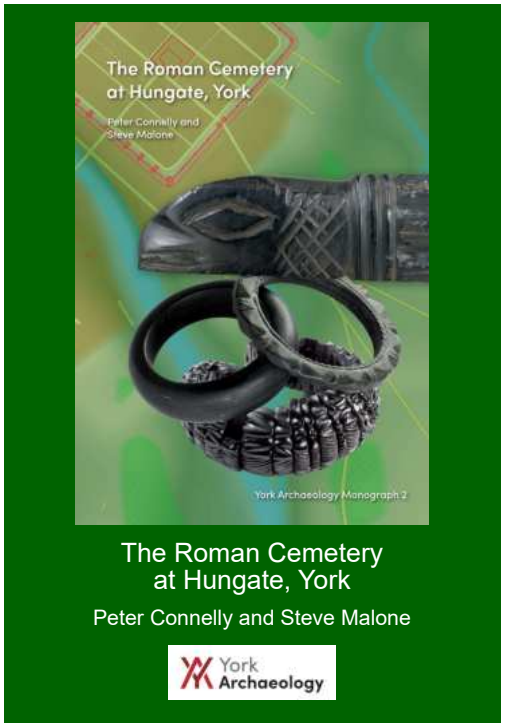
Burial and funerary practices in Roman Hungate, York; Connelly, P.A., 2018, Funeral Director Monthly, 38–41

Archaeological Investigations at The Former Newington Hotel, Mount Vale, York; Savine, B., York Archaeological Trust Assessment Report 2017/76

Synthesis, Chronology, and "Late Roman" Cemeteries in Britain; Gerrard, J., 2015, American Journal of Archaeology, Volume 119 (4), pp. 565-572

Buried between road and river: Investigating a Roman cemetery in Leicester; Morris, M., 2016, Current Archaeology Issue 319

Former Peugeot Garage Rhodaus Town (A28) Canterbury Kent CT1 2RH: Post-Excavation Assessment; Helm, R., 2017. Canterbury Archaeological Trust, Canterbury.



Conference 2025

Roman Towns in Yorkshire and the North

Yorkshire Archaeological & Historical Society

Roman Antiquities Section

Saturday 5th April 2025

9.30-4.45

The Auditorium, Creative Arts Centre

York St John University, Lord Mayor's Walk, York, YO31 7EX

Professor Martin Millett
Roman York revisited

Dr Frances McIntosh, English Heritage
***Coria* (Corbridge), the most Northerly town in the Empire. Recent work and future plans**

Dr Pete Wilson, Rarey Archaeology
***Delgovicia* not *Derventio*: Roman Malton and Norton**

Professor Martin Millett, University of Cambridge
Roman Aldborough 15 years on

Dr Peter Halkon and James Lyall -
'Rediscovering Roman Brough (*Petuaria*)'

Dr David Mason, Durham County Council -
'Civilian sites in County Durham' (*Title to be confirmed*)

Price £15 (including tea and coffee on arrival and mid-afternoon)

Lunch is not provided but is available from a variety of shops, cafés and restaurants in the area.

The York St John Campus is a 20 minute walk from York Station.

York Park and Ride Green Line from Rawcliffe Bar stop 5 minutes walk from the venue (ask for Bootham Bar). There is long-stay parking at Union Terrace and Monk Bar car park (both £20 for over 5 hours)

Book online at

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or use the QR code



Birdoswald: vicus excavations from the north.

© Historic England

Birdoswald: outside the walls

Birdoswald is a heavily investigated site. The first recorded excavation was in 1833, and since then each generation has, it seems, wanted to know more about the dramatically-placed fort which overlooks the Irthing valley. At a time when so many archaeological results come as a result of development of sort and another, it is pleasing to have a genuine research project, on a site about which we know much but where much is still to be discovered.

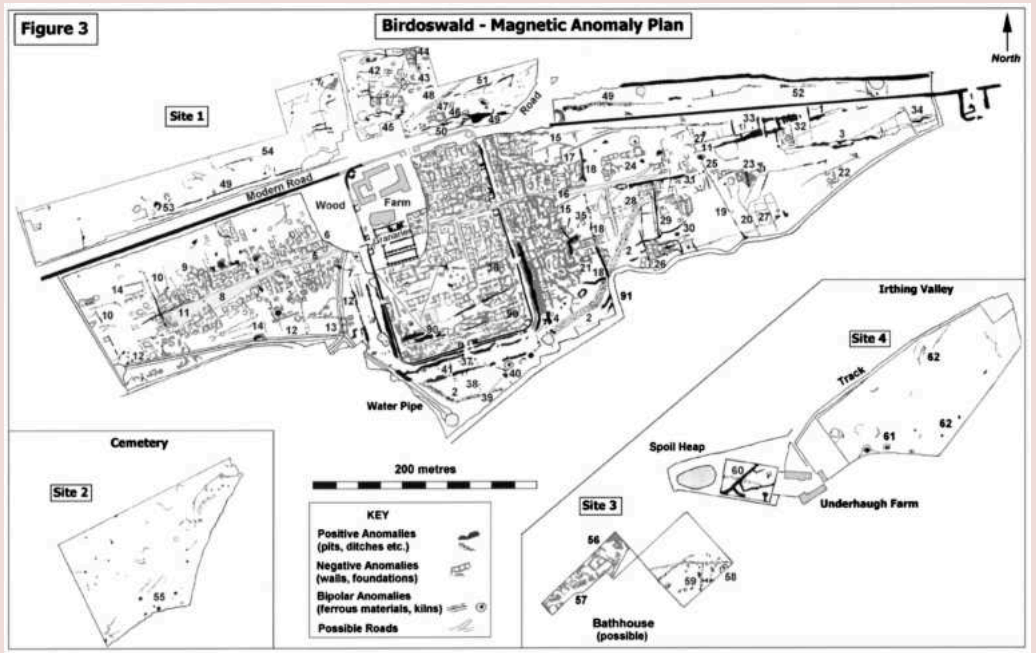
In the 1990's and 2000's the late Alan Biggins and David Taylor carried out a series of geophysical surveys which, in the words of Rob Collins and Matthew Symonds 'revolutionised our appreciation of the scale and complexity of extramural settlements at fort sites, ushering in a new era of research into them.' The Birdoswald excavations on the cemetery site to the west of the fort in 2009, and the recent 2021-24 series are just some of the fruits of those surveys.

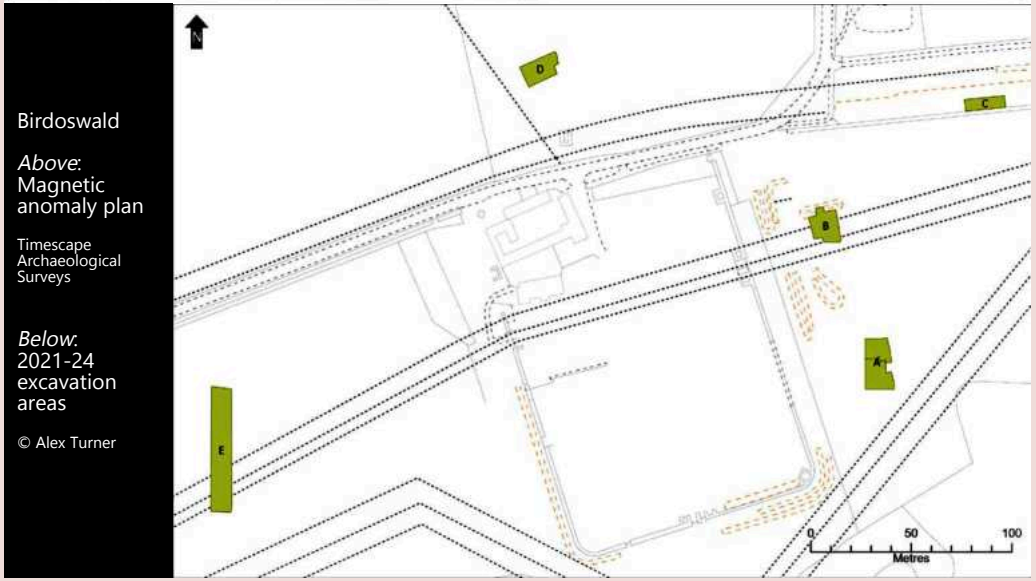
The latest work is a joint project between Ian Haynes of Newcastle University and Tony Wilmott of Historic England, designed to excavate areas to the east, west and north of the fort to establish the relationship between phasing and activity in these areas and the fort interior, and to examine the types of activity that took place. It was also a training excavation for Newcastle undergraduates, with some 250 young people gaining excavation experience.

Of the two areas excavated to the north of the fort, one (C), on the berm of Hadrian's stone wall, proved that this sector did not feature the obstacle pits found on the berm in the eastern 12 miles or so of the Wall. The second (D), led by the geophysical results, showed occupation, revealing the clay sills for timber buildings. A large material culture assemblage indicated that domestic and industrial activity took place here, and one of the buildings was identified as a smithy. Evidence of industrial activities included drops of lead, glass waste, grinding tools, and evidence of simple metalworking (slag, signs of recycling/ repairing metal tools), but not smelting.

Area E took a slice through the vicus west of the fort. The trench was planned to cut through the line of the original turf-built Hadrian's Wall. This is visible as the pale area at one end of the trench and is 'the widest stretch of Turf Wall excavated in living memory', says Ian Haynes. The ditch is still filled with blocks of turf that were tipped into it when the wall was slighted.

The road leading westward from the west gate of the fort expanded into an oval open area resembling a medieval marketplace with structures on each side. North and south of the open space the type of occupation differed. To the north were long, narrow stone-founded strip buildings with narrow ends facing onto the street. These are typical of a Roman vicus and probably originally had timber





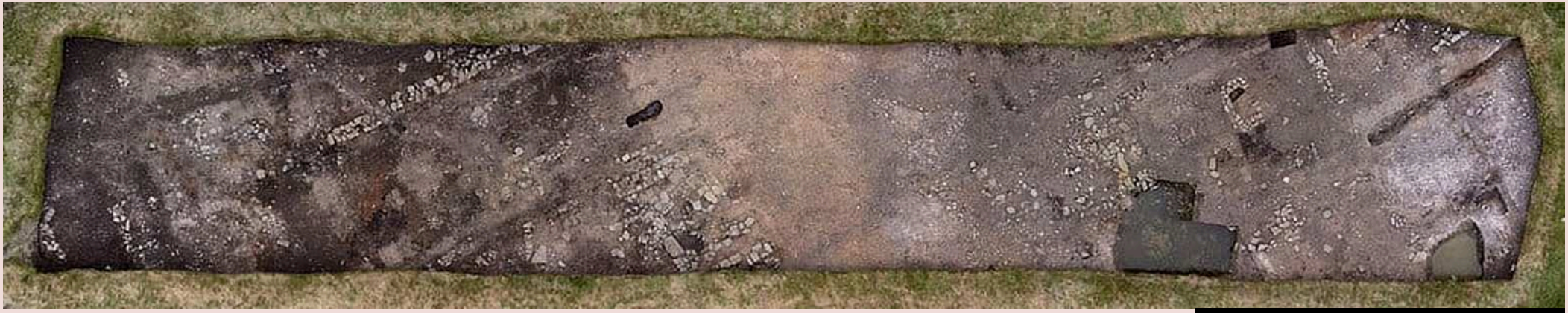
Birdoswald

Above: Magnetic anomaly plan

Timescape Archaeological Surveys

Below: 2021-24 excavation areas

© Alex Turner



Birdoswald: Area E, a trench through the vicus west of the fort.

© Historic England

Birdoswald: Area B, a strip building with the narrow end fronting onto the cobbled road.

superstructures. The size of these structures, set within equally long plots, indicates that they could have had multiple roles: they could have accomodated light industry within their yards, and perhaps some other kind of commercial offering. They were, however, only used for half a century.

To the south a large timber building was built, which was succeeded by a complex of industrial kilns. The date of this change of use has not yet been established. There were also traces of structures that look funerary in nature: one has a square outline like a small mausoleum, while others contain large pieces of amphorae that may have covered cinerary urns. Small amounts of burnt bone have survived. These new finds expand the spread of known funerary activity in the Birdoswald hinterland, in addition to the extensive 3rd-century cremation cemetery further to the west, excavated by Tony Wilmott in 2009.

East of the fort, Areas A and B were sited with different purposes in mind. B was intended to reveal a particular strip-building which was visible in the geophysics facing onto the road from the east gate. This proved to have two phases. The first respected the primary wide road, but the second fronted onto a narrowed road associated with the blocking of the east gate, known from the 1855 excavation, which was probably contemporary with the blocking of a portal of the west gate during the first third of the third century. With a prime position on the street and near the fort this is likely to have been a commercial building.

Of all the areas excavated, Area A turned out to be the most complex and productive of new information. It was hoped to investigate a square stone building found by Ian Richmond in 1932, and subsequently thought to be perhaps a signal tower. The building proved to be part of a large building complex with several phases and structures, with a depth and stratigraphic complexity which







meant that this part of the excavation necessitated continuing investigation for all four excavation seasons. By the third season it was clear that Richmond had found part of the fort bath-house, and the excavated area exposed the stoking chamber, the furnace, and part of the hypocaust of the hot bath (*caldarium*).

Initial construction involved building a substantial stone-lined drain to take away ground water. The drain ran under the floor of the stoking chamber, which was itself semi-subterranean, with just over a metre of walling beneath the contemporary early Roman ground surface. The sub-floor space provided for the stoking of the furnace and allowed the heated floor to be level with the exterior gravel surfacing.

The iron fire beams supporting the boiler over the flue survived intact, uniquely in the Roman Empire. They were over a metre long and 150 millimetres square in section and were immensely heavy. They would have supported a semi-cylindrical bronze or lead boiler called a *testudo* which would have been closed at the fire end, but open to the hot bath. Water

Birdoswald

Above: Area A mosaic with line of water supply.

© Historic England

Below: Bath-house under excavation, from east.

© University of Newcastle



Birdoswald: original culvert in Hadrian's Wall stone wall.

© Historic England

Birdoswald: Area A, iron collar from wooden pipe to bath-house.





Birdoswald: bath-house from the east, with *caldarium* hypocaust and flue from stoking chamber.

© Historic England

within the bath and *testudo* would have circulated over the fire, reheating the bath water. The bath itself was supported on tiles (*pilae*), and the walls were heated by ceramic flue tiles (*tubuli*) within the walls.

North of the bathhouse was a row of buildings of unknown function, which seem to have been frequently remodelled. Along the western edge of these buildings ran a narrow trench in which were found iron rings, which would have connected lengths of timber water pipe. North of the bathhouse this split into two branches, one of which ran off to the east. The main line of the pipe ran directly to a small stone-lined shaft against the wall of the bathhouse, clearly the means by which water entered the building. Piped water would accelerate as it dropped into the shaft and would probably have been siphoned to the level required by the boiler though a system of now-vanished metal pipes.

Supplying piped water would require a consistent source, probably involving an aqueduct. A primary culvert in Hadrian's Wall suggests that this was provided from the beginning of the fort's history, though this suggestion needs to be further pursued.

Limited excavations in the extramural areas of other forts have generated the idea that these settlements were abandoned in the later 3rd century. One aim of the present excavation was to establish whether this applied to Birdoswald as well.

Despite the extent of the excavation, nothing later than the later 3rd century AD was found. This indicates that, despite the size of the vicus, it was abandoned and, for at least a further century and a half, the fort was occupied. The bath-house itself was demolished to a consistent level in antiquity, and the flue and stoking chamber deliberately filled with demolition debris. Analysis of these intriguing aspects has only just begun.

Further reading

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Geophysical Survey of the Vicus at Birdoswald Roman Fort, Cumbria. Biggins, J.A. and Taylor, D.J.A. 2004, *Britannia* 35, 159–178.

Beyond Birdoswald. Hilts, C. 2023, Current Archaeology, 20–25.

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Birdoswald Excavations of a Roman fort on Hadrian's Wall and its successor settlements, 1987-1992. Tony Wilmott, 1999. English Heritage.

York: going underground

An ambitious project to investigate the underworld of York has brought mixed results.

Ground-penetrating radar has been used successfully in many archaeological sites, and the substantial brick and stone structures often found on Roman sites can produce impressive results. The technique is capable of showing horizintal 'time-slices' through deposits, which can sometimes show a sequence of buildings without the need to dig a site. Dating them is, of course, a different matter, and like all geophysical prospection techniques, GPR is limited by soil and other conditions.

GPR surveys have been carried out at the Roman cities of Aquincum in Hungary and at Aquileia, but these were limited in scope. At Bassianae in Serbia the site was open, the city having been abandoned, probably in the sixth century, and subsequently used as a quarry. An early aerial survey by the Royal Yugoslav Air Force in 1935 confirmed the site as a Roman city, and in 2014 a detailed survey using optical remote sensing (47.5 ha.) together with high-resolution near-surface geophysical methods was carried out. The results are impressive, but the report's authors note that the combined interpretation provides considerably more information than that of any individual dataset.

As with Bassianae, a geophysical survey of Falerii Novi, 50km to the north of Rome, by the universities of Cambridge and



Bassianae: (a) magnetic data image (b) GPR depth-slice from approximately 1.0 to 1.2 m depth (c) multidirectional hillshade image (d) orthophotomosaic of all aerial images.

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Ghent had the advantage of an unencumbered site since the city was abandoned in the sixth-seventh century and not re-developed. In 1997-8 the whole 30.5 ha. area was surveyed by fluxgate gradiometer, one of the first Roman towns to be investigated this way, and those results provided a control for the 2020 GPR survey. This was successful in revealing unexpected details—a system of water pipes which lead from the aqueduct, beneath its insulae (city blocks), and not just along its streets, as might normally be expected, for instance. Professor Martin Millett said: 'The astonishing level of detail which we have achieved at Falerii Novi, and the surprising features that GPR has revealed, suggest that this type of survey could transform the way archaeologists investigate urban sites, as total entities.'

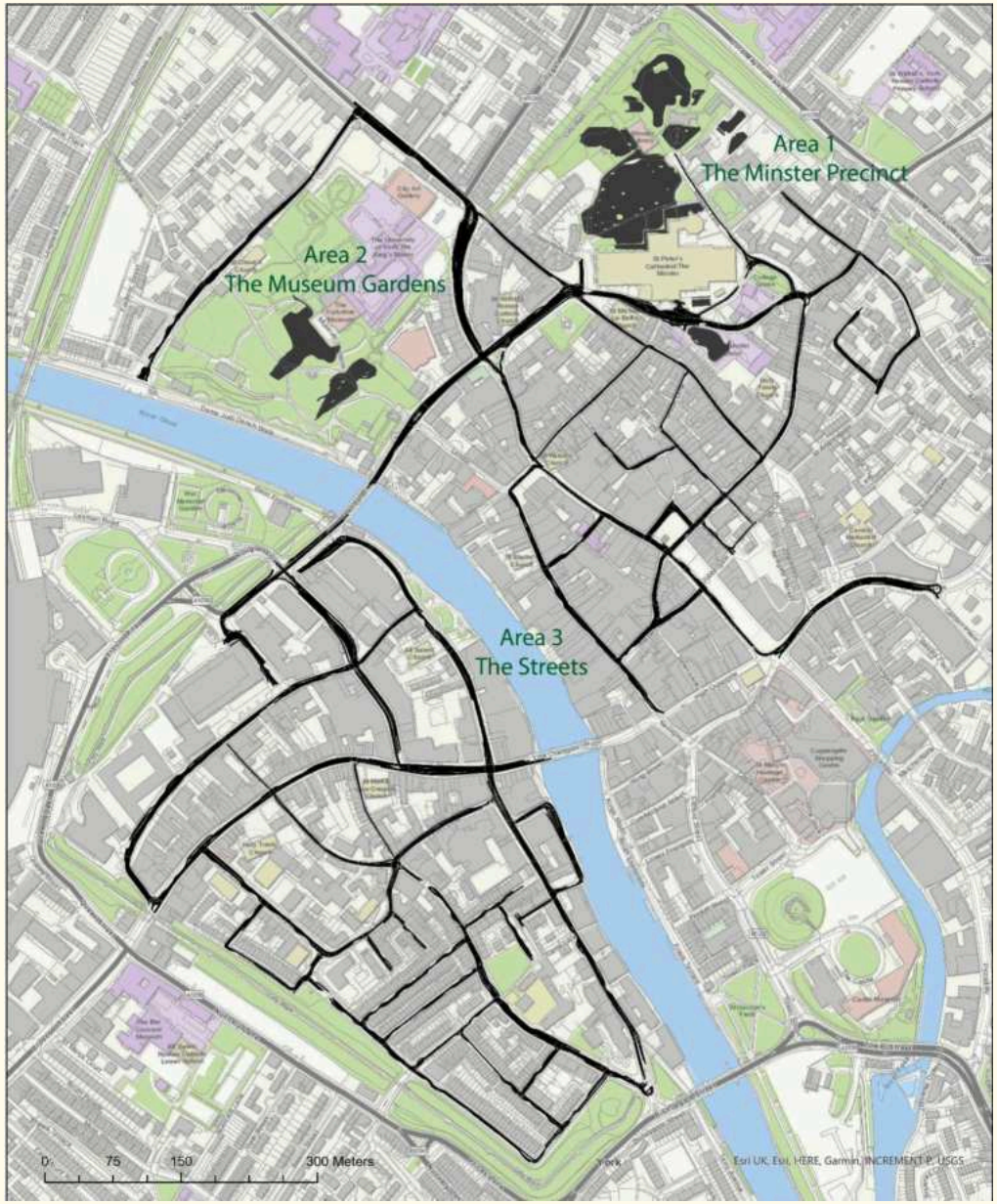
The attraction of York as a British test site for GPR is obvious: basically, much is known, but much is still unclear. York was an administrative centre for centuries and some substantial structures are still to identify. There should be a Roman amphitheatre—in the cases of Chester and Caerleon, it was immediately outside the fortress walls and in London, again, immediately adjacent to the Trajanic fort.. When Septimius Severus and his family stayed in Britain in AD 208-11 it seems very likely that they had a palace in York: where was it? And where was the Anglo-Saxon cathedral church of St Peter and its associated buildings?—presumably near the present Minster, togther with the historically-attested Church of Holy

Wisdom, the Minster school/library, and a belfry? The earls of Northumbria had a fortified residence, *Earlsburh*, somewhere in the area of Marygate—where? And there are many questions regarding medieval and later buildings.

The *Roman York: beneath the streets* project launched in 2020 with a preparatory season investigated the feasibility of a ground penetrating radar survey in York. An area of about 3.5 ha, was surveyed within the Precinct of York Minster using GPR (Area 1). The survey aimed to enhance knowledge of the layout of the Roman fortress and of the depth of the archaeological deposits to aid modelling the ancient topography; to identify Anglo-Saxon structures

As a prelude, a pilot survey experimenting with different antennae was undertaken to select the most appropriate frequency for detecting the Roman remains. These were found to be around 1.5-2.0 m beneath the surface in the pilot area. The 250 MHz antenna was selected as optimal.

The survey revealed traces of Roman barracks in the northern corner of the legionary fortress, but elsewhere the Roman remains were too deep to observe. Nonetheless, evidence for a significant range of later features was obtained, including: modern utilities, Victorian park and garden features, features related to the Ingram Mansion and estate (the palace, the tennis court, bowling green and the fishponds), and



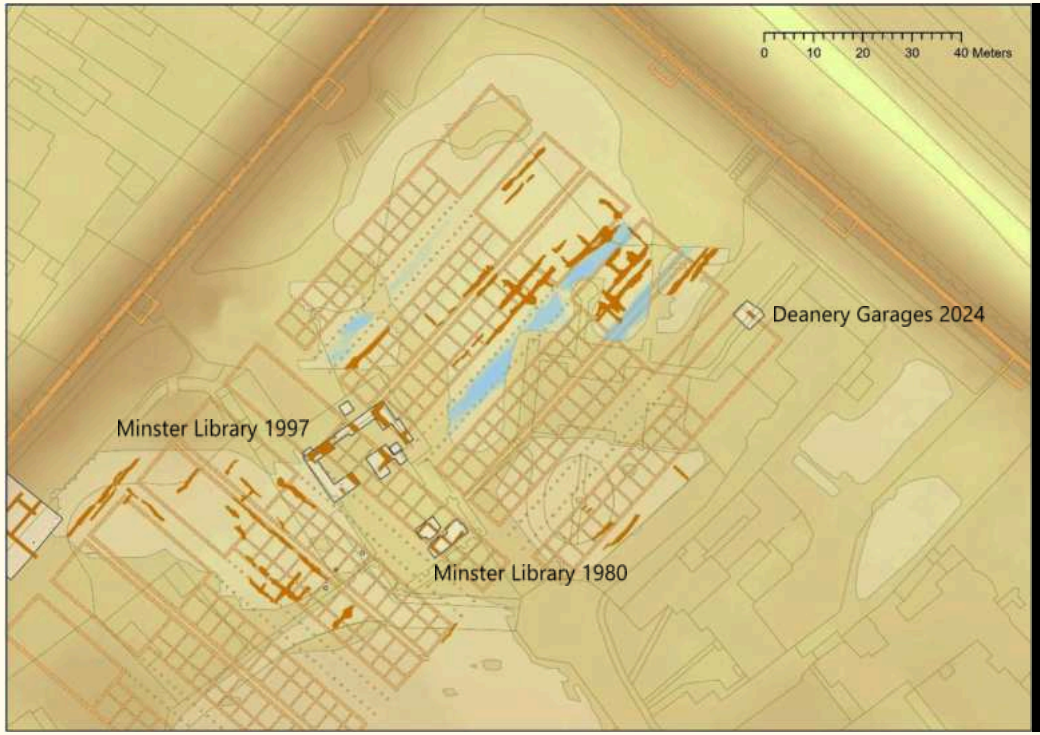
details of the complex development of the Archbishop's palace, including evidence for significant new remains.

The Roman structures excavated in 1980, 1997 and 2024 have been seen as indicating two rows of legionary barracks at right angles, for two cohorts. The GPR results confirm this. Unfortunately, elsewhere in the Precinct area the Roman remains were too far below the modern ground level to be surveyed.

No unambiguous evidence for the Anglo-Saxon minster was detected, but like the Roman remains, in some areas they are likely to have been too deep to be detected, though these can now be predicted. Data from earlier cartography, excavations, and historical records have been synthesised with the GPR results to aid interpretation, and past cartographic information has been digitised to present a new interpretation of elements of the Minster Precinct.

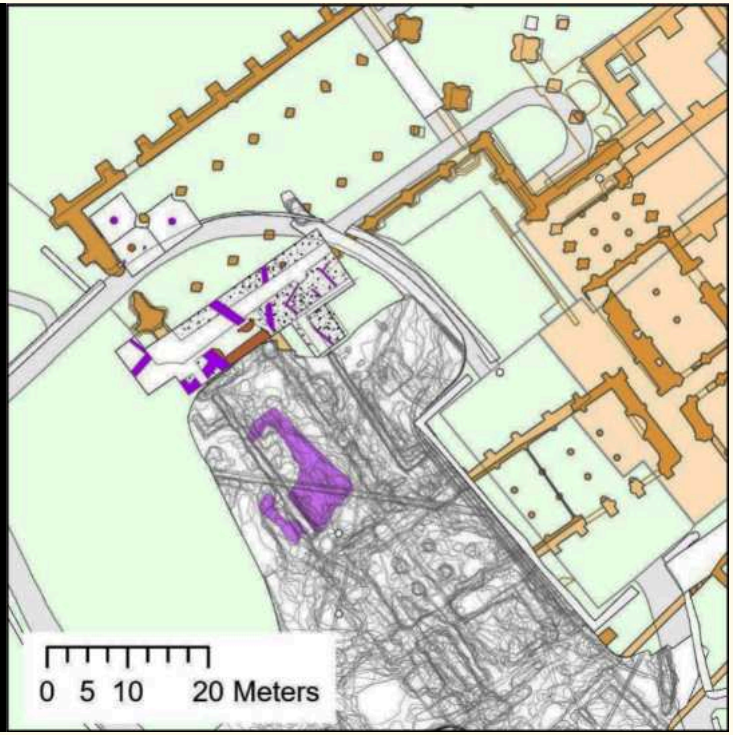
The Museum Gardens (Area 2) occupy part of the former precinct of St Mary's Abbey, which lies immediately outside the walls of the Roman legionary fortress. The *Roman York: beneath the streets* project undertook a GPR survey in the gardens to test hypotheses about the existence of a Roman road (RCHM Road 5) crossing the area, and to see if any Roman remains were visible beneath the medieval structures.

A 250 MHz antenna was selected, and subsequently about 1.3 ha. was surveyed,



Left
Minster Precinct: reconstruction of barrack blocks layout. Survey areas light orange. Earlier excavations named.

Right
St Mary's Abbey Precinct: Willmot's excavation with Roman walls purple. GPR anomaly light purple, within survey area grey.



split across two areas. The frequency optimised the discovery of features c. 1.5 m beneath ground surface, but, of course, also captured evidence for much else.

No evidence to support the existence of the Roman road was discovered, but there was tenuous evidence for a deep early structure, adjacent and on alignment to a Roman wall which had been discovered during Willmot's poorly published excavations of 1952-56.

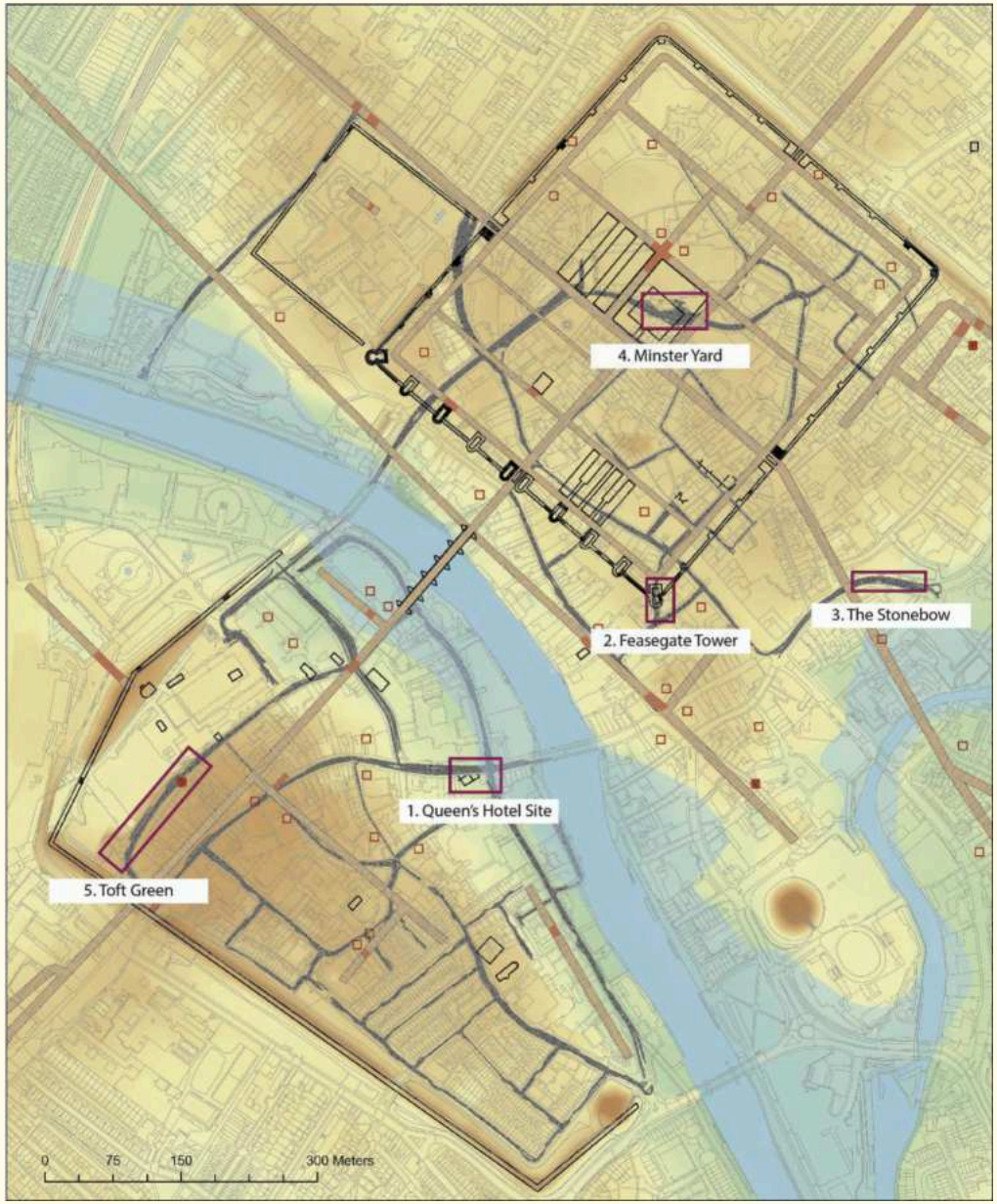
The Wilmott excavations of 1952-56 identified a sequence of Roman buildings south-east of the south wall of the nave of the church of St Mary's Abbey. Contemporary publication was inadequate, but a GPR anomaly, semi-rectangular in overall shape with sides almost on alignment with Willmot's south-westerly building, maybe associated with his findings.

Evidence for features relating to the abbey dominated the Museum Gardens survey and has enabled Sharp's 1823 plan of Wellbeloved's excavations to be refined. It has also enabled the hypotheses of Whittingham and Norton about the buildings in the Outer Courtyard to be revisited using the new data.

5 ha of the streets of York city centre (Area 2) were surveyed using a step-frequency GPR system, dragged along the street surface at low speed for 11 km. This was the first large-scale trial of its kind in the UK focused on testing the observability of archaeological features in urban environments.

The GPR frequency ranged from 200-3000 MHz, which in theory meant that it should be good for capturing data from the surface down to 3m or more, though anything other than the largest archaeological features would probably lose resolution beyond 2m. The survey registered details about the road makeup, services, and utilities. It had been imagined that the density of modern utilities might make seeing the archaeology between or through them impossible. However, it was noted that while dense in some areas, in many parts of the city there was plenty of space between linear features to observe any potential phenomena.

Unfortunately, no identifiably Roman features were discovered. The problem was not caused by utilities, but significant signal attenuation, with few features



visible below about one metre. No archaeology was observed below this depth, even when the survey was above known archaeological features. To investigate if this was due to soil ground conditions or equipment, two areas were resurveyed using a 250 MHz detector which had worked well on open grass areas within the city but it too suffered from significant signal attenuation below 1 m. This may relate to the road makeup, and beneath that the attenuation from clay and sedimentary deposits.

Correlating the GPR results with the known Roman remains showed that no Roman remains could be observed in the data. This was tested by detailed analysis of five areas where features were known from earlier excavations to be projected under the streets: Queens Hotel, Feasegate, Stonebow, Minster Yard and Toft Green. In some cases structures were very substantial, and in others immediately below the road make-up layer, yet in no cases were they detected. This is due to a combination of deep structures and attenuation, with a significant loss of amplitude of the GPR wave as it propagates through the ground.

The combination of well-made roads and silts and clay mean that archaeological features below 1 m are unlikely to be visible in surveys of York's streets (and in the case of Stonebow, perhaps even less).

Further reading

Integrating Geophysical and Photographic Data to Visualize the Quarried Structures of the Roman Town of Bassianae. Roland Filzwieser et al., 2021, Remote Sensing

Ground-penetrating radar survey at Falerii Novi: a new approach to the study of Roman cities. Lieven Verdonck et al., 2020, Antiquity

Roman York: Beneath the Streets reports

Ground Penetrating Radar Surveys within the Precinct of York Minster; Roman York: beneath the streets, GPR Report 1, January 2025, Creighton, J., Verdonck, L., Millett, M., & Matthews Boehmer, T. (2025)

Ground Penetrating Radar Survey within the Precinct of St Mary's Abbey (York Museum Gardens); Roman York: beneath the streets GPR Report 2, January 2025, Creighton, J., Verdonck, L., Millett, M., & Matthews Boehmer, T. (2025)

Ground Penetrating Radar Survey along the streets of York City Centre; Roman York: beneath the streets GPR Report 3, January 2025, Creighton, J., Verdonck, L., Millett, M., & Matthews Boehmer, T. (2025)

Aldborough 2024

The ongoing Aldborough Roman Town Project, which has been investigating *Isurium Brigantum* since 2009, opened a new 5m by 10m trench in August-September 2024.

It was hoped that this would provide greater understanding of activity within the area of the annexe north of the town, and about the nature and extent of any first-century AD activity in this part of the settlement. There would also be an opportunity to undertake intensive soil sampling and flotation to enhance the existing environmental evidence from the Roman town.

The triangular-shaped annexe, defined by ditches attached to the northern defences of the town, was identified during the gradiometer survey. The function of this feature remains uncertain, although the geophysical survey shows that its defensive ditches predate the latest phases of the ditches outside the town wall. It seems most likely that the annexe formed a compound for the storage and management of goods.

The stratigraphy proved deeper than anticipated, with natural sand only reached in one small area. As a result, features were sampled rather than being fully excavated and the structural sequence could not be fully explored in the time available. Furthermore, the site had suffered from very substantial disturbance through rabbit burrowing.

Period 1

The earliest phase of activity is probably represented by a single shallow beam slot which was by a series of cut features of Period 3B. It was 0.35m wide and oriented east–west; it is presumed to have formed part of a timber building. It produced only a couple of sherds of pottery which are not dateable. There is too little evidence to assess the date or the character of the timber structure assigned to Period 1.

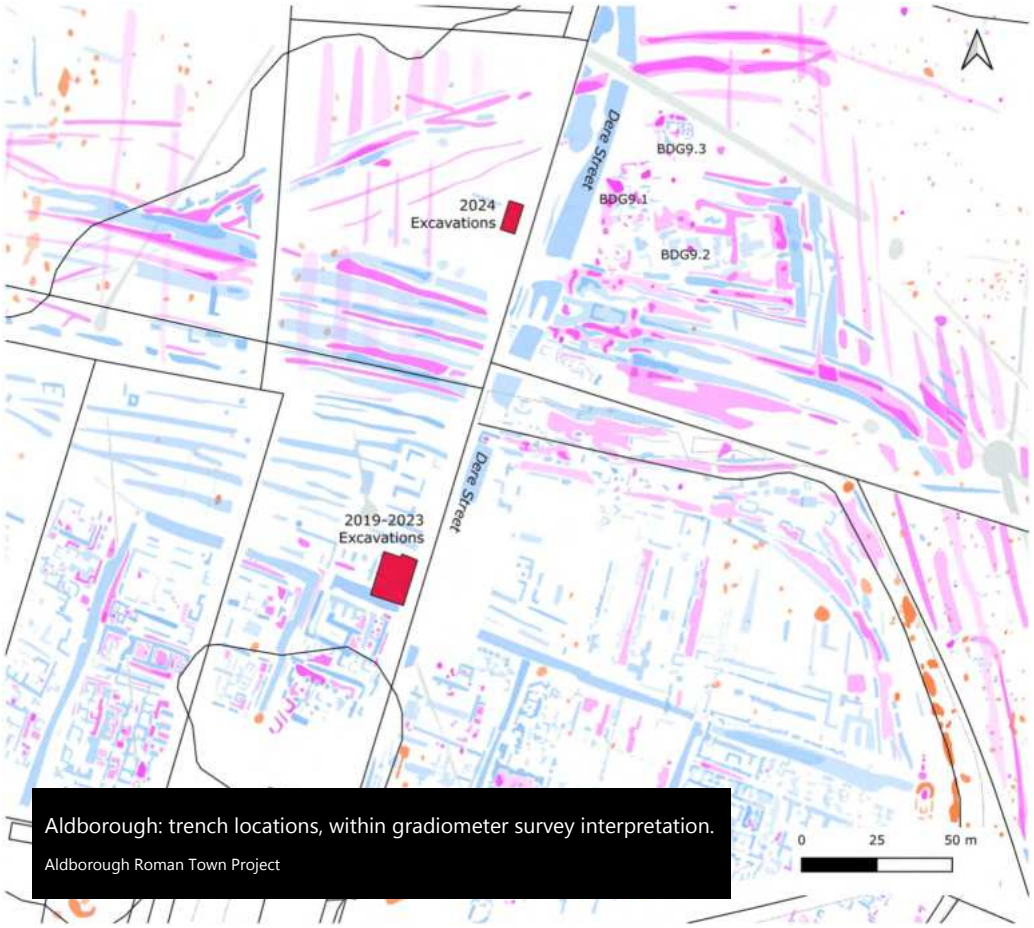
Period 2

A very substantial feature occupied the southern half of the trench. When sectioned, this proved to be the product of the destruction and robbing of a stone-built structure. Floor make-up and part of the stone-flagging of this was revealed in our section, but excavation was not continued any deeper.

The depth of the flooring below the level of the natural sand reached in the northern part of the trench, implies that it was probably the base of a hypocaust. This conclusion is supported by the presence of residual fragments of box-flue tiles from contexts of Period 3A and later as well as burnt material lying on the basal levels revealed. The presence of a human burial (below, Period 3B) prevented investigation of the hypothesised location of the north wall of the room. Associated pottery was limited but suggested a date of c. AD 120–170.

The evidence is consistent with the commencement of activity in this part of Aldborough in the second century. The samian assemblage suggests that there was little activity before c. AD 120, with only a little residual earlier material. This implies that the excavation was located outside the limits of first-century settlement, providing a useful indication of its northward extent.

It seems likely that activity in this part of the site commenced after the construction of the road and bridge over the river Ure which we have previously argued was contemporaneous with the establishment on the street grid around AD 120. The stone building of Period 2



Aldborough: trench locations, within gradiometer survey interpretation.

Aldborough Roman Town Project



Aldborough: surviving flooring of Period 2 hypocaust.

Aldborough Roman Town Project



Aldborough: period 3b inhumation burial.

Aldborough Roman Town Project

seems to have faced onto the Roman road but we have limited dating evidence for it. The small assemblage of associated pottery dates from 120–170 whilst the samian assemblage from the trench has its floruit from around the middle of the second century. If we are correct in identifying the excavated structure as part of a hypocaust, this would imply that it was a building of some status. This contrasts with the industrial character of the contemporaneous buildings we excavated to the south in 2019–23 inside the town near the North Gate.

The Period 2 stone building was demolished and spoliated sometime around early– mid third century AD. This is significant as its demolition may be contemporaneous with the construction of the town wall which lies c. 70m to the south of our trench. It may be that the construction of the wall would have entailed the clearance of an area beyond its flanking ditch. It may also be the case that the construction of the town wall isolated this area from the now intra-mural settlement, leading to its abandonment. We have previously concluded that the wall was constructed in the late second century, a date supported by the evidence of pottery from field-walking, although Snape et al. 2002, 58-60 had suggested that it was of early–mid third century date.

Period 3a

Immediately overlying the Period 2 structure were a series of deposits which appear to represent the demolition and spoliation of the building. Given the lack of any replacement building, it is assumed that this was deliberate. The associated pottery suggests an early–mid third century date.

Period 3b

Following the building demolition a large hollow was left, which was subsequently filled with a series of dumps of rubbish.

A single burial was cut into this rubbish deposit early in the sequence, whilst other fragments of human bone indicate the presence of further burials nearby. The



Aldborough: period 5 rubble spread and possible timber structures.

Aldborough Roman Town Project

body was of a mature adult placed in a well-cut grave. It was flexed, lying on its left side with head to the south-west. An iron penannular brooch discovered between his lower legs was the only identified grave good.

A series of shallow pits and a possible ditch are broadly contemporaneous with the infilling of the hollow. These were sampled in the northern half of the trench. Associated surface deposits spilled into the hollow. The pottery from the dumps, which may be associated with feasting, indicates a date in the mid to late third century.

Activity in Period 3 was largely associated with the infilling of the hollow created by the spoliation of the Period 2 building. At this stage, this area lay within the northern annexe which was constructed after the town wall was built. To the west of the excavation, the annexe was occupied by a substantial stone building. By contrast, this excavation showed no structural evidence and the presence of burials and refuse disposal suggests that it was peripheral.

Initial assessment of the assemblage from the excavation shows several unusual characteristics. Firstly, the pottery assemblage has unusually high proportions of fine wares, especially drinking vessels. Secondly, there are exceptionally large numbers of oyster shells. These features seem to suggest that the assemblage may relate to feasting.

Two hypotheses are worthy of exploration to explain this. Firstly, the material may be associated with funerary rituals. However, although burials were present, there is nothing to suggest that the excavation lay within the area of a major organised cemetery with the excavated burial most likely being relatively isolated. Secondly, and more probably, the refuse may have come from a building nearby, arguably building 9.2 located on the other side of the adjacent road. This may indicate that this building was for a function other than ordinary domestic use.

Period 4

The top of the hollow and the area to its north were filled with a series of layers that seem to represent a gradual accumulation of surface deposits with no associated features. This seems largely to date to the later third century.

In contrast to other areas of the site, deposition in the excavated area seems to have stopped almost completely at some stage early in the fourth century. There is little pottery that need be any later than this and there is a marked absence of fourth century coinage. Elsewhere, to the south, and also to the area immediately to the east and south-east on the opposite side of the Roman road, pottery continued to be deposited until at least the mid fourth century.

This contrast suggests that the change was related to local circumstances, and, given the evidence for the continued use of the northern annexe into the late Antique period, we can perhaps suggest that this part of it was retained as an open area, perhaps for storage corralling stock.

Period 5

A series of post holes, an associated rubble spread and a layer of redeposited sand along the western side of the trench probably represent a timber structure but too little of this was uncovered to ascertain its character. The associated pottery is early fourth century but these structures may be associated with the medieval ridge-and-furrow cultivation.

Period 6

A furrow cutting through the Roman deposits on the eastern edge of the trench is evidence of medieval ridge-and-furrow cultivation.

Petuaria: hints of last days?

Peter Halkon and James Lyall
(Directors)

The fifth season of excavation jointly run by the Elloughton-cum-Brough PFA and ERAS began on the 20th July continuing every day until 11th August. Unlike the 2023 season, when a marquee had to be hired to enable digging to continue due to heavy continuous rain, the weather was fine.

The aim of the excavation was to continue to investigate the northeast corner of the defences on the Burrs playing field. The section of wall and D-shaped bastion uncovered in 2023 was left alone as we wanted to concentrate on getting a better idea of the construction of the rampart first excavated by Philip Corder in the 1930's. Four new areas were opened within the trench, leaving balks between them to allow the sections to be observed and recorded. The topsoil was removed by machine.

Until 1971/2, the playing field had been arable farmland, and the top of the rampart was immediately visible below the ploughsoil once the latter had been removed. One disadvantage of the hot weather was its effect on the clay layers of the rampart as it was baked solid and took longer than expected to dig through with mattocks and shovels—it was hard work! The laminated layers of clay and other material were clearly apparent in the section and the original spadefuls of clay and possibly turf could be seen in plan, although there was no obvious coherence, and the impression was that the rampart had been constructed quickly.

Under this was a layer of irregular blocks of limestone, derived from the local Cave Oolite quarries, forming a solid foundation or consolidation layer for the rampart above. Finds were relatively few, but included oyster shells, animal bone and small pottery sherds. The pottery within and above the clay rampart consisted of local greywares, Nene Valley colour coats dating from the third century AD and small sherds of samian, which was almost certainly residual. At regular intervals deposits and spoil were metal detected and sieved when it deemed appropriate. Finds included a coin of the Gallic Emperor Victorinus (AD269-271) the obverse of which was in good condition and showed the curly bearded head of the emperor with a radiate crown.



Petuaria: section across the defences from the "clay" rampart down to the earliest "sand" rampart .

Peter Halkon



Petuaria: stone layer at the base of the "clay" rampart.

Peter Halkon

Below the stone base was what Corder had labelled the sand rampart. This too was laminated with layers of sand and clay and contained many more finds than the rampart above. There was a relatively high proportion of samian, both plain and decorated with two stamped bases. Coarse wares included oxidized Ebor wares, Black Burnished ware and sherds of a rusticated vessel generally dated to between AD70 and 120. Finds from this deposit were a circular copper alloy plate brooch, a fragment of blue glass bangle with a white trail, a die and a copper alloy nail cleaner, which would have formed a set with a pair of tweezers and ear scoop. What was probably the base of the sand rampart was only reached on the last day in a small area.

In the 2022/2023 seasons trenches were opened in gardens immediately to the east of the Burrs. In one of the gardens on Wrygarth Avenue the owner had, some years previously, found what he thought was the surface of the Roman road leading into the east gate of the walled enclosure on the Burrs Playing Field. The 2023 excavation uncovered an upper surface of larger stones with a camber which was thought to be part of the road. The aim this year was to try to find the road surfaces in the



Petuaria: glass bracelet fragment; nail cleaner; die.

Peter Halkon

neighbouring garden to the south. Under a thick layer of topsoil was a sandy deposit which contained several sherds of medieval Humberware pottery, including a bung hole from a cistern. This had been cut by a field drain. Below the sandy layer was a random cluster of crude limestone blocks. At the western end under a layer of larger stones was a surface which resembled the possible road surface excavated in 2023. This had been truncated by an irregular pit. Roman finds were scarce but included part of a tegula (roof tile) and sherds of greyware. Under the stones at the eastern end of the trench the ground became waterlogged, and beneath the stone layer were substantial pieces of wood. It is not clear at this stage whether they were worked or just natural branches or roots. Although the stone surfaces were on the correct alignment, it is still not clear whether this was the Roman road given the lack of finds.

During the current year's excavation the radiocarbon dates awarded by the Community Archaeology Radiocarbon Dating Fund sponsored by Archaeological Research Services came through with some surprises! A piece of field maple from above the Roman road surface found in 2023 was dated to 421 - 572 cal. AD (95.4%) (SUERC-127052). The red deer antler found in what may be the upper surface of a Roman ditch in the northernmost of the two gardens excavated in 2023 was also dated to 420 - 567 cal. AD (95.4%) (SUERC-127053). If these dates are correct, they present an intriguing picture of post-Roman Petuaria.

This year's dig was greatly helped by a grant from the UK Shared Prosperity Fund, through the East Riding of Yorkshire Council. One of the criteria for the award was community engagement and this target was certainly achieved as 84 wonderful volunteers actively took part in the excavation, with a core team of 21 more experienced diggers, many of them being ERAS members. Participants ranged in age from primary school age to their eighties. It was particularly encouraging to have a keen and able group of school students and undergraduates with us. We held a very successful open day attracting over 300 people and at least a further 300 showed interest in our onsite display and were given tours of the site.

The UKSPF grant has also enabled for the first time a permanent display panel which is to be sited just outside the Burrs playing field. The highlight of this is a reconstruction by illustrator Mark Hoyle of the latest Roman phase of the walls showing the rectangular bastion excavated by Corder and the D shaped example discovered in 2023. This was picked up by the popular press and even covered by the Daily Express!

We are very grateful to the Yorkshire Archaeological and Historical Society and Dulverton Trust for their grant aid, to the whole committee of the Elloughton cum Brough PFA for all their support and special mention must go to the owners of the respective gardens who supplied regular cups of tea and coffee for those in the garden trench. We were even supplied with cakes by local residents. This was a real team effort, however particular thanks must be given to Lucy Crosbie, Colin Parr, Alison Spencer, and Jennifer Wilson who took on supervisory roles.

A successful application to the Hull Maritime Community Grant Scheme has also enabled geophysical surveys on the larger properties to the west of Cave Road to be conducted. The extensive gardens and paddocks behind these houses back on to the former tidal inlet of the Humber which became Walling Fen and was subsequently drained for farmland. So far, a team led by James Lyall (magnetometry) and Colin Parr (resistivity) have surveyed a considerable area. Most recently we have been given a boost by Richard Gibson who is undertaking GPR (Ground Penetrating Radar) surveys with James Lyall and a team of volunteers. The results so far are most impressive revealing hitherto unknown Roman buildings which may relate to a harbour installation of some kind.



Petuaria: Some of the 2024 digging team.

Dave Hackett

Pots chock full of animal fats

Julie Dunne

Next time you dig up a potsherd from your garden or come across one on an archaeological site spare a thought for what valuable information there might be contained within the vessel walls of the pot it originally came from. Over the last decades a range of chemical techniques applied to these small and commonplace items have revolutionized our understanding of what people ate in the past. Imagine a pot full of meat and vegetables placed on the fire. Once it starts bubbling away you'll notice fat globules shimmering on the surface. These are called lipids - the fats, oils and waxes of the natural world - and, luckily for us, are absorbed into the porous walls of ceramic vessels.

Once dug up from archaeological sites, and several thousands of years later, we can extract these lipids from archaeological pots using a technique called organic residue analysis. Based on the 'archaeological biomarker' concept we can match the chemical signals to those seen in modern organisms. The absorbed residues that we extract from vessels generally originate from the original contents either stored or processed in the vessels, whether as single use or as an accumulation of individual use events in a vessel over its life history. The chemical and isotopic techniques that we use mean that we can firstly identify animal fats, by far the most common foodstuff processed in ancient pots. By comparing these to modern animal fats we can differentiate between ruminant (cattle, sheep and goat) and non-ruminant (pigs) carcass fats. The isotopic techniques that we use mean we can also separate out dairy fats, in other words milk, butter, cheese, yoghurt and other milk products.

Less commonly identified, but sometimes found at coastal sites are lipids that suggest fish or marine mammals such as seals were cooked in the pots. Of course, combining these results with faunal evidence from sites, such as seal or whale bones, can tell us what animals' people were cooking. Other foodstuffs identified in pots have been plants, for example, medieval peasants at West Cotton in Northamptonshire were found to have been cooking cabbage in their pots. Lastly, pots containing beeswax were used by early Neolithic farmers across Europe, suggesting the importance of honey as a rare sweetener to ancient people. The use of particular vessel forms can also be investigated as demonstrated by the presence of animal milk found in 'baby bottles' from Iron Age graves in Europe suggesting the feeding or weaning of prehistoric children.

Thus, when excavations led by Phil Weston and Martina Tenzer at Wessex Archaeology at the site of Rossington revealed a substantial pottery assemblage it was decided to use organic residue analysis to investigate what Romano-British people in Yorkshire were cooking in their pots. The excavations took place between Rossington and Doncaster in South Yorkshire, prior to the development of a strategic rail freight interchange and revealed that the site contained settlement/farming enclosures and fields used for grazing and cultivation. Also present was a stone-built 'T'-shaped crop-dryer, suggesting malt production was undertaken. As well as pottery and



Rossington, Area 2: Excavation of ring gully 15.

Wessex Archaeology

Infant feeding vessels of the late Bronze and early Iron Ages from European sites, c. 1200-600 BC.

Katharina Rebay-Salisbury





Sample preparation.

Julie Dunne

animal bone the finds assemblage at Rossington included metal tools (an iron chisel or punch and a small, lead alloy bun-shaped spindle whorl), hairpins, brooches and coins. The pottery assemblage (analysed by Ian Rowlandson and Hugh Fiske) was substantial, comprising 7066 sherds, mainly dating to the second and third centuries AD. These sherds came from a range of vessels, including jars, various bowl types, cheese presses, mortaria, amphorae, samian and other fine wares.

When carrying out organic residue analysis we recommend that at least thirty potsherds from an assemblage are analysed - this is because recovery rates can vary tremendously, depending on site conditions. These are however generally high for prehistoric assemblages across the British Isles and Ireland, due to acidic soils which preserve lipids well. The thirty-nine Rossington Romano-British pots did not disappoint - with 86% of the pots yielding often very high amount of fats.

The lipid results suggest that whilst dairying was an important component of Romano-British farming practices at the site, producing ruminant animals for their carcase products appears considerably more important as four-fifths of vessels were used for that purpose. As the Rossington site is located only 2 km from the Rossington Roman fortress, established in the AD 50s, and around 8 km from the later fort(s) and vicus at Doncaster, it is the likely that the site supplied the military with animal carcase products, possibly in the form of tallow, and also used around one-fifth of vessels to process dairy products, possibly into butter, cheese or yoghurt. Cattle bones dominate the Romano-British assemblage, accounting for 82% of identified bones or 86% of livestock (analysed by Lorrain Higbee), suggesting a husbandry strategy focussed on cattle carcase products, with some dairying. Interestingly, there was little evidence for the processing of pig products such as pork or bacon in the pots, despite the fact that pork, particularly young pork and suckling pig, was considered to be a desirable and high-status dietary element for Romans in central Italy. However, in Roman Britain, pig bones are found at military and urban sites but are less common in rural assemblages.

Organic residue analysis can also be used to investigate vessel use. At Rossington, vessel specialisation was clearly indicated, with jars mainly used to cook ruminant products, probably stews. Bowls may have been used as the bases of either casseroles or baking 'ovens' and were often used to cook dairy-based meals in this manner. Interestingly, Cato, in his *De Agri Cultura* ('Concerning Agriculture', written in 160 BC), includes a recipe for libum, a kind of cheesecake. This recipe recommends macerating 2 pounds of cheese in a mortar, adding 1 pound of wheat flour, then mixing in an egg and kneading together. The dough should then be patted into a loaf shape and baked slowly on a warm hearth under a crock. Regular use of dishes/bowls for this purpose could well have resulted in concentrated dairy lipid signals. Two cheese press/colander vessels also displayed dairy lipid signals suggesting they were indeed used for making cheese, something that is not always the case at native sites. The presence of leaf wax biomarkers, found in leafy plants, in one cheese press suggests cheese may have been made with the addition of herbs/vegetables. The Romans are known to have introduced over 50 new plant foods, including cabbage, leeks and turnip, to Britain, considerably adding to the diet of indigenous Britons, and as biomarkers from leafy plants were also found in one of the jars used to process meat products, they may have been cooking stews or pottages.

So next time you come across a nondescript little potsherd just marvel at how archaeological science has transformed our understanding of diet, subsistence, land use and animal management by past peoples!

Further reading

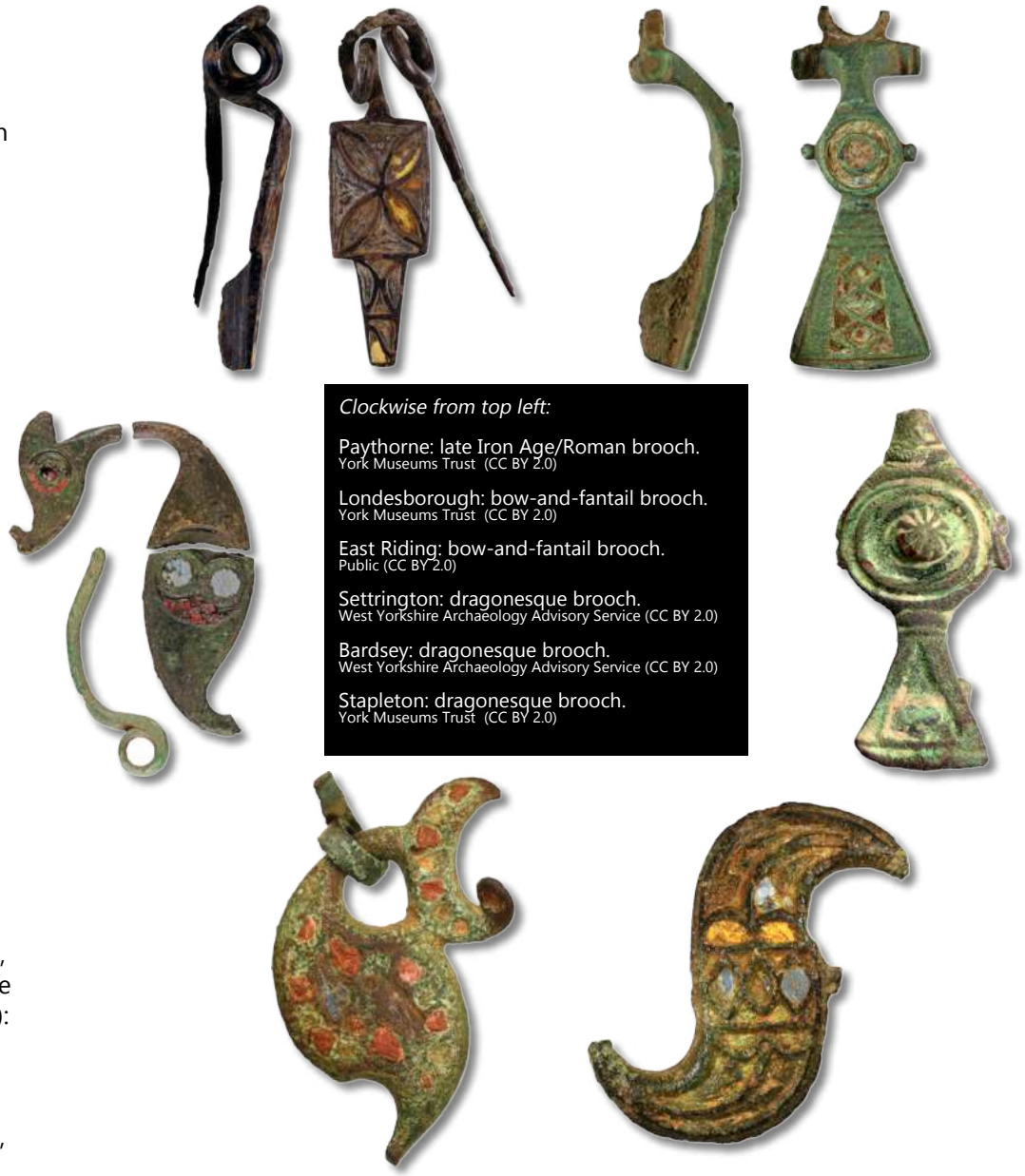
Prehistoric Landscape Development and Romano-British Farming near Rossington, South Yorkshire. Daniel, P., Brown, A., Dunne, J., et al. 2024. Yorkshire Archaeological Journal 96, 1, 59–130.

From the inside out: Upscaling organic residue analyses of archaeological ceramics. Roffet-Salque, M., Dunne, J., Altoft, D.T., et al. 2017. Journal of Archaeological Science: Reports 16, 627–640.

Some recent Portable finds

This time it's all brooches to begin with! An incomplete copper-alloy brooch from Paythorne near Barnoldswick (YORYM-047B79) is said to be probably of late Iron Age to early Roman date, c. 100 BC–AD 100, and unique at the time of recording, with no parallels found. However, although the exposed simple spring and the angular profile are characteristic of late Iron Age brooches, parallels with the numerous and widespread bow-and-fantail brooches are too many to ignore. They often carry the curvilinear decoration found on the Paythorne brooch, and one group carries a rectangular panel on the bow, of which WMID-F2B9A5 from Hartington in Derbyshire is the best example. So far as the PAS database is concerned, there are four east of Cambridge, one in Hampshire and twelve north of Leicester, of which ten are south of the Humber: a Corieltauvian distribution.

Overall, the bow and fantail brooch is one of the earlier ones, c.AD 50-150. It is seen as deriving from the trumpet brooch, and distribution covers most of Roman Britain, from Yorkshire down to East Anglia and the Midlands to Cornwall, with an interesting gap in Devon. This one is from Londesborough (YORYM-03C877): it is interesting to compare it with the almost complete brooch from East Hardwick near Pontefract (SWYOR-3CBA6B) in *Roman Yorkshire* March 2024, which must however be slightly smaller.



Clockwise from top left:

Paythorne: late Iron Age/Roman brooch.
York Museums Trust (CC BY 2.0)

Londesborough: bow-and-fantail brooch.
York Museums Trust (CC BY 2.0)

East Riding: bow-and-fantail brooch.
Public (CC BY 2.0)

Settrington: dragonesque brooch.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Bardsey: dragonesque brooch.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Stapleton: dragonesque brooch.
York Museums Trust (CC BY 2.0)

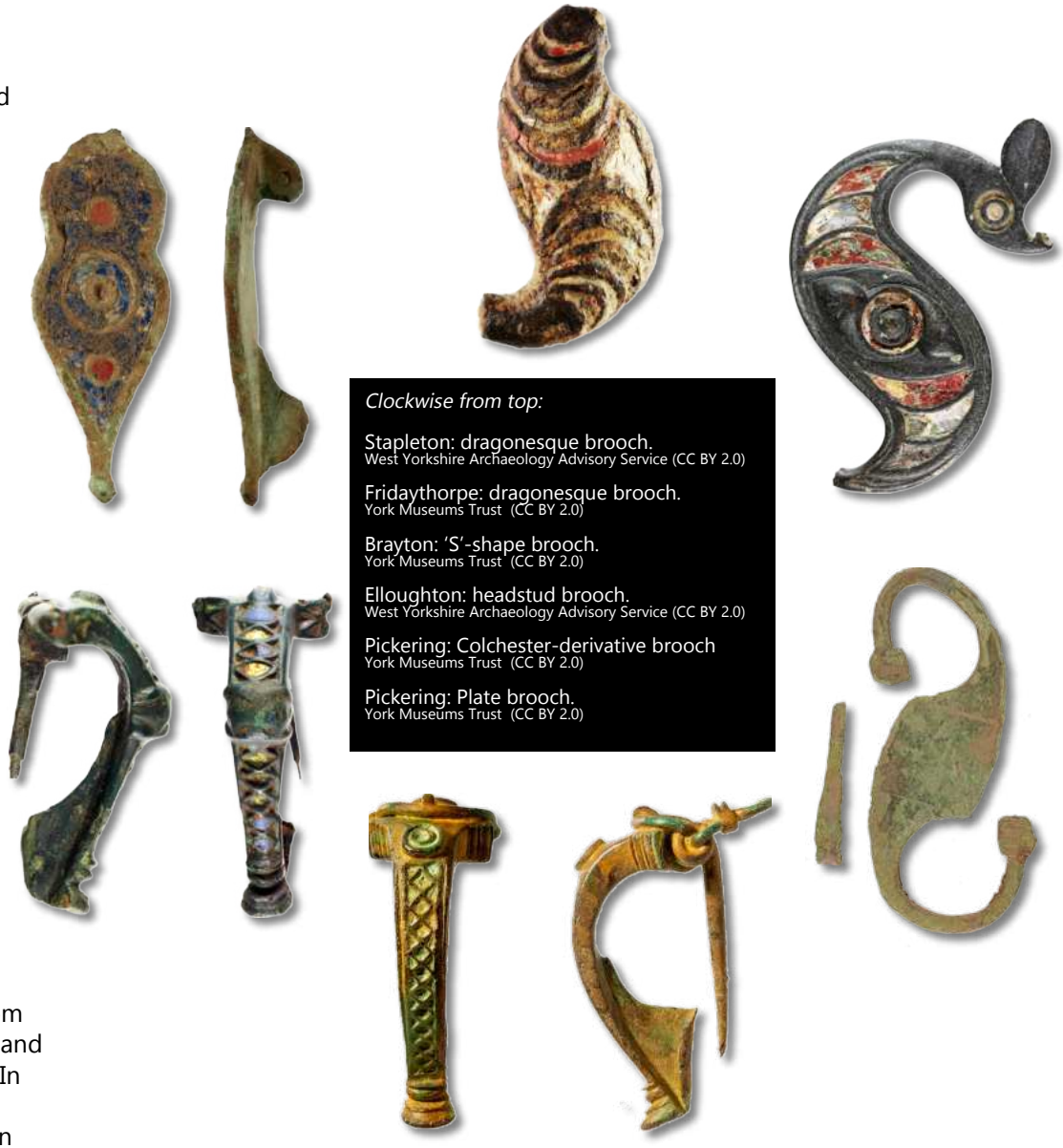
We can also compare it with a smaller bow and fantail brooch, from the East Riding (PUBLIC-F165B3). This is of rather rougher design and is broken off above the bow, but has a separate stud in the centre of the bow as, no doubt, the previous brooch originally did. A better-preserved example is YORYM-8BBDB6.

One well-known group of Roman brooches is made up of dragonesques. Although we are used to seeing 'standard' dragonesque brooches, dramatically coloured with enamel and in a 'clockwise' or 'S' design, in fact there was quite a lot of variation.

The brooch from Settrington in Ryedale (SWYOR-5BB388) is one of those standard dragonesques: it is 'normal', with a clockwise design, and has colourful enamel decoration which itself has a common layout. Like most dragonesques, it is dated rather generally, about AD 75-175. From Bardsey near Leeds (SWYOR-3C1399) comes a rather flat dragonesque which lacks the deep recesses for enamel: much of the enamel appears to have been merely 'painted' onto the face. This confirms the impression that this was a 'cheap' brooch, maybe late in the series, since the head is very much simplified, with no eyes picked out. Another flat, cheaper, brooch which is a 'reversed' variant came from Stapleton near Selby (YORYM-3791C3). Again, it has a simplified head, compared to what are

regarded as earlier brooches, The ornamentation is reminiscent of some, presumably contemporary, button and loop fasteners. A dragonesque brooch from Stapleton near Knottingley (SWYOR-28F642) has a highly individual, infrequently encountered design. Its convex curving scalloped design, with alternate red and white enamelled sections, is Hunter's Type B4b. Something rather similar, said to have been found near York, was sold at auction in 2011. And, surprisingly, another dragonesque has just been recorded, from Fridaythorpe in the East Riding (YORYM-A30662), with a similar design but curving to reflect the outline of the central oval panel: B4a in Hunter's classification. This is a carefully-made brooch, with two raised trumpets whirling around a central ring, all set within an oval.

The next brooch, from Brayton near Selby (YORYM-1053D9), is described as a dragonesque but would be better regarded as an 'S-type', having no 'head', with eyes and ears. Again, it is 'reversed'. This is not a common type but a very similar brooch, also reversed, came from a Claudio-Neronian pit at Longthorpe and also has faint decoration like this one. In addition, there are four very similar Yorkshire brooches, from Kirk Deighton near Wetherby, Hooton Pagnell near



Clockwise from top:

Stapleton: dragonesque brooch.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Fridaythorpe: dragonesque brooch.
York Museums Trust (CC BY 2.0)

Brayton: 'S'-shape brooch.
York Museums Trust (CC BY 2.0)

Elloughton: headstud brooch.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Pickering: Colchester-derivative brooch
York Museums Trust (CC BY 2.0)

Pickering: Plate brooch.
York Museums Trust (CC BY 2.0)

South Elmsall, Darrington near Pontefract and Stapleton near Knottingley, and one from North Lincolnshire, at Crowle. An apparently linked S-design comes from Victoria Cave, Settle, from Kirkby Lonsdale, from Kilham near Driffield and from somewhere in County Durham (DUR-217460).

After this excursion into typology, the next brooch is a perfectly ordinary, but very well preserved, headstud type, from Elloughton near Brough-on-Humber (SWYOR-14EB58). It has a lattice design on the bow, and the usual stud at the top. Mackreth dates this type 3.c to AD 75-100.

From Pickering comes YORYM-725442, a chunky Colchester-derivative second century brooch. It is in excellent condition, though incomplete, with a similar lattice design to the last brooch. Mackreth illustrates an apparently identical brooch from Wicklewood, Norfolk, and although Colchester derivatives are widely-spread, this may be the only one of this sub-type in Yorkshire.

The next brooch is rather interesting, since although it is an ordinary plate brooch the design is unusual. YORYM-7050A9 was also found near Pickering and is dated c.AD 80 - 250. Tempting though it would be to see it as symmetrical, with a broken pointed top, the upper part of the enamelling is round and presumably reflects the body.

Unusual though this is, another very similar brooch came from Raskelf near Easingwold (YORYM-C1771B) but these seem to be the only two on the PAS database. NMS-038022, from Walsingham in Norfolk, is however quite similar and the designs may be linked.

A better-known type of brooch is from Londesborough near Market Weighton (YORYM-FF98C8). This is an 'umbonate' - domed - circular brooch, with circular patterned enamel decoration. Similar brooches have been found at Bainton, near Driffield (YORYM-240DE4) and Sand Hutton near York (LEIC-22084E) but the distribution almost stops at Ripon, with only two further north.

Pins gave the Roman metalworker a chance to innovate at minimum cost. By the late Roman period impressive and elegant handpins, Celtic in style rather than Classical, were displayed by elite civilians. An incomplete copper alloy pin from Settrington near Norton-on-Derwent (SWYOR-5B3E14) is particularly showy, and as so often with pins, no parallel has been found on the PAS database. It has a faceted head and a series of oval bead mouldings separated by collars.

About 2cm across, the circular seal-box lid from Colton between York and Tadcaster (SWYOR-803F49) is complete and the base is still almost full of wax and retains the notch through which the string passed (in another Yorkshire seal-box the string survived). Although corroded, the pattern on the hinged top is visible and is currently without parallel.

The finger-ring from Whitley near Knottingley (SWYOR-823C25), with broken hoop but otherwise in excellent condition, probably dates from the 2nd or 3rd century. It falls within Group 4b of Adam Daubney's unpublished classification. The circular bezel is divided into ten sectors, alternately red and blue, around a central ring and dot. Another ring front from Whitley (SWYOR-BB38E6) is in poor condition, and with a different design, but is also red and blue.

Found near Scarborough (FASAM-14B1EF), the silver denarius of Carausius is in good condition and dates from the early years of his reign, c. 287-8. On the reverse is a cow being milked with the legend VBERITA AV. *Uberitas*, Plenty, is normally personified as a woman holding grapes, but Virgil's *Georgics* refer to a scene of bucolic plenty in which cow's udders overflow with milk: this may therefore be one of many references to Virgil by Carausius' well-read mint-master. Alternatively, it may refer to the wealth of *Britannia*.Few coins of this type have been found and Guy de la Bédoyère has speculated that it may be an official donative issue.















Clockwise from top:

Londesborough: umbonate brooch.
York Museums Trust (CC BY 2.0)

Settrington: probable Roman pin.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Colton: seal-box.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Whitley: enamelled finger-ring.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Scarborough: denarius of Carausius.
Finder (CC BY 2.0)

Kirk Deighton: antoninianus of Carausius.
York Museums Trust (CC BY 2.0)

A copper alloy aurelianus, also of Carausius, found at Kirk Deighton near Wetherby (YORYM-17AD32) is of even greater interest: it is one of only three coins of this type, the others being in the British Museum and a private collection. The mintmark, SMC, was used for only a short period and may have been the original designation of the 'C mint'. Where this was—*Camulodunum*? *Clausentum*?—is unknown.

The gold solidus of Constantius II from Sand Hutton near York (LEIC-8E9110), dating c. AD 337-340, is an interesting piece. It has been broken, in such a way as to leave the face of the emperor untouched. Was this to leave it 'destroyed' before ritual deposition? It is also one of just seven British solidi of Constantius II found singly, including two more from York.

Turning now to more mundane matters, a broken steelyard from Malton (YORYM-5F12A1) is D-shaped in section, with a loop at one end. The rounded top has incised ribbing across the top, presumably to retain the weights, and then a solid band with two parallel recessed pellets. It is one of only four finds of steelyards in Yorkshire, which are generally uncommon except, strangely enough, in the civitas of the Corieltauvi.



Clockwise from top:

Sand Hutton: solidus of Constantiu II.
Derby Museums Trust (CC BY 2.0)

Malton: fragment of steelyard.
York Museums Trust (CC BY 2.0)

Burstwick: lead alloy steelyard weight.
West Yorkshire Archaeology Advisory Service (CC BY 2.0)

Thwing: late Roman penannular brooch.
Tyne and Wear Museums (CC BY 2.0)

Pickering: late Roman strap-end.
York Museums Trust (CC BY 2.0)

'In northern Britain, finds of weighing equipment are almost invariably associated with military sites' says Philippa Walton, and this one seems to be no exception.

To go with the steelyard, a lead lead-alloy steelyard weight of probable Roman date comes from Burstwick near Hedon (YORYM-F75335). Medieval steelyard weights usually had a copper-alloy shell, so this weight is likely to be Roman or post-medieval; in addition, Roman steelyard weights are more usually bi-conical.

Found at Thwing in the Wolds (NCL-4CF3FD), this copper alloy Roman penannular brooch is quite late in date: the recorder estimates between AD 350-450. The hoop is about 45mm across, with an ovoid cross section and zoomorphic terminals. After c.AD 300 brooches were normally worn only by elite personages; the penannular brooch was something of an exception, but during the fifth century it, or certain types, became an indication of rank.

Although the strap-end from Pickering (YORYM-8CE408) is broken and worn, and less than attractive in its present state, it is one of a group of artefacts identified by Hawks & Dunning as typical of late Roman elite dress. It is a mainly continental type, dated there to AD 430-470.



York Central development area: inset archaeological excavation.

© York Central Partnership; inset © Google Earth 2022

York Central Roman cemetery

More than 200 Roman graves have been discovered during work on a major development in York. The finds were made in 2022 and 2024 but have only recently been announced.

Development work at the 45-hectare York Central development site, which is one of the largest city centre brownfield regeneration sites in England, includes preliminary archaeological investigations by On-Site Archaeology.

The site is close to the Railway Station cemetery (Areas (d, e, h) in *Eburacum*: Roman York), where numerous burials were uncovered in 1840, dating from the first to the fourth centuries. These included numerous gypsum burials, burials within tile- and stone-built tombs, and lead-lined coffins. Many of these were of children, often with jet pins and bangles, and one had a coin of Gratian (d. 383). Part of the are was also used for cremations, evidently at the same time as the inhumations.



York Central: Roman grave group. © On-Site Archaeology

Excavations at the Royal York Hotel between 1998 and 1999 revealed further evidence of the cemetery, uncovering 13 inhumation burials and two probable cremation burials. Grave artefacts included whole jars, jewellery, coins and hobnails. Further excavation in 1999 discovered more inhumation graves as well as a structure, interpreted as the robbed out remains of a stone mausoleum. Two further inhumations, together with disarticulated bone, were found at the York Station Gateway site in 2022.

The most recently-reported work has discovered 200-plus undisturbed graves complete with numerous personal items buried alongside the bodies including pottery and in one case a grooming kit. Vessels were found holding cremations, together with grave goods, and votive deposits, possibly linked with 'libations' - liquid offerings made to the gods, heroes, or the dead were also found.

Pottery found includes Ebor, Grey, Dales, Colour- coated and Black Burnished wares. An abrupt edge to the cemetery was found to be a World War 2 bomb crater, dating from the *Baedeker* raid on York in April 1942.

Landscaping work, from c.1830 to c.1930, involved raising the ground levels across the site. Evaluation excavations in 2020 revealed the bases of wagon turntables, and pottery and other rubbish from the late 1800s that were associated with the railway, with a barrel buried in the ground to be used as a toilet.

York Central: indented beakers; grey ware jar; lifting a jar; Ebor ware flagon; colour-coated beaker; votive deposits of colour-coated lamps and beakers. © On-Site Archaeology



Inchtuthil nails for sale



Inchtuthil: excavated nails..

© Timeline Auctions

Build your own legionary fortress! At least, it's a start, with this set of nails from the base at Inchtuthil in Perth and Kinross. The five iron clout-nails, permanently mounted in a wooden display case, were discovered in 1960 and are currently for sale by auction through Timeline Auctions. The lot has an estimated value of £3-400—rather more than the £1.5s for which sets of five nails were originally sold.

Inchtuthil was constructed as a base for Legion XX Valeria Victrix and covered a total area of 21.5 hectares. It was excavated by Sir Ian Richmond and J.K. St. Joseph between 1952 and 1965; almost immediately after finishing on site, Richmond died. The nails were found in a pit within a workshop, hidden in a 3.7m-deep pit while the building was still standing, and the pit sealed with 1.8m of gravel to prevent their discovery.

The fortress appears to have been substantially complete at the time of its abandonment, with only elements such as the commanding officer's house not having been built yet. The huge stock of nails must therefore have been intended for constructing more forts north of Stracathro, rather than finishing off the fortress. It was very much a forward base, like the rather similar Domitianic fortress at Hanau-Kesselstadt in the Taunus, which was also abandoned before completion.

Severan site re-opens



Carlisle: excavations in progress.

© Pete Savin

The award-winning community archaeological dig Uncovering Roman Carlisle has opened once more, and will run until the end of February.

The excavation at Carlisle Cricket Club, has been successful in first finding and then elucidating the monumental early third-century bath-house, with later 4th century rebuilding using recycled stone and concrete. The building has been linked with the visit to Britain of Septimius Severus in 208-10 to lead a campaign against the Caledonians and Maeatae. Tiles bearing the legend IMP, found in numbers on the bath-house site and elsewhere in Carlisle, are believed to imply that the pottery was working for the imperial court. The fragment of a dedication slab discovered during earlier excavations includes the name Julia, probably referring to either Julia Domna, wife of Septimius Severus, or Julia Mamaea, his niece.

A soft purple substance found on-site was found to be organic, containing levels of Bromine and beeswax - this almost certainly indicates it is the dye Tyrian Purple, an extremely expensive material produced on the Mediterranean coast, most famously around the city of Tyre. The substance was used on clothes, but it was also used to paint walls in grand public buildings, and the homes and properties of the elite.

Corbridge gladiator news

A gladiator-style knife-handle from Corbridge was in the news recently, the announcement timed to coincide with the release of the film *Gladiator II*. The handle was found in the River Tyne at Corbridge, as long ago as 1997 (NCL-393023) and has been languishing in the English Heritage stores until the opportunity to share the publicity arose.

'Even now, almost two thousand years later, the fascination around gladiators persists and has expanded even further into modern popular culture, as evidenced by the excitement surrounding the new *Gladiator* film sequel,' says Dr Frances McIntosh, English Heritage's Collections Curator for Hadrian's Wall and the North East. 'It is rare to find a piece of gladiator memorabilia in Britain and to find such a well preserved and interesting piece is particularly remarkable.'

The handle, about 60mm long, has a slot in the base to accommodate the folding knife blade. The gladiator is a *secutor* or 'pursuer', whose attributes include the large rectangular shield and low crested helmet with small eye holes. Roman folding knives quite often feature gladiator designs: a similar one, in ivory, was found at South Shields fort, and another came from Piddington, south of Northampton, complete, with a copper-alloy handle and a folding iron blade. Using gladiators as models for handles emphasises how the men themselves were objectified for entertainment.



Pure Pompeii



Hawkedon: gladiator's helmet. © Trustees of the British Museum

The Hawkedon gladiator's helmet—the only one to have been found yet in Britain—was probably made in Italy sometime in the 1st century AD.

Recent research by Dr Peter Bray of the University of Reading, has revealed that, unusually, there was a complete absence of the impurities one would normally see in most other brass artefacts. Its high level of purity would have made it shine like gold, contrary to the British Museum description which claims it would have been tinned.

The sourcing of the metals required to make this ultra-high-quality brass suggests that the person who commissioned or oversaw the manufacture of the helmet was extremely wealthy, had access to rare ultra-pure metals, and almost certainly had very high status and powerful contacts and sources.

Dr Roger Tomlin has suggested recently that a stamped maker's inscription on the helmet shows that it was probably made in or near the doomed city of Pompeii: the letters on the stamp are probably identical to those on a gladiator helmet found in the famous gladiatorial barracks in Pompeii itself. The maker's name was almost certainly Publius, then either Carus (meaning 'dear') or something like Carminius (possibly meaning 'red' or 'scarlet').

Gladiatorial exhibition

A touring exhibition organised by the British Museum brings together some of the country's most important objects to tell the story of Britain's entertainment venues and the people who died to the roar of the crowd. It will reveal the violence of the arena, and the importance of spectacle within Roman culture.

This tour is in partnership with Colchester and Ipswich Museums and is inspired by the recent exhibition at Colchester Castle, *Gladiators: A Day at the Roman Games* which featured British Museum loans. It will explore Roman spectacle in the local region of each venue, following in the footsteps of the gladiators who fought in the amphitheatres of Britain.

Nicholas Cullinan, Director of the British Museum, said 'Following on from the British Museum's popular Legion exhibition, which looked at the lives of soldiers in the Roman army, Gladiators of Britain will again reveal the humans behind the helmets.'

Key objects loaned by the British Museum will include:

♣ Hawkedon Helmet (1st century AD) The only confirmed piece of gladiatorial armour found in Roman Britain. It may have been looted from Colchester during Boudica's rebellion against Roman rule.

♣ *Murmillo* figurine (1st–2nd century AD) This bone figurine found near Colchester depicts a gladiator of the heavily armoured murmillo class, named for the stylised fish sometimes featured on their helmets.

♣ Marble relief featuring a beast fighter (1st–2nd century AD) that illustrates a fight between a lion and a specially trained beast fighter (*venator*). The Greek inscriptions indicate he was 'taken away for burial' at the end of the fight.

Key items loaned by Colchester + Ipswich Museums include:

♣ Colchester Vase (2nd century AD) A cremation vessel found in a Roman grave, thought to feature a real battle between gladiators Memnon, Valentinus, and beast-fighters Secundus and Mario. Research has confirmed this vessel was made in Colchester, with its inscription revealing it to be the first real evidence of actual battles taking place in Britain.

♣ Glass sports cup (1st century AD) Glass cups featuring events such as gladiator fights and chariot races are thought to have been mass produced as souvenirs.

Gladiators of Britain will be on display at ; **Northampton Museum & Art Gallery** (24 May – 7 September 2025); **Grosvenor Museum, Chester** (20 September 2025 – 25 January 2026); **Tullie House Museum & Art Gallery, Carlisle** (7 February – 19 April 2026).

Horse foundation burial



Norton: horse burial. © UCL Institute of Archaeology

Training excavations by UCL Institute of Archaeology at Norton, near Bury St Edmund's, are proving profitable.

The church/rectory site is isolated from the village, on a locally prominent area of high ground. St Andrew's Church incorporates fragments of Roman brick, and building material and oyster shells were found during pond digging at the Old Rectory. Box-flue tiles, painted wall plaster and mosaic floor tesserae were found during field-walking.

A series of investigations with geophysical survey and evaluation trenching have revealed numerous Roman features including wells, a corn-drying kiln, boundary ditches and an aisled building.

Excavations at the site have focused on the western 'yard' and boundary ditches of the villa complex, which appears to be of relatively early foundation. At the southern entrance to the villa complex the intact skeleton of a horse was uncovered in the eastern ditch terminus. The horse was carefully buried, apparently as a foundation burial, facing eastwards in a running posture, with a star shaped crinoid fossil on its lower neck. Both sides of the skeleton have a distinctive red stain which is a powder of iron oxide. The horse may have been wrapped in a leather or textile shroud, possibly on a timber platform.

A47 diggers disclose high-status cemetery

During work on the A47 Wansford to Sutton dualling scheme, Headland Archaeology uncovered a small, enclosed cemetery dating to the Roman period. Inside the cemetery were 14 grave cuts centred around a central grave. Outside the boundary ditch for the cemetery there were a further seven graves.

At the centre of the enclosure was a grave containing a stone coffin carved from a single solid block of limestone. The burial inside had been encased in gypsum before capping stones were placed on the coffin. Gypsum burials are usually associated with prominent urban centres, such as York, from which at least 45 examples are known, rather than rural sites. They are normally reserved for elite personages: in York such graves reveal traces of expensive oils and perfumes. A number of stone coffins have been excavated from Roman cemeteries in *Durobrivae*, the town nearby.

Conservator Morgan Creed from York Archaeology and Osteologist Don Walker from Museum of London Archaeology carried out the specialist excavations.

This coffin contained no grave goods, but a glass vessel and fragments of leather, pottery and animal bone were recovered from the fill of the surrounding grave cut. In addition, the gypsum for the burial would have come at a high cost, and the stone coffin was not only beautifully carved, but also made from stone



A47 Wansford-Sutton: stone coffin. © Headland Archaeology

quarried around 50 km away, adding the costs of transportation. These factors coupled with the central position of the burial within the cemetery points to an important person, perhaps the head of a prominent family. Although the gypsum was fragmentary, impressions of the shroud the individual was buried in were visible, and a small piece of the fabric itself was preserved in the gypsum.



A47 Wansford-Sutton: glass vessel.

© Headland Archaeology



A47 Wansford-Sutton: silver ear-ring.

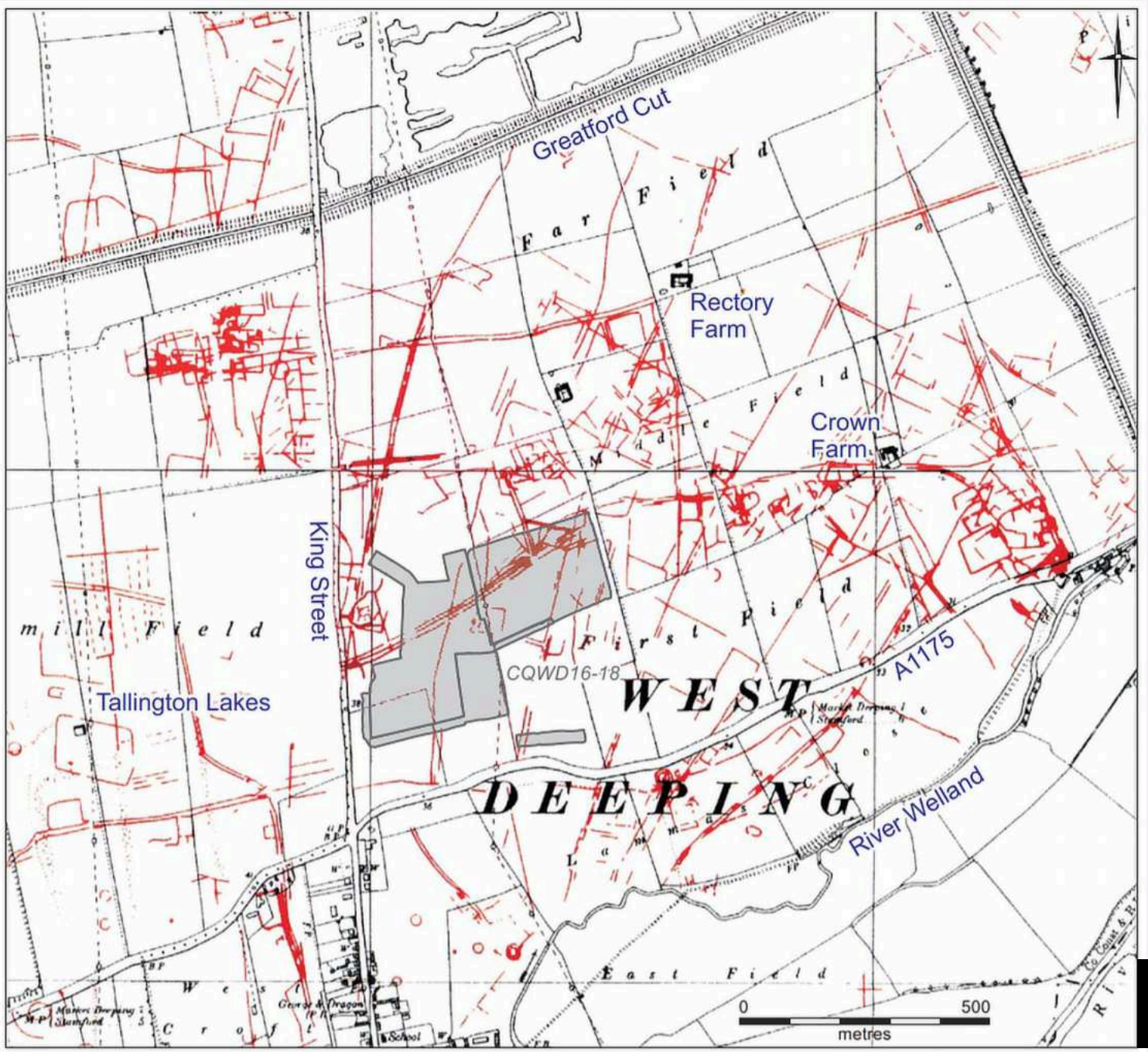
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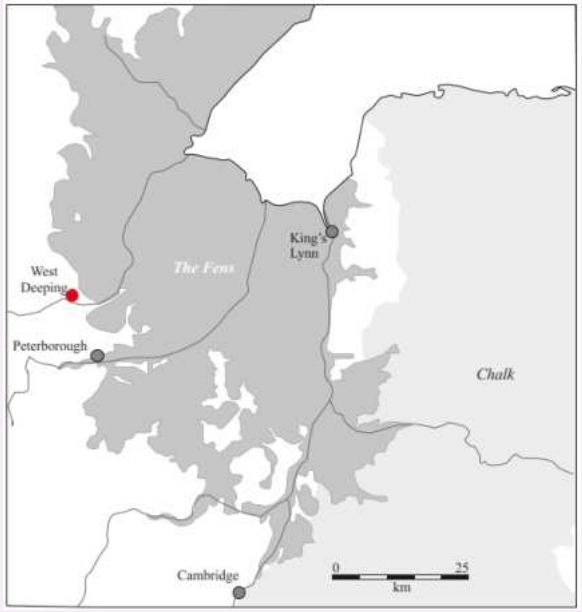
Other burials also show evidence of high status. The grave of a young woman aged around 16-20 contained a large concentration of grave goods placed just above her feet. Among these grave goods were a beautiful pair of silver earrings, nine copper alloy bracelets, three copper alloy rings, and a silver band and oval plate, thought to be the shank and bezel of a signet ring.

Another grave, of a child, outside the boundary ditch, contained high quantities of grave goods, including ten copper alloy bracelets, four worked bone bracelets, a worked bone comb and also a pair of silver earrings, remarkably like those from the other burial.

The cemetery exhibited several more kinds of Roman burial practice. These included cist burial, cremation, decapitation burials, infant burial, cist burials, burials with iron nails possibly indicating the presence of a wooden coffin, and an empty grave.

Whilst these burial practices are all known from the Roman period, it is more unusual to find them all represented in such a small cemetery, especially as initial assessment of the stratigraphic results suggests that the cemetery was not particularly long-lived.





West Deeping, Rectory Farm and King Street Proposed Extraction Areas; location map.

© Cambridge Archaeological Unit

West Deeping—long term, landscape-scale

The 24-year investigations of the 42-hectare quarry site at West Deeping , north of Peterborough, by Cambridge Archaeological Unit have come to an end —in the field, at least.

The landscape-scale excavations in the CAU King Street area are complemented by additional work on the adjoining Rectory Farm site, predominantly by Pre-Construct Archaeology. Altogether about 175 hectares of land have been investigated over the past three decades: a synthesis is greatly to be desired!

Settlement began in this area as long ago as the Neolithic, and CAU have found a sizable quantity of Grooved Ware with one phase producing 2,747 sherds. Aerial and geophysical surveys show a series of at least 6 linear features running north-south. It is believed these were droveways, used to manage cattle grazing the flood plain in summer and over-wintering on higher ground to the north. These date from the Middle Bronze Age and had fallen into disuse by the Middle Iron Age.

Settlement intensified in the Iron Age—the landscape was reorganised, with a series of ditches which truncated the old droveways. Pastoralism gave way to crop production. Initially there was increased emphasis on sheep and goats, though cattle and horses were more evident later in the period. The landscape was dominated by a northeast-southwest



Rectory Farm, West Deeping villa.

© West Deeping Heritage Group

"triple ditch" boundary which spanned the length of the excavation areas and continued east another 1.5km beyond the Proposed Extraction Area.

The introduction of Roman administration apparently made little difference to the occupiers. Field boundaries show continuity, with the triple-ditched boundary recut on a number of occasions. Indeed, at the nearby Stowe Farm site the field boundaries were said to be 'remarkably resilient over 5,500 years through the prehistoric, Roman and medieval to the present'. The modest villa which was built at Rectory Farm, with late third-fourth century stone buildings replacing timber ones, bath-house and a late Roman inhumation cemetery, was on the site of an Iron Age settlement. At this time the landscape was re-planned, with a series of regular rectangular fields.

One novelty, in the second century, was the Roman road known as King Street, slicing northward around the Fens towards Lincoln. The road attracted a settlement, with a shrine. A local road branched to the east towards current day Market Deeping. The area was flourishing in the third and fourth centuries with a rebuilt villa, a bath house, and a substantial barn.

In the Roman settlement, where evidence for agricultural and industrial activities was found, was a third-fourth century barn with surviving wall foundations. This would have been at least 10m long and 6m wide and was probably open on its northern side. The substantial southern wall remains had survived, as they were laid in the base of an earlier archaeological feature. Made from limestone blocks laid mainly diagonally in a rough herringbone pattern, the wall was up to seven courses deep. Postholes suggest that the barn would have had internal divisions.

Within the barn was a stone chamber attached to the main wall foundations. Built using dry stone construction and with a floor of large limestone flagstones, 10 different archaeological layers were identified, which contained spelt wheat, wheat grain and oat seeds. The layers were heavily burnt suggesting that the barn's wooden superstructure above the chamber had been used to store grain but had burnt down and collapsed into it. Another feature is the presence of a granary in the northern part of the building. Of the three parallel beam slots, one still contained the charred remains of a beam, the structure had clearly burnt down preserving distinct layers of grain, chaff and charcoal.







Elsewhere in the settlement was an enclosure that contained the base of a hayrick. This one was surrounded by a circular drainage ditch. Features like this help to emphasise the agricultural nature of the settlement.

Another distinctive archaeological feature was a corn-dryer, a structure used to dry out harvested grain so that it can be stored longer. This "H" shaped construction was made from limestone and still contained the burnt deposits and rake-out material from the firing chamber. Analysis found grains of barley, spelt and glume wheat as well as oat and brome grass in the corndryer's deposits.

The scale of the excavations has provided a chance to reveal some of the features which might be expected in Roman countryside. One of these is a 5m-wide Roman watering hole with, in one layer, a pewter plate, ceramic bowl and the remains of a well-preserved leather shoe. A second watering hole was even larger, with a diameter of over 10m. This one contained intricately carved wooden timbers, with the largest three metres long. It is possible this could have formed part of a cart or structure. A staggering 100kg of artefacts were discovered from the rest of the feature including building stone, querns, pottery, tile, flint, shell and animal bone!

A square, stone-lined well was discovered within an enclosure. Lined with thin limestone slabs, the upper 40cm of stones had been robbed away and the capstone had been split into

West Deeping: Roman settlement.

Top:
Barn, from north-east.

Middle:
Barn, from south.

Bottom:
Internal chamber.

© Cambridge Archaeological Unit

Top:
Corn-dryer.

Middle:
Watering-hole, with timbers.

Bottom:
Smaller watering-hole.

© Cambridge Archaeological Unit













two pieces with a hammer and wedges. Internal markings demonstrate that the water table at the site would have been approximately 1m higher in the Roman period than it is today.

From the well came a double-sided comb carved from a single piece of wood. The comb's teeth were created by sawing and the artefact is very highly finished. The species of wood used in the comb has not yet been identified, but many combs of this type are made from box-wood.

An exciting discovery proved to be a rural shrine. A large watering hole had been used as a location to leave votive offerings during the late 4th century AD. While no structure linked to the shrine could be identified, the quantity and quality of artefacts within it show they had been deliberately deposited. The shrine contained a large assemblage of Roman pottery, 2324 sherds weighing over 63kg, representing a minimum of 389 vessels. Many of the artefacts were uncommon including a ceramic candlestick and nine pieces of a pot imitating a metal cauldron, a very rare find for this region. Another find was a Roman shoe. Made using a nailed construction, the shoe had a sheep or goatskin upper and an insole made from cow leather.

West Deeping: Roman settlement.

Top:
Wooden comb from well.

Middle:
Rural shrine, with votive offerings.

Bottom:
Fragment of altar, as votive deposit.

© Cambridge Archaeological Unit

Also found, deposited in the top layer, was a stone altar. Made from limestone, the top of the alter is plain while the sides are decorated with a triple fluted panel with a St Andrew's Cross at each end. The altar may have originally been mounted in a wall, potentially being used as a shelf in a shrine or villa for the placement of vessels or offerings.

Roman roadside activity recovered in the 2009 excavations which ran adjacent to the Roman road King Street discovered: a large quantity of quarry pits from the second-century construction of the road; two inhumations with military issue burial goods; pits; postholes, including stone-lined examples; and dark soil containing Roman material. Settlement features were evident: an unusual pit burial containing the semi-articulated remains of a human adult and a juvenile; a dog burial; scattered pits and postholes; and hollows containing remnant Roman soils and material including pottery, tile and faunal remains.

Archaeology from the Saxon period is represented by seven inhumations. Iron nails and knives, glass beads, a coin pouch including at least one perforated copper coin, a bone comb, a spindle whorl, a copper alloy clothing adornment and remains of textile were discovered as grave goods.

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London’s first forum basilica revealed





Gracechurch Street, London: architects’ visualisations. © Woods Bagot

A major redevelopment of 85 Gracechurch Street, London EC3 has succeeded in exposing some of the walls of London’s first forum.

The commercial building, next to Leadenhall Market in the City of London, is the site for a 30-storey office tower. Investigatory work by MOLA discovered the walls they hoped were there.

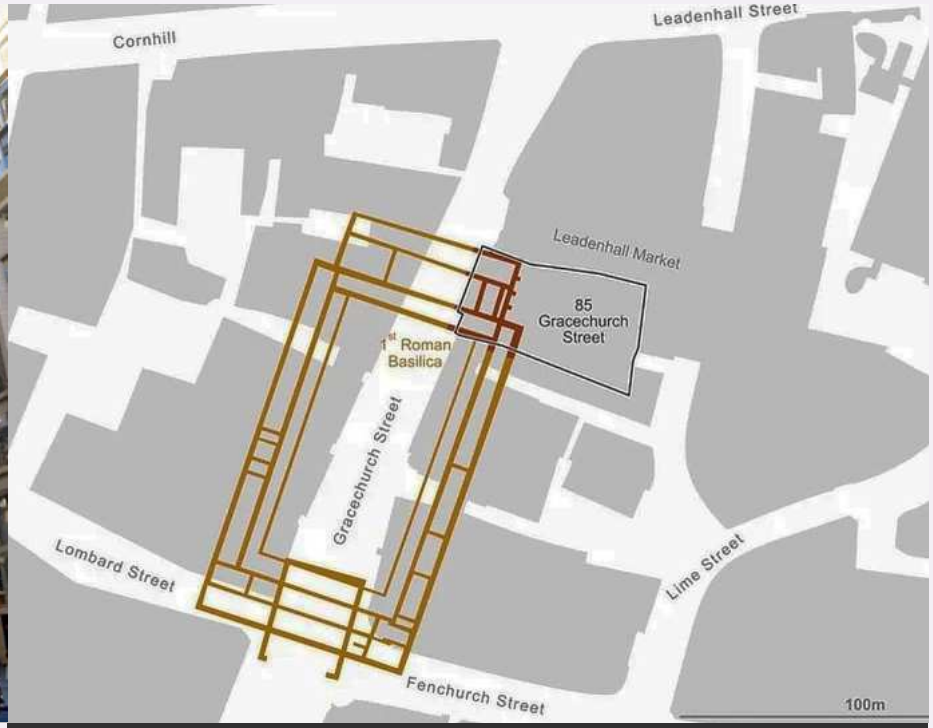
‘This is one of the most significant discoveries made in the City in recent years,’ says Sophie Jackson, MOLA Director of Development. ‘It's like discovering the Speaker’s Chair and chamber of the House of Commons, 2,000 years into the future. The levels of preservation of the Basilica have far exceeded our expectations, and we have possibly the most important part of the building.’

It is believed that London’s first forum was built during the governorship of Agricola (78-84 AD). In an expression of provincial machismo, it was replaced, only about twenty years later, with a building five times the size.

The excavations have apparently revealed the podium from which magistrates and important officials would have made major decisions about the government of London.

‘To find the dais of the basilica, the heart of London’s Roman forum, surviving beneath today’s bustling Square Mile, is really something special,’ says Duncan Wilson, Chief Executive of Historic England. ‘To capitalise on this extraordinary discovery we have helped shape a new public display of the archaeological remains, offering a brand-new visitor experience in the City.’

The Museum of London will help develop the basement exhibition.



Gracechurch Street, London: forum basilica site plan, and remaining walling. © MOLA



Old Kent Road road

In a fortunate find, excavations for a new energy supply for Southwark's low carbon heat network have confirmed the route of one of Britain's major Roman roads.

The road (Roman Road 1) joins London to the coast at Dover and is known as Watling Street. It must have been one of the first Roman roads to be engineered.

After a straight section ending at Greenwich (which, interestingly, aims straight for the river crossing), the Old Kent Road section diverts southward to avoid the bend in the river and approaches the marshy southern bank of the Thames from the east, to a ford at Westminster. This has always seemed clear, but there has been no actual evidence, until recently.

The section of Roman road uncovered south of the junction of Old Kent Road and Ilderton Road was well preserved and measures 5.8 metres wide by 1.4 metres high.

Distinct layers can be seen, which tell the story of the road's construction. It has a solid foundation of compacted gravel sealed by two layers of chalk. This was topped with another layer of compacted sand and gravel. The original surface of the road would likely have been made from the same material and sat at a similar level to the modern road, however this has been lost.

The base of the modern road rests directly on the Roman fabric.



Watling Street, Southwark: surviving remains. © MOLA

Dog ritual in spotlight

Recent research has highlighted Roman ritual involving dogs.

Excavations were carried out at the NESCOT site at Ewell, in Surrey, by Pre-Construct Archaeology in advance of development in 2015, finding a series of quarry pits dating from the late first century to the fifth centuries AD. One of these, dating between the late first and early second centuries, contained one of the largest assemblages of human and animal bone fragments ever recovered from a single Romano-British feature.

More recently the finds have been analysed by Dr Ellen Green, who found evidence of multi-species fertility rituals there. She noticed that a dog baculum (penis bone) had been partly painted with red ochre. There is no naturally occurring iron oxide at the NESCOT site and there were no metal artefacts in the shaft to produce rust: someone specifically brushed red ochre onto a dog's penis bone before depositing it in the shaft.

The bones included the remains of over 280 domestic mammals, including pigs, cows, horses and sheep. But according to Green, the majority of the animals—70%—were dogs with no evidence of butchering, burning or disease. Most of the dogs were small in stature—terriers, corgis or other lap dogs—rather than herd or guard dogs.

"It is a very unique artefact from a very unique site, but it is ultimately a bit of a mystery," said Dr Green.



Ewell: dog baculum. Credit: Ellen Green

Chalke Valley villa found

Archaeologists and over 60 community volunteers have uncovered the remains of a high-status Roman villa in the Chalke Valley, Wiltshire. It is the first villa to be found in the valley.

Dr. David Roberts, a senior lecturer in Roman archaeology at Cardiff University and co-director of the project, said: 'We're delighted to have discovered the first-known Roman villa in this part of south Wiltshire while working with our local volunteers. The site was likely the centre of a significant estate in the later Roman period, and its owners must have extracted a great deal of labour and surplus from the local farming communities to fund their luxury lifestyle.'

The Roman villa building is over 35 metres in length, with additional structures including a large bath-house, a multi-story barn, and an enigmatic concrete-floored structure which may have been an outdoor pool. The villa was adorned with high-quality mosaics featuring intricate geometric designs, as well as painted wall plaster and columns.

Dr. Denise Wilding of Teffont Archaeology said: 'The high-status objects from the site, particularly furnishings such as the painted wall plaster and columns, are especially significant due to the lack of recent excavations of high-status sites in this area.'

Chalke Valley: rectified vertical image. © Teffont Archaeology



Aqueduct extended

Archaeologists from Bournemouth University have discovered that the Dorchester aqueduct—one of the longest and best-studied Roman watercourses in the country—was two kilometres longer than previously thought.

Sporadic investigations since 1902 have been unable to confirm the source of the water. In 2020 Bournemouth University began a research project, using a GIS as a hub for LiDAR, ground-penetrating radar and excavation data.

An evaluation trench, positioned to test a geophysical anomaly at Nunnery Mead, confirmed the aqueduct construction as wooden planks forming a rectangular, box-shaped conduit or covered trough, through which the water would have flowed. The size of the conduit was approximately 1.0 m wide and 0.35 m deep. The aqueduct structure itself was positioned on an artificial terrace cut into the sub-soil and chalk of the valley side.

The new surveys and archaeological investigations as part of this new study suggest that the route of the aqueduct headed further upstream to the village of Notton on the river Frome.

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Nunnery Mead: evaluation trench. © Bournemouth University



Mosaics at risk

Export bars have been placed on two geometric and patterned Roman mosaics dating back to the fourth century AD that are at risk of leaving the United Kingdom.

The two sections of Roman mosaics were discovered at a Roman villa at Fullerton, in Hampshire, first discovered during excavation of the upper Test Valley. In 1904, the two Roman mosaics were uncovered and moved to Fullerton Manor.

The two mosaics both have unique defining characteristics. One shows what is believed to be a 'running pelta' design in which a series of crescent-shaped small shields are arranged in a geometric pattern full of flow and energy. The pattern is created using purplish-brown and red mosaic tiles on a white background. These pelta shapes can be found across the Roman world. The second mosaic shows geometric designs created also using purplish-brown bands of tiles set against a white background. The design consists of two separate elements, a bold design similar to a simplified city wall and a simple stonework pattern of alternating rectangles.

Reviewing Committee on the Export of Works of Art and Objects of Cultural Interest member, Tim Pestell said: 'Although many [mosaics] have been revealed through excavations in Britain, the number that survive intact is tiny.'



Fullerton: mosaic panels. © Department for Culture, Media and Sport

BB1 'factory' found

Archaeologists working on a scheme to adapt low-lying grasslands into diverse wetlands, to mitigate the effects of climate change, have discovered an industrial-scale pottery workshop, producing Type 1 black burnished ware.

The scheme, at The Moors, west of the RSPB reserve at Arne, involves constructing new embankments and lagoons, to create 78 hectares of intertidal saltmarsh and mudflats, a new 15 hectare freshwater habitat area and two shallow saline lagoons of 35 hectares. Wessex Archaeology have been working to inform the work.

A total of 23 locations around Poole Harbour have produced certain or possible evidence of pottery production. Black burnished ware was ubiquitous in Roman Britain, possibly due to military contracts which helped distribute it.

The site at The Moors has produced building remains, two kilns, which are believed to date between the late 2nd and 4th centuries, and over 17,000 sherds.

Production sites were already known in the area, at Bank Gate Cottages and Redcliffe Farm. This pottery production site accounts for just one element of the wider Romano-British industries in the area. It is situated in an area of naturally occurring, very high-quality clay and was close to sources of fuel and water, essential for pottery manufacture.



Arne: black-burnished ware wasters. © Wessex Archaeology

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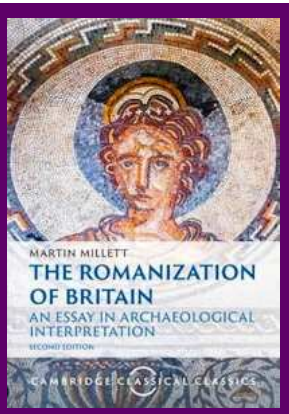
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