

III: SOUTHWORTH QUARRY, WINWICK, 2013

Excavation of a Roman Rural Settlement

by Ben Moore with contributions by Louise Hird, Don O'Meara,
Tim Padley and Megan Stoakley. Edited by Martin Railton*

A previous programme of archaeological assessment and evaluation at this site had revealed the presence of a Roman enclosure and possible Bronze Age activity. Nearly eighty similar enclosures have been detected as cropmarks on aerial photographs within Cheshire, Greater Manchester, Merseyside and West Lancashire, but very little archaeological investigation has so far taken place. Further excavation of the Southworth site was undertaken in 2013 in advance of proposed quarrying and landfill operations. This covered an open area measuring c 0.5ha, targeted over what remained of the enclosure, which was confirmed to be a rural settlement of second-century AD date. Other plough-truncated features were recorded within and beyond the enclosure. The features outside the site may be medieval, but there was no evidence of prehistoric activity. The project has highlighted the destructive nature of agriculture at the Southworth site, with implications for the future management of similar sites across the region.

Introduction

Ben Moore

Aerial photograph analysis has brought to light a large number of small ditched enclosures in the north-west of England that have been interpreted as farmsteads of the Iron Age and/or Roman periods. The site at Southworth is indeed ideally placed for such a settlement, being situated on a slight ridge of free-draining sand and gravel. While the Southworth enclosure was rectangular, a number of oval enclosures are also known in the area, including Arbury to the south, but the differences and relationships between the site types are unknown. The location of these enclosures may be related to the presence nearby of an important Roman road, leading from Wigan to Wilderspool, a section of which has been excavated 2.5km south-west of the site at Southworth.

* Martin Railton, Senior Project Manager, Wardell Armstrong Archaeology (North), Cocklakes Yard, Carlisle, Cumbria CA4 0BQ. Email m.railton@wa-archaeology.com. The publication of this article has been financed by a grant from Wardell Armstrong Archaeology, for which the Society is grateful.

The nature of Iron Age and Roman rural settlement in Cheshire is poorly understood. Many smaller enclosures appear to have a late Iron Age foundation, but without contemporary artefacts this is difficult to prove. Sites are often dated to the Roman period because of the presence of contemporary pottery, and earlier phases may go unrecognised because of a lack of surviving material culture (Nevell 2003, 6–7; Philpott 2006, 59, 73–4). The bulk of the evidence for subsistence and land use in the Roman period has come from military and urban sites, and there is little environmental data or analysis of samples from rural sites in the north-west region (Philpott 2006, 69).

The development at Southworth Quarry thus gave an opportunity to conduct an open-area excavation on a monument type that is poorly understood and rarely investigated. Although the results of this project can only inform us about the sequence of events at this particular site, the data collected will hopefully contribute to better understanding of such enclosures across the region. The project archive will be deposited at the Warrington Museum and Art Gallery.

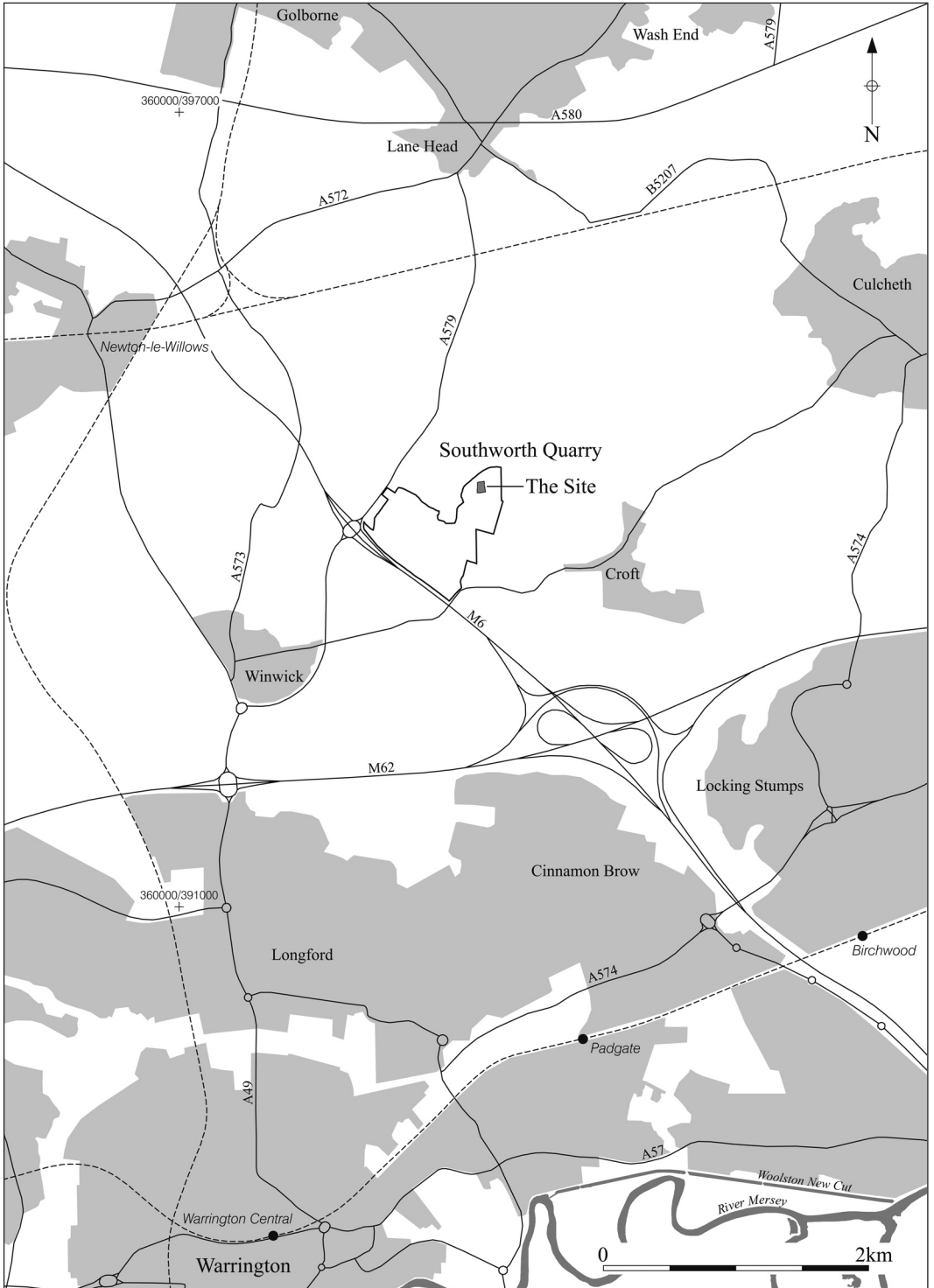
Location and geological context

The Southworth Quarry landfill site is situated to the north-east of Winwick and comprises approximately 51.5ha of mainly agricultural land, bounded to the west by Winwick Lane (A579), to the south by the M6 motorway, to the north by agricultural land and Sandy Brow/Stone Pit Lane and to the east by further agricultural land west of Croft. The site occupies a low hill at *c* 30m OD, with elevations falling gradually to the north and south to *c* 28m OD. At the boundary with the present landfill site, to the south and west, the land falls sharply. The northern part of the site is bisected by Cockshot Brook, which runs approximately north–south across the site and has been culverted. Two small plantations are situated to the south of the brook (Ill III.1).

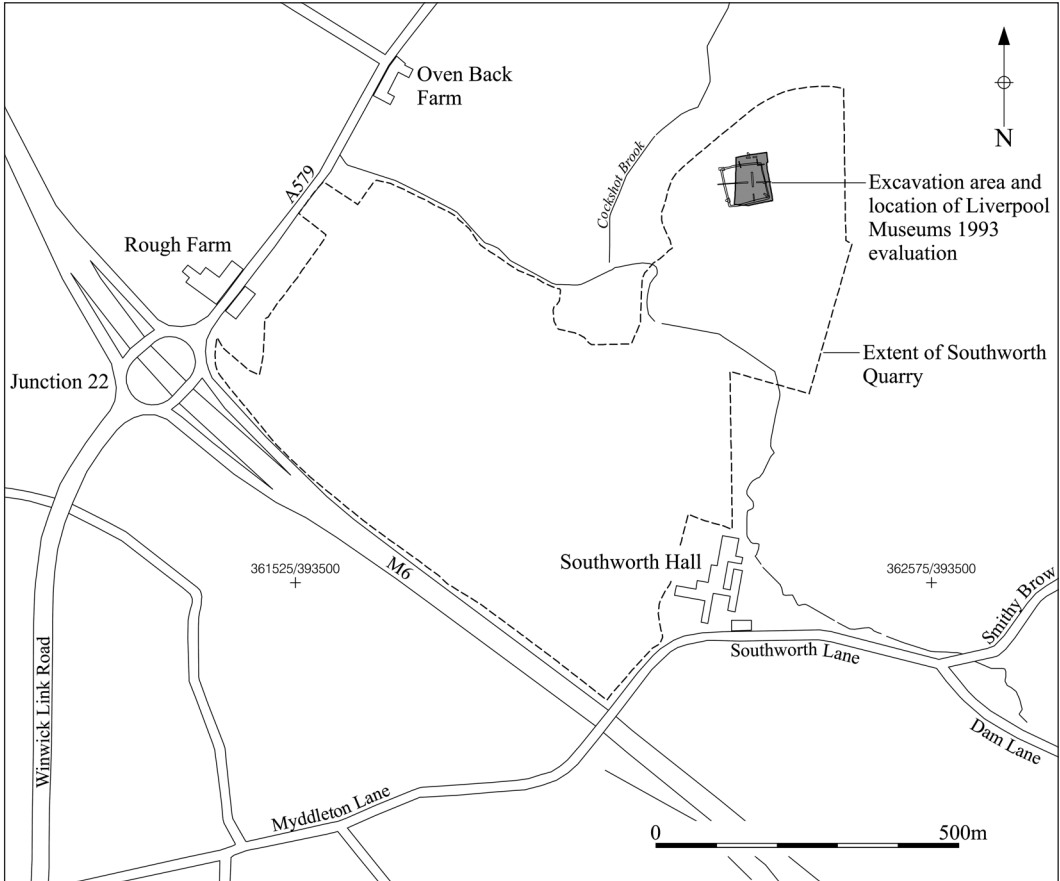
This area lies on the north side of the Mersey valley, which extends from the Merseyside conurbation to the flat mosslands to the west of Manchester. Farmland is predominantly arable, with a large-scale open field pattern (Natural England 2012, NCA Profile 60). This landscape is bounded to the north by Lancashire Coal Measures and to the south by the Shropshire, Cheshire and Staffordshire plains (Natural England 2012, NCA Profiles 56 and 61 respectively). The solid geology of the area comprises the Chester Pebble Beds formation, a bedrock formed approximately 242 to 248 million years ago in the Triassic Period, overlain by glaciofluvial deposits of sand and gravel (British Geological Survey 2013). The soils are slowly permeable, reddish fine loamy and clayey soils, known as Salop soils (LandIS 2013).

Archaeological background

An archaeological desk-based assessment was prepared by the Field Archaeology Section of the National Museums and Galleries on Merseyside in 1992 in order to identify the potential impact of quarrying on archaeological remains in the vicinity. This report (Cowell 1992), along with the results of a subsequent phase of evaluation (fieldwalking and trial trenching), is summarised in a report by the Mineral Planning Group (1998). This section is primarily based on the information provided in that report (Ill III.2).



III III.1 General site location. (Scale 1/50,000)



III III.2 Location of the excavation at Southworth Quarry. (Scale 1/12,500)

Prehistoric

The assessment identified evidence for prehistoric activity in the vicinity in the form of four former barrow sites and isolated finds of Bronze Age material. Of particular interest was a barrow excavated in 1980 when an extension to the quarry was proposed (Freke & Holgate 1987–8). The barrow contained evidence for two phases, comprising a central pit with two cremations, followed by levelling of the site and construction of a circular wooden structure. Lithic material of possible Neolithic and Bronze Age date has also been recovered from the surrounding area during fieldwalking.

Further fieldwalking was undertaken by Cowell and colleagues which revealed several concentrations of prehistoric flints within the proposed development area, the earliest being Mesolithic in date. Subsequently fifty-nine small trenches were excavated (*see below*), targeting areas where prehistoric activity was thought to be present. A Bronze Age barbed and tanged arrowhead was recovered to the east of the excavation area and a possible Bronze Age ditch was identified in the north-east corner of the proposed quarry extension area.

Roman

Several possible enclosures were identified on aerial photographs of the area as crop-marks, including one at Arbury to the east of Winwick, the date of which is unknown. Of particular significance was the identification of a subrectangular enclosure within the north side of the proposed development area measuring approximately 80m east–west and 60m north–south, which was interpreted as being Roman in date. This is the enclosure subject to the excavation described in the present report. Another oval cropmark was also noted underlying the south side of the enclosure. A further very faint double-ditched rectangular enclosure was identified to the north of the site, with indications of a circular enclosure at its centre.

Medieval

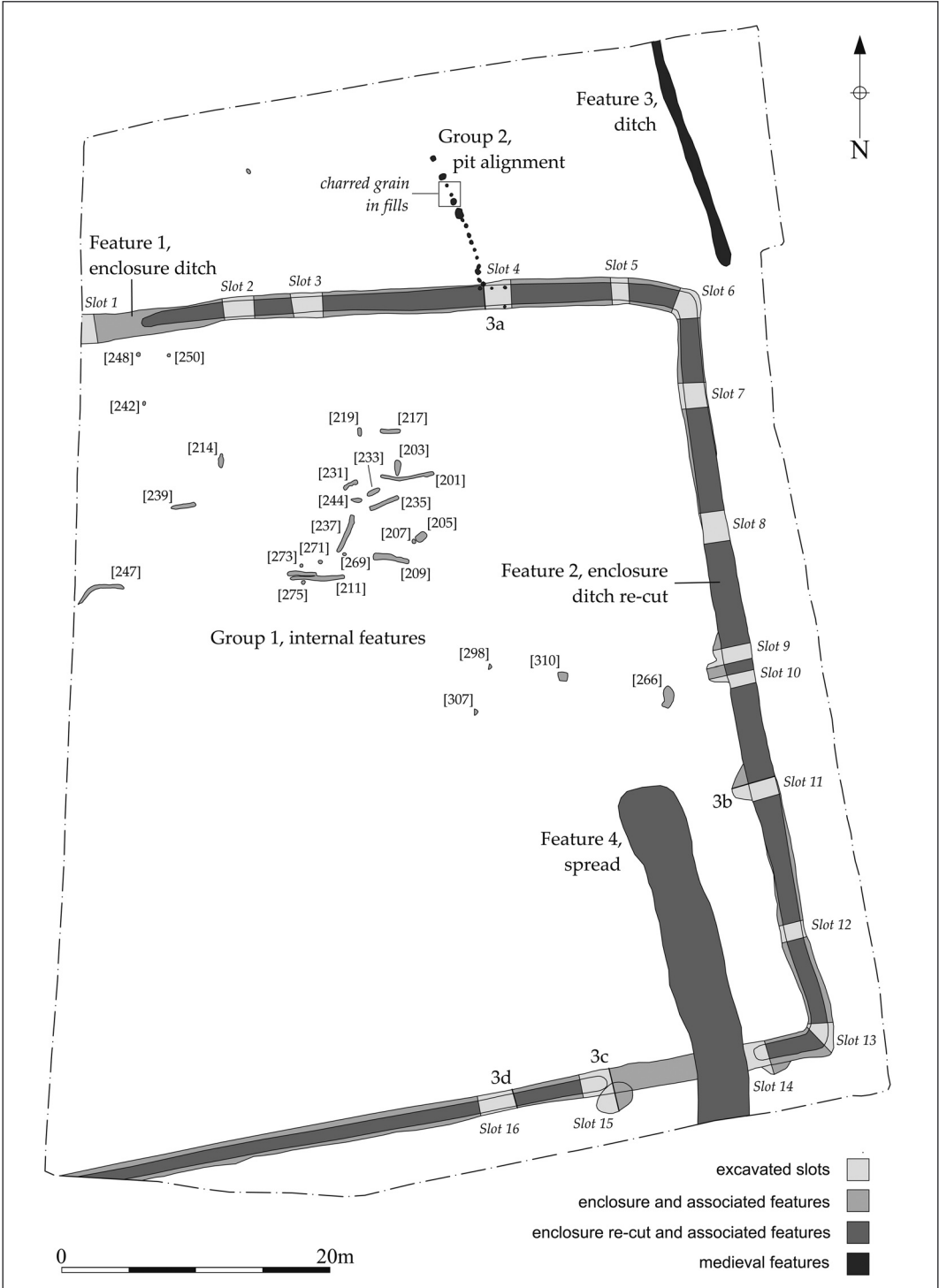
Significant medieval remains have been excavated nearby. Over 800 graves were excavated at a Bronze Age barrow site to the south of the proposed development area, near Southworth Hall Farm, the majority of which were interpreted as early medieval (Freke & Thacker 1987–8). These graves were close to the site of Southworth chapel and deserted medieval village which lies to the south. Southworth Hall is a 1932 brick-built house which reputedly incorporates a house dating to the sixteenth century. Medieval pottery was recovered from the area during fieldwalking.

Post-medieval

The area has predominantly been agricultural land for much of its history, and a number of post-medieval farms exist in the area, including Cockshot Farm and Jacques Farm to the south-east of the site, and Turret Hall, Croft, to the north. A number of land drains were revealed during the evaluation, which attest to the process of post-medieval land improvement. The remains of the enclosure site were also noted to be plough-damaged.

The evaluation

Following the assessment, an archaeological evaluation was undertaken, comprising the fieldwalking survey referred to above and the excavation of sixty-nine trenches (Philpott *et al* 1993). Ten of the trenches were positioned to investigate the subrectangular enclosure and the others to examine the surrounding landscape. The enclosure ditch was found to be between 1.7m and 2.36m wide and 0.66 and 0.83m deep with a U-shaped profile. The ditch fills exhibited some variation between trenches but was generally charcoal-rich in the upper fills. A number of pottery sherds were recovered which dated the fill of the enclosure ditch to the second century AD. The sherds included imported samian ware, black-burnished ware from Dorset, and local orange sandy wares. Sampling for environmental evidence produced carbonised cereal grains, including wheat, oats and probable weed seeds. Parallel with the enclosure ditch a number of stakeholes and possible postholes were revealed, which were believed to be associated with the ditch. A number of possible postholes were also identified in the trenches immediately outside the north-east corner of the enclosure, which were believed to be associated with the ditch. Internal features included possible gullies and a well preserved pit with a possible wood or wicker lining. A number of natural features were also revealed.



The excavation

Ben Moore

Following consultation with the Development Control Archaeologist at Cheshire West and Chester Council it was agreed that another programme of archaeological work was required in advance of further proposed quarrying and landfill operations, in order to record the evidence highlighted by the earlier desk-based assessment and evaluation and to attempt a reconstruction of the history and use of the site. Wardell Armstrong Archaeology were invited by Gaskell Bros (WM & C) Ltd to undertake the work.

The programme consisted of archaeological strip, map and sample excavation within the area encompassing what remained of the identified enclosure following the destruction of its western half by quarrying. An open area measuring 82 x 60m (centred on NGR SJ 6225 9417) was stripped of topsoil and patches of subsoil onto natural sand and clays through which the archaeological features were cut. These can be divided into three groups: the enclosure itself, the internal and the external features (III III.3). These will be dealt with in turn before a discussion of the relationship between the three groups of features and of the archaeological evidence as a whole.

The enclosure ditch

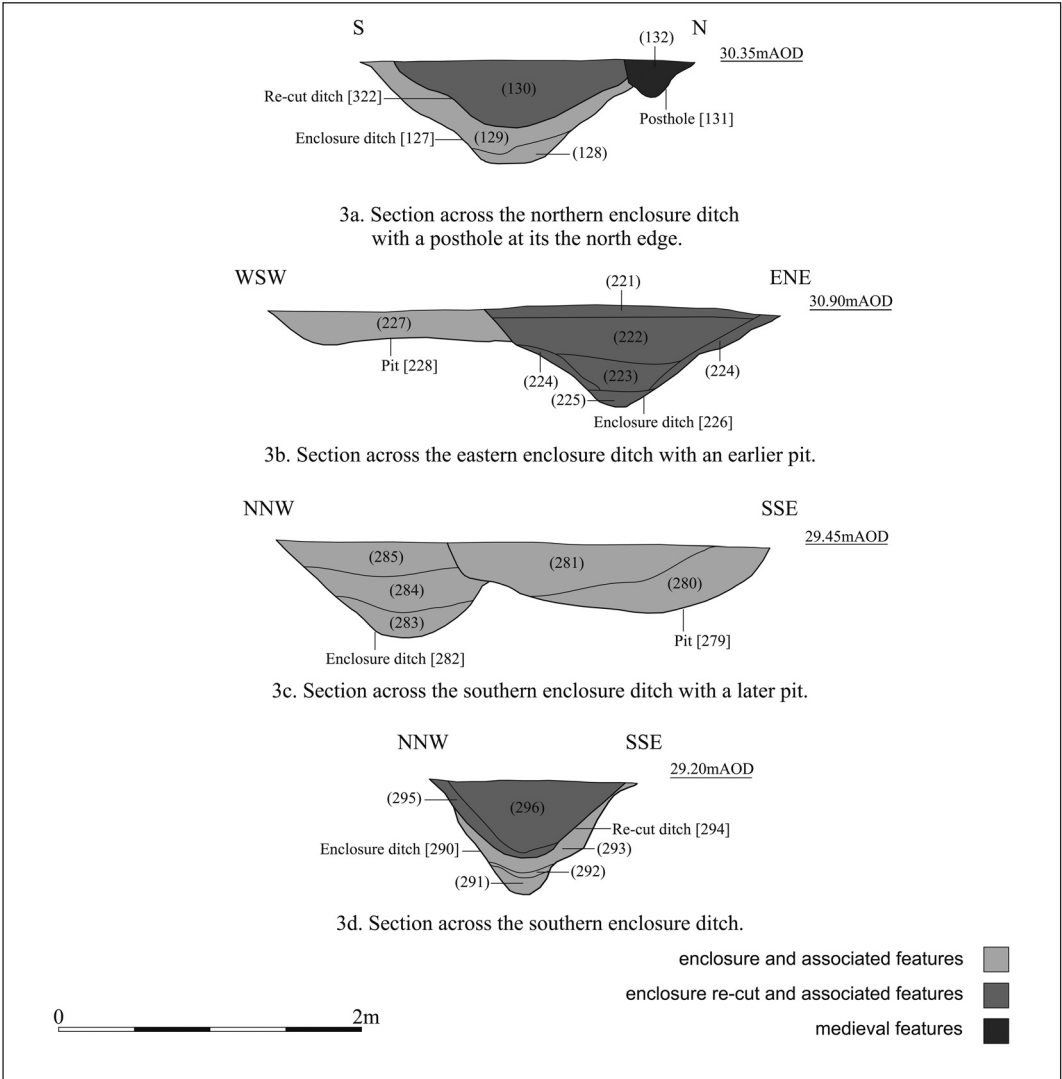
The most obvious and the largest feature on the site was the subrectangular enclosure ditch (Feature 1). Because of quarrying activity in the intervening period, only around half of the enclosure investigated in the evaluation of 1993 survived to be excavated. Portions of the northern and southern east–west ditches, measuring 45 m and 53 m respectively, were exposed during the excavation, as well as the complete eastern north–south ditch, measuring 58 m in length; the western north–south ditch had been quarried away completely.

Five slots were excavated across the northern east–west enclosure ditch, [102] (Slot 1), [118] (Slot 2), [105] (Slot 3), [127] (Slot 4), and [121] (Slot 5); six across the eastern north–south ditch, [144] (Slot 7), [185] (Slot 8), [229] (Slot 12), plus [260], [179] and [226] (Slots 9, 10 and 11) which are re-cuts, and three along the southern east–west ditch, [313] (Slot 14), [282] (Slot 15) and [290] (Slot 16), targeting areas where relationships with other features could be established. The surviving north-east [109] (Slot 6) and south-east [197] (Slot 13) corners were also investigated. Sections across four of these slots are shown in III III.4 and their positions indicated on III III.3.

The depth of the ditch remained consistent at between 0.55m and 0.70m along its northern and eastern sides but deepened to 0.78m along the southern side, where it was cut through clay rather than sand. The clay perhaps gave the stability needed for deeper excavation, but it is possible that this part of the site was less truncated or that the ditch was deliberately deeper to the south to allow the more water–retentive underlying geology to drain properly. The two corners were relatively shallow (0.6 m and 0.4m respectively).

The width of the ditch remained consistent at between 2.0 and 2.2m along its northern and eastern sides but became narrower where it deepened along its southern side to as little as

opposite: III III.3 Plan of excavated features. (Scale 1/500)



III III.4 Sections of selected slots across the enclosure ditch. (Scale 1/50)

1.38m. This is again likely to be due to the ditch having been dug through more stable ground, allowing deeper and narrower excavations.

The ditch could be seen in plan to have an obvious re-cut (Feature 2) along the northern east–west side and the northern part of the eastern north–south section, and this was confirmed during the excavation of the slots along its length, [142] (Slot 2), [322] (Slot 4), [143] (Slot 5), [323] (Slot 6), [147] (Slot 7), [309] (Slot 8), [260] (Slot 9), [179] (Slot 10), [226] (Slot 11), [303] (Slot 12), [199] (Slot 13), [315] (Slot 14), [308] (Slot 15) and [294] (Slot 16). The re-cut was not seen in the drawn section of Slot 2 as a modern pit, [114], was cut into the ditch at this point.



III III.5 General view of excavation in progress across the site, looking north

Along the northern and eastern sides of the enclosure, the re-cut was both narrower and shallower than the original ditch, between 1.44m and 1.48m wide and 0.28m and 0.44m deep. It did not follow exactly the same line as the original ditch, appearing in section to be offset to the south or west. Where the original ditch was deeper and narrower along its southern side, [282] and [290], the re-cut, ([308] and [294] respectively) was closer in profile and width to the original, although still not excavated to the same depth (Slots 15 and 16) (Ill III.4, 3d).

This re-cutting of the ditch did not occur where the latter was sealed by a capping of yellow clay, (321), on its southern side (Slot 14). This clay deposit was between 4.0 and 4.5m wide, 0.10m deep and ran north from the southern limit of excavation for 25m (Feature 4, Ill III.3). This may indicate an attempt to establish an entrance during the re-cutting and therefore the reestablishment of the enclosure. The clay would have made the ground more stable and stopped a trackway subsiding into the original silted-up enclosure ditch. The original entrance to the enclosure was not discovered and must have been further west where the enclosure had already been removed by quarrying.

The original ditch fills were generally a mixture of natural silt, redeposited natural and occasional domestic refuse, all of which appear to have built up relatively slowly. The fill of the re-cut ditch, however, had a higher concentration of domestic rubbish, including fire-cracked stones, charcoal, ash and slag. This perhaps indicates a more rapid deposition and more intensive use of the enclosure at this time. The finds do not suggest that the two phases extended over a long period, as the pottery recovered from the fills of both the original and re-cut ditch have been dated to the mid-second century AD. No concentrations of finds were recognised within the fills and no *in-situ* evidence of burning or hearths was discovered within or outside the enclosure.

In three slots through the eastern north–south ditch, [260], [179] and [226], the fills were markedly different (Slots 9, 10 and 11). They were very mixed, and it was at first thought that these sections had been excavated and backfilled during the 1993 evaluation. However, the plans drawn in 1993 do not show any excavations in this part of the enclosure. The ditch at these points seems to have been deliberately and rapidly backfilled but it is not clear when this occurred. None of the sequence of deposition seen elsewhere was present, so it could possibly have happened soon after the enclosure was created; another possibility is that the re-cutting seen elsewhere removed the fills of the original ditch entirely at these points.

Also at these sections, the enclosure ditch was seen to cut through the fills of earlier pits, [261], [178] and [228] (Slots 9, 10 and 11 respectively). These pits were irregularly shaped and filled with mixed dark brown silty clay with lenses of redeposited natural. It therefore seems likely that these were also backfilled intentionally rather than being allowed to silt up over time. One of the pits, [228], contained twenty-two sherds of a black-burnished ware cooking pot within its single fill, (227) (III III.4, 3b). This suggests that this pit was excavated deliberately and used for the disposal of domestic refuse.

The southern east–west ditch [313] cut through an earlier pit [317] just east of where the ditch was capped by the clay layer discussed above (Slot 14). This pit survived to a maximum diameter of 1.5m and was 0.16m deep. Its friable greyish brown silty sand fill, (318), contained no dating evidence. However, further west, the fills of the enclosure ditch were cut by another large pit, [279], measuring 2.18 x 2.90 m in diameter and up to 0.44m in depth. Its primary fill, (280), contained sherds of both Severn Valley and oxidised ware (III III.4, 3c).

The chronology of the excavation of the pits and the construction of the enclosure is clearly not straightforward. It seems that pits were dug in this area both before and after the enclosure was in use. Finds from pits which are earlier than the enclosure, from the enclosure itself and from pits later than the enclosure have all been dated to the mid-second century AD, suggesting that all these features were in use within a very short time period. These finds only give a *terminus post quem*, however, and the pottery in some cases may be residual.

Internal features

The features excavated within the enclosure consisted of irregular pits, postholes and linear features (Group 1) that had no direct stratigraphic relationship with the enclosure itself. Any relationship between them was informed by environmental analysis and artefactual dating. The highest concentration of these features was found in the northern half of the enclosure. The linear features were perhaps the most enigmatic but it seems likely that they were a structural component, possibly heavily truncated and therefore difficult to interpret. Features [201], [209], [211], [217], [235] and [239] were aligned roughly east–west and between 1.5 and 4m in length and between 0.2 and 0.4m wide. Both [209] and [211] had narrow slots in the base and, although only one fill was identified for each, their shape suggests they may have been re-cut and reinstated a number of times. Post-medieval finds in (212), the fill of [211], have been judged to be intrusive.

The east–west alignment of these features, coupled with the fact that the prevailing wind on the site comes from the north, may suggest that these features were the bases for windbreaks. However, as all the features on the site had been heavily truncated by modern agricultural practices, they may only be the deepest segments of larger features such as ring gullies, although their fragmentary nature makes this impossible to confirm. A curvilinear feature, [247], situated close to the western edge of excavation, is the most convincing as a possible ring gully.

In the north-west corner of the surviving enclosure, three postholes, [242], [248] and [250], form a right-angle 3.6 metres north–south by 2.3 metres east–west. No finds were recovered from the fills so it is not known whether they were contemporary with the enclosure, but they may have formed part of a rectangular feature or another windbreak. Seven metres south-east of these postholes was an irregularly shaped pit, [214], 1 m long, containing six sherds of grey ware and a fragment of samian. It can therefore be tentatively dated as contemporary with the enclosure but its form gives no clue as to its function.

A linear feature 0.2 m wide, [201], that widened at its eastern end to 0.35 m, contained what has been interpreted as a knife-sharpening stone broken into two pieces (SF 1). The two pieces of the sharpening stone were placed one on top of the other. It can therefore be assumed that they were buried intentionally when already broken but the reason for this is uncertain. They may have been used as packing to stabilise whatever superstructure had been there, or possibly their burial had a more symbolic significance. The fact that the feature seems to have been widened especially to fit the stones suggests their placement had more than a structural function, as smaller stones would have been as suitable for support. However, if stone had been in short supply, it is likely that any items to hand, such as the broken sharpening stone, would have been used.

In this same area a series of elongated pits, [203], [205], [231], [233] and [244], about 1m in length and 0.10m deep was excavated. The fills of these pits contained regular charcoal flecks and (245), the fill of [244], contained fragments of lead. This could suggest an episode of industrial activity within the enclosure, albeit a very minor one. However, no *in-situ* evidence of hearths or other episodes of burning was found within or outside the enclosure.

Ten metres south of the main concentration of internal features were two semi-circular features, [298] and [307], both measuring approximately 0.45m by 0.25m and 0.05m deep and separated by a distance of 3.5 m. Both were filled by dark brown silty sand. These have been interpreted as large postholes or heavily truncated pits. A further sub-square pit, 0.70m wide, [310], was recorded. It was 0.19m deep with a primary fill of redeposited clay and a secondary fill of mid-brown sandy silt with occasional charcoal flecks. Unfortunately it contained no datable deposits.

Eight metres east of [298] and five metres west of the eastern enclosure ditch was a sub-oval pit, [266], measuring 1.65m north–south by 0.80m east–west. It had a maximum depth of 0.14m and contained two charcoal-rich fills. A single stakehole, [268], could be seen in section cutting through both fills.

The majority of the finds from the internal features have been dated to the mid-second century AD, suggesting that they were contemporary with the enclosure; the small number of post-medieval finds are likely to have been intrusive. There were many land drains running across the site and the disturbance caused by their excavation may account for many of these.

External features

To the north of the enclosure two linear features were recorded. The first was a series of postholes (Group 2) (Ill III.6); the second, seventeen metres further east, a shallow linear feature (Feature 3), running parallel with the postholes.

There were twenty postholes running roughly north from the northern enclosure ditch. Three, [133], [134] and [135], were only seen when a slot was excavated through the ditch. However, two, [131] and [254], could be seen in plan, cutting through the fill (130), of the re-cut enclosure ditch. As these postholes formed part of the alignment it can be assumed that this feature was instated after the ditch had completely silted up.

Two features, [163] and [258], were wider and deeper than the others in the alignment and may have been pits rather than postholes. They were filled with more mottled, orange deposits that were cut by other postholes, [161] and [149] respectively, in the alignment. These two pits or postholes are therefore likely to be earlier than the others in the alignment and may be associated with an earlier feature. Posthole [174] at the far northern end of the alignment was filled by a markedly different deposit than the others in the sequence, and this too may relate to a different phase of activity.

The thirteen environmental samples taken from this series of features were generally quite uniform, with little material of interest. All produced generally low numbers of indeterminate charred cereal remains, with occasional oats. However, samples <10> from (165), the fill of [163]; <11> from (167), the fill of [166]; <12> from (169), the fill of [168]; and <13> from (171), the fill of [170], produced abundant remains with the majority of the charred cereal grains from the entire site coming from these samples. Sample <10> produced almost 100 charred grains of cultivated oats. Sample <11> produced over 300 oat grains, with sample <12> producing a similar amount. Sample <13> produced over forty grains. This pattern suggests a concentration of deposition between pits [163] and [170] to the north.

The shallow linear Feature 3, [124], [126], and [138], running parallel to the posthole alignment was filled with a deposit of mid-brown silty sand, (123), (125) and (137). It ran for seventeen metres from the northern baulk of the excavation before ending 3.5 metres from the north-east corner of the enclosure ditch. It narrowed slightly towards the south but was approximately 1m wide and 0.05 metres deep throughout its length; it is likely to have been heavily truncated. Although there was no direct stratigraphic relationship with the posthole alignment it seems likely that they were contemporary, marking a trackway or boundary. A sample, <1> taken from fill (125) of the feature, produced low numbers of poorly preserved indeterminate cereal grains.



III III.6 ?Early medieval posthole and pit alignment, looking north, with enclosure ditch (Section 3a) in the foreground

As noted above, the postholes were dug after the enclosure ditch had gone out of use. In the absence of artefactual evidence their date is uncertain, but the presence of oats suggests that the postholes, and the parallel Feature 3, may be early medieval or later.

The finds

A total of 254 artefacts were recovered from twenty-four contexts during the excavation. Table III.1 summarises the distribution of all the finds (except environmental) by context.

Building materials

Ceramic building material

Megan Stoakley

A total of eleven fragments of ceramic building material weighing 161g, were retrieved from four contexts, (122), (148), (210), (212).

The single fragment retrieved from (122) is very abraded with regular, well-sorted sand-tempered inclusions set in a mid-grey to brown clay matrix. It is undiagnostic in shape and, while it is difficult to ascertain a date for the fragment, it seems likely to be Roman.

Two similar fragments were recovered from (148). The fragments have well sorted, regular sand inclusions set in a fine, mid-orange clay matrix. It is possible that these fragments once originated from roof tile, although this is difficult to establish given their undiagnostic form. Again, they are likely to be of Roman date.

Seven fragments were recovered from (212), the fill of linear feature [211]. The fragments are very over-fired and brittle, comprising moderately sorted sand and flint inclusions set in a mid to dark orange compact clay matrix. Sparse red/black iron-rich grains are also evident in several fragments. The fragments are likely to be post-medieval and are possibly from wall or flooring brick.

Portable artefacts

Roman pottery

Louise Hird *Private Researcher*

A total of 217 sherds weighing 2462g were recovered from the site. Fabrics were assigned an identification code using references from Tomber and Dore (1998). There was a very limited range of fabrics and vessel types present. The majority of the pottery was in oxidised fabric, probably local and from the Wilderspool kilns. There was a small amount of reduced ware, again probably of local origin, and even less fine oxidised ware. Traded wares were represented by the ubiquitous Dorset black-burnished 1 and Severn Valley ware. The information is summarised in Table III.2, with form and date, where possible, being given under 'Comments'.

Two sherds of samian were recovered: one from (107), a fill of the northern enclosure ditch; and one from (216), the fill of pit [214] within the enclosure. A sherd of South Spanish amphora (Dressel 20) was also recovered from (107). Vessel types in black-burnished 1 include cooking pots (Gillam 1976, no 2) and a flat-rimmed bowl (Gillam 1976, no 35), both mid-second century AD. Oxidised ware vessels include a narrow-necked jar (Hartley & Webster 1973, fig 4, nos 11–15) and a bowl (Hinchliffe *et al* 1992, fig 77, no 592). The Severn Valley ware bowl is similar to Rawes 1982, fig 4, no 65, dated to the period AD 120–200. Mortarium sherds are entirely absent.

In conclusion this small group of pottery displays a limited range of fabrics and forms datable to the mid-second century. None of the sherds justified illustration.

right: Table III.1 Quantification of finds by context, material, no of fragments, weight and period

Key

CBM — Ceramic building material

<i>Context</i>	<i>Material</i>	<i>No</i>	<i>Wt (g)</i>	<i>Period</i>
(103): secondary fill of [102], northern E-W enclosure ditch, Feature 1 (Slot 1)	Pottery	12	153	Roman
	Copper alloy	1	5	Roman?
(104): primary fill of [102], northern E-W enclosure ditch, Feature 1 (Slot 1)	Pottery	6	165	Roman
(106): fill of [142], re-cut of northern E-W enclosure ditch, Feature 2 (Slot 2)	Pottery	24	165	Roman
(107): secondary fill of [105], northern E-W enclosure ditch, Feature 1 (Slot 3)	Pottery	8	693	Roman
	Calcined bone	1	1	Roman (from pottery)
(112): fill of [323], re-cut of N-E corner of enclosure ditch, Feature 2 (Slot 6)	Pottery	3	22	Roman
	Iron	1	73	Roman
(113): fill of pit modern pit [114] (Slot 2)	Pottery	3	3	2 x Roman; 1 x Post-medieval
	Glass	1	10	Post-medieval
(120): fill of [119], small modern ditch off enclosure ditch, Feature 1	Glass	2	10	Post-medieval
	Slag	1	12	Unknown
(122): fill of [143], re-cut of northern E-W enclosure ditch, Feature 2 (Slot 5)	CBM	1	5	Roman
	Pottery	12	44	Roman
(129): secondary fill of [127], northern E-W enclosure ditch, Feature 1 (Slot 4)	Pottery	3	12	Roman
(130): fill of [322], re-cut of northern E-W enclosure ditch, Feature 2 (Slot 4)	Pottery	4	28	Roman
(145): primary fill of [144], eastern N-S enclosure ditch, Feature 1 (Slot 7)	Pottery	2	31	Roman
(148): fill of [147], re-cut of N-S enclosure ditch, Feature 2 (Slot 7)	CBM	2	21	Roman (from pottery)
	Pottery	1	14	Roman
	Slag	8	218	Roman (from pottery)
(202): fill of [201], internal curvilinear gully, Group 1	Pottery	1	19	Roman
	Stone (SF1)	3	14250	Roman
(210): fill of (209), internal linear cut, Group 1	CBM	1	1	Post-medieval
(212): fill of [211], internal curvilinear cut, Group 1	CBM	7	134	Post-medieval
	Pottery	2	7	Post-medieval
	Glass	1	1	Post-medieval
(216): fill of [214], internal sub-circular pit, Group 1	Pottery	7	20	Roman
(222): fill of [226], re-cut of eastern N-S enclosure ditch, Feature 2 (Slot 11)	Pottery	19	211	Roman
(227): fill of [228], pit cut by eastern N-S enclosure ditch (Slot 11)	Pottery	28	177	Roman
	Calcined bone	1	1	Roman (from pottery)
(245): fill of [244], internal pit, Group 1	Lead	1	1	Unknown
(280): fill of [279], pit cut by southern E-W enclosure ditch (Slot 15)	Pottery	6	275	Roman
(296): secondary fill of [294], re-cut of southern E-W enclosure ditch, Feature 2 (Slot 16)	Pottery	7	16	Roman
(301): secondary fill of [229], eastern N-S enclosure ditch, Feature 1 (Slot 12)	Pottery	61	359	Roman
(316): fill of [315], re-cut of southern E-W enclosure ditch, Feature 2 (Slot 14)	Pottery	10	109	Roman
U/S: unstratified	Iron	1	85	Post-medieval-Modern

<i>Context no</i>	<i>Fabric</i>	<i>No</i>	<i>Wt (g)</i>	<i>Comments</i>
(103)	CO OX	12	111	Very abraded
	CO OX	1	42	2 cent?
(104)	DOR BB1	4	16	
	CO RE	1	8	2 cent?
	CO OX	1	138	2 cent; local type
(106)	DOR BB1	3	13	
	DOR BB1	1	21	Flat-rimmed bowl: Gillam 1976, no 35, mid-2 cent
	CO RE	1	3	
	CO OX	15	115	
	CO OX	1	6	Local jar
	F OX	2	3	
(107)	DOR BB1	1	58	Cooking pot: Gillam 1976, no 2, mid-2 cent; sooted
	CO OX	4	37	Very abraded
	SAM	1	2	Flake
	BAT AM 2	1	564	Almost certainly S Spanish Dressel 20
(112)	SAM	1	6	Base of cup, very abraded
	DOR BB1	2	11	Edge of rim
(113)	CO OX	2	3	Includes one post-medieval sherd
(122)	DOR BB1	7	20	Includes two post-medieval sherds
	CO OX	5	24	
(129)	CO OX	3	12	
(130)	DOR BB1	1	7	
	CO RE	3	21	
(145)	DOR BB1	1	22	
	CO OX	1	10	
(148)	SVW OX2	1	13	
(202)	CO OX	1	19	
(216)	SAM	1	6	
	CO RE	6	13	
(222)	DOR BB1	1	5	
	CO RE	4	149	Very abraded narrow necked jar
	CO OX	14	55	Very abraded
(227)	DOR BB1	22	153	Cooking pot: Gillam 1976, no 2, mid-2 cent
	CO OX	6	22	Very abraded
(280)	SVW OX2	4	147	Bowl: Rawes 1982, fig 4, no 65: 120–200
	CO OX	2	123	Bowl: Hinchliffe <i>et al</i> 1992, fig 77, no 592
(296)	CO OX	7	15	
(301)	CO OX	62	360	Narrow-necked jar: Hartley & Webster 1973, fig 4, nos 11–15
(316)	CO OX	1	15	
	CO OX	10	94	Hard, very abraded flakes

left: Table III.2 Pottery quantified by context, no of sherds, and weight

Key

CO RE – Coarse reduced (grey) ware (source not further identified)

CO OX – Coarse oxidised (red) ware (source not further identified)

BAT AM 2 – South Spanish amphora fabric

DOR BB1 – Dorset black-burnished ware 1

F OX – Fine oxidised ware

SVW OX2 – Severn Valley oxidised ware of unknown source

Stone**Megan Stoakley**

A large sandstone block was retrieved from the fill, (202), of one of the linear features, [201], situated within the enclosure (Small Find 1). It comprises a flat, rectangular fragment with an irregular, concave surface with two linear planes along the dorsal surface. A second block found beneath it was originally attached to the first and may have broken off from the larger fragment after deposition. Knife/scraping marks are evident on the upper surfaces of the two blocks and four vertical edges display evidence of deliberate use/working.

It was originally thought that these fragments comprised a saddle quern. However, consultation with Tim Padley (Curator of Tullie House Museum, Carlisle) has suggested that it was more likely to have been used as a sharpening block for knives or weaponry (Padley *pers comm* 01-08-2013).

It is possible that these fragments were used as packing stones. Second-century AD pottery was recovered from the same deposit, making it likely that the stones are also Roman in date.

Glass**Megan Stoakley**

A total of four fragments of glass, weighing 21g, were retrieved from three contexts, (113), (120) and (212).

One fragment was retrieved from (113), the fill of pit [114] that cut the fills of the enclosure ditch. It comprises a piece of dark-green glass most likely originating from the base of a late nineteenth- to early twentieth-century beer bottle.

Two fragments were retrieved from (120), the fill of [119], a modern feature that again cut the enclosure ditch. One comprises a clear rim sherd and the other a dark-green body sherd, most likely originating from food/liquid bottles of late nineteenth- to early twentieth-century date.

One small, undiagnostic body fragment of clear glass was recovered from the fill, (212), of an internal curvilinear feature, [211]. The fragment is likely to be intrusive and of post-medieval date.

Metal

Megan Stoakley

Four metal objects were retrieved from three contexts, (103), (112), (245) and from an unstratified deposit.

Copper alloy

A single fragment of plain cast copper alloy was recovered from (103), the secondary fill of the northern enclosure ditch. The object comprises two main elements: a circular boss, and an offset, curved shank. Ferrous corrosion is evident on the boss and the object has an uneven, mid-dark green patina. The item is undiagnostic and could be either domestic (eg, a furniture stud/button fitting) or part of an item of personal adornment. However, it is similar in form and style to a type of military fastening recovered during excavations at Catterick (Lentowicz 2002, 61, fig 180). It is most likely to date to the second century AD. (Ill III.7).

Iron

Two iron artefacts were retrieved, one from (112), a fill of the enclosure ditch, and another from an unstratified deposit.

The iron object recovered from (112) comprises a large bolt or nail. A large amount of corrosion is evident along the shaft and the object is in poor condition. Roman pottery (late first- to mid-second-century AD) was recovered from the same context and it is likely that the object dates to this period. An unidentified iron fitting was recovered from an unstratified context. Moderate corrosion is evident across the entire surface of the object and it is likely to be of post-medieval to modern date.

Lead

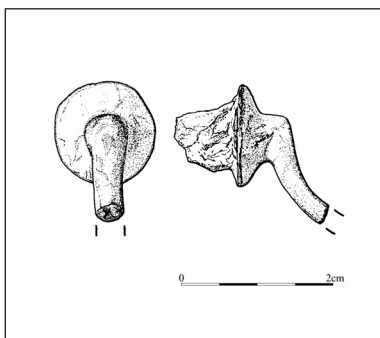
A single, undiagnostic waste fragment of cast lead was retrieved from the fill (245) of pit [244] inside the enclosure. No datable artefactual evidence was retrieved from this deposit and so the object cannot be assigned a definite date.

Industrial remains

Don O'Meara

Slag

A total of nine fragments of slag, weighing 230g, were retrieved from two contexts, (120) and (148). Eight of these fragments, weighing 218g, were recovered from fill (148) of the re-cut of the enclosure ditch. The material from (148) had an ashy, vesicular appearance with vesicles generally 1–3mm in diameter where exposed. The material was weakly-moderately magnetic (ie only showed magnetic susceptibility when held almost against a magnet). A small sample of this material was crushed with a rock hammer and *c* 40% of the fragments were attracted to a hand magnet. The fragment from (120) had a more vitrified glassy appearance and was a blue-grey to dark purple colour, as opposed to the orange-brown to grey-purple colour of the material from (148), but showed a similar hardness to the material from (148). There was no clear flow pattern to indicate this material was tap-slag, and may instead be furnace slag (Bachmann 1982, 4). Pottery of Roman date was retrieved from this context, providing a possible Roman date for these fragments.



III III.7 Fragment of copper alloy fitting from northern enclosure ditch. (Scale 1/1)

Environmental remains

Don O'Meara

Bone

No unburnt bones were found in the course of the excavation, either by hand or from the processed bulk samples. The well drained and acidic nature of the soil would be typically not conducive to the preservation of bone unless it was in a calcined state. The origins of the calcined bone from (107) and (227) are unknown, as no *in-situ* evidence of burning was found within or outside the enclosure.

Plant remains

Methodology

During the course of the excavation a total of sixty-seven soil samples were collected by the excavation team, consisting of *c* 800 litres of sediment. Twenty of the samples were taken from pits, eleven samples from ditch fills, ten samples from linear features and twenty-six samples from postholes.

Samples were taken in order to extract material of archaeobotanical interest pertinent to understanding of human activities on the site, in line with generally accepted recommendations (English Heritage 2011), as well as specific research recommendations for the archaeobotany of Roman Britain (Van der Veen *et al* 2007). The sandy, well drained nature of the site suggested that charred plant macrofossils would represent the main archaeobotanical resource. However, the samples produced, with some exceptions, a very sparse assemblage of material. Nevertheless, it is still felt that the reporting of this data is important for archaeobotanical research and acknowledges one of Van der Veen's proposals for the archaeobotany of Roman Britain: 'Record and publish samples with negative and negligible as well as positive results together with their archaeological dating, context, and location' (Van der Veen *et al* 2007, 204)

The samples were processed using a standard methodology for non-waterlogged/dryland samples (as *per* Kenward *et al* 1980, 5–8). A 1mm aperture nylon mesh was used to line the processing tank, and the washover/flot was collected in a 250-micron geological sieve. All of the heavy residues were air-dried and examined for relevant anthropogenic material such as charcoal and artefactual material such as pottery. They were also scanned with a hand magnet to retrieve forms of magnetic material such as residues of metallurgical

activity, in particular hammer scale and spheroidal hammer scale (Bayley *et al* 2001; 2008). The dried residues were then reprocessed by decanting them from a water-filled bucket in a geological sieve to maximise the charred material recovered, leading to the production of a primary 'Flot 1' and a secondary 'Flot 2'. This led to an increase of *c* 10% in the material recovered. The washover/flot was air-dried and examined at x60 magnification for charred and uncharred botanical remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Wardell Armstrong Archaeology and by reference to relevant literature (Jacomet 2006; Cappers *et al* 2010; Zohary *et al* 2012). Plant taxonomic nomenclature follows Stace (2010).

Results

The most noticeable feature of the assemblage was the almost total absence of non-oat remains, with only two barley grains and a wheat grain (a hexaploid bread wheat type) representing this material. However, *c* 850 oat grains, as well as fragments of charred oat awns and oat floret bases were recovered. Forty-seven indeterminate grains were also recovered from various contexts. The remains were strongly concentrated in four contexts. Of the total oat assemblage *c* 820 grains were concentrated in samples <10> (165), <11> (167), <12> (169) and <13> (171). The dominance of oat remains suggests that there was only one main phase of cereal deposition activity at the site.

A suite of samples was taken from across the site covering *c* 50% of all the fill deposits encountered, with a focus on primary fills of pits and ditches, and providing a good overview of the archaeobotanical potential of the site. In most cases the samples produced very low frequencies of remains. The richest ten samples are summarised in Table III.3 (with the samples producing one identified grain or less not included). Hazelnut shell was recovered very occasionally, and only as small, solitary remains. No other wild plants were recovered in notable quantities, though occasional charred seeds of *Brassica cf campestris* (possible wild turnip) were identified from three samples. Occasional small fragments of pottery were recovered from the heavy residues, as well as magnetic material, mainly naturally occurring magnetic minerals. Small amounts of a grey ashy slag-like material was recovered in the pits/postholes which made up Group 2.

Little material was recovered from the ten samples taken from linear features. The nine poorly preserved grains from <1> (125), Feature 3, were the most recovered from a linear feature, with four of the linear features producing no charred cereal grains. Twenty samples were taken from pits, but only samples <10> (165) and <11> (167) produced appreciable amounts of remains. These formed part of the linear pit/posthole arrangement Group 2 which will be discussed separately below. Only two postholes produced appreciable remains, <12> (169) and <13> (171); again, these are discussed below as they form part of Group 2.

Group 2 located to the north of the site was very well investigated, with samples being taken from every pit/posthole in the group. The remains from the majority of the samples were sparse, and in line with the results from rest of the site. However, as mentioned above,

right: Table III.3 Plant remains quantified by taxon, context, sample and no of items. Archaeobotanical results presented as (Flot1; Flot2)

Sample no	<1>	<2>	<7>	<8>	<10>	<11>	<12>	<13>	<16>	<66>
Context no	(125)	(150)	(160)	(162)	(165)	(167)	(169)	(171)	(177)	(132)
Context type	Ditch, Feature 3	Posthole	Posthole	Posthole	Pit	Pit	Posthole	Posthole	Posthole	Pit
Volume processed (l)	10	5	5	5	10	5	5	5	5	20
Volume of retent (kg)	0.7	0.7	0.54	0.3	1.1	0.3	0.24	0.125m	0.2	0.3
Weight of flot (g)	15	16	10	5	15	10	6	8	6	2
Residue contents (relative abundance 1-3)										
Magnetic Residue	1		1		1	1	1		1	
Pottery	1									
Stones/gravel	3	3	3	3	3	3	3	3	3	3
Slag					1	1	1	1		
Flot matrix (relative abundance 1-3)										
Charcoal	2;3	2;3	3;3	2;3	2;3	3;3	3;3	2;3	2;2	2
Modern roots	2;1	2;1	1;	2;1	2;1	;1	1;1	2;1	2;2	2
Poaceae awns (cf oat awns)		;1				;1		;1		
Slag		1;1	1;1	1;	1;1	1;1	1;1	;1	1;	
Charred plant remains (total counts)										
<i>Avena sativa</i> floret bases (Domestic oat)					10;	30;	5;		1?;1	
<i>Avena</i> species (Oats) grain	1;	;3	3;	3;	70;12	300+;29	250+;34	32;12	5;2	7;
<i>Hordeum</i> species (Barley) grain			?1;							
<i>Hordeum vulgare</i> (Barley; hulled type)	;?1									
<i>Triticum</i> species (Hexaploid bread wheat)					;1					
Indeterminate cereal grain	7;	1;3		2;	4;		5;	;1	2;	5;
Other plant remains (relative abundance 1-3)										
<i>Betula pendula</i> (Silver birch)					;1					
<i>Brassica cf campestris</i> (Wild turnip)		;1*						4*;		
<i>Bromus</i> species (Brome grass)							1;			
<i>Chenopodiaceae</i> (Goosefoot)	1;					?1*;	;1*			
<i>Galeopsis/Stachys</i> species (Lamiaceae)										
<i>Glebionis segetum</i> (Corn marigold)										
<i>Polygonum</i> sp (Knotgrass)						;1*				
<i>Spergula arvensis</i> (Corn spurry)						1*;				
<i>Taraxacum officinale</i> (Dandelion)	;1	1;								
Unidentified	1*;				1*;					

the samples <10> (165), <11> (167), <12> (169) and <13> (171) produced abundant remains, with the majority of the charred cereal grains from the entire site coming from these four samples. This pattern shows a concentration of deposition between contexts [166] and [168]. A number of preserved floret bases were identified as coming from cultivated oats (*Avena sativa*).

Discussion

Despite the Roman finds from the site as a whole, there was very little palaeoenvironmental evidence that could definitely be dated to this period. The frequency of oat remains recovered is interesting, as Roman cultivation is often dominated by grains of barley or wheat varieties. In fact, the frequency of barley and wheat remains was very low compared to that of oats, with only three grains from both species recovered from the entire site. If the features with abundant oat remains do indeed date to the Roman period it would suggest an unusual uniformity of oat cultivation. Rather, the large number of oats recovered suggests that these features may be medieval, when oats were more common (Hall & Huntley 2007, 242). Such a dating is consistent with the fact that the Group 2 features postdate the backfilling of the enclosure ditch, and there is no artefactual evidence to contradict it.

Discussion

Ben Moore

Despite the scatters of Mesolithic, Neolithic and Bronze Age flints found within the topsoil during earlier fieldwalking in the area, no evidence of prehistoric activity was found during this excavation. The site had been heavily truncated by modern farming and the earlier, more ephemeral, features associated with these finds are likely to have been completely removed by ploughing. In fact, none of the trenches excavated across a wider area during the 1993 evaluation contained convincing prehistoric features. However, some of the features investigated during the 2013 excavation within the enclosure contained no finds or environmental evidence, and it is therefore impossible to be certain that none of them were prehistoric. It would seem more likely, however, that they were related to the nearby features that can be dated to the Roman period.

No archaeological finds or features dating to the Iron Age were noted in the 1993 evaluation or during the 2013 excavation, despite enclosures elsewhere in Cheshire producing evidence of continuity between the Iron Age and Roman periods. The presence of pits that are datable to the mid-second century AD that were truncated by the enclosure ditch gives a clear *terminus post quem* for the construction of the latter.

An aerial photograph of the enclosure, taken before it was affected by quarrying, seems to show faint internal circular features, and it could be the case that the curvilinear features and postholes recorded during this excavation are the extremely truncated remnants of these. Roundhouses would not be out of place in the Roman period in north-western England, where they continued in use on rural settlements until the third century at least and even occurred on urban sites (Philpott & Adams 2010, 193–6). However, the interpretation of these features as possible windbreaks is based on the evidence as it survives and it would perhaps be considered over-interpretation to suggest they are the truncated remains of roundhouses.

As noted in the introduction, comparatively little fieldwork has been carried out at the nearly eighty enclosures detected as cropmarks within Cheshire, Greater Manchester, Merseyside and West Lancashire. They have generally been interpreted as late prehistoric or Roman farmsteads, but in fact rural settlement in these periods is poorly understood. This excavation has given a more detailed and accurate picture of activity at one such site and may help to clarify the interpretation and dating of others in the region. Although some enclosures seem to have been occupied in both the Iron Age and Roman periods, this was clearly not the case at Southworth, and the narrow date range of the artefacts recovered here could prove to be significant.

Philpott has tentatively argued that in Merseyside and Cheshire the morphology of settlements was related to their date and function: curvilinear enclosures are thought to originate in the Iron Age although continuing into the Roman period, and may have been associated with pastoralism, while rectangular ones have normally produced only Roman finds and would have fitted into arable field systems (Philpott 2000, 183–6; Philpott 2005, 79–80; 2008, 40–2; Philpott & Adams 2010, 171–5). The dating of the rectangular Southworth enclosure tends to support Philpott’s argument, as does its situation on a ridge of free-draining sand and gravel, although it has to be conceded that little of the palaeoenvironmental evidence belongs to the Roman period. Likewise the apparent failure of the settlement to outlive the second century conforms to an emerging pattern in the region, with a decline in the number of rural settlements through the first half of the third century (Nevell 2003, 13; Nevell & Roberts 2005, 115–17).

Also of interest and importance for the future management of similar sites across the region is the impact that modern farming practices, particularly ploughing, has had on the enclosure at Southworth. The internal features in particular were hard to interpret and it seems likely that these and the enclosure ditch itself were heavily truncated. If this is the case it would seem likely that other enclosure sites in similar situations are under threat of destruction when under arable land and with no imminent development issues. Time may be of the essence if these sites are to be recorded and understood more clearly.

Acknowledgements

Wardell Armstrong Archaeology would like to thank Mr Mark Gaskell of Gaskell Bros (WM & C) Limited for commissioning the project. Thanks are also to Mark Leah, Development Control Archaeologist, Cheshire West and Chester Council, for his assistance throughout the project, to Alan Sharp of Southworth Hall Farm and Paul Albiston of Hewden Stuart Ltd, and finally to the anonymous referees for a number of suggestions.

The archaeological investigations were undertaken by Angus Clark, Hope Hancox, Kevin Horsley, Karen Mason, Ben Moore and Aidan Pratt. The illustrations were produced by Adrian Bailey. Except where indicated, all contributors to the report are staff of Wardell Armstrong Archaeology. The project was managed by Martin Railton, Senior Project Manager at Wardell Armstrong Archaeology.

Bibliography

- Bachmann, H G 1982 *The identification of slags from archaeological sites*. London: University College Institute of Archaeology. (Occas Publ 6)
- Bayley, J, Crossley, D & Ponting, M 2008 *Metals and metalworking: a research framework for archaeometallurgy*. London: Historical Metallurgy Society. (Occas Publ 6)
- Bayley, J, Dungworth, D & Paynter, S 2001 *Archaeometallurgy*. Swindon: English Heritage National Monuments Record Centre. (Centre for Archaeology Guides 1)
- British Geological Survey 2013 *Geology of Britain viewer*. Nottingham: British Geological Survey. <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>. Accessed 10 May 2013
- Cappers, R T J, Bekker, R M & Jans, J E A 2010 *Digitale zadenatlas van Nederlands*. Groningen: Barkhuis. (Groningen Archaeol Stud 4)
- Cowell, R W 1992 *Extension to Southworth Quarry, Winwick: draft report on the archaeological assessment*. Liverpool: National Museums and Galleries on Merseyside Field Archaeology Section. (Client report)
- English Heritage 2011 *Environmental archaeology*. Ed 2. Swindon: English Heritage
- Freke, D J & Holgate, R 1978–8 Excavations at Winwick, Cheshire in 1980: 1. Excavation of two 2nd millennium BC mounds. *J Chester Archaeol Soc new ser* 70, 9–30
- Freke, D J & Thacker, A T 1978–8 2. The inhumation cemetery at Southworth Hall Farm, Winwick. *J Chester Archaeol Soc new ser* 70, 31–8
- Gillam, J P 1976 Coarse fumed ware in northern Britain and beyond. *Glasgow Archaeol J* 4, 57–80
- Hall, A R & Huntley, J P 2007 *A review of the evidence for macrofossil plant remains from archaeological deposits in northern England*. London: English Heritage. (Res Department Rep Ser 87/2007). <http://research.english-heritage.org.uk/report/?14598>. Accessed 19 May 2014
- Hartley, K F & Webster, P V 1973 Romano-British pottery kilns near Wilderspool. *Archaeol J* 130, 77–103
- Hinchliffe, J, Williams, J H & Williams, F 1992 *Roman Warrington: excavations at Wilderspool 1966–9 and 1976*. Manchester: Manchester University. (*Brigantia* Monogr 2)
- Jacomet, S 2006 *Identification of cereal remains from archaeological sites*. Ed 2. Basel: Basel University IPAS.
- Kenward, H K, Hall, A R & Jones, A K G 1980 A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. *Sci & Archaeol* 22, 3–15
- LandIS 2013 *Soilscapes viewer*. Cranfield University LandIS. <http://www.landis.org.uk/soilscapes>. Accessed 10 May 2013
- Lentowicz, I J 2002 Copper alloy objects from Catterick bypass and Catterick 1972 (Sites 433 & 434). In: Wilson, P R *et al*. *Cataractonium: Roman Catterick and its hinterland. Excavations and research, 1958–1997* 2. York: Council for British Archaeology. (CBA Res Rep 129), 46–78

- Mineral Planning Group 1998 *Proposed extension Southworth Quarry, Winwick*. Bradford: Mineral Planning Group. (Client report)
- Natural England 2012 *Natural character areas*. <http://publications.naturalengland.org.uk/category/587130>. Accessed 19 May 2014
- Nevell, M 2003 I: The late prehistoric and Romano-British settlement of the Mersey Basin. *J Chester Archaeol Soc new ser* **78**, 1–21
- Nevell, M & Redhead, N eds 2005 *Mellor: living on the edge. A regional study of an Iron Age and Romano-British upland settlement*. Manchester: University of Manchester Field Archaeology Unit. (Manchester Archaeol Monogr **1**)
- Nevell, M & Roberts, J 2005 Towards an understanding of the rural economy and society of the Iron Age and Romano-British landscape of the Mersey basin and southern Pennines. In: Nevell, M & Redhead, N eds, 107–18
- Philpott, R A 2000 *The Romano-British sites in their regional context*. In: Cowell, R & Philpott, R A. *Prehistoric, Romano-British and medieval settlement in lowland north-west England*. Liverpool: National Museums and Galleries on Merseyside, 175–204
- Philpott, R A 2005 Romano-British rural settlement in the Dee–Mersey region: some themes. In: Nevell & Redhead eds, 77–86
- Philpott, R A 2006 The Romano-British period resource assessment. In: Brennand, M ed. *The archaeology of north west England. An archaeological research framework for north west England 1: resource assessment*. Council for British Archaeology North-West Regional Group. (Archaeology North-West **8** (15)), 59–90
- Philpott, R A 2008 Roman Merseyside: twenty-five years on. *J Merseyside Archaeol Soc* **12**, 27–60
- Philpott, R A & Adams, M H 2010 *Irby, Wirral: excavations on a late prehistoric, Romano-British and medieval site, 1987–96*. Liverpool: National Museums Liverpool
- Philpott, R A, Simmons, P & Cowell, R W 1993 *An archaeological evaluation at Southworth Hall Farm, Croft, Cheshire*. Liverpool: National Museums and Galleries on Merseyside Field Archaeology Section. (Client report)
- Rawes, B 1982 Gloucester Severn Valley Ware. *Trans Bristol Gloucestershire Archaeol Soc* **100**, 33–64
- Stace, C 2010 *New flora of the British Isles*. Ed 3. Cambridge: Cambridge University Press
- Tomber, R & Dore, J 1998 *The national Roman fabric reference collection: a handbook*. Museum of London Archaeology Service. (Monogr **2**)
- Van der Veen, M, Livarda, A & Hill, A 2007 The archaeobotany of Roman Britain: current state and identification of research priorities. *Britannia* **38**, 181–210
- Zohary, D, Hopf, M & Weiss, E 2012 *Domestication of plants in the Old World: the origin and spread of domesticated plants in south-west Asia, Europe, and the Mediterranean Basin*. Ed 4. Oxford: Oxford University Press

