I: Excavation at Two Cropmark Enclosures at Puddington Lane, Burton, Wirral, 2010–2015

by Richard A Gregory and Mark Adams with contributions by Denise Druce, Laura Griffin, Chris Howard-Davis, Gwladys Monteil, Elaine L Morris, Rob Philpott, Ian Smith and Adam Tinsley*

A programme of archaeological excavation was undertaken in 2015 as a prelude to the construction of an onshore export power cable running inland along the western side of the Wirral peninsula. This work focused on two cropmark sites at Puddington Lane, Burton, which had been the subject of earlier schemes of archaeological investigation between 2010 and 2013. The 2015 programme of work entailed the partial excavation of a rectilinear enclosure and also an area immediately west of a curvilinear enclosure to the south. The results of this work have been combined with those derived from the earlier investigations and indicate that Puddington Lane formed a significant locale, with evidence for earlier prehistoric and middle Bronze Age activity, Iron Age and Roman settlement, as well as medieval activity.

Introduction Richard A Gregory

The site and project

A scheme of archaeological investigation was undertaken in 2015 on the western side of the Wirral peninsula, in the unitary authorities of Wirral and Cheshire West and Chester, along a *c* 25m-wide corridor between Leasowe (NGR SJ 246 912) and a site close to Connah's Quay in Flintshire (NGR SJ 299 696; Illus I.1). The investigation aimed to record any significant archaeological remains that might be disturbed during the laying of the Western Link HVDC (High Voltage Direct Current) underground cable installed by Prysmian Cables and Systems Ltd on behalf of Western Link (comprising National Grid and Scottish Power). The work was undertaken by Oxford Archaeology North (OA North), acting on behalf of RSK Environment Ltd, which was appointed by Prysmian to oversee archaeological and environmental issues relating to the cable route and accordingly produced a brief for the investigation, agreed with the Cheshire Archaeology Planning Advisory Service (RSK 2012).

An archaeological watching brief had been carried out along most of the route in 2013 and resulted in the identification of ten sites (Illus I.1). Nine of these (Sites 4.02–21.03) contained low concentrations of archaeological features of limited interest and did not warrant any further investigation; full details of these are contained in the site archive. At one already identified site, however, at Puddington Lane, more detailed archaeological investigation

was required on two cropmark enclosures, and this work forms the focus of the present article. A rectilinear enclosure (Site 154; Cheshire HER 2880) lay to the north of Puddington Lane and a curvilinear enclosure (Site 129; Cheshire HER 2879) to the south. Both enclosures had a south-westerly aspect with a wide view over the Dee estuary and the hills of north-east Wales (the town of Flint now being visible). Early maps also show that before the New Cut opened in 1737, the River Dee was much closer to the sites, following a channel on the English rather than the Welsh side of the estuary (Adams 2017, 3).

Geologically, although both enclosures are underlain by solid deposits of the Kinnerton Sandstone Formation, which outcrops to the north-west around the village of Burton, both partly lie on an island of glaciofluvial deposits of undifferentiated sand and gravel, over which soils of the Wick and Newport series developed, and partly on surrounding deposits of glacial till (Davies 2004; Furness 1978, 73–82). The free-draining nature of the glacial sands and gravels is undoubtedly responsible for cropmark formation, and perhaps these qualities also influenced the siting of the enclosures in antiquity.

The enclosures (Illus I.2) were discovered in 1989 during a programme of aerial reconnaissance by Jill Collens (then of Cheshire County Council) and Rob Philpott (then of National Museums Liverpool) and were subsequently investigated, between 2010 and 2013, by non-intrusive survey and trial trenching, as part of a research project designed to recover evidence for their character, date and function. The curvilinear enclosure was interpreted as possibly later prehistoric on the basis of its morphology, whilst the rectilinear enclosure was thought to date to the later prehistoric or Roman period (Philpott 2010, 172; 2013; Adams 2017, 5). Several other cropmarks that are also known in the immediate vicinity of the two enclosures probably represent buried post-medieval field boundaries and areas of ridge and furrow of medieval and post-medieval date (Philpott 2013). The results of this earlier work have been incorporated with those of the more recent investigations to enable a holistic picture of the character, form and date of activity at Puddington Lane to be determined.

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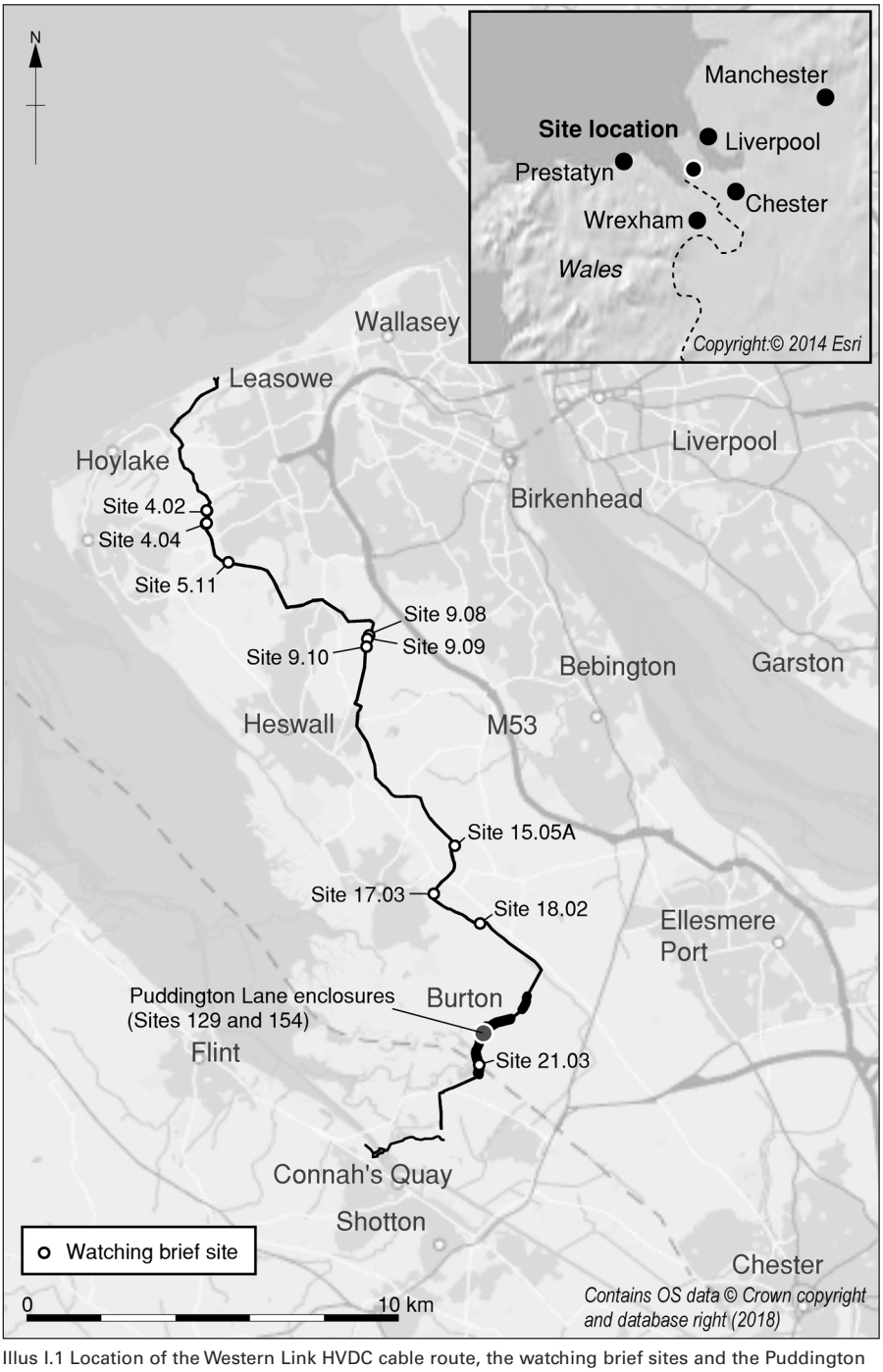
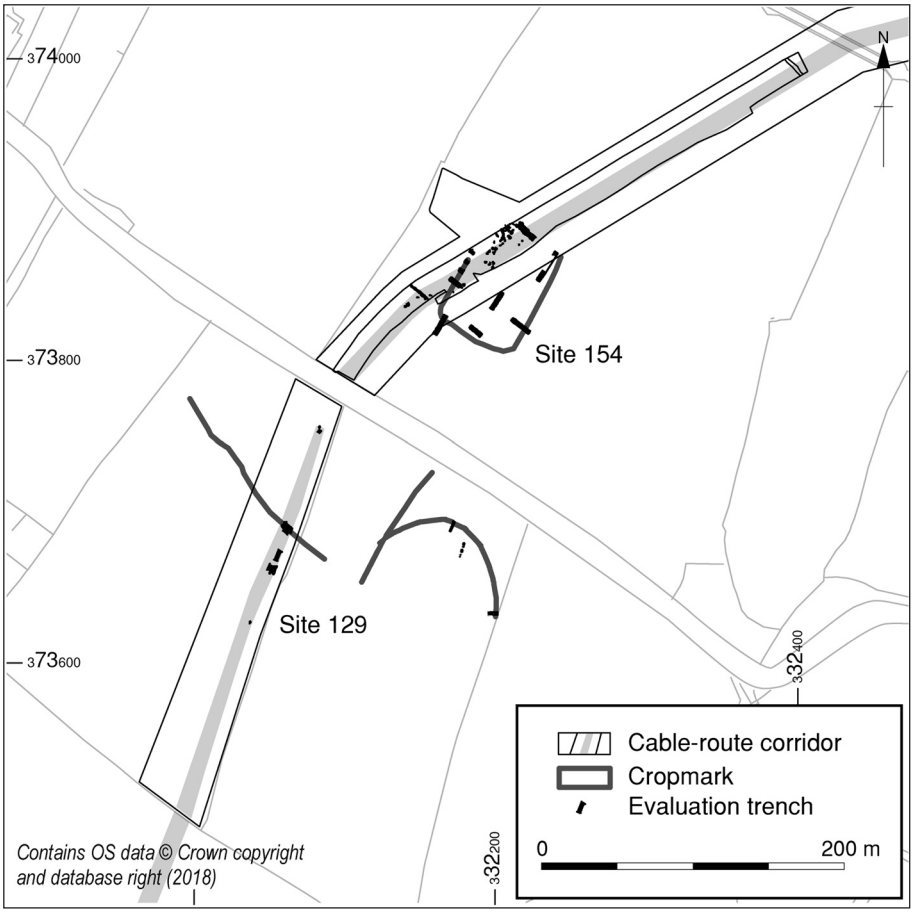


Illus I.1 Location of the Western Link HVDC cable route, the watching brief sites and the Puddington Lane enclosures. (Scale 1/200,000)



Illus I.2 Location of the cropmark enclosures, evaluation trenches and cable-route corridor. (1/5000)

Archaeological investigation Richard A Gregory and Mark Adams

Fieldwork

The investigations between 2010 and 2013 involved fieldwalking (2010), a metal-detector survey (2010–12) and a geophysical survey (2011) of the curvilinear enclosure (Site 129; Philpott 2010; 2013). Two trial trenches were also excavated across its ditch in 2010 (Illus I.2). Investigation of the rectilinear enclosure (Site 154) was first undertaken in 2013 and comprised fieldwalking, a metal-detector survey, and trial trenching, involving the excavation of six linear trenches designed to examine the enclosure ditches and interior (Illus I.3, Trenches I–VI). Following this work, in June and July 2015, the northern portion of the rectilinear enclosure and an area to the west of the curvilinear enclosure were completely stripped and excavated during archaeological mitigation works along the cable-route corridor.

At the curvilinear enclosure, the evaluation trenches were entirely excavated by hand, whilst the topsoil and subsoils from the evaluation trenches examining the rectilinear enclosure, and also the open-area excavations in the cable-route trench, were removed mechanically,

after which manual cleaning and excavation proceeded. The only exception to this was a section of the northern ditch of the rectilinear enclosure, exposed in the cable-route trench, that was machine-excavated at the end of the 2015 season in order to retrieve any artefactual material (all of this material being assigned to 'context' 834).

All pertinent deposits and features were recorded using standard methods and techniques, and all small finds were retained for examination (Adams 2017, 7, 13). In addition, any deposits suitable for palaeoenvironmental analysis and scientific dating were identified, sampled, and the samples processed, using standard methods and techniques (Historic England 2015; Campbell *et al* 2011).

Post-excavation assessment and analysis

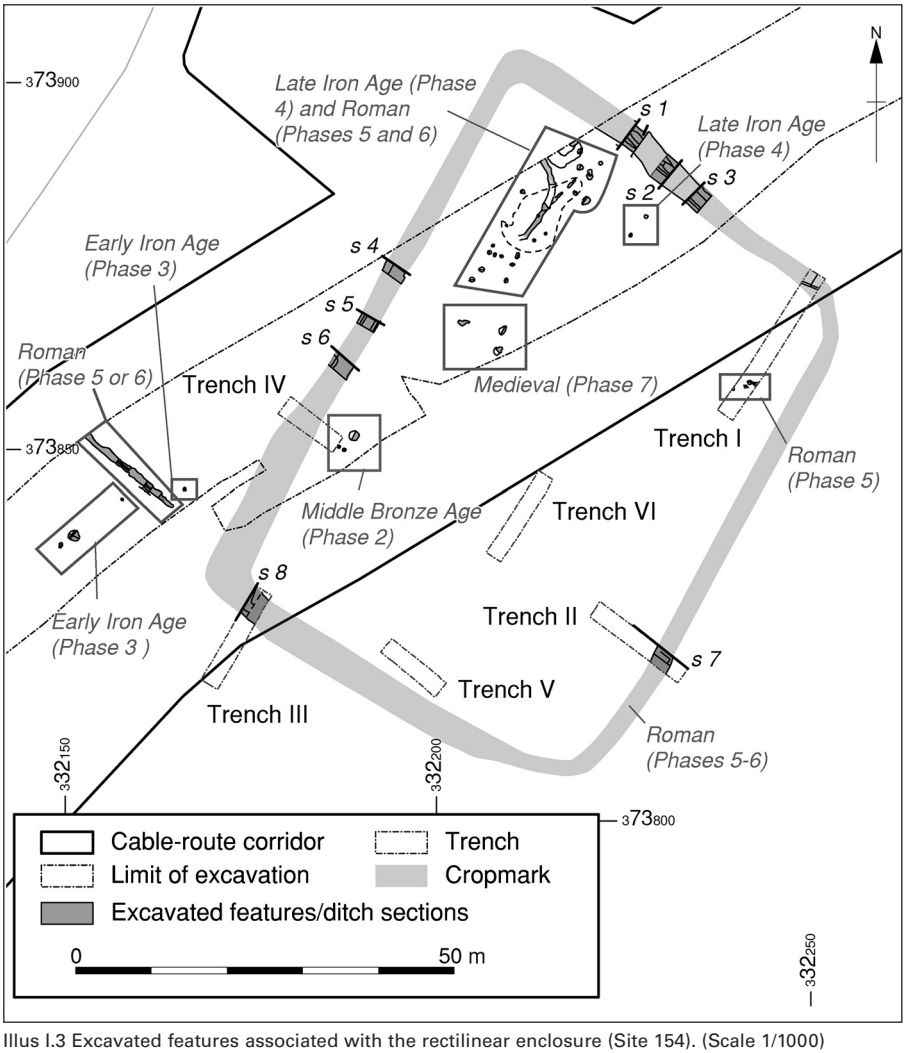
The fieldwork was followed by post-excavation assessment (Adams 2017) and analysis. The rectilinear enclosure was associated with the most significant archaeological remains, and stratigraphic analysis, radiocarbon dating, analysis of the Roman pottery and Cheshire salt containers, animal bone and charred plant remains were recommended. These analyses, together with the evidence derived from fieldwalking, have enabled the construction of a fairly detailed and extended site chronology, and also provided some good insights into the form and function of the enclosure.

In contrast, the archaeological data directly relating to the curvilinear enclosure were limited, being derived from the two evaluation trenches across its boundaries, the results from which are described in detail by Philpott (2013) and Adams (2017). Although the boundary produced a very small collection of artefacts, the only one considered during the analysis phase was a sherd of prehistoric pottery. Only a very broad chronology can therefore be proposed for this enclosure, and it is perhaps only with further excavation of its boundary and within its confines that its chronology can be fully resolved. Similarly, although several features were present in the area to the west, all are undated. Some finds were, however, recovered during fieldwalking that appear to relate to activity that pre-dated the enclosure.

The paper and digital archives generated by all phases of archaeological investigation, together with the artefacts recovered during the evaluations and open-area excavations, have been deposited with the National Museums Liverpool.

The rectilinear enclosure and its environs (Site 154)

A fairly large portion of the rectilinear enclosure was excavated and numerous features were encountered, including its boundary, internal structures, hearths and pits, and also pits and hearths just beyond it (Illus I.3). Some of these features produced Roman pottery, whilst others contained charcoal suitable for radiocarbon dating, and therefore a dating programme was implemented, after which some of the results were subjected to Bayesian modelling. Calibrated radiocarbon dates are quoted at the 95% confidence level, whilst, following standard conventions, the results from the Bayesian modelling (posterior-density estimates) are quoted in italics (Bayliss 2007). Other chronological information includes lithic artefacts, recovered during the programme of fieldwalking.



Illus I.3 Excavated features associated with the rectilinear enclosure (Site 154). (Scale 1/1000)

The combined artefactual and scientific dating evidence, together with the limited stratigraphic relationships apparent in the cable-route trench, indicates that this site had a fairly extended chronology, with seven phases of activity being identified, dating to the prehistoric, Roman, and medieval periods. Some limited post-medieval features were also apparent that specifically related to agricultural activity; full details of these are contained in the site archive and assessment report (Adams 2017, 28).

Phase 1: Earlier prehistoric activity

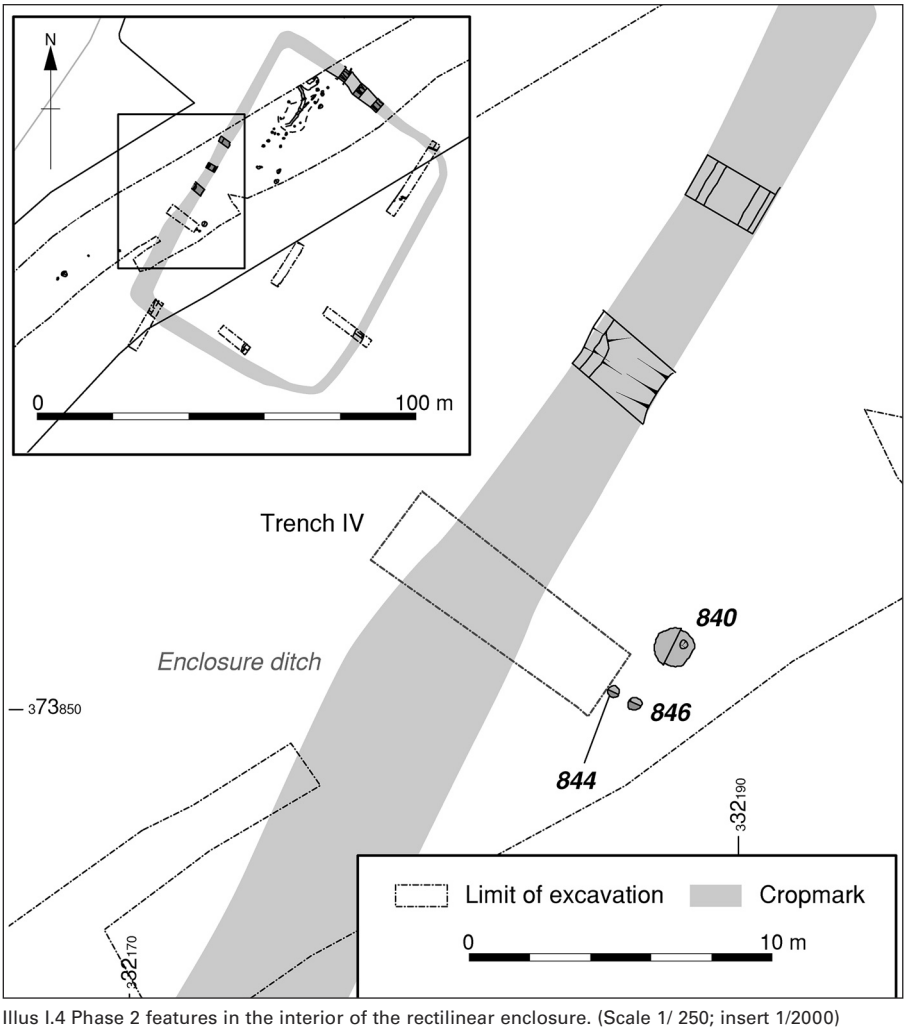
A small collection of twelve flint and chert tools was retrieved during fieldwalking. Although these were not analysed, they were included in the post-excavation assessment (Cowell in Adams 2017, 28–30). This assessment concluded that they probably related to activity dating to the late Mesolithic period (6000–4000 cal BC), although some of the small waste

flakes and knapping debris could have been a product of Bronze Age or Iron Age activity in this area.

Phase 2: Middle Bronze Age hearth and postholes

A small subcircular hearth, 840, was present in the interior of the enclosure (Illus I.4); it measured 0.7 x 1.1 x 0.15m deep and had scorched sides. Its fill, 839, had a high charcoal content and also contained a large assemblage of barley grains, together with a few wheat grains. A radiocarbon date of 1400–1220 cal BC (SUERC-76620; 3045±30 BP) was obtained from one of the barley grains.

Two smaller pits, 844 and 846, lay to the south-west of the hearth. These had similar fills and were probably of the same date, although they had steeper-sided profiles, lacked scorched sides and are more likely to have contained posts.

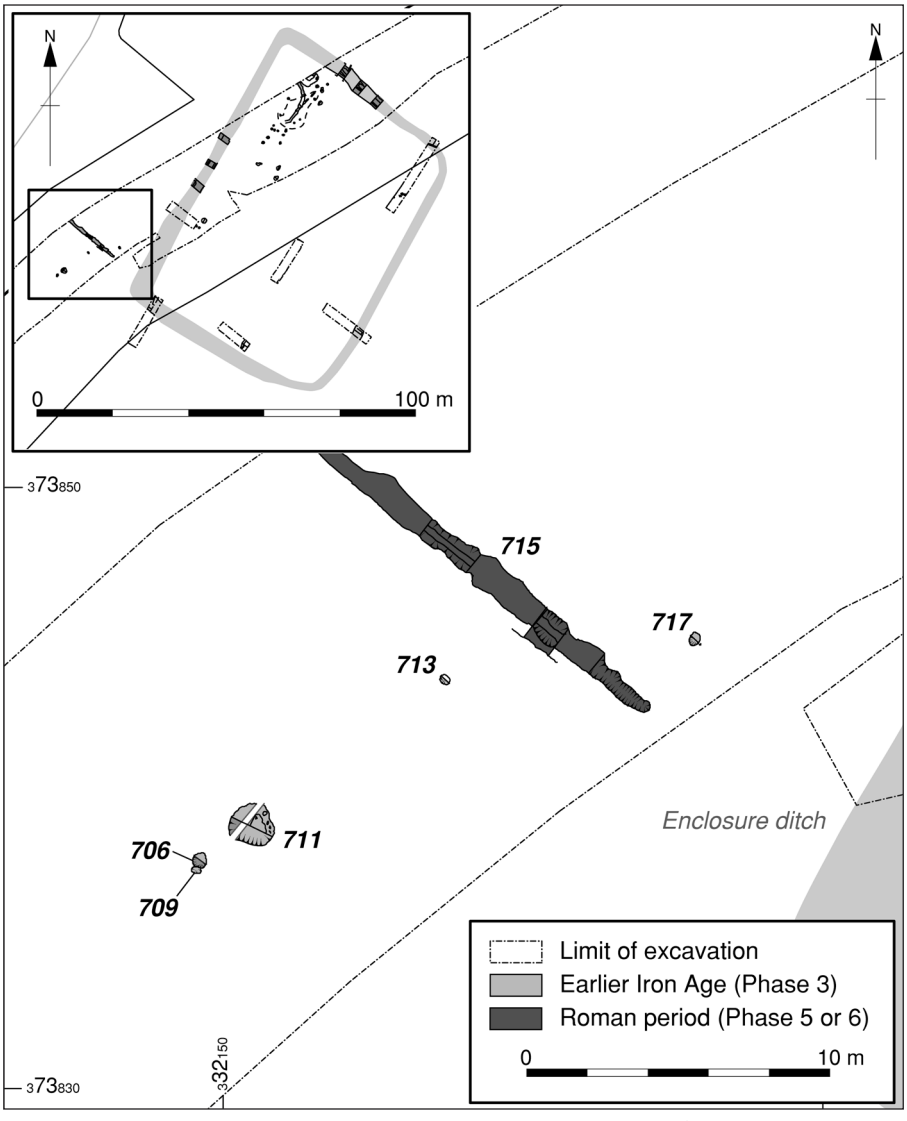


Illus I.4 Phase 2 features in the interior of the rectilinear enclosure. (Scale 1/ 250; insert 1/2000)

Phase 3: Earlier Iron Age hearth, pit and stakeholes

A small circular hearth, 717, *c* 0.5m in diameter and 0.2m deep, was found outside the enclosure (Illus I.5). It had scorched sides and contained dark greyish-brown silty sand with frequent charcoal flecks, fragments of heat-shattered stone and burnt animal bone, suggesting that it had been used for cooking. A fragment of charcoal returned a date of 520–370 cal BC (SUERC-76604; 2348±30 BP), indicating that it dates to the earlier Iron Age.

Several other features were encountered in this area; these are undated but may be contemporary with the hearth, although they were also close to a Roman-period gully, 715, and so



Illus I.5 Phase 3 and Phase 5 or 6 features adjacent to the rectilinear enclosure. (Scale 1/250; insert 1/2000)

conceivably could date to the latter period. These included stakeholes 713, 706 and 709 and pit 711. The last feature, 711, had a diameter of *c* 1.4m and was similar to hearth 717 in that it was 0.2m deep and contained heat-shattered stones and flecks of charcoal. However, there was no evidence for the scorching of its sides, suggesting that the burnt material within it was deposited there after cooling.

Phase 4: Later Iron Age settlement

A series of features was present in the north-western part of the enclosure, forming elements of a later Iron Age settlement. These elements had limited stratigraphic relationships but, based on the radiocarbon evidence (*see below*), the settlement was of some duration. The features appear to have been concentrated on the crest of a slight ridge along the long axis of the enclosure, parallel to its western boundary (Illus I.6).

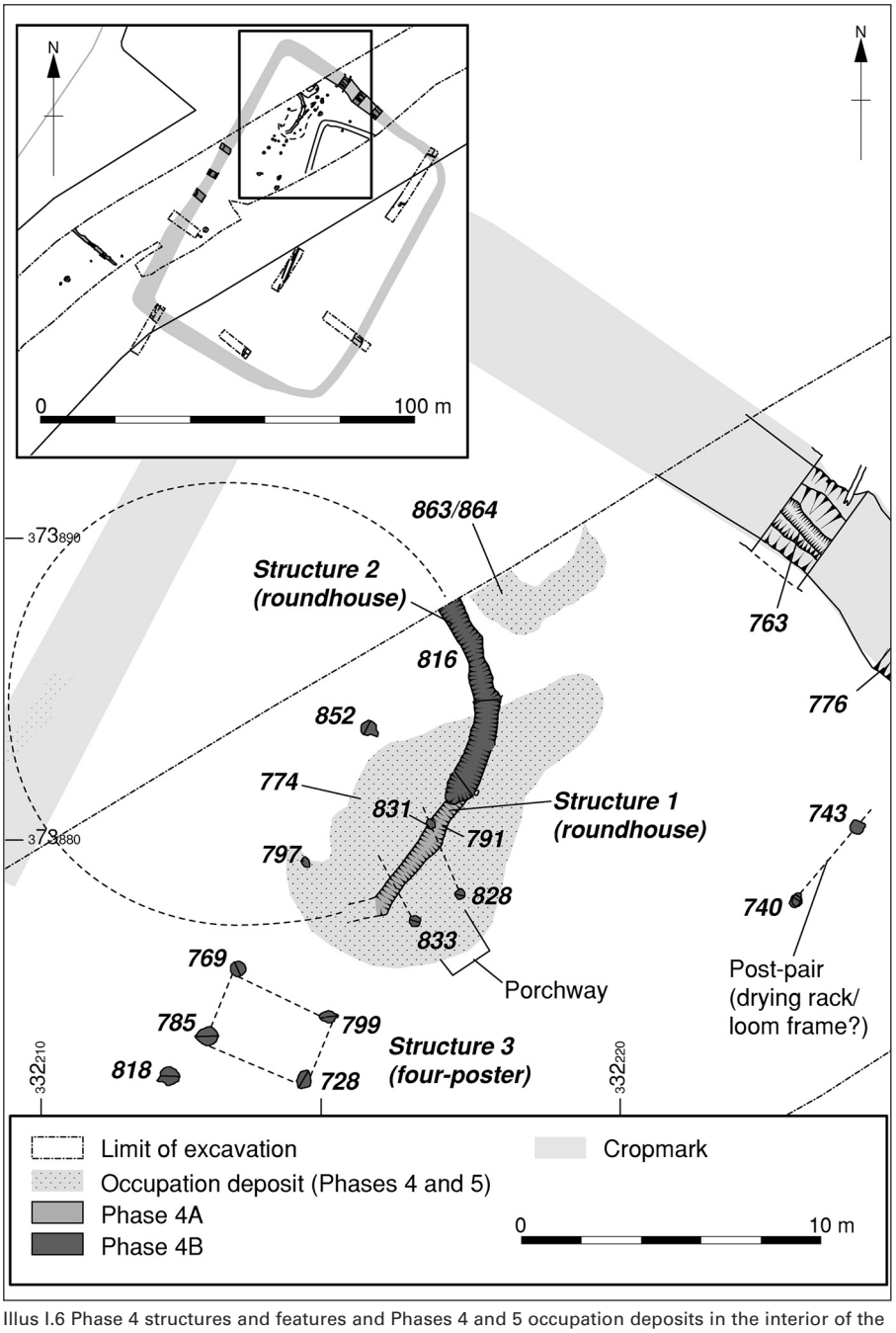
Roundhouses

The earliest identifiable element, dating to Phase 4A, was an arcing gully, 791, which possibly represented part of a roundhouse (Structure 1). The gully was 0.3–0.5m across, with a depth of 0.05–0.21m, and had been destroyed by later ploughing at its southern end, whilst its northern end had been disturbed by the construction of a later roundhouse and by a nineteenth-century land drain (Illus I.7). A fragment of charcoal from the gully was radiocarbon dated to 200–40 cal BC (SUERC-76614; 2103±30 BP).

Although the function of the gully was not particularly clear, it was notable that its fill was characterised by a slightly higher charcoal content than the surrounding deposits and by frequent (up to 30% by volume in places) fire-cracked cobbles. It is possible, therefore, that the densely packed stones provided packing/support for timber uprights, which would in turn indicate that the gully secured the outer wall line of the possible roundhouse. If so, the latter would have been fairly sizable, with a diameter of *c* 13m. It is also possible, based on the signs of burning, that this wall line was damaged by fire, which may have ultimately led to the demise of the building.

Whatever the reasons for the abandonment of Structure 1, it is evident that it was replaced by another apparent roundhouse, Phase 4B Structure 2. The evidence for this consisted of another arcing gully, 816, with a V-shaped profile, 0.6–1m wide and 0.5m deep, perhaps again representing the line of the outer wall (Illus I.6). The gully contained a mid-brown to grey silty sand containing occasional pebbles and small cobbles, most of which were concentrated at its southern end along the base of the cut. Small fragments of animal tooth and a badly worn fragment of a Cheshire salt container were also recovered from this feature; it is likely that this material represents domestic detritus that had become incorporated into the gully. It is equally possible that it represents residual material that was originally contained in the earlier gully.

Gully 816 cut the earlier gully, 791, and appeared to follow its course. This suggests that Structure 2 mimicked its predecessor's footprint and was similarly sized, with a diameter of *c* 13m. As with Structure 1, it is likely that the part of the gully defining the south-western side of this house had been destroyed by later ploughing.



Illus I.6 Phase 4 structures and features and Phases 4 and 5 occupation deposits in the interior of the rectilinear enclosure. (Scale 1/250; insert 1/2000)

Illus I.7 Excavation of gully 791 in progress

Gully 816 also possessed a rounded terminus at its south-eastern end associated with three postholes, 831, 833 and 828, that probably formed the remains of a porch aligned south-east to north-west. This appears to have been a fairly large structure, *c* 2m wide by 2.4m long, appropriate to the estimated size of the roundhouse. One of the postholes, 831, seemingly cut the gully of the earlier roundhouse, although its extent and fill were difficult to define precisely, whilst the other two lay to the south-east and formed the entrance to the porch. These contained glacial cobbles and sandstone fragments, 30–40mm across, possibly disturbed packing material.

Two other postholes, 797 and 852, were found in the interior of Structure 2 and were of similar character, suggesting that they may have been contemporary; they may have functioned as roof supports. One, 797, contained several tightly packed cobbles, which are likely to have served as packing around the post (Illus I.8).

Illus I.8 South-east-facing section through posthole 797

Two radiocarbon assays were obtained from the features associated with Structure 2. One came from a charcoal fragment from post setting 797 and produced a date of 40 cal BC–cal AD 75 (SUERC-76901; 1975±24 BP). The other, from a charcoal fragment from gully 816, provided a date of 360–50 cal BC (SUERC-76619; 2135±29 BP). Although both dates fall in the later Iron Age, it is evident that they are statistically incompatible (*see below*). It is quite possible, however, that the material from gully 816 was actually residual and derived from the earlier roundhouse, Structure 1, particularly as the Structure 2 gully partly destroyed that of Structure 1; certainly it is statistically consistent with the date from the Structure 1 gully. The date from posthole 797 is therefore probably a more reliable indicator for the dating of Structure 2. Based on these assumptions, radiocarbon modelling suggests that Structure 1 was established in *210–50 cal BC* and ended at *170–40* cal BC, whilst Structure 2 is estimated to date to *40 cal BC–cal AD 70*.

Other domestic structures

Two other structures were also associated with the later Iron Age settlement and, significantly, the radiocarbon evidence implies that these were broadly contemporary with Structure 2, ie Phase 4B. One of these, Structure 3, was a four-post structure positioned immediately to the south of Structure 2, defined by postholes 785, 769, 799 and 728 (Illus I.6). It measured 2.2 x 3.8m and may have functioned as a raised granary (Brück 2001; Cunliffe 2011, 94–7), comparable to those excavated on the Chester amphitheatre site (Wilmott & Garner 2018, 66), or perhaps even a malting floor, on the analogy of a middle Bronze Age four-poster from Greater Manchester (Gregory *et al forthcoming*). A charred cereal grain from posthole 785 returned a radiocarbon date of 100 cal BC–cal AD 70 (SUERC-76613; 2015±30 BP).

The other Phase 4B domestic structure lay to the east of Structure 2. This was defined by two postholes, 740 and 743, set 3.1m apart, both of which contained post-packing materials, and was possibly a drying rack or loom frame (Illus I.6). Posthole 740 contained animal bone, whilst a charcoal fragment from posthole 743 was radiocarbon dated to cal AD 1–140 (SUERC-76610; 1926±29 BP). This date is statistically consistent with those from postholes 797 (Structure 2) and 785 (Structure 3). Hence, when these dates are modelled, they suggest that the Phase 4B settlement was established in *90 cal BC–cal AD 50* and ended in *cal AD 10–130*.

Another feature that may also have been a product of later Iron Age activity lay to the south of the four-poster (Structure 3). This was a pit, 818, that, on spatial grounds, may have been contemporary.

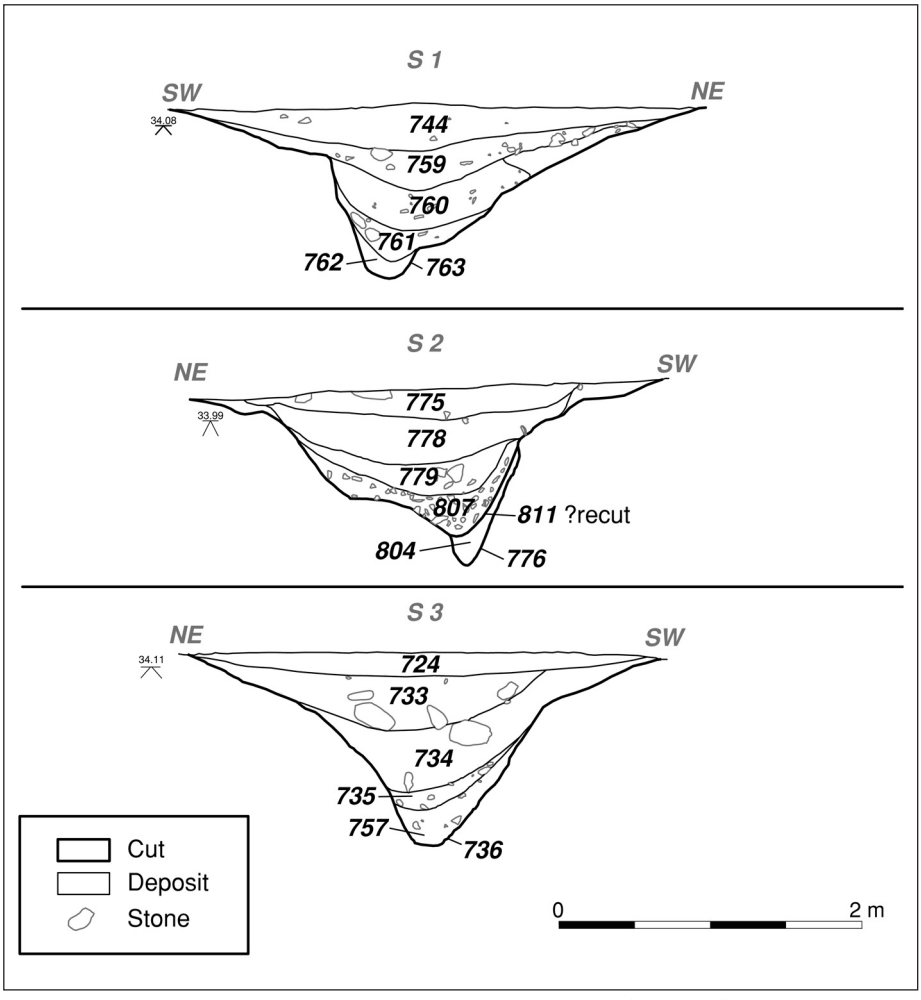
Phase 5: ?Early Roman creation of the enclosure

The rectilinear enclosure measured some 74m north-east to south-west by 52m north-west to south-east, enclosing an area of *c* 0.38ha; it was defined by a ditch and possibly an inner bank/rampart, although no direct evidence for the latter survived in the areas subjected to excavation, except, perhaps, for the fact that some primary fills were noticeably stony. Similarly, although the enclosure must have had at least one entrance to allow access through the ditch/rampart, no evidence for this was identified in the excavated areas or was visible from aerial photographs.

The form of the ditch defining the rectilinear enclosure was readily apparent from the excavated sections across its northern, eastern, southern and western sides (Illus I.3, S 1–S 8). It was *c* 3.2m wide and *c* 1.2m deep on its northern, western and southern sides. On the northern and western sides its profile was V-shaped (Illus I.9 and I.10), with the inner face of the northern ditch being significantly steeper than the outer face, while the profile on the southern side was U-shaped (Illus I.11). The ditch was smaller on the eastern side of the enclosure, probably as a result of plough damage, measuring 2.7m wide, with a depth of *c* 0.8m, although it was comparable to the southern ditch in that it had a U-shaped profile (Illus I.11).

Although the form of the ditch was clear, the date at which it was first cut is difficult to resolve. On one hand, the presence of later Iron Age domestic structures (particularly in Phase 4B) within the enclosure could suggest that it dated to a similar period, although there was no stratigraphic link between them. Rectilinear enclosed settlements dating to the later Iron Age are common in other parts of northern Britain (Harding 2004, 42), so this could be the case here. On the other hand, it is often assumed that in south Lancashire, Merseyside and north Cheshire rectilinear enclosures were more commonly associated with Roman-period settlement, and curvilinear enclosures, such as that to the south of Puddington Lane, with the Iron Age (Matthews 2001, 9; R Philpott *pers comm*).

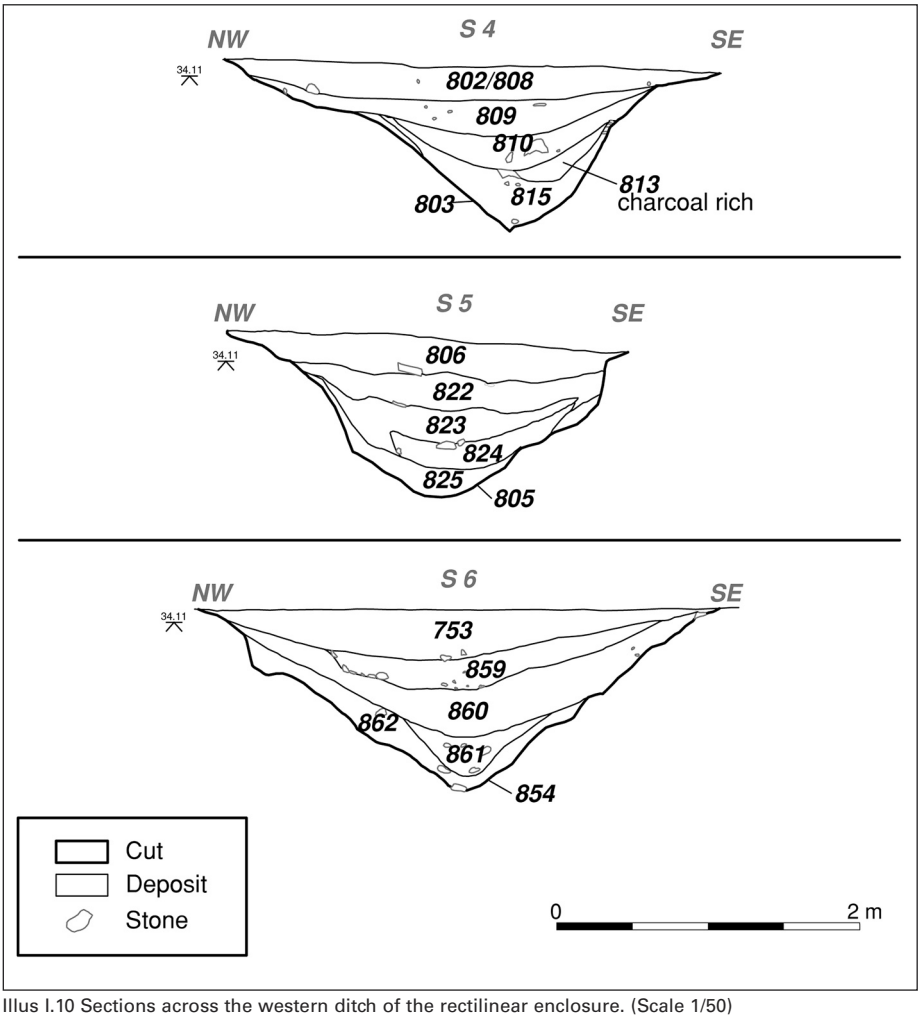
The primary soft silty clay fills in sections S 1–S 8 (762, 804, 757, 815, 825, 862, 206 and 309 respectively) probably entered the ditch shortly after it had been cut and were sterile. Indeed, all of the datable artefactual material and ecofacts were recovered from secondary, tertiary and later ditch fills. Moreover, the earliest radiocarbon date of cal AD 1–140



Illus I.9 Sections across the northern ditch of the rectilinear enclosure. (Scale 1/50)

(SUERC-76609; 1921±30 BP), from a fragment of charred roundwood in secondary fill 735 in section S 3 of the northern ditch, is also ambiguous. This fill is interpreted as a dump of early Roman midden material, and it is therefore quite possible that the charcoal had been incorporated and was residual. This interpretation is favoured, as the date is statistically consistent with those derived from the Phase 4B later Iron Age settlement.

There is, however, some circumstantial evidence that the enclosure ditch was a product of the early Roman period. If the wall line of the suspected later Iron Age roundhouse (Phase 4B Structure 2) is extrapolated to its full possible diameter of *c* 13m, it would have been crossed by the line of the western enclosure ditch, and also by any inner rampart (Illus I.6); thus the two cannot have been contemporary. The northern arm of the ditch also produced a near-complete South Gaulish samian cup dating to the late first century AD. Although the precise stratigraphic position of this vessel could not be ascertained, as it derived from



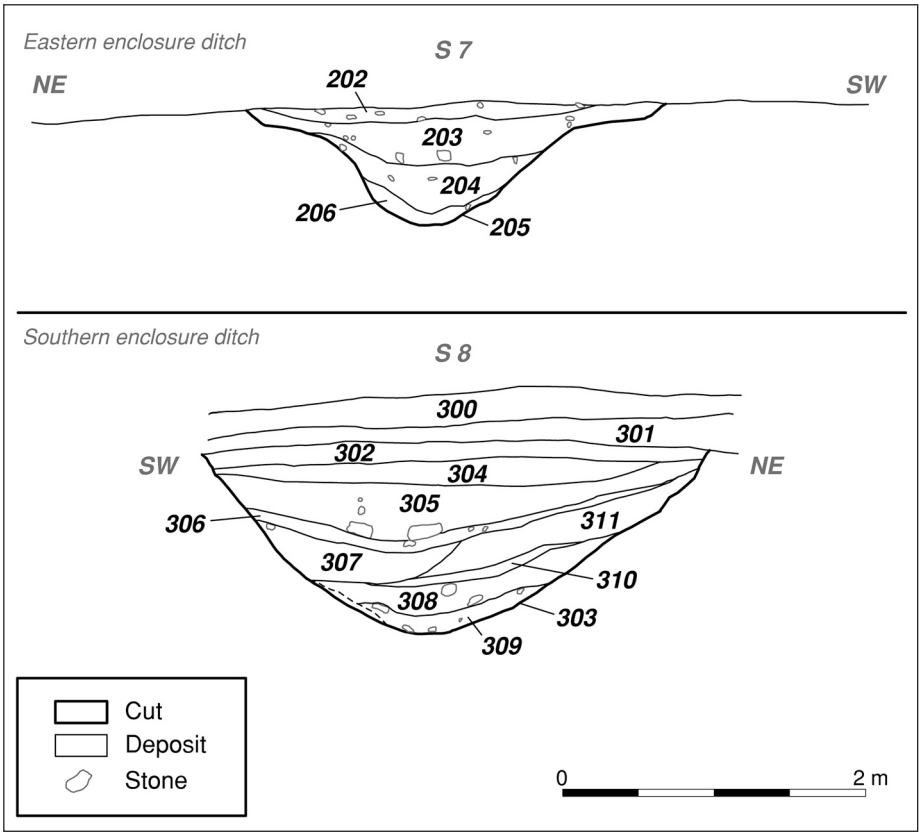
Illus I.10 Sections across the western ditch of the rectilinear enclosure. (Scale 1/50)

deposit 834, which was excavated mechanically at the end of the fieldwork, a tentative suggestion is that it represents a foundation deposit made when the ditch was first cut. A *terminus post quem* for this event is provided by the radiocarbon modelling, which suggests that Structure 2 dates to *40 cal BC–cal AD 70*. The finds and radiocarbon evidence may therefore imply that, at Puddington Lane, an open Iron Age settlement existed (or had been abandoned), and was subsequently enclosed in the early Roman period.

Phase 5: Early Roman enclosure (late first to mid-third century AD)

Structures 4 and 5

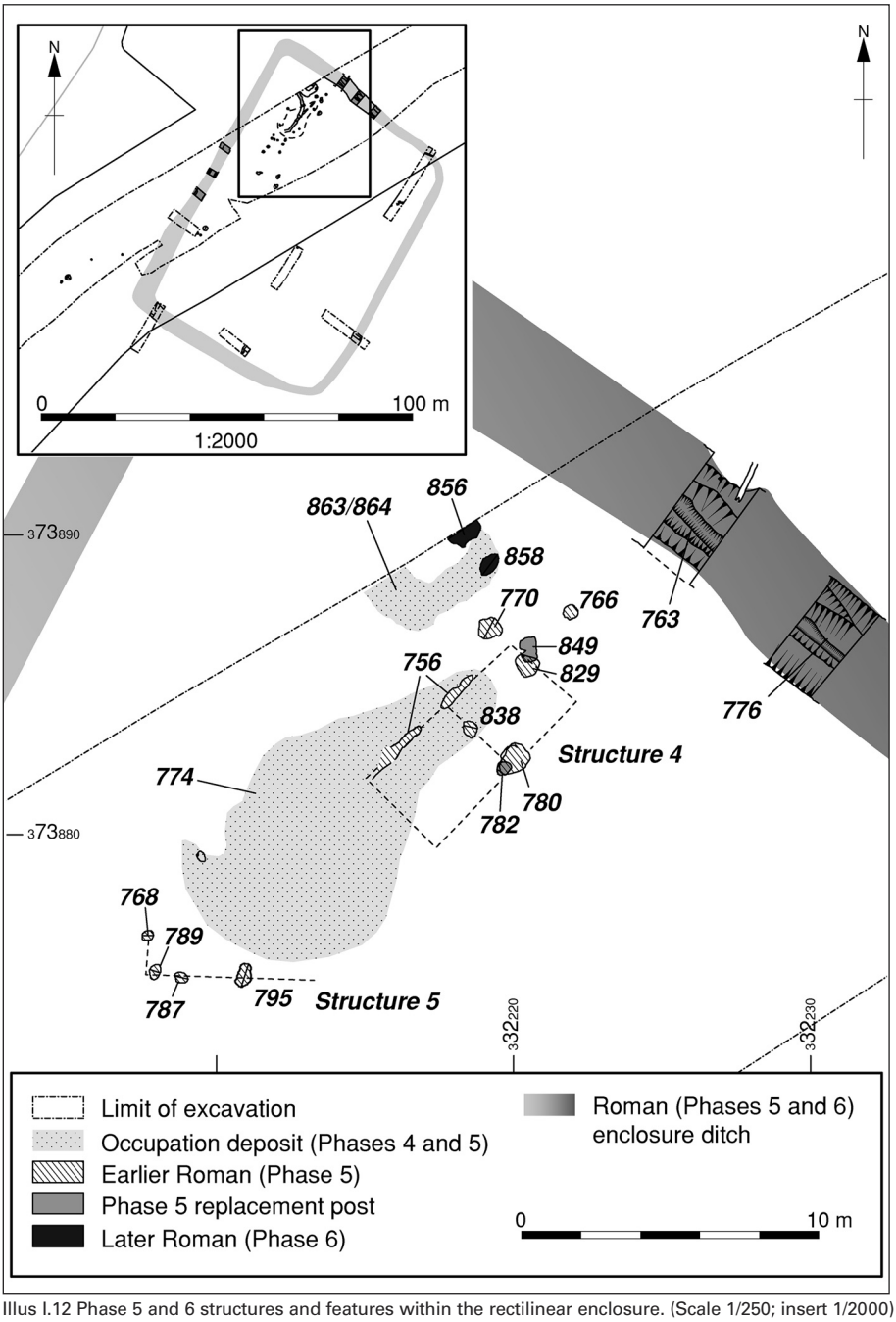
Although the precise date for the cutting of the enclosure ditch is difficult to establish, it probably existed by the time a series of early Roman-period features was created within the corridor of the cable route (Illus I.12). These related to Structure 4, which was sited just to the north-east of the Phase 4 roundhouses. Although the structure was fragmentary, it



Illus I.11 Sections across the eastern and southern ditches of the rectilinear enclosure. (Scale 1/50)

seems possible that it was a small rectangular building, defined by a north-east to south-west gully, 756, *c* 5m long, 0.3–0.5m wide and 0.05–0.21m deep, which was probably a construction slot for an external wall line. The slot had, however, been heavily disturbed by later ploughing, as it survived as two discrete sections. Its western end had also been destroyed by a modern land drain, although it may never have extended beyond this point, as it was not identified further to the west. A notable concentration of burnt material in the slot comprised frequent (up to 30% by volume in places) fire-cracked cobbles and charcoal, as well as small quantities of animal bone. A fragment of charcoal returned a radiocarbon date of cal AD 90–320 (SUERC-76611; 1822±29 BP), with a 92% probability that it dates to cal AD 120–260 within the two-sigma range.

Three postholes, 838, 780 and 829, were positioned to the south and east of the gully and appear to have formed elements of the building. Two of these, 780 and 829, were fairly substantial, with diameters of *c* 1m, and were perhaps part of the external walls. If this was the case, their positioning might suggest that the building measured some 3 x 7m. The other posthole, 838, was smaller, with a diameter of *c* 0.5m, and appears to have lain in the interior of the putative building. All contained packing stones, 838 and 829 also containing burnt animal bone, and 829 produced daub-encrusted charcoal, which when considered in



Illus I.12 Phase 5 and 6 structures and features within the rectilinear enclosure. (Scale 1/250; insert 1/2000)

relation to the burnt material in the adjacent construction slot, 756, may suggest that the northern side of the building had sustained some fire damage. Alternatively, these burnt materials may have derived from nearby hearths (*see below*), in operation when the building was constructed. It was apparent that Structure 4 had stood for some time, as it has been subjected to repair/refurbishment. This was clearly evident as the two potential external posts, 780 and 829, had been replaced (782 and 849), the postholes for the replacements disturbing the earlier post settings.

A group of four shallow pits, 768, 787, 789 and 795, to the south-west of the structure were found adjacent to the Phase 4B four-post Structure 3. Although they might be viewed as elements of that structure, 795 contained Roman pottery dating to the late first to late second century AD, which seems to indicate that they were filled some considerable time after the disappearance of the Iron Age structure. Three of the pits, 768, 787 and 789, were circular, with diameters of *c* 0.4m, whilst the fourth, 795, was oval, measuring *c* 0.5 x 0.9m. Although none of these features contained packing stones, their sizes may suggest that they were post-holes relating to another earlier Roman-period structure (Structure 5); speculatively, their positioning might suggest that they formed the corner of a rectangular building.

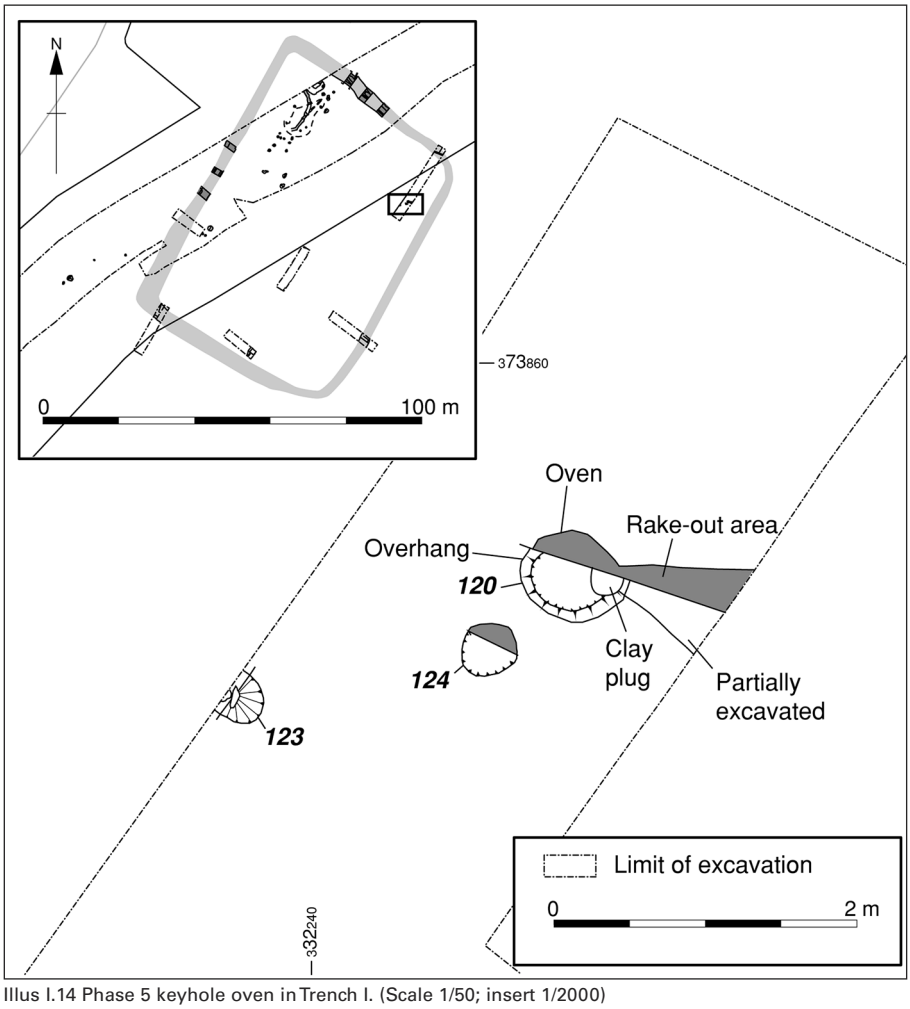
Hearths and the oven

Immediately north of Structure 4 was a small hearth, 770 (Illus I.13), *c* 0.8m in diameter, which was possibly contemporary with the building as it produced a statistically consistent

Illus I.13 Hearth 770 following half-sectioning

radiocarbon date of cal AD 130–330 (SUERC-76612; 1800±29 BP). This feature contained frequent charcoal inclusions and fire-cracked stones, and its sides were slightly scorched. Another similar hearth, 766, *c* 0.5m in diameter, lay to the east and also contained charcoal and fire-cracked stone. Although the function of these hearths is not entirely clear, neither was associated with industrial waste suggestive of metalworking. This may therefore imply that they were used for cooking, which may also explain the presence of the small fragments of burnt animal bone noted during excavation.

In addition to the hearths, a keyhole-shaped oven, 120, which probably dates to Phase 5, was located in an evaluation trench (Trench I) to the south of the development corridor (Illus I.14). It survived as an oval, charcoal-rich deposit, measuring 0.6 x 0.7m, defining the body of what could have been a bread oven or a small corn-dryer (Morris 1979, 10–12; Gregory 1993, 16). This deposit was linked to a rake-out area, defined by a dark soil that fanned out eastwards beyond the trench. The extremely dry weather conditions meant that



Illus I.14 Phase 5 keyhole oven in Trench I. (Scale 1/50; insert 1/2000)

Illus I.15 Oven 120 following half-sectioning, with the fired-clay plug exposed

only half of the oven was excavated, whilst only a 30mm depth of the area to the east was emptied, but it was evident that the oven had clay walls, with a domed roof (evident as an overhanging section of clay walling), and was separated from the rake-out area by a fired-clay plug (Illus I.15). This plug had been inserted into the gap roughly at the mid-point of the height of the oven, with a gap through to the east both above and below. During the excavation of the rake-out area, three sherds of Roman grey ware pottery were recovered, which suggest that the oven dates to the late first to second century AD.

Two postholes, 123 and 124, west of this oven, could be contemporary features, suggesting structures in this part of the enclosure. One of these postholes, 124, lay at the western edge of the evaluation trench and contained packing material, whilst the other, 123, had a charcoal-rich fill and a diameter of 0.35m.

The dumping of midden material and the partial filling of the enclosure ditch

Following the initial cutting and primary silting of the enclosure ditch (perhaps in the late first–early second century AD), secondary ditch fills began to form at some stage during Phase 5. These were associated with an assemblage of small and abraded sherds of Roman pottery, suggesting that some portions of the ditch were being deliberately filled with redeposited midden material during the earlier Roman period. This was particularly evident in

the northern ditch, where the secondary fills were a compacted, very dark grey silty clay containing frequent charcoal flecks and up to 40% by volume of heat-shattered stones (Illus I.9, S 1–S 3, 761, 807 and 735 respectively). The high clay content may relate to infiltration of material from the sides of the cut while the ditch was partly filled with standing water. In one section (S 2), there was also evidence for a recut, 811, suggesting that the ditch may have been cleaned out prior to the dumping of midden material.

The origins of the secondary fills in the western ditch were less clear. These comprised mid-dark grey-brown silty clay containing charcoal flecks up to 50mm across and occasional small pebbles (Illus I.10, S 4–S 6, 810, 824 and 861 respectively). The presence of charcoal suggests that at least some of this material derived from occupation material. Indeed, clearer evidence for this was apparent in the form of a discrete charcoal-rich deposit, 813, associated with fill 810.

The Roman pottery from the secondary ditch fills has a broad date range, suggesting that the midden material had been accumulating for some time prior to deposition in the ditch. For instance, in the northern ditch, fill 761 contained pottery dating to the mid-first to second century AD, whilst fill 735 contained material that dates to the mid-second to third century AD; this deposit also contained later Iron Age/early Roman-period charcoal, possibly residual. In the western ditch, fill 824 contained pottery dating to after AD 120, whilst a fragment of charcoal from deposit 813 was radiocarbon dated to cal AD 70–230 (SUERC-76615; 1864±29 BP). The combined dating evidence seems to imply that the midden material was dumped into the ditch at some stage between the mid-second and mid-third century AD.

Phases 4 and 5: Occupation deposits

Two occupation deposits, 774 and 863, which probably formed in Phases 4 and 5, were present in the northern corner of the enclosure, from a time when occupation was at its peak (Illus I.6 and I.12). Both were represented by a 0.1–0.3m-thick deposit of grey silty clay, containing frequent heat-shattered stones, although deposit 863 also contained a patch of redeposited natural clay, 864.

The largest of these occupation deposits was 774, covering an area of 12 x 7m, although it graded into the subsoil deposits in surrounding areas, probably because of mixing caused by repeated ploughing. This deposit lay in the area of later Iron Age Structures 1 and 2 (Phase 4) and Roman Structure 4 (Phase 5) and almost certainly formed as a consequence of their occupation, perhaps being modified after the abandonment of the site (Matthews 1993, 58–60). However, its stratigraphic relationship with these structures was difficult to ascertain, particularly as it seemed both to seal and be cut by features associated with Structures 2 and 4 (Adams 2017, 25). This seems to confirm that it formed as a result of prolonged occupation in this part of the site.

Occupation deposit 863/864 lay to the north of Structure 4 and east of Structure 2, and covered an area of 5 x 2.5m, although it continued beyond the extent of the cable-route trench. Again, this deposit formed as a result of later Iron Age and/or early Roman-period activity, particularly as it was earlier than two Phase 6 hearths in this part of the site (*see below*).

Phase 6: Later Roman activity and the disappearance of the enclosure (post-AD 250)

Hearths within the enclosure

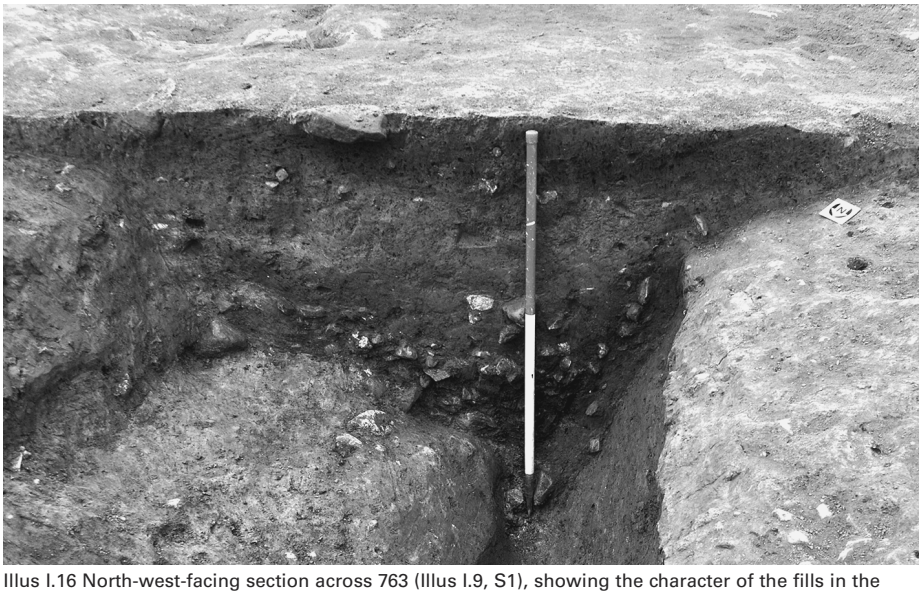
Whilst it is possible that activity during the later Roman period continued the pattern that had been initiated in the first/second century AD, it certainly decreased in intensity in the northern corner of the enclosure. This was particularly evident, since there were no Phase 6 structures. Instead, the features comprised two hearths, 856 and 858, that were later than Phase 4/5 occupation deposit 863 (Illus I.12). One of these hearths, 858, was *c* 0.5m in diameter and contained burnt material. The other, 856, was located 1m to the north-west, on the edge of the excavation trench and thus its complete extent could not be determined, but it may have been circular, *c* 1.2m in diameter. Its sides were scorched and it contained fire-cracked stones and charcoal fragments, one of which returned a radiocarbon date of cal AD 250–400 (SUERC-76621; 1718±29 BP). Significantly, the Phase 6 hearths were adjacent to two Phase 5 hearths, suggesting that this part of the site was used in a similar fashion during the later Roman period.

The final filling of the enclosure ditch

The enclosure ditch gradually disappeared through a combination of natural silting and the deliberate dumping of material at some stage during the late third or fourth century AD. These processes ultimately led to the formation of the tertiary and later ditch fills, which contained larger quantities of Roman pottery compared with that recovered from the secondary fills. This pottery consisted of late black-burnished ware forms, shell-tempered ware, Oxfordshire colour-coated and parchment ware, later greyware forms, Mancetter-Hartshill mortaria and Nene Valley mortaria.

These later fills in the eastern, western, and southern parts of the ditch were generally silty-clay deposits that appear to have entered the ditch naturally. However, the tertiary fills in the northern ditch (Illus I.9, S 1–S3, 760, 779 and 734 respectively) consisted of mottled dark reddish-brown, grey and black sandy silt-clays, containing up to 25% heat-shattered glacial cobbles, angular sandstone cobbles and very frequent large charcoal inclusions, indicating that, as during Phase 5, material was being intentionally dumped into this ditch. Perhaps significantly, the Roman pottery from these deposits comprised more substantial, fresher-looking sherds, implying that some of this material was directly thrown into the ditch rather than being derived from middens. However, it is also clear from the date of some of the pottery (ie late first- to early second-century AD types) that some residual material was also entering at this time. Pottery from fill 734 provides a *terminus post quem* of the third- to mid-fourth century AD for this intentional act of dumping.

These fills were sealed by compacted pale grey to reddish-brown sandy-clayey silts with a far lower stone and charcoal content (Illus I.9, S1–S 3, 759, 778 and 733 respectively). This material was very similar in character to the Phases 4 and 5 occupation deposits identified in the interior to the south and also contained large unabraded sherds of Roman pottery, which may suggest that they represent a further phase of deliberate infilling of the ditch. The pottery from fill 759 provided a *terminus post quem* of the third to fourth century AD. Notably there were fewer easily recognisable earlier types of Roman pottery in these deposits, suggesting that there was less of an input of residual material into the ditch at this



Illus I.16 North-west-facing section across 763 (Illus I.9, S1), showing the character of the fills in the northern enclosure ditch. The concentration of stone denotes tertiary fill 760, which was formed through the deliberate dumping of material into the ditch.

stage. The uppermost fills (Illus I.9, S 1–S 3, 744, 775 and 724 respectively) were broadly similar in character but were slightly paler in colour and contained fewer and generally smaller sherds of pottery; that from fill 744 (an Oxfordshire parchment ware jar) suggests a *terminus post quem* of AD 240–400+ for the filling of this section of the ditch.

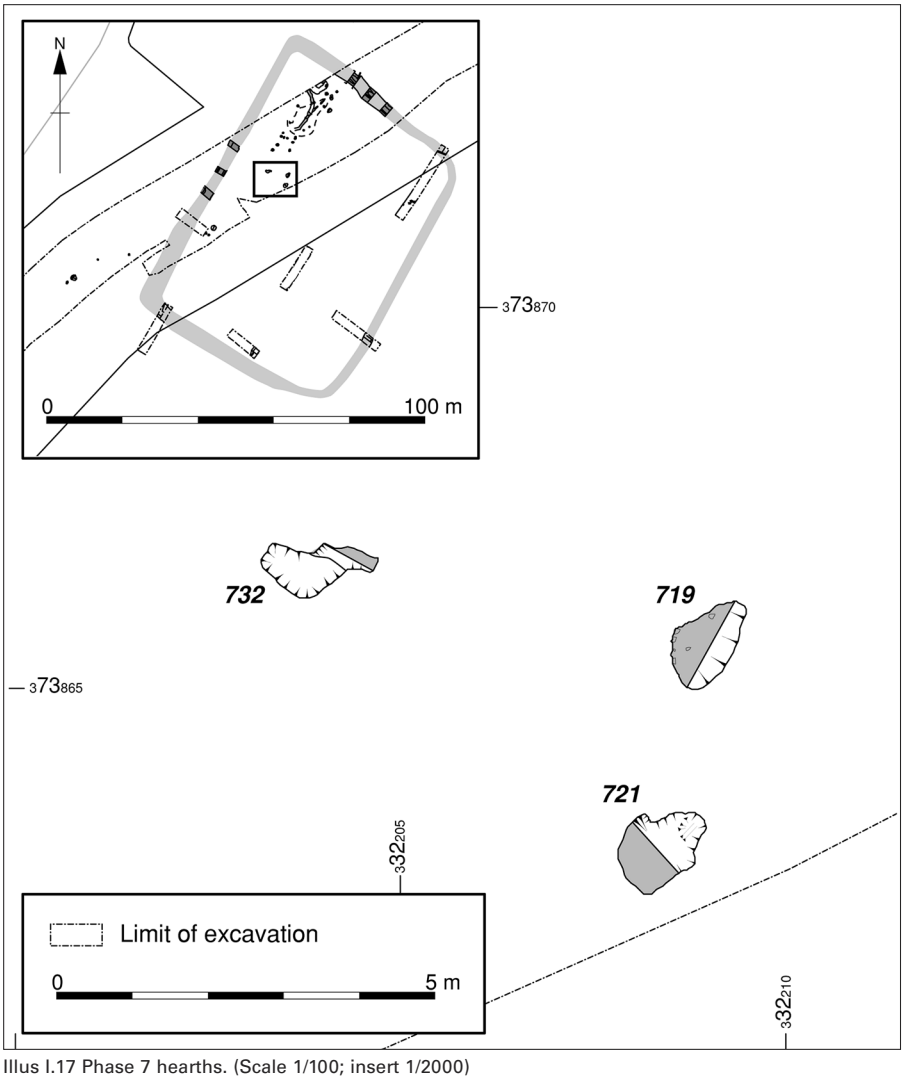
Phase 5 or 6: Roman land division

A shallow, 1m-wide, gully, 715, was identified beyond the enclosure, being aligned at approximately 90° to the western ditch (Illus I.5). The upper fill contained a single small sherd of oxidised ware, which provides a broad Roman date for this feature. Although it is conceivable that it was post-Roman, the fact that the gully respected the orientation of the enclosure suggests contemporaneity. If this was the case, it probably related to land division during the Roman period.

Phase 7: Medieval hearths

It is possible that the enclosure still represented a significant feature in the landscape during the medieval period, although by this stage it probably merely formed a slight earthwork. In any event, whether the enclosure boundary was visible or not, its interior was certainly used for rural activities at some stage between the early eleventh and early thirteenth centuries.

The evidence for this comprised a tight group of three hearths, 732, 719 and 721, within the cable-route trench, lying just to the south-west of the area containing the mass of later Iron Age/Roman-period remains (Structures 1–5) and north-east of the area where the middle Bronze Age remains were present (Illus I.3). All three hearths were oval in shape, *c* 1 x 1.4m, with scorched sides (Illus I.17), and were filled with similar material, which comprised greyish-brown gritty silty-sands with occasional small rounded pebbles and charcoal flecks.



Illus I.17 Phase 7 hearths. (Scale 1/100; insert 1/2000)

Two of the hearths, 719 and 732, also contained fragments of heavily calcined bone, whilst hearth 719 seemed to be lined with a 0.2m-thick layer of dark reddish-brown clay, although this may have simply been lightly fired natural material. A charred cereal grain from hearth 721 produced a radiocarbon date of cal AD 1030–1210 (SUERC-76605; 902±29 BP). The occurrence of these features, along with fragments of animal bone and charred grain, suggests a discrete area that was potentially used for cooking.

Finds from the rectilinear enclosure

Introduction

The excavation produced a small assemblage of artefactual material that dated to the Roman period and also a few items that might be later Iron Age. All of these artefacts were subjected

to post-excavation assessment and some categories of material were then analysed. The results of the various analyses and assessments are presented here, although more detailed individual specialist reports, outlining the full methodologies, results and catalogues, are contained in the archive. It is worth noting that prehistoric material, such as lithics, and post-medieval artefacts were also recovered; details and descriptions of these materials are outlined in the assessment report (Adams 2017).

Roman ceramic building material and fired clay Mark Adams

Ten fragments (341g) of Roman tile were recovered, mostly from the Phase 6 fills of the enclosure ditch. Most are small and badly abraded, and were identified on the basis of fabric and form. The reason for the presence of this material on the site is unclear. Whilst it is possible that the two excavated rectangular buildings (Structures 4 and 5) had tiled roofs, similar quantities have been found on sites such as Irby (Philpott & Adams 2010, 138), and its presence there suggests a similar pattern of perhaps *ad hoc* use of opportunistically gathered materials.

The fired-clay assemblage is also limited and consists of 114 fragments (688.3g), mainly small (35mm or less) and badly abraded, with no evidence of form. In general, the fabric is broadly similar to that encountered on other Roman settlements in the region (*ibid*). Presumably the material derived from domestic hearths and ovens but otherwise it is of limited significance. Some of the fragments are partly vitrified and these may have derived from hearths relating to metalworking. In addition, a tabular fragment may have been part of a wall or possibly an oven plate, but it is too small to identify positively.

Portable artefacts

Later Iron Age Cheshire salt containers Elaine L Morris

Three small sherds of very coarse handmade oxidised pottery were recovered during the excavations within the cable route. These derive from ceramic containers used to dry and transport salt crystals from brine springs on the Cheshire Plain to settlements and hillforts in Cheshire, the West Midlands, Welsh borderland and Wales, during the second half of the first millennium BC (Morris 1985, 353–70, figs 7–10; 1994; 2018; Cootes & Emery 2014, 24-30). More recently, such containers have been identified much further afield, in Derbyshire (Elliott & Knight 1999; Morris 1999), Lancashire/Greater Manchester (Morris 2005), Leicestershire (Morris 1994; 1999; Clay 2001), Northamptonshire (Morris 2015), Nottinghamshire (Knight 1992) and Warwickshire/West Midlands (Hancocks 2006, fig 10). Currently, the actual evidence of prehistoric salt production on the Cheshire Plain is limited, being confined to Railway Farm, Moston, near Crewe (Nevell 2005, 12). However, saltworking sites of Roman date are well documented at Middlewich (Garner & Reid 2009; Zant 2016), Nantwich (Arrowsmith & Power 2012) and Northwich (Nevell 2005), so there is every prospect that more extensive evidence for prehistoric salt production will be discovered in the future.

Two of the sherds are likely to derive from the same container and came from the northern enclosure ditch, both deriving from Phase 6 ditch fills 777 and 778. Hence they probably represent residual material that entered the ditch, perhaps during an episode of deliberate dumping. The other sherd derived from gully 816, associated with Phase 4B roundhouse

Structure 2, dating to *40 cal BC–cal AD 70*, although it is possible that it was actually originally associated with the earlier, Phase 4A, roundhouse Structure 1, dating to *210–50 cal BC*. In either case, it demonstrates the incorporation of sherds of salt containers into deposits connected with domestic structures of later Iron Age date.

The sherds from Puddington Lane, along with those from Irby (Morris 2010; Philpott 2010, 180–3), emphasise the connections both to salt production and a distribution network in the Wirral, and to other settlements in the area during the later prehistoric period. These sherds, small though they may be, are therefore important in that they reveal the connectedness of Iron Age peoples.

Roman pottery Laura Griffin and Gwladys Monteil (samian)

Introduction

The Roman pottery assemblage consists of 296 sherds, weighing 4232.4g (Table I.1). During analysis, all the material was examined and quantified, and where possible the fabric type was identified and individual pieces were spot dated. All information was recorded on a pro-forma digital database that now forms part of the site archive. The fabrics are referenced to the general categories used by National Museums Liverpool (NML), and locally produced oxidised and reduced wares are referenced in the archive report to the Merseyside Roman pottery fabric type series (Jones 2000; Griffin 2010; 2018; *forthcoming*).

Overview

Rather over half of the material was recovered from mechanically excavated deposits, with a small quantity being collected during fieldwalking, whilst the remainder was associated with archaeological features and deposits of Phases 5 and 6. Of this latter material, twenty-seven sherds were recovered from Phase 5 deposits, largely the secondary fills of the enclosure ditch, with smaller amounts retrieved from oven 120 and Structure 5 posthole 795. The sherds from the enclosure ditch were generally small and abraded, with a below-average weight of 6.4g, which would be consistent with the theory that the material was largely redeposited from middens.

A much larger assemblage of 136 sherds was retrieved from the tertiary and upper fills of the enclosure ditch (Phase 6). Although some of this material was residual, derived from earlier Roman occupation, the average sherd weight of 17.2g was notably high. This could partly be due to the presence of sherds from more substantial vessels such as amphorae and mortaria, but in general sherds from the later assemblage display lower levels of abrasion and are larger than those relating to the earlier activity. Therefore, it would seem that this material had been deliberately deposited directly into the ditch.

Overall, the composition of the assemblage is consistent with those from other sites in the region of the same period, with locally produced Cheshire or Lancashire Plain wares (both oxidised and reduced wares) predominating (Griffin 2010; *forthcoming;* Webster 1982). These broad categories encompass the products of many local kilns, including those at Wilderspool but mainly still unlocated. A range of non-local coarsewares is also present –

right: Table I.1 Roman pottery quantified by fabric, phase, no of sherds and weight

NML fabric code	Fabric class	Phase 5		Phase 6		834		Other contexts		Total		Percentage	
		No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt
SAM	Samian	1	7.0	10	185.0	18	88.0	3	11.3	32	291.3	10.8	6.9
GRW	Grey ware	5	30.0	11	271.3	7	156.0	1	1.0	24	458.3	8.1	10.8
OXW	Oxidised ware	16	66.0	50	363.0	18	357.0	59	200.2	143	986.2	48.3	23.3
BBW	Black-burnished ware 1	5	69.0	29	576.0	3	96.9	7	63.0	44	804.9	14.9	19.0
SHW	South Midlands shell-tempered ware			2	12.0					2	12.0	0.7	0.3
CCW	Lyon ware					2	3.0			2	3.0	0.7	0.1
CCW	Nene Valley colour-coated ware			1	64.0			2	4.6	3	68.6	1.0	1.6
CCW	Oxfordshire colour-coated ware			2	5.0			1	2.0	3	7.0	1.0	0.2
CCW	Oxfordshire Parchment ware			4	19.0			1	19.0	5	38.0	1.7	0.9
CCW	Misc colour-coated ware					1	4.6			1	4.6	0.3	0.1
WHM	Nene Valley mortaria			2	118.0					2	118.0	0.7	2.8
WHM	Mancetter-Hartshill mortaria			12	350.0	5	542.0	0		17	892.0	5.7	21.1
WHM	Oxfordshire mortaria					4	120.0			4	120.0	1.4	2.8
AMP	Amphorae			4	326.0			1	58.0	5	384.0	1.7	9.1
UNID	Unidentified			9	44.5					9	44.5	3.0	1.1
Total		27	172.0	136	2333.8	58	1367.5	75	359.1	296	4232.4	100.0	100.0

black-burnished 1, South Midlands shell-tempered ware, and white-firing mortaria, the latter primarily from Mancetter-Hartshill. Romano-British finewares consist of Nene Valley and Oxfordshire colour-coated wares. Imported wares comprise a small but interesting group of samian, a few fragments of Lyon ware and a small number of amphora sherds.

Continental wares: samian

In total, thirty-two sherds of samian ware are present in the assemblage (Table I.1). Only eleven fragments came from Phase 5 and 6 deposits, the remainder being recovered from machined deposits 834 and during fieldwalking. In common with other rural samian assemblages from the area (Ward 2010; *forthcoming*), most of the sherds are in very poor condition, with almost none of the original surfaces remaining and some fabrics showing signs of staining. The poor state of this assemblage has made it impossible to record wear and has at times rendered identification of fabric and form difficult. Some relatively large fragments are, however, present, including a complete profile from machine-excavated deposit 834 in the northern enclosure ditch. They have been quantified (Table I.2) by fabric, form and maximum number of vessels (as in Ward 2010 and *forthcoming*).

Table I.2 Samian ware quantified by fabric, forms and fabrics and maximum number of vessels

	Form									
Fabric	Bowl	Cup	Dish	Dr 18/31	Dr 27	Dr 27g	Dr 31R	Dr 35	Unidentified	*Total*
South Gaulish - La Graufesenque					1	1		1	9	12
?South Gaulish	1									1
Central Gaulish - Lezoux		1	1	1			1		1	5
Total	1	1	1	1	1	1	1	1	10	18

South Gaulish (La Graufesenque)

Twenty-six fragments derived from a maximum of twelve vessels in South Gaulish ware from La Graufesenque dominate this small assemblage, although the range of identifiable forms is poor and consists entirely of plain cups. In the absence of stamps and decoration it is difficult to date the material precisely.

Two sherds were residual in Phase 6 deposits, comprising the rim of a Dr 27 in Phase 6 ditch fill 779 (S 2) and the rim of a Dr 35 cup in the upper fill, 806, of the western enclosure ditch (S 5). The other five stratified sherds are excoriated flakes that cannot be assigned to a form. The Dr 35, a form that tends to be predominantly found in Flavian deposits, is perhaps the most diagnostic (Webster 1996).

Two sherds were recovered during fieldwalking and seventeen from the machine-excavated deposits 834 in the northern enclosure ditch. Fourteen of the latter belong to the best-preserved samian vessel from the site, a complete profile from a third cup, form Dr 27g. This version of the cup has an external groove on its footring, a feature that tends to be an early characteristic, which suggests this might be pre- to early Flavian in date (*ibid*). In contrast to all the other fragments, the cup is fresh and with its slip intact.

?South Gaulish

Another vessel has been tentatively given a South Gaulish provenance. This is the base of a bowl, possibly a Dr 37, from Phase 6 ditch fill 775 (S 2); it is rather chunky, more so than would normally be expected for a vessel from La Graufesenque (*ibid*). It is almost completely excoriated, so the slip offers no clue as to its origin, but the fabric lacks the mica and other inclusions normally associated with Central Gaul, while the abundant small white inclusions perhaps suggest an origin in South Gaul (*ibid*). If correctly identified as South Gaulish and a Dr 37 and, therefore, Flavian, the dating of this bowl is consistent with that of the Dr 35.

Central Gaulish (Lezoux)

Five sherds came from Lezoux in Central Gaul, of only two identifiable types. The earliest is a dish form Dr 18/31, probably Hadrianic in date (*ibid*), from Phase 6 ditch fill 744 (S 1). The other diagnostic vessel is later, a Dr 31R found in the Phase 6 fill of the western ditch, 809 (S 4), a form normally dated to AD 160–200 (*ibid*). The remainder of the Central Gaulish group includes an unidentified dish, from posthole 795, the only secure Phase 5 feature with samian; an excoriated body sherd from a cup, from machine-excavated deposits 834 from the northern ditch; and an excoriated body sherd recovered during fieldwalking.

Discussion

South Gaulish samian from La Graufesenque forms the largest sub-group, a slightly unusual occurrence for a rural site in the area, as most samian assemblages recovered so far have little (eg at Irby; Ward 2010, table 1) or no first-century AD samian (eg at Halewood; Ward *forthcoming*, table 1). In conjunction with the presence of Lyon ware, this perhaps suggests a military connection, despite the rural nature of the site, or at least easy access to imports. The forms represented, and the emphasis on plain ware, however, generally fit with typical samian functional profiles for rural sites in Britain (Willis 2004, section 8.2.6).

The quantities of second-century AD samian are much lower, as at Chester (Ward 2011, 87–92), and suggest either reduced or changed activity on the site, or difficulty in access. Samian forms characteristic of a site occupied in the later second and early third century AD are absent from the assemblage, which makes it different from Irby and Halewood where, despite the small size of the assemblages, samian mortaria, a form dated to AD 170+, are present (Ward 2010; Ward *forthcoming*).

The presence of a near-complete South Gaulish cup, albeit from machine-excavated deposits 834 from the northern enclosure ditch, is more unexpected. This cup stands apart from the rest of the group by virtue of its completeness and state of preservation and perhaps indicates some votive or ritual element in the filling of the ditch (Willis 2004, section 12.4).

Continental wares: Lyon ware and amphorae

Two sherds of Lyon ware from the base of a roughcast beaker came from machine-excavated deposits 834 in the northern ditch. Despite high levels of surface abrasion, the quartz-sand roughcasting and characteristic slip are still recognisable. Vessels of this type are generally considered to be pre-Flavian (Greene 1979), making these the earliest sherds in the assemblage and attesting immediate post-conquest activity.

The distribution of Lyon ware is generally considered to be closely associated with the deployment of the army and is most commonly found on legionary sites (Heke & Ward 2012, 111). Although there is no evidence that this site had a direct military connection, its proximity to the important port at Meols and the legionary fortress of Chester may explain the presence of the ware.

The assemblage contains five sherds of amphora. Three vessels can be identified: two of Dressel 20 form (Phase 6 ditch fills 775 and 724; S 2 and S 3 respectively), dated to the late first to early third century AD, and one of Camulodunum 186A (Phase 6 ditch fill 760; S 1), dated to the late first to early second century AD (Peacock & Williams 1986, 120).

Romano-British wares

Oxidised wares

Oxidised wares dominate the locally/regionally produced assemblage, accounting for 48% of the Roman pottery, with a total of 143 sherds. As observed in other rural assemblages from the region, such as Irby (Griffin 2010) and Court Farm, Halewood (Griffin *forthcoming*), a fairly substantial number (thirty-two) of fabric variants are present, the majority represented by less than ten sherds. Significantly, all but twenty-three of the identifiable sherds are of fabric types previously identified at nearby Irby (Griffin 2010, 125).

In common with other rural sites in the region, the high level of abrasion means that few sherds are diagnostic. Those that are identifiable mainly come from everted-rim jar forms similar to those recorded at Wilderspool (Webster 1992). However, there are also some more distinctive types, comprising a handled jar/flagon from Phase 6 ditch fill 779 (S 2), similar in form to an example found at Ochre Brook, Tarbock; a pulley-rim jar and a wide-mouthed jar from machine-excavated deposits 834 in the northern ditch similar to examples commonly seen in Severn Valley wares (Webster 1976); and a bowl that appears to imitate a Dragendorff 38 (Dragendorff 1895), from Phase 6 ditch fill 744 (S 1) and machine-excavated deposits 834. Dating of these sherds indicates that oxidised wares were used throughout the period but peaked in the second to third century AD. This group also includes a single sherd of flanged mortarium, thought to be of Wilderspool production (Hartley & Webster 1973), although no exact parallel can be identified.

Reduced wares

Reduced wares form a much smaller proportion of the assemblage, totalling just twenty-four sherds. Once again, the majority (nineteen sherds) are of fabric variants also identified at Irby (Griffin 2010, 126). As with the oxidised wares, the majority of these sherds display high levels of surface abrasion. Few are diagnostic, but the group does include six sherds from a jar displaying trailed rustication. This came from Phase 6 ditch fill 760 (S 1) and from machine-excavated deposits 834 in the northern ditch, and is of note because rusticated jars are rarely identified within rural assemblages from this area, where they are often considered to have a military association (J Evans *pers comm*).

Several sherds also have darker external surfaces, which is a feature most commonly associated with reduced wares of first- to second-century date. These include a highly distinctive fine-bodied sherd with well burnished black surfaces and a dark brown core, which has

been identified provisionally as 'black-on-brown ware', a type identified in small quantities in early assemblages from Chester (Heke & Ward 2012, 109).

Black-burnished ware 1
Black-burnished ware 1 forms the largest group of non-local pottery from the site, totalling forty-four sherds. A narrow range of commonly identified forms is present, all of which can be dated to the third century AD onwards. These consist of jars with strongly everted rims and obtuse lattice (Seager Smith & Davies 1993, *WA* type 3), flange-rimmed bowls (*ibid*, *WA* type 22) and dropped flange-rimmed bowls *(ibid*, *WA* type 25). Many of these sherds display sooting and/or evidence of burning, indicating their use as cooking pots.

South Midlands shell-tempered ware
These two small sherds are of particular note, partly because of their late date and partly because this fabric type is a rare occurrence in rural contexts in the North-West (Evans 1993). The sherds come from a single vessel with a square-cut rim form (Tyers 1996, 192, fig 242, no 1) of mid- to late fourth-century date, retrieved from a Phase 6 fill of the western ditch (859, equivalent to 809; S 4).

Nene Valley colour-coated wares
Three sherds of this fabric were identified. One, from Phase 6 ditch fill 744 (S 1), is a flanged dish form similar to a Curle (1911) 11, as more commonly seen in samian ware (Webster 1996). The sherd is abraded, with a patchy reddish-brown slip to both surfaces, and is datable to the second to early third century AD.

Oxfordshire colour-coated ware
Three sherds of Oxfordshire red/brown colour-coated ware were recovered from the site. All were undiagnostic, with two coming from the upper fill of the north enclosure ditch (context 724; Phase 6) and the other from a cleaning layer (context 704). All were datable to AD 240-400 (Young 1977, 123).

Oxfordshire parchment ware
Five sherds of Oxfordshire parchment ware came from three separate vessels, two of which can be paralleled with types recorded by Young (1977, 80–91). These include a P9.4 jar dated AD 240–400+ and decorated with bands of reddish-brown painted slip running around the body (from Phase 6 ditch fill 744, S 1), and a flagon/bottle with similar decoration of either P1 or P4 form (from Phase 6 ditch fill 775, S 2), dated to AD 300–400. In addition, there is a bowl similar in form to a type more commonly produced in red/brown colour-coated ware (C59; unstratified).

Mancetter-Hartshill mortaria
In total, seventeen sherds of Mancetter-Hartshill mortaria were identified, representing a minimum of six vessels, all of which can be dated to the third or fourth century AD. The most complete examples include hammerhead forms with four reeds or five (*cf* Darling & Precious 2014, nos 1686 and 1711 respectively); a bead and flange form with traces of red slip on the exterior surface (*ibid*, no 1736); and two wall-sided forms, one of which is plain (from Phase 6 ditch fill 724 (S 3); *ibid*, no 1738); and one which has distinctive painted

red/brown slip running around the rim. The decoration takes the form of a repeated S design, apparently in the form of stylised swans, similar to an example from Droitwich (Old Bowling Green site), where it was dated to AD 300–400 (Rees 1992, 47, fig 34, no 29).

Oxfordshire white mortaria

Four sherds from machine-excavated deposits 834 were identified as coming from an M17 Oxfordshire white mortarium form. These can be dated to the period AD 240–300 (Young 1977).

Nene Valley mortaria

Two sherds from a mortarium with a distinctive rilled flange rim have been attributed to the Nene Valley. These are datable to the third to fourth century AD (*cf* Darling & Precious 2014, no 1753).

Functional composition of the assemblage

Excluding the samian and amphorae, the rim sherds within the assemblage amount to a rim equivalent (RE) of 3.96. Five vessel categories were identified, based on accepted classifications (Millett 1979; Evans 1993): flagon; jar; bowl; dish; and mortarium (Table I.3). The dominance of jars (49.7%), along with the notably smaller proportion of bowl and dishes at 24.3%, is roughly consistent with that frequently noted in assemblages from rural sites in the region, where jars commonly constitute over 50% and bowls under 30% (J Evans *pers comm*). The high frequency of jar forms can be attributed to the versatile nature of the form for a variety of functions, including the storage, cooking and serving of foodstuffs.

Table I.3 Vessel forms (excluding samian and amphorae) quantified by estimated vessel equivalent (EVEs)/rim equivalent

Type	*EVE*	*%*
Flagon	0.06	1.5
Jar	1.97	49.7
Bowl	0.76	19.2
Dish	0.2	5.1
Mortarium	0.97	24.5

On the other hand, the proportion of mortaria (24.5%) might appear particularly high for an average rural assemblage; however, an almost identical proportion of 24.7% was recorded at Irby (Griffin 2010, 133). There are several possibilities for this: it may result, for instance, from the differing robustness of fabric types, with locally produced oxidised and reduced wares not surviving as well as those from the larger non-local industries, and, as the majority of jars used on the site are from local sources, this may skew the figures. This pattern of sherd survival has also been noted amongst other local assemblages, such as Irby (*ibid,* 126) and Court Farm (Griffin *forthcoming*), although it should be noted that, at the latter site and also Ochre Brook, Tarbock (Jones 2000, 90), both of which are to the north of the River Mersey, a much more conventional pattern was displayed, with mortaria forming a much lower proportion of 10–12%. Another, more likely, explanation is site location, where

proximity to Chester and Meols, and the associated road network, resulted in the presence of more unusual 'Romanised' wares, such as the Lyon ware beaker, and a fairly substantial assemblage of South Gaulish samian ware, in the early Roman period, and a wider range of non-local wares and more specialist vessels from the third century AD onwards.

Roman coins Rob Philpott and Mark Adams

Two Roman coins were found during the metal-detector survey undertaken in 2013. These comprise:

1 AE *Sestertius* of Marcus Aurelius, AD 161–80.
Obv: Laureate cuirassed bust of emperor right]NTONI[
Rev: Female personification (Annona?) seated left, holding ?corn-ears and cornucopiae. SC in field.
Only partially legible.

2 AE4 of Divus Constantine I (issued 337–41).
Obv: Veiled bust of Constantine right DIVVS CONSTANTINVS PF AVG
Rev: No legend. Quadriga ascending to right, in which Constantine standing; above hand of God.
Mintmark largely off flan (possibly TRP).
LRBC 1, 106 (for Trier) Phase 3b (337–41).

Non-ferrous metalwork Mark Adams

Several fragments of potentially Roman non-ferrous metalwork were recovered, including twenty-one lead items weighing 514g from the Phase 6 ditch fills. Most of the assemblage consists of small sheets of scrap, though there are at least two pot-repair plugs. In addition, a single copper alloy object (SF 1101) came from Phase 5 ditch fill 761 (S 1). This is a rod, 66mm in length and 3-4mm in width, with a slight mid-shaft bend. The terminals have a square profile graduating to a circular profile in the centre. Its function is unclear, but it may be a toilet instrument.

Ferrous metalwork Chris Howard-Davis

One heavily corroded iron object (SF 1113) was recovered from Phase 5 ditch fill 735 (S 3) and hence is likely to be early Roman in date. This is a small fragment, 24mm long and 24mm wide. X-radiography shows it to be the flat head of a large nail, with the shaft broken off close to the head. Its irregular rectangular outline suggests that it was hand-forged. A dark line round its edge, visible on the x-ray, is thought to be an artefact caused by a void in the corrosion products (K Barker *pers comm*).

Roman glass beads Mark Adams

Two glass beads (SF 1102) were recovered from Phase 6 ditch fill 775 (S 2). Both are translucent glass cylinders: one is light emerald green, 22mm long, 4mm in diameter, with a hole 2mm in diameter; the other is dark emerald-green/turquoise, 9mm long, 6mm in diameter, with a hole 1mm in diameter. Glass beads are found occasionally on Roman-period sites in the area (Cool 2010), and the cylindrical forms are generally dated to the later Roman period (Price 1985, 213), although the use of translucent emerald-green for cylinder beads is apparently rare in the Roman period (Cool & Price 1998, 181).

Quernstones Mark Adams

Two rotary quern fragments, made from fine-grained Triassic red sandstone with occasional grit inclusions, were recovered during the evaluation phase of the excavation, both from Trench III across the southern enclosure ditch. Both items are very similar to the rotary querns excavated at Irby (Adams 2010) and they probably relate to the preparation of flour, and by implication the baking of bread.

One of the fragments (SF 1060), from Phase 6 ditch fill 305 (S 8), measures *c* 180 x 160 x 90mm and only the outer rim survives, recognisable by its slight curvature and occasional chisel marks. There is no evidence of the working surface or central socket, and it is possible that it broke during manufacture. Projection of the curve suggests an original diameter of *c* 400–450mm.

The other fragment (SF 1061), from Phase 6 ditch fill 306 (also S 8), measures 370 x 190 x 95mm. A short section of the outer rim is apparent on this piece, with tool marks similar to those on SF 1060; projection of the curve suggests an original diameter of *c* 400–430mm. The working surface is worn smooth with no surviving tool marks and is slightly domed to the centre, suggesting that this is a fragment of lower stone. There is no clear evidence for the central socket. The lower surface has been left undressed.

Another stone item (SF 1161) came from Phase 5 posthole 789. This is a large cobble of coarse-grained igneous rock with a lightly polished surface on one side. Although it may have served a range of functions, it is possible that it represents the upper half of a saddle quern.

Other stone objects Mark Adams

The Phase 6 fills of the northern enclosure ditch contained large fragments of shale. It is possible that these were debris from the manufacture of bracelets, beads and other items, though there was no clear evidence for working.

Industrial waste Mark Adams

A near-complete smithing-hearth bottom (SF 1154), measuring 100 x 100 x 30mm, was present in Phase 5 ditch fill 761 (S 1). This is a plano-convex cake of grey fayalitic (?)slag, subcircular in plan, with a straight section along one side, which has a *c* 10mm-thick band of partly vitrified clay adhering to it. The upper surface is flat, with evidence of iron corrosion product along the sides opposite the vitrified clay. No evidence of the fuel is present.

Although this provides evidence for occasional episodes of iron working within the enclosure, it is perhaps noteworthy that there was little other evidence of metallurgical activity on the site. Although hearths were present, the absence of associated industrial waste suggests that these were probably used for cooking.

Environmental remains

Analyses of the palaeoenvironmental remains were undertaken, informed and structured by a series of recommendations formulated during the initial phase of post-excavation assessment. Analysis of the animal bones and charred plant remains and charcoal was undertaken with the aim of understanding the local environment and economy during the Roman period.

As with the artefacts, the results are summarised here; specialist reports, outlining the analysis methodologies, results and quantification tables, are lodged in the archive.

Animal remains Ian Smith

Some 386 fragments of finely comminuted and calcined bone and tooth fragments were recovered. All of the fragments were scanned, and identifications of any tooth fragments or bones with surviving surface morphology were attempted. Modern comparators were used to aid identifications where necessary. The bone was quantified by number of identified specimens (NISP) (Table I.4).

Table I.4 Quantification of species by NISP and phase

	Species					
Phase	Cattle	Large mammal	Sheep/goat	Medium mammal	Mammal	*Total*
3		2			1	3
4B	2				16	18
5?					1	1
5	26	10	8	6	138	188
6	27	12	5	6	86	136
7					36	36
834			2	1		3
U/S		1				1
Total	55	25	15	13	278	386

Results and conclusions

The assemblage is in a very poor state of preservation (Stage 5 of Behrensmeyer 1978: very poor: at this stage the material is largely unidentifiable beyond the level of mammalia) and comprises tooth fragments and fragments of burnt, predominantly white, mammal post-cranial parts. Nevertheless, although there are no tooth rows and no epiphyseal fusion data, some of the teeth and other elements are clearly from cattle (*Bos taurus*) and sheep or goat (*Ovis aries/Capra hircus*). Other fragments of large mammal appear most plausibly to be further cattle fragments, and the medium-sized mammal fragments are possibly sheep/goat.

Cattle and sheep were identified in Phases 5 and 6, and cattle also identified in Phase 4B. Indeed, cattle remains are most frequent, although it would be dangerous to conclude that these reflect the actual proportions of the domestic stock since, clearly, taphonomic processes severely affected the material and there may have been a bias against the survival of the smaller sheep remains (and any other smaller fauna) and any elements, other than teeth, that were not burnt.

Charred plant remains and charcoal Denise Druce

Introduction and methods

The assessment of some thirty-one bulk samples (Adams 2017) was followed by analysis of the charred plant remains and charcoal. Sampling, processing, identification and plant

nomenclature followed standard procedures and guidelines (Campbell *et al* 2011). The charred plant remains and charcoal were quantified and tabulated, along with other remains such as charred plant fragments (eg charred hazelnut or rhizome fragments), wood fragments and other remains (eg bone, coal, burnt clay/daub).

A single sample from the fill of the hearth 840 was prioritised for archaeobotanical analysis. A charred hulled barley (*Hordeum vulgare*) grain from this hearth was radiocarbon dated to the middle Bronze Age (Phase 2).

Although deposits from several Iron Age, Roman and medieval features were assessed, they contained little in the way of archaeobotanical material other than charcoal. Charcoal analysis was carried out on seven samples, which were also radiocarbon dated, to explore evidence for possible wood-fuel selection and how this may have changed over time. One of the samples came from an earlier Iron Age (Phase 3) hearth; two were from later Iron Age (Phase 4) features; three derived from earlier Roman-period (Phase 5) ditch fills and a hearth; and one from a later Roman-period (Phase 6) hearth.

Preservation of the wood charcoal was generally good, although the taxonomic level of identification varied according to the observed genera/family and/or the state of preservation. In many cases the fragments could only be taken to an approximate level of identification, ie to sub-family level (eg alder or hazel, both in the Betulaceae family), as some of the key diagnostic features needed to distinguish between the species were not observed and many of the alder (*Alnus glutinosa*) or hazel (*Corylus avellana*) fragments could not be differentiated because of high levels of sedimentation. In other cases, the level of identification was limited because of the similarities of species within a family or genus, for instance *Prunus* sp, which includes sloe/blackthorn, wild cherry and bird cherry (referred to as blackthorn-type), Maloideae, which includes hawthorn, apple, pear and whitebeam (referred to as hawthorn-type), or willow/poplar (*Salix/Populus* sp), which cannot be separated anatomically.

Phase 2: Middle Bronze Age hearth 840

Although only a quarter of the flot (250ml) was analysed, the sample produced over 6300 cereal grains, of which over 90% possessed characteristics consistent with naked barley (*Hordeum vulgare* var *nudum*; Jacomet 2006, 47), having rounded or notched ends and marked wavy striations going across the grain (Illus I.18). The remaining 10% comprised primarily indeterminate cereal grains, most probably poorly preserved naked barley (Table I.5). A very minor component, however, comprised barley grains with a much more angular form and a visible outer coat (Illus I.19), which are characteristics consistent with a hulled variety. The extremely small amount of hulled barley relative to naked barley may indicate its presence as a residual crop or an escapee from another plot.

An extremely limited number of oat (*Avena* sp) grains was also present, which could represent either a wild or cultivated variety (these cannot be distinguished based on caryopses alone). However, given that cultivated oat did not become a prominent crop until the medieval period (Moffett 2006), the remains are likely to represent either a wild variety or are intrusive. If the former, then the seeds may represent tolerated crop weeds. Quantities of other charred seeds/fruits were notably small and included black-bindweed (*Fallopia convolvulus*) and

Illus I.18 Charred naked barley (*Hordeum vulgare* var *nudum*) grains from middle Bronze Age hearth 840. (Not to scale)

Illus I.19 Charred hulled barley (*Hordeum vulgare*) grains from middle Bronze Age hearth 840. (Not to scale)

Table I.5 Results of the charred plant remains analysis from middle Bronze Age hearth 840

Sample size (l)		80
Flot size (ml)		1000
Percentage of flot analysed		25%
Cereal grains		
Avena sp	Cultivated/ wild oat	8
Hordeum vulgare var *nudum*	Naked barley	5672
Hordeum vulgare hulled	Hulled barley	20
Indeterminate cereals		>600
Total cereal grains		>6300
Cereal chaff		
Triticum cf *dicoccum* glume base	*cf* Emmer wheat	7
Triticum cf *dicoccum* spikelet fork	*cf* Emmer wheat	4
Hordeum vulgare (six-row) rachis segment	Barley	23
Hordeum vulgare (six-row) rachis node	Barley	37
Hordeum sp rachis internode	Barley	139
Total cereal chaff		210
Indeterminate chaff fragments		13
Weed seeds/fruits		
Ruderals and arable/cultivated land		
Fallopia convolvulus	Black-bindweed	3
Polygonum aviculare	Knotgrass	2
Damp/wet places		
Carex trigonous	Sedges three-sided	1
Total charred weed seeds/fruits		6
Other remains		
Calcined bone fragments		(1)
Charcoal		(4) highly clinkered, but includes alder/hazel, oak and hawthorn-type wood charcoal
Heat-affected vesicular material		(3)
Hardened clay/sediment		(3)
Ceramic building material		(1)

The charred remains are given as actual counts, whereas other remains are based on a scale from 1-5 where (1) = <5 items, (2) = 5-25, (3) = 26-100, (4) = >100 items. Counts are of seeds/fruits unless stated otherwise.

knotgrass (*Polygonum aviculare*), which are typical weeds of arable crops or disturbed ground (Stace 2010, 441, 443).

The amount of charred cereal chaff recovered from the 25% subsample was extremely low, especially compared to the number of cereal grains. As might be expected, cereal chaff was dominated by barley rachis, including rachis nodes with well formed side floret bases characteristic of six-rowed (many-rowed) barley (Jacomet 2006, 47). Although no wheat (*Triticum*

sp) grains were recovered from the subsample, the recovery of rare emmer wheat (*Triticum dicoccum*) glumes, another early staple of prehistoric Britain (Hillman 1981), suggests that this may have also been cultivated; its presence here, however, like hulled barley, perhaps suggests that it formed a residual crop or escapee.

In addition to the cereal remains, hearth 840 contained abundant charcoal, which was extremely poorly preserved, either because of high temperatures or repeated burning. Indeed, the common fragments of indeterminate heat-affected vesicular material (havm) were also likely to be wood charcoal. The few identified charcoal fragments indicate the presence of alder or hazel, oak (*Quercus* sp) and hawthorn-type (Maloideae).

The sample contained common fragments of hardened clay, which probably represents burnt sediment from *in-situ* burning. In addition, very rare ceramic building material (CBM) fragments provide tentative evidence for the remains of some sort of structure.

The archaeobotanical evidence from many sites in northern Britain suggests that emmer wheat and barley, including a naked variety, were the predominant crops during the Bronze Age (Van der Veen 1992, 73–4; Hastie 2010, 19). Naked barley has been recorded in Britain from as early as the Neolithic period (Hillman 1981) and appears to have been a particularly important crop in Neolithic Scotland (Huntley 2010a; Hastie 2010). There is increasing evidence, however, to suggest it was also a major crop during the Bronze Age in the North-West.

An isolated pit containing thousands of naked barley grains and dated to the early Bronze Age was discovered during excavations in advance of the Carlisle Northern Development Route (Druce *forthcoming*). More locally, the only other site to have produced more than casual cereal finds is Irby (Huntley 2010a). Other sites, such as Brook House Farm and Beeston Castle, both in Cheshire, produced only small concentrations of cereal remains, dominated by glumed wheat grains and chaff (Hall & Huntley 2007, 35, 37). Significantly, like Puddington Lane, the Bronze Age cereal remains from Irby were clearly dominated by naked barley grains, with a relatively small sub-component of hulled barley (2160 naked barley grains to 179 hulled barley grains from mostly Bronze Age features; Huntley 2010a). The Irby samples, however, also produced very abundant emmer wheat grains and chaff. The two richest cereal assemblages came from postholes that formed part of a structure interpreted as a possible cereal store, or a building for carrying out the final stages of crop processing (*ibid*).

Evidence suggests that hulled barley generally superseded naked barley from the late Bronze Age (Van der Veen 1992, 74; Hastie 2010, 20). More locally, several wheat grains recovered from the naked barley-dominated assemblages from Irby provided radiocarbon dates centred around 1400–1100 cal BC (Huntley 2010a), contemporary with that of one of the hulled barley grains from Puddington Lane (1400–1220 cal BC; SUERC-76620; 3045±30 BP). Although both assemblages were clearly dominated by naked barley and, in the case of Irby, emmer wheat, the presence of hulled barley grains indicates that it was certainly grown by the middle of the second millennium BC.

The reason for this agricultural shift is unclear. Naked barley is high in beneficial soluble fibre (Dickin *et al* 2010), and this trait, coupled with its tolerance of adverse weather conditions and ease of processing, means that it is an ideal crop, especially in northern England and Scotland. Modern studies, however, do suggest that germination rates of naked barley grains are much lower than for hulled barley, as a result of the vulnerability of the exposed embryos of the naked grains (*ibid*). Increased yields would have certainly been a prime factor when deciding which crops to cultivate, especially if a much more far-reaching market economy was becoming established.

The relative lack of cereal chaff, combined with the near absence of charred weed seeds, from hearth 840 indicates that the cereals are likely to represent a fully processed crop that, for whatever reason, had been charred. One explanation is that the cereals represent the remains of a cooking accident, generated *in situ* or dumped into the feature as food waste.

Phase 3: Earlier Iron Age hearth 717

Hearth 717 contained a relatively diverse charcoal assemblage and at least nine wood species or genera were identified (Table I.6). Alder or hazel (both were recorded), ash (*Fraxinus excelsior*), hawthorn-type, blackthorn-type, including blackthorn (*Prunus spinosa*), and oak were present in broadly similar quantities. Rare fragments of field maple (*Acer campestre*), holly (*Ilex aquifolium*), and willow/poplar were also recovered. The wood charcoal from most of these taxa comprised small roundwood or twig fragments, apart from hawthorn-type, which comprised much larger roundwood fragments, and oak heartwood. Many of the oak fragments, however, exhibited radial splitting, which is common in (but not unique to) green, unseasoned, wood when it is burnt (Théry-Parisot & Henry 2012). The diverse nature of the charcoal assemblage, which included taxa that commonly grow in areas of scrub or hedgerows, together with abundant twigs and roundwood, and possible evidence for fresh, unseasoned, oak, indicates indiscriminate use of fuel wood (including fresh wood), perhaps from nearby woodland or hedgerows. In addition to the charcoal, the sample contained frequent charred cereal remains (poorly preserved wheat and barley), and common calcined bone, which suggest that the hearth was used for cooking.

Phase 4: Later Iron Age gully 816, Structure 2

The fill of gully 816 was dominated by alder and/or hazel (both were positively identified) and large roundwood (possible branchwood) oak fragments. Rare to frequent fragments of ash, blackthorn-type, willow/poplar and elm (*Ulmus* sp) were also recovered. The presence of fragments of heat-affected clay or daub and ceramic building material suggests that the gully may have been in receipt of eroded structural material. It is unclear, however, if the material represents the remains of Structure 2 itself, which may imply that the alder/hazel and oak branchwood was also structural, or whether it represents debris generated from other activities that made its way into the gully. The presence of calcined bone fragments, for example, suggests that the gully did contain some domestic rubbish.

Phase 4: Later Iron Age posthole 743

The charcoal from the lower fill of posthole 743 was dominated by oak heartwood, with rare to common fragments of alder or hazel and ash. Many of the oak fragments were heavily coated with hardened clay or daub, with frequent flecks of ceramic building material sug-

gestive of structural remains. Given the context, it is tempting to interpret the oak as the remains of the post itself; however, the material is just as likely to represent other structural debris that made its way into the feature. Indeed, the presence of frequent charred cereal grains and bone fragments in the fill suggests that the posthole was in receipt of other domestic debris.

Table I.6 Results of the charcoal analyses from the rectilinear enclosure

		Phase 3: Hearth 717	Phase 4B: Gully 816	Phase 4B: Posthole 743	Phase 5: Ditch fill 735	Phase 5: Ditch fill 761	Phase 5: Hearth 770	Phase 6: hearth 856
Sample size (l)		20	30	10	40	40	40	20
Flot size (ml)		1000	160	5	10	150	60	130
% of >4mm charcoal analysed		5%	75%	100%	100%	100%	100%	50%
% of >2mm charcoal analysed		-	-	100%	100%	12.50%	100%	-
Acer campestre	Field Maple	1r						
Alnus glutinosa	Alder	3r	3					
Alnus glutinosa or *Corylus avellana*	Alder/Hazel	20r	44	4	2r		20r	34r
Corylus avellana	Hazel	3r	3r					47r
Calluna vulgaris/ Erica sp	Heather/Heath				23r	1r	1r	
Fraxinus excelsior	Ash	17r	8r	6			5r	
cf *Ilex aquifolium*	Holly	1r			3r			
Maloideae	Hawthorn-type	15r			1		1	6
Prunus cf *spinosa*	Blackthorn	4r				2r	14r	1
Prunus sp	Blackthorn-type	13lar	1r				25r	4r
Quercus sp	Oak	14	33lar	31h	10r	86	39h	7h
Salix sp/ *Populus* sp	Willow/Poplar	3r	6				3	1
Ulmus sp	Elm		3r				4r	
Indet		8r	1	4	16r	4	44r	1
No of fragments analysed		102	102	45	55	93	156	101

Continued overleaf

	Phase 3: Hearth 717	Phase 4B: Gully 816	Phase 4B: Posthole 743	Phase 5: Ditch fill 735	Phase 5: Ditch fill 761	Phase 5: Hearth 770	Phase 6: hearth 856
Charcoal notes	Many oak fragments with radial splitting. Abundant twig fragments		Oak fragments coated with daub/ hardened clay with CBM flecks	Frequent fragments with radial splitting		Frequent indet twig fragments with radial splitting	Possible coppiced hazel stems
Other remains							
Other charred plant remains	(2) *Hordeum* sp and *Triticum* sp		(2) *Avena* sp and *Triticum* cf *aestivum*-type	(1)	(1)	(1) *Secale cereale, Prunus spinosa*	(2) *Hordeum* sp and *Triticum* sp Poaceae/ *Bromus* sp, *Persicaria lapathifolia* and *Chenopodium album*
Bone fragments			(1)	(3)	(3)		
Calcined bone fragments	(3)	(2)		(2)	(3)	(2)	
Fire-cracked stones				(4)	(3)		
Heat-affected clay/daub		(3)	(3)		(3)		(2)
Brick/tile fragments (cbm)		(2)	(1)		(2)	(1)	

Figures for charcoal are actual counts where h = heartwood present, r = roundwood present, lar = large roundwood fragments present. Other remains are quantified on a scale of (1) to (4), where (1) = < 5 items, (2) = 6-25, (3) = 26-100, and (4) = > 100 items.

Phase 5: Early Roman fills within the northern enclosure ditch

The secondary fills (761 and 735; S 1 and S 3) of the northern enclosure ditch appear to have contained midden material that had perhaps accumulated for some time, and hence some of the charred remains may have been residual. The charcoal assemblage from 761 was dominated by oak wood, with rare heather/heath and blackthorn roundwood fragments. It also contained a wide range of other domestic debris derived from midden material, including rare cereal remains, common bone and calcined bone fragments, common ceramic building material and comminuted heat-affected clay/daub fragments, and common fire-cracked stone. That from 735 was dominated by heather/heath (*Calluna vulgaris/Erica* sp) roundwood fragments. Oak roundwood was also relatively well represented, plus rare alder/ hazel, holly, and hawthorn-type charcoal fragments. Many of the fragments possessed radial cracking, which may indicate the burning of green, unseasoned wood.

Phase 5: Early Roman hearth 770

Hearth 770 contained a relatively diverse charcoal assemblage, comprising a similar range of taxa to that recorded in many of the earlier features. Although much of the charcoal comprised indeterminate small roundwood/twig fragments, blackthorn-type (including positively identified blackthorn) and alder or hazel constituted many of the better preserved pieces, with rare twig fragments of ash, elm, willow/poplar, hawthorn-type, and heather/heath. Many of the twig fragments showed radial splitting, suggestive of green, unseasoned wood. Oak was also well represented and comprised predominantly mature heartwood of a tree/trees over twenty-five years old (Dufraisse *et al* 2017). The diversity and nature of much of the charcoal from this hearth indicates indiscriminate collection of twigs/brash (including fresh wood) from nearby woodland, scrub or hedgerows. The oak heartwood may have originated from stockpiles reserved for specific activities requiring more industrial-level fuel use or for construction; however, this is impossible to gauge with any certainty. Other material was relatively rare and included a single charred rye (*Secale cereale*) grain, which, given the assumed date of the deposit, is likely to be intrusive, as rye was more commonly grown from the medieval period onwards (Moffett 2006). A single charred sloe stone was also recorded, which may have originated from the abundant blackthorn wood in the sample. As with many of the other features from the site, the sample contained frequent calcined bone fragments.

Phase 6: Later Roman hearth 856

The charcoal from this hearth was dominated by hazel and alder/hazel roundwood, with rare to frequent oak, hawthorn-type, blackthorn-type (including positively identified blackthorn) and willow/poplar. The size and growth-ring curvature of much of the hazel (and alder/hazel) was reminiscent of coppiced rod roundwood, although the lack of whole pieces prevents certainty. Other remains were rare but included frequent charred barley and wheat grains, rare crop weeds, and frequent heat-affected clay or daub.

Discussion: The Iron Age and Roman charcoal assemblage

The charcoal from Puddington Lane shows some consistencies in the deposits dated to the earlier Iron Age (Phase 3) through to the later Roman period (Phase 6). The data suggest that domestic fuel, such as that used for hearths, may have included a wide, indiscriminate, range of taxa, perhaps randomly collected, possibly as greenwood, from nearby woodland. Although it is questionable whether wood collected for fuel is representative of actual woodland composition, all the woody taxa recovered were likely to have been growing locally.

The positive identification of alder in the early Iron Age (Phase 3) hearth, 717, and willow/poplar in this same feature, later Iron Age (Phase 4) gully 816 and earlier Roman (Phase 5) hearth 770 indicates the presence of damp or wet soil conditions, which are perhaps to be expected given the proximity of the coast. The recovery of oak and elm indicates their persistence in the landscape, although the latter does not seem to have been a common tree. The high proportion of scrubby or light-demanding taxa such as hazel, hawthorn-type, blackthorn-type and ash (with field maple and holly in the earliest hearth, 717), indicate areas of scrub, woodland margins or hedges (Stace 2010).

Although all the analysed features produced more than a single taxon, the dominance of alder/hazel and large oak branchwood fragments in later Iron Age gully 816, and oak heartwood in posthole 743, together with adhering fine fragments of hardened clay or daub, suggests the charcoal from these features came from burnt structural remains. The more restricted presence of heather/heath roundwood from Phase 5 ditch fills 735 and 761, which both contained common fire-cracked stone, may also indicate their selective use.

The varying quantities of bone and calcined bone in all the samples except later Phase 6 hearth 856 is notable and, along with frequently recorded charred cereal grains, indicates a continuation in the types of activities taking place at the site, which are likely to have centred around a mixed-farming subsistence economy. The lack of bone/calcined bone in Phase 6 hearth 856 was notable and may indicate a change in activity at this time. The presence of possible coppiced hazel in this feature may also be significant, perhaps indicating the implementation of active woodland management to ensure the supply of fuel wood, perhaps instigated as a result of dwindling resources.

There is very little comparative charcoal data from south Lancashire, the nearest site producing later Iron Age/earlier Roman material being at Lathom, which produced poorly preserved assemblages, including oak, willow/poplar, alder/hazel and hazel (Huntley 2010b, 19). Existing information from later Roman sites is similarly scarce, and therefore it is significant that data from Roman-period settlements at Brook House Farm, Merseyside, and Birch Heath, Tarporley, show similar trends in fuel use and wood used for possible construction (*ibid*).

The settlement at Brook House Farm produced waterlogged twigs and wood fragments, including willow (and/or poplar), hazel, alder, birch and blackthorn (Shimwell 2000), with some of the structural timbers formed from oak (Darrah 2000). At Birch Heath, oak was the dominant taxon recovered from a roundhouse and associated features that may have been used for high-temperature processes (Gale 2002), including metalworking, and for structural elements of the roundhouse, which had subsequently burnt down (Huntley 2010b, 27). The other taxa recorded at Brook House Farm included alder, birch, hazel, heather/heath, ash, hawthorn-type, and blackthorn-type. Much of this material was interpreted as domestic fuel debris (Shimwell 2000), as at Puddington Lane.

Although pollen data from the region indicate forest clearance as a result of agriculture and the subsequent spread of heathland during the Bronze Age, a significant increase in deforestation did not occur until the later Iron Age and Roman period (Innes & Tomlinson 2008, 19). Pollen evidence from nearby Irby also indicates a deforested, mixed-farming landscape during the Roman period (Innes 2010). As such, it is possible that any surviving pockets of oak woodland would have been highly valued for timber and industrial-level fuel use (Huntley 2010a). If this was the case, then the indiscriminate collection of natural windfall or trimmings from local woodland floors or hedgerows for domestic fuel would make sense.

Radiocarbon dating Richard A Gregory

Prior to post-excavation analysis, the excavated remains within and adjacent to the rectilinear enclosure presented a number of problems in terms of dating. The site comprised a scatter

of discrete features, which, in the main, were stratigraphically unrelated. Indeed, it was only in one part where certain intercutting features (Structures 1 and 2 and a series of later hearths) could be seen to be sequential and could be arranged into loose stratigraphic phases. In addition, other sources of dating evidence also posed problems. For instance, the majority of the datable ceramics came from the enclosure ditch and, whilst the dates of this suggested two major episodes of deliberate dumping during the Roman period, little pottery was recovered from features within and adjacent to the enclosure.

Given these problems, an integral element of the post-excavation analysis involved the selection of suitable organic samples from the excavated features that could be subjected to radiocarbon assay to enable the chronology of activity at the site to be more fully explored. Charred plant remains and charcoal were therefore extracted from bulk soil samples and assessed for their suitability for radiocarbon dating. Thirteen samples were ultimately selected, all of which were submitted to the Scottish Universities Environmental Research Centre (SUERC). All the samples were assayed using the accelerator mass spectrometry (AMS) technique; full details of methods and procedures can be obtained from SUERC. The selection followed the recommendations of Ashmore (1999) in that the samples contained single-entity short-lived plant remains representing charred cereal grains, short-lived species or small items of roundwood.

Results and calibration

The radiocarbon results (Table I.7) have been calibrated using IntCal13 and OxCal v4.3.2 (Reimer *et al* 2013; Bronk Ramsey 2001). The calibrated date ranges have been rounded outwards to five years where the error measurement is less than ±25 BP, and to ten years when it is greater than this (Mook 1986), using the 'round up' function in OxCal v4.3.2. They have been calibrated at the 95% probability level, although, in some instances, because of the character of the calibration curve, there is a probability that some of the dated materials may actually lie within distinct portions of this range. In these instances, the additional calibrated date ranges and their probabilities are also presented.

Statistical testing

Following the completion of the radiocarbon dating programme, it was evident that some of the later Iron Age and earlier Roman dates had similar calibrated ranges. Therefore, to establish if some of these results might be of the same actual age, the assays were subjected to statistical testing using the non-Bayesian chi-square test of Ward and Wilson (1978). Within this test, the level of significance was set at 0.05 (T'(5%)), with *v* representing the degree of freedom; dates are considered statistically consistent when the T value (T') is lower than the critical value (T'(5%)). The analysis was performed using the Combine function in OxCal v4.3.2, which merges the radiocarbon dates following calibration and provides an agreement index (Acomb). Within this index, good agreement between the combined dates is indicated by an Acomb value that is greater than the An value.

Of the later Iron Age dates, the chi-square test suggested that two could be of the same age. These were derived from gullies 791 (SUERC-76614) and 816 (SUERC-76619), which are statistically consistent (T'=0.57; T'(5%)=3.8; v=1; Acomb=107.1%(An= 50.0%)). They derive, however, from two separate and sequential structures (Structure 1 in Phase 4A and

Table I.7 Radiocarbon results from the rectilinear enclosure

Laboratory code	*Material*	*Feature/context*	*Radiocarbon age (BP)*	*$\delta^{13}C$ (‰)*	*Calibrated date range (95% confidence)*
SUERC-76620	Charred cereal grain: *Hordeum* sp (hulled)	Phase 2 hearth 840 (fill 839)	3045±30	-25.3	1400–1220 cal BC
SUERC-76604	Charcoal roundwood: *Prunus* cf *spinosa*	Phase 3 pit 717 (fill 716)	2348±30	-27.6	520–370 cal BC
SUERC-76614	Charcoal: *Prunus* cf *avium*	Phase 4A Structure 1 gully 791 (fill 790)	2103±30	-25.2	200–40 cal BC
SUERC-76619	Charcoal: *Alnus glutinosa*	Phase 4B Structure 2 gully 816 (fill 812)	2135±29	-24.5	360–300 cal BC (14.3%) 220–50 cal BC (81.2%)
SUERC-76901	Charcoal: *Alnus glutinosa/Corylus avellana*	Phase 4B Structure 2 posthole 797 (fill 796)	1975±24	-25.6	40 cal BC–cal AD 75
SUERC-76613	Charred cereal grain: *Triticum* sp	Phase 4B Structure 3 posthole 785 (fill 784)	2015±30	-22.5	100 cal BC–cal AD 70
SUERC-76610	Charcoal: *Alnus glutinosa/Corylus avellana*	Phase 4B posthole 743 (lower fill 750)	1926±29	-25.8	cal AD 1–140
SUERC-76609	Charred roundwood, *c* seven years' growth, with bark: *Calluna vulgaris/Erica* sp	Phase 5 northern enclosure ditch (fill 735)	1921±30	-25.3	cal AD 1–140
SUERC-76615	Charcoal roundwood, two years' growth: *Salix/Populus* sp	Phase 5 western enclosure ditch (fill 813)	1864±29	-26.7	cal AD 70–230
SUERC-76611	Charcoal: *Corylus avellana*	Phase 5 Structure 4 gully 756 (fill 754)	1822±29	-25.9	cal AD 90–100 (0.9%) cal AD 120–260 (92.0%) cal AD 290–320 (2.5%)
SUERC-76612	Charcoal roundwood, one year's growth, bark absent: *Quercus* sp	Phase 5 hearth 770 (fill 771)	1800±29	-27.6	cal AD 130–260 (79.6%) cal AD 270–330 (15.8%)
SUERC-76621	Charcoal: *Corylus avellana*	Phase 6 hearth 856 (fill 855)	1718±29	-25.7	cal AD 250-400
SUERC-76605	Charred cereal grain: *Hordeum* sp	Phase 7 hearth 721 (fill 720)	902±29	-26.2	cal AD 1030–1210

Structure 2 in Phase 4B). Although this might suggest that the structures were constructed in rapid succession, another radiocarbon date (SUERC-76901) was obtained from posthole 797, which seemed to form an element of Structure 2, and this is statistically inconsistent with the date (SUERC-76619) from the Structure 2 gully. Given the statistical incompat-

ibility of the dates for Structure 2, and based on the stratigraphic relationships of Structures 1 and 2 (the Structure 1 gully being truncated by the Structure 2 gully), the most likely explanation is that the dated material from the Structure 2 gully represents residual charcoal that was derived from Structure 1.

Significantly, the date of the Structure 2 posthole (SUERC-76901) and those from posthole 743 (SUERC-76610), part of the post-pair structure (Illus I.6), and posthole 785 (SUERC-76613), part of the four-post structure (Structure 3), also passed the chi-square test (T=3.94; T'(5%)=5.9; v=2; Acomb=61.0%(An=40.8%)). Although this suggests that all of these elements could date to the same period, being components of the same phase (Phase 4B) of settlement, SUERC-76610 (post-pair) did have poor agreement (56.3%), meaning it might be a slightly later feature.

It may also be significant that, in calibrated terms, the date from posthole 743 (SUERC-76610) is identical to a date (SUERC-76609) from the northern enclosure ditch. This latter date was from charred material within a suspected midden deposit that had been dumped into the ditch, on the basis of the datable ceramics, in the earlier Roman period. It may therefore imply that this early Roman-period midden contained residual later Iron Age materials.

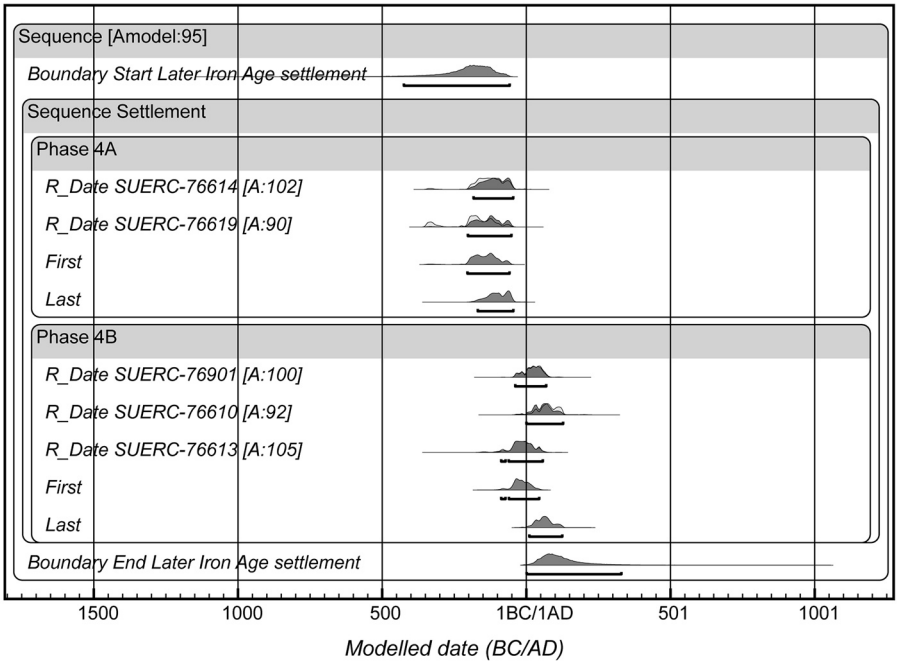
Two of the Roman-period dates (SUERC-76611 and SUERC-76612) were also statistically consistent (T'=0.23; T'(5%)=3.8; v=1; Acomb=107.1%(An=50.0%)). These were derived from gully 756, Structure 4 (SUERC-76611), and hearth 770 (SUERC-76612), and it is therefore possible that these were of the same age.

Modelling

The later Iron Age dates were also modelled. The modelling adopted a Bayesian approach (Buck *et al* 1996) and was performed using OxCal v4.3.2 (Bronk Ramsey 2009). The outputs from this modelling (posterior-density estimates) are quoted in italics.

Based on the statistical tests (s*ee above*) and stratigraphic relationships, this model assumes that SUERC-76614 and SUERC-76619 date Structure 1 (Phase 4A settlement), which was succeeded by another settlement in Phase 4B that contained Structure 2 (SUERC-76901), the post-pair (SUERC-76610), and Structure 3 (SUERC-76613).

The results from the model (Illus I.20) indicate that the Phase 4A settlement, which contained Structure 1, was established *210–50 cal BC* (*Phase 4A First*) and ended *170–40 cal BC* (*Phase 4A Last*), with a span of *0–120 years*. The Phase 4B settlement was established *90 cal BC–cal AD 50* (*Phase 4B First*) and ended *cal AD 10–130* (*Phase 4B Last*), with a span *of 0–160 years*. Within this settlement, Structure 2 dates to *40 cal BC–cal AD 70* (*SUERC-76901*), Structure 3 dates to *90 cal BC–cal AD 60* (*SUERC-76613*), and the post-pair dates to *cal AD 1–130 (SUERC-76610*). The stratigraphic evidence also suggests that Structure 2 was probably constructed immediately after the demise of Structure 1; hence it is possible, based on the results of the model, that Structure 1 was abandoned and Structure 2 built at either end of their estimated radiocarbon date ranges, perhaps around 40 cal BC.



Illus I.20 Posterior-density estimates for later Iron Age features in the rectilinear enclosure

The curvilinear enclosure and its environs (Site 129) Richard A Gregory

Based on the excavated remains and finds recovered during fieldwalking, three very broad phases of early activity can be discerned at this second site (Illus I.2). The earliest (Phase 1) dates to the earlier prehistoric period and relates to activity in the environs of the enclosure. This was followed by the creation of the curvilinear enclosure, at some stage during the later prehistoric period, most probably in the Iron Age (Phase 2). Some evidence for Roman-period activity was also recovered in the vicinity of the enclosure (Phase 3). In addition, post-medieval remains were also present to the west, relating to former field boundaries; full details of these are contained in the assessment report (Adams 2017, 13).

Phase 1: Earlier prehistoric activity

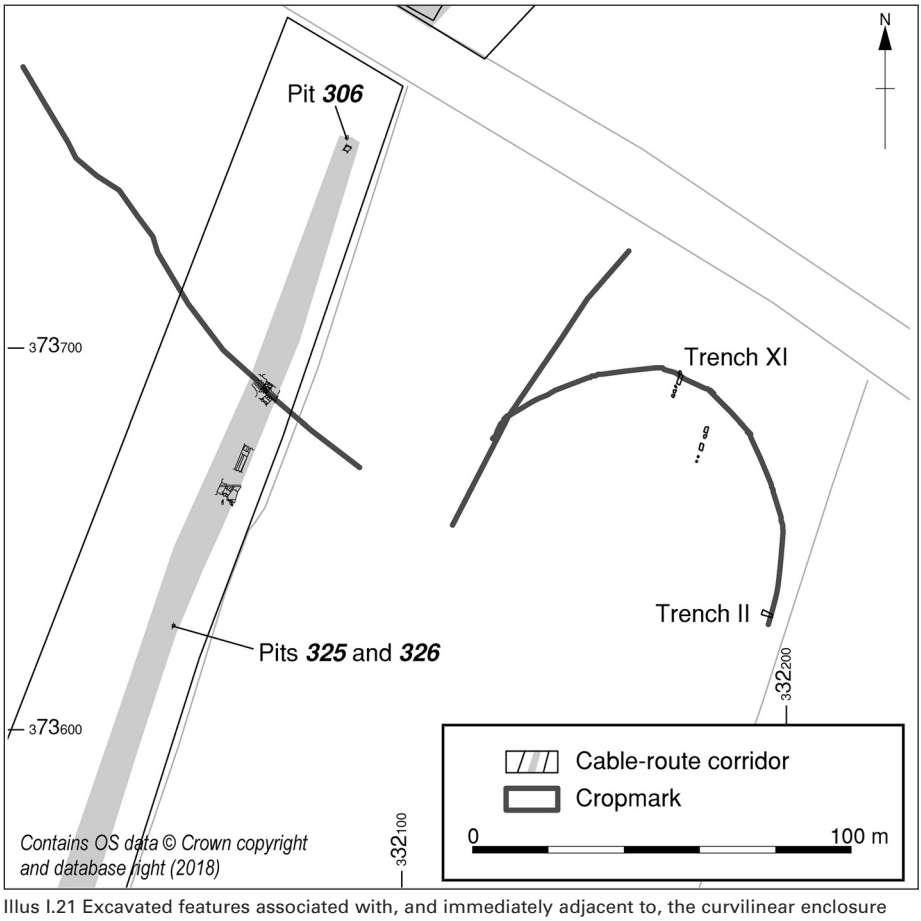
The earliest evidence for human activity consists of lithics (forty-four items), from field-walking and as residual material from the excavated enclosure ditches. Most of this material is debitage (full details are lodged in the site archive; Adams 2017). Nine groups were identified, one (Group 2) comprising possible early Mesolithic lithics consisting of dark grey and banded chert items, including two blades from the fills of the enclosure ditch. This material seems similar to that excavated at Thurstaston and Greasby on the Wirral and, as such, might date to around 8000 cal BC (Cowell 2010a). Two other groups are possibly of a similar date, including black-type (Group 3) and miscellaneous (Group 4) cherts, although this could not be determined with certainty. A small collection (Groups 1 and 5) of possibly late Mesolithic–early Neolithic lithics was also present, including two cores and pieces with blade-associated characteristics. The raw material of this group is flint, derived from the local Glacial Till. One other group (Group 6) comprises glacially worn flint pebbles that

had been used to produce a simple point and rudimentary scrapers. It was suggested that these could be Mesolithic objects, although they might also date to the early to middle Bronze Age (*c* 2000–1200 cal BC), or perhaps even the Iron Age. The remaining material (Groups 7–9) could not be dated with any degree of certainty, but do include large chert and flint blade-like flakes, which could possibly be late Neolithic or early Bronze Age in date.

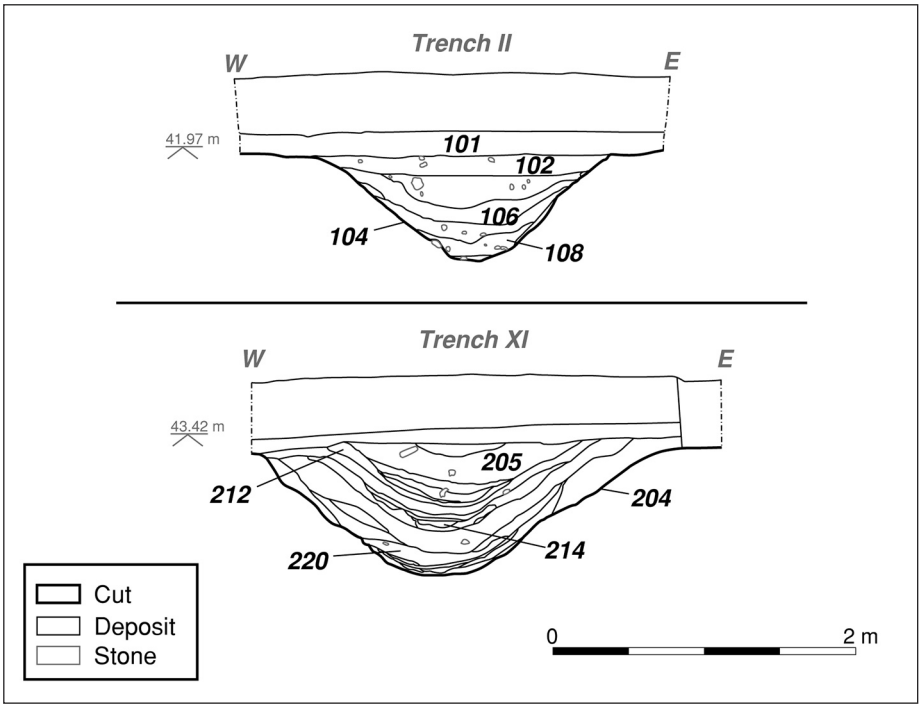
Phase 2: The later prehistoric (?Iron Age) enclosure

The curvilinear enclosure is defined by an arcing ditch, visible as a cropmark, which seems to represent the northern part (approximately half) of a circular or sub-circular enclosure. However, the complete extent and form of the enclosure is not known, as the southern half never developed into a cropmark. The area enclosed by this cropmark measures approximately 90m east–west by less than 50m north–south (0.32ha), although if it was originally circular, it may have enclosed 0.63ha.

The evaluation trenches were positioned on the eastern and northern sides of the enclosure (Trenches II and XI respectively) (Illus I.21). A ditch was revealed in both trenches but



Illus I.21 Excavated features associated with, and immediately adjacent to, the curvilinear enclosure (Site 129). (Scale 1/2000)



Illus I.22 Sections across the ditch of the curvilinear enclosure. (Scale 1/50)

there was no direct evidence for an associated bank/rampart. This ditch had a shallow U-shaped profile; in Trench II it had a width of 1.9m and a depth of 0.7m, whilst in Trench XI it was 2.65m wide and survived to a depth of 0.94m (Illus I.22). Dating evidence comprised a single sherd of prehistoric pottery (*see below*), recovered from a basal fill (108) in Trench II. This sherd might possibly date to the Iron Age, and perhaps entered the ditch during a period of rapid silting shortly after it was created.

Phase 3: Roman-period infilling of the enclosure ditch and activity to the west of the enclosure

A sequence of deposits above the basal fills suggested that the ditch gradually filled over time. The eastern ditch section, 104, contained a sequence of silty sand deposits, whilst the fills present in the northern ditch, 204, comprised accumulations of sand interlaced with thinner laminated deposits of silt and clay, suggesting that this was periodically waterlogged. The limited dating evidence from a lower fill, 220, implies that this silting dates to the Roman period, probably after AD 120 (s*ee below*).

To the west of the enclosure, three small pits, 306, 325 and 326, were discovered in the cable-route trench (Illus I.21) and might tentatively date to the Roman period on the basis of nearby Roman finds (s*ee below*). The pits were of comparable size, with diameters of *c* 0.6–0.8m, and all were comparatively shallow, being between 0.13m and 0.23m deep. They all contained cobbles, and two, 325 and 326, also produced charcoal fragments, although neither seemed to have been a cooking pit or hearth.

Finds from the curvilinear enclosure

A small finds assemblage was recovered from this area during the excavation. This included later prehistoric ceramic material, Roman pottery, industrial waste, animal bone, metalwork and fired clay, much being recovered from topsoil/subsoil deposits (full details are contained in the site archive and assessment report; Adams 2017). Similarly, some post-medieval artefacts (pottery and clay tobacco pipes) were also recovered. This section focuses on those later prehistoric and Roman finds that provide some, albeit limited, details on the date and function of the enclosure.

Prehistoric pottery Adam Tinsley

A single ceramic fragment weighing 8.44g was recovered from the basal fill (108) of the enclosure ditch (s*ee above*). This rim fragment is heavily abraded, suggesting that it had been exposed to post-depositional attrition, and is relatively devoid of clear diagnostic traits.

The rim appears to be a simple upright or perhaps everted form, with a flat internal surface, potentially forming a slight internal bevel, and a rounded external rim edge. Beyond this, the sherd is too small and poorly preserved to allow a determination of the original form of the vessel, and the diameter of the rim cannot be calculated. It is tempting, however, to draw a parallel with a reconstructed example of a Cheshire salt container (Nevell 2005; Morris 1985, 355), a designation that may draw some support from the fabric, which is hard and well fired, with a black core and lighter, buff-coloured surface. It has a very coarse texture, with abundant coarse sand inclusions, and rare mica flecks, quartzite granules, and rare angular calcined flint visible across the surface, which conforms to the fabric types noted for Cheshire salt containers. Given this potential attribution, it probably dates to the later Iron Age.

Roman finds Mark Adams and Rob Philpott

Several sherds of Roman pottery were recovered from the trial trenches and cable-route trench. Material from the trial trenches included a sherd of black-burnished ware 1 from a lower fill, 220, within the northern ditch section, which suggests that infilling must date to after AD 120. Two other sherds of Roman pottery were recovered from a subsoil, 101, sealing the eastern ditch section. These comprise a mortarium rim of late third- to mid-fourth-century AD date and a sherd of Cheshire Plain ware of probable second- to third-century date (Philpott 2013). Two other sherds of Cheshire Plain ware were recovered from the cable-route trench in the vicinity of pits 306, 325 and 326 as residual finds in post-medieval contexts (Adams 2017, 31). In addition, seven fragments of fired clay, weighing a total of 125.9g, were recovered from the enclosure ditch fills, which presumably derive from domestic hearths and ovens (*ibid*, 33).

Other artefacts from the ditch that might be Roman in date include a curved iron object with a looped eye at one end, possibly a vessel handle or barb-spring padlock key, from northern ditch fill 212. The suspected Roman-period ditch fills in both the eastern and northern sections were also associated with industrial waste, probably derived from smithing (Adams 2017, 31). This consists of small fragments of vitrified fired clay, presumed to be from hearth linings, small fragments of dense fayalitic slag and fragments of smithing-hearth bases in ditch fills 102, 106, 205 and 212**;** fill 106 contained the greater quantity of industrial

waste by weight, and fill 205 contained the greater number of pieces. In addition, there was a marked concentration of other forms of heat-affected waste in the northern ditch section (particularly in fill 214), in the form of fire-cracked stone and charcoal. This may indicate that metalworking activity was principally confined to the northern side of the enclosure.

Discussion: settlement evolution at Puddington Lane and its regional context Richard A Gregory

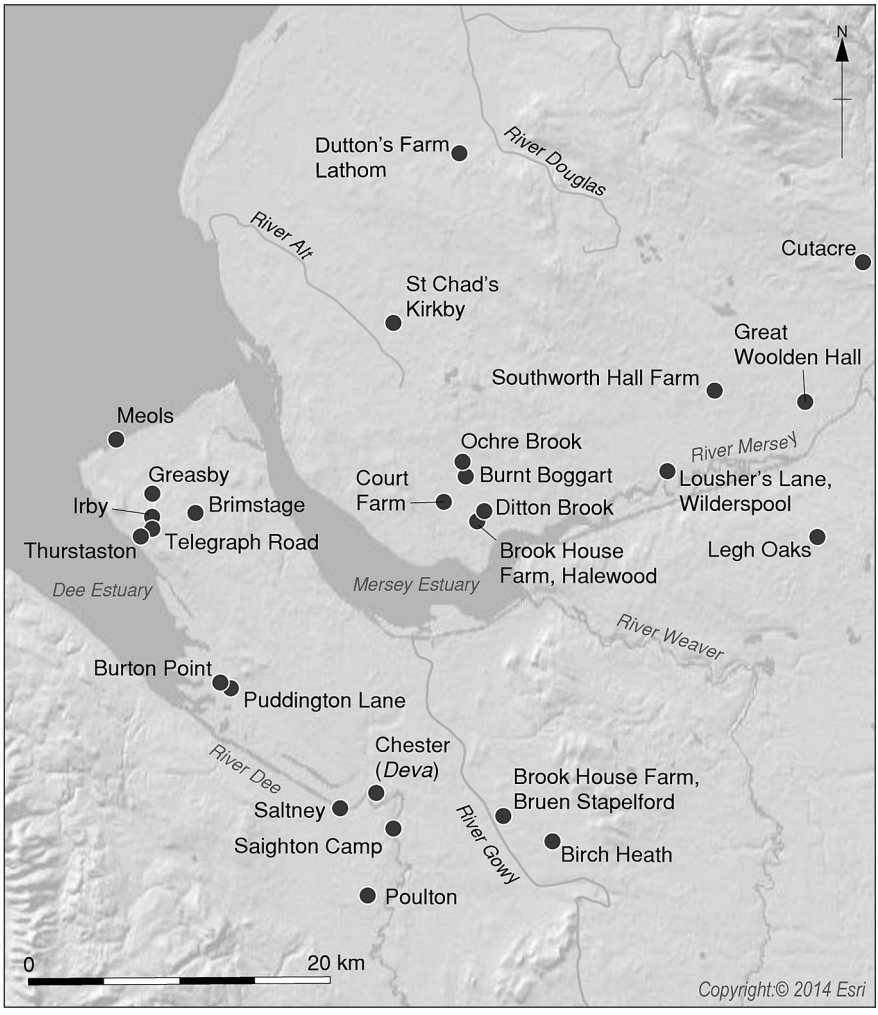
Earlier prehistoric activity

It is evident from the recovery of lithics, as surface collections and as residual items from the ditch of the curvilinear enclosure, that the Puddington Lane area was visited during the earlier prehistoric period, seemingly during both the earlier and later Mesolithic periods. Although little can be concluded about these visits on the basis of this material, they probably relate to a cycle of movement within the Wirral that in the earlier Mesolithic period included visiting sites at Greasby, Thurstaston and Irby to the north, along with several other nearby sites identified as surface scatters (Cowell 2010a). The range of these hunter-gatherer groups is difficult to ascertain, although it appears to have included areas within North Wales (*ibid*), and probably also involved movement along the Dee valley, particularly as an assemblage of early Mesolithic lithics has been recovered from Poulton (Cootes *et al* 2016, 14–23), whilst excavation on the Chester amphitheatre site produced late Mesolithic lithics (Bishop 2018, 36–9). It is also worth noting that during the earlier Mesolithic period, when sea levels were lower, this range would probably have included an area of dry land to the north-west of the present coastline of the Wirral, extending between North Wales and Morecambe Bay (Bell 2007). This area gradually shrank as a result of rising sea levels, with the present Wirral coastline perhaps coming into existence by *c* 6000 cal BC (Cowell & Gonzalez 2007).

Middle Bronze Age activity

The interior of the rectilinear enclosure produced some evidence for middle Bronze Age activity dating to 1400–1220 cal BC. It is unclear whether this related to a settlement, as the evidence consisted merely of a single hearth and two postholes perhaps forming elements of a structure. The hearth contained a large assemblage of naked barley, representing a fully processed crop, which was either the product of a cooking accident or had been intentionally dumped as food waste.

The evidence from Puddington Lane therefore adds to the small corpus of middle Bronze Age remains excavated in the Mersey Basin, which seem to fall into two broad categories: those sites that have produced clear evidence for domestic architecture, in the form of round-houses; and isolated features. The first were probably unenclosed settlements that may have been in existence for a comparatively short period of time as elements of a shifting pattern of settlement, although some sites were probably revisited following a period of abandonment. These include Irby (Illus I.23), where post-built roundhouses were present dating to the period *c* 1500–1120 cal BC, also associated with pottery. It is possible that there were three roundhouses at this site: two consecutive single post-ring houses, *c* 14m in diameter, with a porch arrangement; and another *c* 14m-diameter house positioned immediately to the south-west (Philpott & Adams 2010, 14–18). Another site with good evidence for middle Bronze Age domestic architecture has been located at Cutacre in Greater Manchester, where a post-defined roundhouse had a diameter of *c* 7m and a porch arrangement, and was also associated



Illus I.23 Prehistoric and Roman-period sites mentioned in the text. (Scale 1/500,000)

with a two-phase four-post structure, probably functioning as a malting floor; this settlement has been radiocarbon dated to the period *c* 1480–1170 cal BC (Gregory *et al forthcoming*). Another comparable site might be St Chad's, Kirkby, where a short section of gully from a probable roundhouse was radiocarbon dated to the middle Bronze Age (Adams 1995).

The other category of middle Bronze Age site comprises isolated features that perhaps represent cooking or storage pits. These sites include Ditton Brook, east of Liverpool, where a small pit containing middle Bronze Age pottery and two flint flakes produced a radiocarbon determination of 1620–1130 cal BC (3140±90 BP; OxA-3677; Cowell & Philpott 2000, 13). It seems that the evidence from Puddington Lane fits more comfortably with the latter type of site and that these were perhaps related to much more 'immediate' activity than that associated with the roundhouse sites (Cowell 2010b, 169). Indeed, this may suggest

that on the Wirral, and perhaps in other parts of the Mersey Basin, middle Bronze Age settlement was characterised by a collection of very short-term activity sites, such as that at Puddington Lane, alongside roundhouse sites, such as that at Irby, that were occupied for more sustained periods of time, but which still formed elements of a dynamic and shifting pattern of settlement.

Open and closed? Iron Age activity and settlement

Earlier Iron Age activity at Puddington Lane was represented by a hearth dating to 520–370 cal BC (SUERC-76604; 2348±30 BP), a small collection of stakeholes and a pit containing burnt material, situated just outside the site of the later rectilinear enclosure. The limited palaeoenvironmental remains from the hearth suggest that it was used for cooking, given the presence of charred wheat and barley seeds and calcined bone, with the fuel being derived from the opportunistic collection of various wood types (including fresh wood) from nearby hedgerows or woodlands. In many respects this collection of features is comparable to those associated with the middle Bronze Age activity and may again relate to an activity site of very short duration, beyond a main area of domestic settlement.

Evidence for Iron Age settlement in the Mersey Basin beyond the hillforts on the mid-Cheshire Ridge (Garner 2016) remains sparse, although there is now a handful of excavated sites, such as Great Woolden Hall, Salford (Nevell 1998) and Brook House Farm, Halewood (Cowell & Philpott 2000, 34–8). These suggest that enclosed farmsteads represented one distinct element of Iron Age settlement across the region, which were seemingly restricted to lowland areas, such as the river valleys (Wilmott & Garner 2018, 68). These settlements seem to have been created in the mid- to late Iron Age (*c* 400 cal BC–cal AD 70s), when many of the region's hillforts were undergoing major phases of construction/refurbishment (*loc cit*). These latter sites may therefore have functioned as larger 'central' places that could have performed a variety of roles, with the enclosures forming smaller settlement units that were occupied by one or more Iron Age family groups.

Both Great Woolden Hall and Brook House Farm were associated with parallel double-ditched curvilinear boundaries, although it has been suggested that the single-ditched curvilinear enclosures in the area may also be mid- to late Iron Age in date (Philpott 2010, 172). Therefore, it seems quite possible that the curvilinear enclosure at Puddington Lane represents one of these types of Iron Age settlement, which might conceivably have existed when the earlier Iron Age hearth was in use, *c* 180m to the north and hence beyond the main settlement area. However, the actual dating evidence for the Puddington Lane curvilinear enclosure is limited, although the sherd of pottery (probably a Cheshire salt container) from its basal fill seems to imply that it is Iron Age in date, broadly dating to the second half of the first millennium BC. Morphologically, this enclosed settlement was defined by a single ditched boundary and it is possible that upcast generated during the creation of this feature was used to construct an inner bank/rampart, though no evidence for this was discovered during the evaluation trenching. The size of the area enclosed is also difficult to ascertain, given that part lay on superficial geological deposits that are not conducive to cropmark formation. At a minimum it would have enclosed 0.32ha (the D-shaped area contained within the recorded cropmarks), although it is possible, if it originally formed a near-circular enclosure, that it actually enclosed 0.63ha. Both of these putative

figures fall comfortably within the overall size range of later prehistoric curvilinear settlements from the wider region, with the curvilinear enclosure at Legh Oaks (enclosing 0.31ha) being one of the smaller, whilst that at Great Woolden Hall (enclosing 1.1ha) represents one of the largest examples (Nevell 2002; 1998).

Another comparable single-ditched curvilinear enclosure has also been detected on the Wirral during aerial reconnaissance, at Telegraph Road, 1km south of Irby, associated with similar sherds of Iron Age Cheshire salt containers found by fieldwalking, and also seemingly containing three roundhouses (Philpott 2010, 176). Indeed, this settlement type might have been comparatively common on the Wirral, as another cropmark example has been found at Brimstage, also containing potential roundhouses (*loc cit*). These sites seem to have been persistent, as some of the curvilinear enclosures are also associated with surface collections of Roman pottery (*ibid*, 188–9). It is worth noting that a small promontory site at Burton Point, close to Puddington Lane, defined by an earthwork, has been posited as an Iron Age settlement (Crawford-Coupe 2005).

Whether the curvilinear enclosure was present or not when the earlier Iron Age hearth was used, what is clear is that the area to the north of this enclosure continued to form a focus for activity in the later Iron Age. This activity comprised two large, sequential roundhouses (Structures 1 and 2), with diameters of 13m, the later roundhouse being associated with a four-post structure (Structure 3) that perhaps functioned as a granary or malting floor, and also a drying rack or loom frame. These latter structures, along with limited artefactual (fragments of Cheshire salt containers) and palaeoenvironmental remains (animal bone and charred cereal grains), seem to suggest a domestic settlement engaged in a mixed-farming regime that perhaps comprised cattle husbandry and cereal cultivation. Importantly, there is very strong evidence that these domestic structures were not surrounded by a ditched boundary and hence they probably formed elements of an unenclosed, or open, settlement, which, as with enclosed settlements, was a common Iron Age settlement type in the region, dating to the mid- to late Iron Age (Wilmott & Garner 2018, 68). The modelled radiocarbon evidence indicates that the earlier roundhouse dates to *210–50 cal BC*, whilst the later roundhouse and other domestic structures seem to have been established *90 cal BC–cal AD 50*. Furthermore, as the later roundhouse (Structure 2) appears to have been a direct replacement for its predecessor (Structure 1), based on the modelled radiocarbon date ranges, it is possible that the earlier roundhouse was abandoned, and the later roundhouse built, around 50–40 cal BC.

In typological terms, the roundhouses at Puddington Lane were clearly of timber construction and fall into the 'ring-groove' tradition, where the gullies functioned as foundation trenches for the outer wall line that formed the main load-bearing element of the house, with internal posts aiding in roof support, or perhaps even supporting a mezzanine floor (Harding 2004, 33–4, 64). This domestic architectural form is common across northern Britain in the Iron Age (*ibid*), including examples from west Cheshire and the Wirral (Wilmott & Garner 2018, 65, table 8), and developed from an early Bronze Age building tradition (Pope 2015, 173). The porched entrance associated with one of the Puddington roundhouses (Structure 2) faced south-east, and again this orientation is a common trait of Iron Age roundhouse design (Oswald 1997) that may have been dictated either by cosmo-

logical concerns (the sunwise passage: Parker Pearson 1999) or pragmatic considerations (shelter from the prevailing winds: Pope 2007), or perhaps a combination of both. One other notable feature of the Puddington Lane houses is their apparently large size, which may have been linked to the status of the inhabitants or may suggest that they functioned as communal buildings.

There are several other comparable Iron Age open settlements in the region. One of these was excavated at Dutton's Farm, Lathom, where four roundhouses were present, as well as two four-post structures (Cowell 2005). The largest of the houses was 10.5m in diameter, defined by a similar gully arrangement to that defining Structures 1 and 2 at Puddington Lane; this produced radiocarbon dates of 340 cal BC–cal AD 10 (Beta-153894; 2090±40 BP) and 180 cal BC–cal AD 400 (Beta-153893; 1890±120 BP). Another possible unenclosed Iron Age settlement has been excavated at Brook House Farm, Bruen Stapleford (Fairburn 2002a). The excavated remains included two roundhouses dating to *c* 400–150 cal BC, with diameters of 8m and 12.5m, two possibly dating to *c* 150 cal BC–cal AD 90, with similar diameters of 8m and 12m, as well as a 'bow-sided' house, which dates to this latter period of occupation. Again, these roundhouses were defined by arcing gullies (ring-grooves), similar to those at Puddington Lane, and some were associated with fragments of Cheshire salt containers (*ibid*). The prehistoric evidence from the Chester amphitheatre site also includes what may well be evidence for an unenclosed Iron Age settlement, with similarities to the evidence from Puddington Lane (Wilmott & Garner 2018, 65). At this site, for instance, an arcing gully, of which two sections survived, formed the wall line of a roundhouse *c* 8.4m in diameter, with a posthole and pit within its interior. The Chester amphitheatre roundhouse was associated with a four-post structure, in a similar fashion to the Phase 4B roundhouse at Puddington Lane, although this had two phases, and the settlement also produced fragments from Cheshire salt containers; radiocarbon dates from the four-post structures suggest that this settlement dated to the period 400–200 cal BC (*ibid*). It is also worth noting that several arcing and intercutting gullies were excavated to the south of Chester, at Poulton, which were fairly substantial in nature (Cootes & Emery 2014). One of these (Ring Ditch III), which was radiocarbon dated to the period *c* 375–50 cal BC, with an east-facing entrance, had an internal diameter of *c* 13.7m, thus being comparable in scale to the extrapolated gullies at Puddington Lane. This, and the other gullies, also contained similar cultural material to that at Puddington Lane, in the form of burnt stone, animal bone and Cheshire salt containers. At least one of the gullies also appears to have secured timber uprights, which may suggest that it and the other gullies were the remains of large Iron Age roundhouses, which perhaps, again, formed an element of an unenclosed settlement.

Two other potential Iron Age unenclosed settlements might have been identified on the Wirral, although the evidence for these is patchy. One might be at Irby, where scatters of postholes could relate to two post-defined roundhouses that were seemingly established prior to the site being enclosed in the Roman period (Philpott & Adams 2010, 24). Four putative Iron Age roundhouses have also been noted at Meols (Philpott 2007, 386–7), which might conceivably represent an unenclosed settlement. However, this may have been set apart from other Iron Age settlements, as it is quite possible, on the basis of 'exotic' Iron Age finds from the site, that it functioned as a trading settlement, or emporium, during this period (Matthews 1996; 1999).

Unenclosed settlements seem therefore to be a strong component of the record of Iron Age settlements, complementing the enclosed settlement types. However, perhaps the most important point is that the Puddington Lane roundhouses could represent a satellite to the curvilinear enclosed settlement to the south, or they may have been established following the demise/abandonment of this settlement. In any event, it seems to highlight the complexity of Iron Age settlement in the Mersey Basin, suggesting either the close association of enclosed and unenclosed settlement types, or the rapid shifting from one form of settlement type to the other. If the former was the case, it might even suggest the presence of an extensive Iron Age settlement at Puddington Lane.

Rectilinear and curvilinear: two Romano-British enclosures?

It seems quite possible that during the late first century AD the rectilinear enclosure was created on the site of the unenclosed Iron Age settlement. As with the adjacent curvilinear enclosure, this was defined by a single ditched boundary, possibly associated with an internal bank, although no evidence for this latter feature survived. In addition, there must have been an entrance through the boundary into the enclosure, but again no evidence for this was found within the area investigated. This settlement enclosed 0.38ha and thus is seemingly of 'standard size' when compared with some of the other ditched rectilinear enclosures in the region, such as that at Southworth Quarry, Winwick (Moore 2014), which enclosed *c* 0.36ha, and Irby, which possibly enclosed *c* 0.32ha (Philpott & Adams 2010, 32).

At Puddington Lane, it is difficult to be clear whether the establishment of a rectilinear enclosure represented a process of conversion (ie the Iron Age open settlement was still occupied when the enclosure was created) or if the earlier settlement had been abandoned for some years before the enclosure was created, although the radiocarbon dates and early Roman pottery may hint that the former was the case. The assemblage of Roman pottery also indicates that, once created, the rectilinear enclosure was in use throughout the Roman period, from the mid- to late first century AD through to the second half of the fourth century. This may in itself be significant as, Irby aside, many of the other Roman rural sites in the Mersey Basin appear to have been abandoned by the early third century (Nevell 2005, 116). This may imply that Roman sites on the Wirral were more sustainable, which could in part be due to their proximity to, and economic relationship with, Chester (Philpott 2005, 85).

This pattern of the conversion of an open settlement into an enclosed one may not be particularly unusual, also perhaps occurring at Irby, where a potential unenclosed Iron Age settlement was also the site of a Roman palisaded enclosure, later replaced by a ditched enclosure (Philpott & Adams 2010). At Puddington Lane, though, what is interesting is that the artefactual evidence seems to suggest that the adjacent, and earlier, curvilinear enclosure was also used in the Roman period, which raises the question of the degree of intensification of settlement in the neighbourhood of the Roman legionary fortress at Chester, founded in the mid-AD 70s (Mason 2012, 49–50). Rob Philpott (2013) has suggested several possible explanations for the existence of two sites so close together: they may have performed different functions, whether for different combinations of agricultural, dwelling, or small-scale craft industrial use; they may have been in different ownership; or one may have been a daughter settlement of an established settlement of Iron Age date, indicating a fission of holdings as a result of population growth within a family or kinship group.

Fortunately, the archaeological evidence sheds some light on the function of these two enclosures. It is possible, for instance, that, on the basis of the recovery of industrial waste from the ditch fills, in the Roman period the curvilinear enclosure was given over to small-scale industrial use in the form of metalworking. In contrast, the evidence from the rectilinear enclosure seems more normal for domestic occupation, comprising several hearths and an oven, possibly used for cooking and, in the case of the oven, baking, or drying cereals. The dumping of midden material into its ditch also gives credence to the domestic nature of the site, as do the earlier Roman-period buildings, which might conceivably represent domestic structures. The limited animal remains suggest that the economy included cattle and sheep husbandry. On the basis of the oven, this may have been undertaken in tandem with cereal cultivation, although it was notable that few of the charred cereals date to the earlier Roman period, which may imply more of a reliance on pastoral farming. The pottery included locally produced oxidised and reduced coarsewares in a narrow range of forms, primarily jars, together with a few exotic imports that could be significant for the interpretation of the site.

This pattern of domestic use seems also to have continued into the later Roman period, because of the presence of hearths, again seemingly used for cooking as opposed to metalworking, together with the discovery of later Roman mortaria from the enclosure ditch; however, there appears to have been an absence of later Roman structures in those parts of the rectilinear enclosure subjected to excavation. More generally, the pottery assemblage dating from this period is much better preserved than the earlier assemblage, containing a wider range of form types, including wares from some distance. These include black-burnished ware 1 jar and bowl forms, Nene Valley colour-coated wares from the start of the third century AD, and Mancetter-Hartshill mortaria and Oxfordshire wares coming into use from the later third and into the fourth century AD. Although far fewer in number than previously, there is evidence that oxidised wares (including pulley-rim and wide-mouthed Severn Valley or imitation jar forms, which are typically late at Chester; P Carrington *pers comm*) were still being procured and used during the third and fourth centuries. The South Midlands shell-tempered ware and Oxfordshire parchment wares indicate that activity continued well into the late fourth century.

The economy of the later Roman-period settlement again included cattle and sheep husbandry, but, perhaps significantly, frequent charred barley and wheat grains were present in one of the hearths. This could suggest that cereal cultivation became a more pronounced feature later in the Roman period.

All of this evidence seems to indicate that the rectilinear enclosure probably functioned as a small farmstead next to an earlier enclosure potentially associated with a more industrial process involving metalworking. Throughout the Mersey Basin it seems that these rectilinear enclosures were a common feature of the Roman landscape, with excavated examples known from Southworth Quarry, Winwick (Moore 2014), Irby (Philpott & Adams 2010) and Ochre Brook (Cowell & Philpott 2000, 107). Together with Puddington Lane and Irby, at least one other rectilinear settlement on the Wirral peninsula has been identified through aerial photography and fieldwalking. This is at Greasby, and has produced a surface collection of Roman pottery (Philpott 2000, fig 8.3; 2010, 189). However, one predominant feature

of the Puddington Lane enclosure was that the ditch was not maintained and was seemingly used as a convenient place to dump refuse, particularly on its northern side. The effects of this dumping, coupled with natural silting during the later Roman period, meant that the boundary effectively disappeared, and hence the definition of the settlement area may have been less of a priority. It can, therefore, be tentatively suggested that the settlement became more open during this period; again, this would not be out of place regionally, as open settlements did exist, such as that at Court Farm, Halewood (Adams & Philpott *forthcoming*), and probably Birch Heath, Tarporley (Fairburn 2002b).

Roman buildings and veterans?

Another potentially significant feature of the rectilinear enclosure relates to its architecture. It is clear that, at many Roman-period farmsteads in the Mersey Basin, roundhouses continued to be favoured for domestic purposes, continuing the local Iron Age vernacular (Philpott 2010, 193–6). Other types of domestic buildings associated with rural settlements in the area included a distinctive class of bow-sided or oval-shaped houses, identified at Brunt Boggart (Tarbock), Court Farm (Halewood), and Lousher's Lane (Wilderspool) (Philpott 2000, fig 8.4); based on the evidence from Brook House Farm, Bruen Stapleford, the origin of these buildings again seems to lie in the Iron Age. In contrast, although highly fragmentary, the earlier Roman-period structures (Structures 4 and 5) at Puddington Lane in the rectilinear enclosure seem to have been rectangular timber buildings. The better preserved of these (Structure 4) used a combination of earthfast posts and a construction slot, which in this context most likely indicates the 'post-in-trench' building technique (Hanson 1982, 171). It is also possible that this building was constructed using iron nails, given the recovery of a large example from a Phase 5 ditch fill, and was also subjected to repair/rebuilding, implying that it stood for an extended period. As far as can be ascertained, this building seems to have measured 3 x 7m, and was divided into two cells.

Rectangular timber buildings have been discovered in some Roman-period rural settlements in the area, at Irby, Ochre Brook, Saltney and Saighton Camp (Philpott 2010, 196; Wood 2016), and possibly at Birch Heath, Tarporley (Fairburn 2002b, 66–8), although the plans of some of these are incomplete. In terms of size, where it can be determined, these were larger than the structures (or at least Structure 4) at Puddington Lane, and hence, if they were dwellings, they were perhaps designed to house a larger group (perhaps an extended family). For instance, the complete plan of a tapering mid- to late second-century AD rectangular building at Ochre Brook measured *c* 6.5 x 11m (Cowell & Philpott 2000, 72), whilst at Irby a rectangular building dating to the mid- to late fourth century AD was 6.6m wide and at least 11.5m long (Philpott & Adams 2010, 49). Similarly, at Saighton Camp, three rectangular timber buildings measured 6.5 x 14m, *c* 5 x 9m and *c* 7 x 12m (Wood 2016, 9).

Although rectangular rural buildings do occur, rectangular architecture seems to be more commonly associated with Roman military installations, such as forts and military-controlled production sites, and the *canabae*/*vici* of the region (Bidwell & Hodgson 2009; Sommer 1984; 2006). There is a sense, then, that the rectangular buildings at Puddington Lane (and presumably some of those recorded at the other rural sites in the region) represent a more 'Romanised' type of building, particularly as, at Irby, between the second and fourth centuries

AD, 'traditional' circular buildings seem to have continued to form the main type of domestic architecture (Philpott & Adams 2010, 37–44). The smaller size of the buildings at Puddington Lane, compared with the other rural sites with rectangular buildings, may also suggest that these acted as the dwellings for a nuclear as opposed to an extended family unit. Significantly, further evidence for the 'Romanised' aspect of the Puddington Lane rectilinear settlement seems to be provided by the pottery assemblage. For instance, the earlier Roman material, almost certainly contemporary with the rectangular buildings, includes imports of South Gaulish samian wares and Lyon ware, both of which consist of specialised forms such as cups and bowls. Indeed, the Lyon-ware beaker and the rusticated jar were types particularly associated with the army (Heke & Ward 2012, 111). Interestingly, it is notable, in comparison with the Roman pottery from Irby, that there were no fabrics or forms to suggest a military influence or connection at the latter site (Griffin 2010). This 'Romanised' pattern can also be seen in the later Roman assemblage from Puddington Lane, which has a wider range of non-local wares from the third century AD onwards.

Two scenarios may therefore be posited. The first is that the close proximity to the fortress at Chester, some 10km distant, may have increased the availability of the more unusual fabrics and forms, and so led to the character of its pottery assemblage, and presumably could also have influenced the adoption of particular types of architecture. The second, more specific, scenario is that the Roman army, possibly in the form of veterans, was directly responsible for establishing and using the rectilinear enclosure, at least in the earlier Roman period. Support for this may be found in the fact that some or all of the Wirral may have formed the *prata legionis*, the legionary lands attached to the fortress at Chester (Mason 1988; Carrington 2012, 344–5), and it has previously been noted that the potential for south Wirral to have hosted farms of legionary veterans from Chester is high (Philpott 2013). If that was the case, these veterans may also have been responsible for dividing the landscape into regular plots, which might explain the presence of the boundary beyond the rectilinear enclosure, apparently relating to land division.

Medieval settlement?

It is clear that at some point between the mid-eleventh and early thirteenth centuries three hearths were used in the interior of the former rectilinear enclosure, most probably for cooking. By this stage its boundaries may have been barely visible, and it is unclear whether these hearths relate to short-term, transient activity or a more concerted phase of settlement at the site. Although some Roman-period enclosed sites in the area, such as Irby (Adams & Philpott 2010), functioned as settlements in the early and later medieval periods, these were associated with both timber buildings and buildings with stone foundations, but no such remains were present in the excavated areas at Puddington Lane; however, these could conceivably have lain in other parts of the enclosure. Similarly, only a very small assemblage of medieval pottery was recovered from the rectilinear enclosure (thirty-three sherds, all from post-medieval contexts; summarised in Adams 2017), which might suggest that activity was limited and temporary in nature. Again, however, it is worth noting that at Irby only thirty-six sherds of medieval pottery were recovered (Edwards 2010); hence the general absence of medieval ceramics from Puddington Lane need not necessarily imply an absence of settlement.

Conclusions

Although investigation since the mid-1980s has provided evidence for a scale and diversity of later prehistoric and Roman-period settlement across the Mersey Basin and Cheshire that was previously unsuspected, many of these sites have only been identified by aerial photography as cropmark enclosures and have been dated on the basis of their morphology and limited fieldwalking evidence (Collens 1994; 1998; Nevell 2003; Philpott 2005). The results from Puddington Lane therefore provide much-needed data on their date and character, particularly of those sites that can be morphologically classified as curvilinear and rectilinear. However, the site holds additional significance in that it has produced evidence for multi-period activity that both precedes and succeeds the establishment of the enclosures, with particularly good evidence for this being uncovered during the excavation of the rectilinear enclosure. This suggests that Puddington Lane was an attractive site for activity and settlement over an extended period, and consequently its excavation provides some insights into the nature and form of settlement in the southern part of the Wirral peninsula, and also in the wider Mersey Basin.

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