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RETHINKING EARLY MEDIEVAL 'PRODUCTIVE SITES': WEALTH, TRADE, AND TRADITION AT LITTLE CARLTON, EAST LINDSEY

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ABSTRACT

The rising popularity of hobbyist metal detecting has provided early medieval scholars with various important new datasets, not least the concentrations of metalwork commonly known as 'productive sites'. Awareness of these foci derives almost exclusively from archaeological evidence, yet they continue to be interpreted through a documentary lens, and are frequently labelled 'monasteries'. Using the recently discovered site of Little Carlton, Lincolnshire, as a case study, it is argued that comprehension of metal-rich sites is significantly furthered by turning to archaeologically-orientated research agendas and terminologies. As a consequence, seventh to ninth-century Little Carlton can be understood as one element of a high-status 'meshwork' within early medieval East Lindsey, in which elite power was articulated in the landscape through a number of contemporary centres. On site, archaeology indicates the presence of occupation, burial, and craft working, but shows that highly symbolic indigenous practices were taking place too, including intentional deposition into a naturally-occurring pond. Evidence for activity either side of the seventh to ninth centuries also stresses the importance of long-term trajectories in shaping the character of places previously celebrated for their finds-rich phases alone.

INTRODUCTION

In England, the period of the mid-seventh to mid-ninth centuries has proved the least well understood and most frequently neglected in early medieval archaeology. Materially it is less visible than the period immediately preceding, but it also possesses fewer written sources than that which follows. The seventh century is a time characterised by the adoption of unfurnished burial, and the apparent abandonment of monumental hall complexes by their elite occupiers. Even on lower-status settlements, *Grubenhäuser* were rarely constructed after the eighth century, eliminating for archaeologists a key feature detectable through aerial photos and artefact scatters in the ploughsoil. Understanding of this hitherto obscure period, however, has been transformed over recent decades by an unlikely ally: the hobbyist metal detectorist. Increasing numbers of detectorists now conduct their work in a responsible manner, and from 1997 have been able to report their finds to the Portable Antiquities Scheme (PAS) for the benefit of the public and researchers.[1] In Eastern England especially, this work has resulted in a vast new dataset from the seventh and ninth centuries, and new terminology to describe these concentrations of material.[2]

The story of the scientific investigation of a site in the parish of Little Carlton in Lincolnshire has much in common with other, well-recognised sites of the period, such as such as Brandon in Suffolk and Flixborough in Lincolnshire.[3] The research team quickly realised that activity was spread across a wide area, however attempts to establish the character and overall development of the site stand on less secure ground. This is partly a product of finite resources; from the outset, it was acknowledged that even an extensive and lengthy research programme would

[1] For a review of the historiography of metal-detecting research, see Lewis 2016.
[2] For a discussion of Middle Saxon productive sites discovered by metal detecting in Lincolnshire, see Daubney 2016.
[3] Loveluck and Atkinson 2007; Tester *et al* 2014.

characterise only a sample of a complex archaeological landscape. Over the gestation of the project, concerns around the existing frameworks of early medieval elite centres also began to be recognised, issues that would have impinged interpretation even of a fully-excavated site. Scholarship in the subject area continues to be inhibited by cumbersome terminology and understanding primarily framed by document-derived agendas and narratives. This is not to suggest that written sources should be ignored or disregarded; the early medieval period is undoubtedly one that is enriched through interdisciplinary approaches, and the present analyses of Little Carlton certainly draw on a range of academic endeavour. Likewise, this work does not seek to undermine the efforts of individuals who have led the direction of scholarship to date, and whose thought has often profoundly shaped how Little Carlton is understood.

Greater effort is needed, nevertheless, to place archaeology at the forefront of academic understanding, especially when interpreting sites such as Little Carlton for which no early medieval documentary evidence exists. Indeed, the floruit of occupation at Little Carlton, which is dated to between the seventh and ninth centuries, is a period which should be approached principally through material remains; the nature of archaeology ensures that new data is always being produced in a manner unmatched by any other discipline. As the corpus of material increases so does the need for more appropriate frameworks, and not those stemming from an understanding of the written record. Therefore, in addition to providing a detailed overview of the findings from Little Carlton, this paper attempts to develop a new, archaeologically-orientated research agenda for early medieval sites found through metal detecting. It will be argued that the distinction between 'secular' and 'ecclesiastical' has been drawn too sharply, and that labelling sites as 'minsters',

'monasteries' or 'secular estates' otherwise adds little to how these communities and their activities are appreciated. Similarly, whilst elaborate metalwork has long been the beneficiary of acute scholarly attention, celebrated as exotic proof of an exciting new environment of international trade and wealth from the seventh century, archaeology amplifies equally the importance of longer-term, more ephemeral, and undocumented indigenous practices integral to the daily lives of those living at Little Carlton.

A key component of formulating a distinctive, archaeologically-orientated research agenda is the deployment of suitable and meaningful terminology. Little Carlton, and other sites across eastern England that have yielded impressive early medieval metalwork assemblages, have in the past been coined 'productive sites'.[4] From its earliest usage, though, the term has been recognised as problematic. Not only have the histories of retrieval of 'productive sites' given them distorted prominence, the catch-all term also renders homogenous what is in all likelihood a variety of site-types, just ones which have the shared trait of yielding metalwork.[5] This latter issue is compounded by the limited archaeological exploration dedicated to the majority of sites, hampering the potential for comprehensive analysis. Indeed, even in cases where recovery of metal-detected assemblages has been followed by archaeological intervention, the extent to which activity can be accurately categorised remains highly contested.[6]

The term 'productive' also has the unfortunate added potential to be entirely misconstrued, especially by non-specialists. Alluding to the great returns offered to

[4] Loveluck 2007; Tester *et al* 2014.
[5] Richards 1999, 77–9; Leahy 2000, 51.
[6] Tim Pestell highlights some of the problems with the terms 'productive' and 'prolific', but also stresses that both terms are shorthand (Pestell 2011, 562-3). An alternative to the new nomenclature we have proposed here is to emphasise the adjectival nature of 'productive' a premise adopted by scholars previously (see Ulmschneider & Pestell 2003).

metal detectorists, the expression is easily misread as denoting a place of *past* industry or production rather than one derived from *present-day* recovery patterns. Excavation has demonstrated centres of manufacture in some instances, including at Little Carlton, but activity across different sites almost certainly varied, and many metalworking foci are better interpreted as temporary locations with an emphasis on exchange rather than production. It is clear, then, that the 'productive site' has little to commend it and that alternative terminology is required. 'Metal rich' and 'metal detected' will be used interchangeably here, both representing preferable alternatives that at least indicate something of the artefact signature of a site or its method of identification by archaeologists.

THE DISCOVERY OF LITTLE CARLTON

In 2011 metal detectorist Graham Vickers started to work in fields in the eastern portion of the parish of Little Carlton. It is highly likely that earlier unrecorded metal detecting had previously taken place at the site. There is anecdotal evidence that two elaborate gold finger rings, dating to the ninth and tenth centuries, along with a silver gilt filigree pin head, came from Little Carlton.[7] All of these items were sold at auction, however, and none of them can be attributed to the site with any confidence.[8] Fortunately, Graham's subsequent work was far more it systematic, and as he detected he diligently recorded the find spot of each item with a hand-held Global Positioning System. He also retained not only precious metals and copper alloy, but also lead and ironwork, as well as collecting surface finds of ceramic and glass,

[7] Daubney 2016, 256.
[8] Sotheby's "European Sculpture and Works of Art", London 16 December 1998; Christie's "Jewels: The London Sale", London 9 June 2010, lot 123.

resulting in an extremely comprehensive collection of archaeological material. The finds are distributed over a distinct elliptical area measuring approximately 250m x 350m, surrounding the redundant parish church of St Edith (fig 1). Although this assemblage includes a small quantity of Roman, later medieval and early modern material, the vast majority dates to between the seventh and ninth centuries AD. It was only when Graham started to register his finds with Adam Daubney at the PAS in Lincolnshire, however, that the true scale and importance of his efforts became clear.

Before this metal-detecting, the only indication of pre-Conquest activity at Little Carlton was identified during the demolition of St Edith's Church in 1993,[9] when a fragment of limestone grave cover was found within the rubble fill of the later medieval nave wall. Decorated with a figure-of-eight pattern and dating to the tenth or early eleventh century, the piece first raised the probability that an earlier medieval church once occupied the site or was located somewhere else in the immediate vicinity. [10] Despite this identification, a number of subsequent watching briefs adjacent to the church failed to locate any further evidence for early medieval activity.[11] This history of research serves to emphasise the limited efficacy of certain archaeological evaluative techniques for locating the often ephemeral material signatures of the earliest medieval centuries, but also stresses the value of systematic and responsible metal-detecting. To date over 800 non-ferrous small finds from Little Carlton have been recorded by the PAS, although this number represents a fraction of the overall finds assemblage. Unrecorded by the PAS, for instance, is over 6kg of worked lead objects, 30kg of lead melt and waste and over 26kg of pre-Conquest pottery, all of which was collected by the detectorist. Even though much of the early

[9] Field 1994.
[10] Everson and Stocker 1999, 221–2.
[11] Cope-Faulkner 1997a, 1997b.

medieval assemblage is hard to date precisely, coins and those artefacts that are more chronologically distinctive suggest an intensity of activity between the mid-seventh and mid-ninth centuries AD. The assemblage from Little Carlton, therefore, represents the largest concentrated surface collection of finds of this date from Lincolnshire and is also one of the most important and best-recorded assemblages of the entire early medieval period from anywhere in England.

TOPOGRAPHIC SETTING

Little Carlton is situated approximately 7.5km to the east of Louth, on a band of glacial till that forms the edge of the Lincolnshire Wolds. Lying on the 5m contour, the site is located at the point where two streams, the Beck and the Long Eau, empty into the tidal flats of the Lindsey Marsh, at what would have been in the seventh century the interface between the coastal wetlands and the habitable shore. The concentration of metal-detected finds at Little Carlton closely corresponds with the topography of the site; LiDAR and UAV data shows the artefact scatter restricted to an area of slightly raised land between two watercourses, and although the surrounding area is now under cultivation, this has only been the case for the last few decades (fig 2). Maps dating to the nineteenth century record field names to the south of the site as 'Little Fen' and 'Horse Fen', whilst to the north is 'Engine Fen', all of which allude to low-lying marshy areas unsuited to permanent settlement.

In contrast, the field from which the majority of the metal-detected finds originates was once known as 'The Bruff', possibly a mutation of the Old English *burh* suggesting the presence of an enclosed and more enduring habitation.[12] Until the natural development of a protective storm beach during the eleventh century, the

[12] Daubney 2016, 262.

landscape of the site would have experienced tidal inundation and elevated water levels compared with those today.[13] Indeed, when reconstructing the former topography, it is notable that a rise of just 1m above present water heights results in almost the entire site being surrounded, creating either an island or an isthmus connected by a narrow causeway (fig 2). Little Carlton in the seventh century thus sat at a nodal point, on the edge of the Lincolnshire Wolds but directly connected to the North Sea. Although this setting offered a range of valuable natural resources, arguably it was the accessibility to networks of transport and trade that impacted most on the development of the site throughout the medieval period.

The first stage of fieldwork comprised a magnetometer survey, which revealed surviving subsurface anomalies restricted to the area of the island and closely mirroring the distribution of metal-detected finds (fig 3). The most substantial of these anomalies was curvilinear and visible on the eastern, southern and western sides of the island. Interpreted as a boundary ditch, the purpose of this feature was subsequently demonstrated through excavation. The ditch was truncated to the north-east by modern land drainage works and, although it is not detectable in the north-west, this is probably the result of heavy truncation by modern ploughing. Within the enclosed area the geophysical survey showed a series of rectilinear anomalies, with a particular concentration to the north of St Edith's Church. In the southern part of the site, to the south of the modern road, further anomalies were also discernible. One of these was an area of high magnetic variation immediately outside the boundary ditch, potentially related to some form of high-temperature activity. In the south-western area an anomaly which appeared to represent a ring-ditch corresponded with a gap in the line of the enclosure.

[13] Owen 1984, 46; Wright *et al* 2015, 25.

EXCAVATIONS

Evaluation trenches

The results from the geophysical survey informed an initial excavation strategy comprising nine evaluation trenches, located with the aim of characterising archaeological deposits and their state of preservation (fig 4). Eight of the trenches were situated to the north of St Edith's Church, five targeted linear anomalies (Trenches 1–4 and 7), and two were positioned over 'blank spaces' with no detected anomalies (Trenches 5–6) to act as control samples. Trenches 2 and 3 were located over a strong right-angled anomaly, identified as a later medieval field boundary. Trench 2, however, also demonstrated that the boundary was cutting a gravel surface, orientated east-west, and from which was recovered early medieval ceramics and a single Series QIG Sceat (*c* AD 725–45). The majority of features identified in other trenches consisted of shallow ditches or gullies, possibly representing fence lines, and forming a series of discrete enclosures (fig 5).

Trench 8 was situated to the south of the road, targeting the presumed boundary ditch and adjacent high magnetic anomalies. Excavation identified a ditch, measuring 2m wide and 1.5m deep, revetted on its south-facing inner slope with a series of partially surviving wooden posts. One of the supporting posts was radiocarbon dated to AD 656–769, at 95.4 per cent probability (Beta Lab-504572). To the south of the boundary ditch was a band of relatively compact dry land which seems to have been the focus for an intensive phase of industrial activity, before dropping off in height sharply to the south at what was the seventh-century shoreline. This was evidenced by the formation of a thick layer of dark water-lain peat, which contained a high concentration of butchered animal bone and ceramics, primarily

local Maxey Wares. Here, as elsewhere on the site, the animal bone assemblage was dominated by young pigs and mature cattle, with smaller numbers of other domesticates and wild animals. This is suggestive of extensive meat consumption and likely feasting taking place, similar to the pattern observed during the 7th and 8th-century phases at Flixborough.[14] A line of parallel posts was visible running west-east on the edge of the former water's edge, suggesting that a small boardwalk or wharf was present at this point. In the area between the water's edge and the boundary ditch, the evaluation trench revealed a circular hearth base 1.8m in diameter (fig 6). Although heavily truncated by ploughing, this feature was associated with a significant quantity of lead working waste and slag. Also found close by the hearth was a small lead object 0.6m in length (fig 7). This had a rough triangular underside formed through being cast into an irregular hollow, although the upper surface was flat and intentionally inscribed with a lattice character similar to, but not precisely the same as, a runic 'ng' and a figure-of-eight symbol. The object has been intentionally notched on either side with sharp knife cuts, and appears to have been used as a measure or tally. Two very similar objects were found at the contemporary site of Flixborough, Lincolnshire, one with a similar lattice design, where they too were interpreted as tallies.[15]

The final evaluation, Trench 9, measuring 20m x 1.5m, was located in the northernmost area of the site, just within the boundary ditch as visible on the geophysics. This excavation was positioned in an area where parts of human bone were visible in the topsoil, and it was anticipated that a cemetery might have existed in this location. Upon removal of the ploughsoil, however, it was clear that there were

[14] Buffa 2016; Dobney *et al*. 2007.
[15] Wastling 2009, 338.

no burials within the confines of the trench. It was concluded that the skeletal material must have derived from a cemetery close by which had been dragged by the plough, a process which had also removed virtually all stratified deposits in the area. Despite this, there were clear indications of industrial activity, with a portion of surviving natural soil being highly burnt, presumably by a furnace or hearth located above. The hearth was associated with a shallow, curved and steep-sided ditch, which enclosed the feature. It is uncertain whether this was as a way of controlling groundwater, or if the feature had a more symbolic function, delineating the activity within the settlement space. Once the furnace had gone out of use, it appears to have been deliberately dismantled, and elements of its superstructure, as well as a quantity of slag, were recovered from the fill of the surrounding ditch.

Open area excavation

Following the results of the evaluation trenches, two open area excavations were undertaken to characterise further the most complex zones of archaeological activity. Area A, measuring 21m x 25m, was located in the south-eastern corner of the enclosure and targeted two anomalies detected by the geophysical survey; the 'gap' in the enclosure ditch, perhaps representing an entrance, and a circular feature, initially interpreted as a ring ditch (fig 8). On removal of the plough soil it became immediately apparent that there was, in fact, no break in the enclosure at this point, and rather the misleading geophysical effect was probably caused by ditch fills with slightly varying magnetic properties. The boundary ditch [007] was found to be of the same proportions encountered in the excavations in Trench 8 to the west, being around 2m wide and 1.4m deep, with evidence for at least one phase of re-cutting and

an internal bank which, given the lack of material culture present, had been deliberately backfilled into the ditch once the site had gone out of use (fig 9). External to the boundary ditch to the east was a berm of land (091), between 2m and 4m wide before the original land surface dipped away and deposits of water-lain peat were encountered (005). When sampled this deposit contained significant quantities of small finds, although significantly a much lower density of animal bone than Trench 8 on the southern edge of the island. This differential pattern suggests that dumping of waste into the water's edge was zoned across the site, and this area at least experienced little or no disposal of food waste.

The circular feature [201] seen on the geophysical survey was more ephemeral on excavation but proved to be 1.5m-1.6m in width and between 0.5m–0.6m in depth, with a shallow-sloped inner edge (fig 10). No datable material was found in any sections dug across the ditch, and it appears to have silted up quickly with a sandy deposit. Although the enclosed space of the feature had clearly been flattened by recent agricultural activity, it consisted of a much lighter, sandier, soil than the surrounding area, and can confidently be interpreted as the ploughed-out remains of a burial mound. Unfortunately, no material culture was recovered that can positively date the construction of the monument, although significantly this zone contained a far higher density of flint flakes and debitage than encountered anywhere else on the site, suggesting a Bronze Age origin.[16]

Inserted into the enclosed area of the former mound and its ditch were a large number of inter-cutting inhumations. Due to their shallow depth, the upper portions of the burials had been severely truncated by modern ploughing, whilst those at a lower depth had been in some cases been repeatedly bisected at approximately 1m intervals

[16] Peter Chowne pers. comm.

by agricultural dragged-mole drainage. As a result, the inhumations were in a highly fragmented and degraded state, and many only survived as disarticulated remains. Despite these conditions, fifty-eight individual grave cuts were discernible across the excavation area, probably representing only a small proportion of those originally present. Twenty-three of the burials were selected for excavation, and the remaining thirty-four left *in situ*. Analysis has shown that this was a mixed population with males, females, adults and juveniles all represented (see Appendix SM1)

All of the burials were aligned on a west-east axis, and from the position of the skeletons and the shape of the grave cuts, many were presumed to originally to have been coffined, a fact confirmed by the occasional survival of small elements of iron strapping. These fittings were frequently found unstratified, though, having been scattered from their original burial positions by later agricultural activity (fig 11). The use of wooden coffins on the site was evidenced more compellingly by a single burial to the north of the trench. Directly underlying a slightly later burial, SK64, this earlier grave was slightly deeper than the silted-up ditch of the burial mound through which it had been cut, and as a result was more waterlogged. Here an elongated wood stain with slightly curving sides and elliptical ends could clearly be discerned, indicative of a hollowed log, rather than a planked, coffin (fig 12). To the immediate west, at the head end of the burial, the base of a circular post 0.18m in diameter also survived as a stain indicating that, in this case at least, an organic marker had been used to indicate the presence of the grave. On excavation, the burial proved to contain the remains of an adult (SK65) one of whose teeth provided a calibrated radiocarbon date of AD 660–770, at 95 per cent probability (Beta Lab-442776). The suggestion that many of the dead were buried in coffins is significant and bears a resemblance to the recently-excavated cemetery at Great Ryburgh, Norfolk, where 89 interments in loosely

organised rows were placed in hollowed logs, with a further six in planked coffins.[26] Dating to the eighth century, it has been suggested that the Great Ryburgh burials represent part of an early Christian community, and were found in association with a small timber building interpreted as a church.

Sixteen burials that were sufficiently undisturbed to be studied osteologically (Appendix SM1). Of these, fifteen appeared to have been buried supine, and one flexed and slightly on their right side (SK54). One of the supine burials, SK46, proved to be particularly revealing about both the burial rite and the possible later disturbance of the skeleton (fig 13). A female aged 24–40 years, unlike most of the other inhumations, had clearly been tightly bound before burial, the distance between the left and right scapula being around 0.15m, and there was no evidence from the grave cut or iron fittings for the presence of a coffin. Although the tightly bound torso had been placed supine, the head was detached and lay face down about 0.10m from the neck. The arrangement of the legs was also unusual; the femora had detached and rotated so that the femoral heads pointed laterally, away from the pelvis. The lower legs also appear to have been tightly bound and in the correct supine position, but disjointed from the femora and a little distance to the north. The reason for the movement of the femora is unknown; in coffined burials where there was room for movement, this might be explained as a natural post mortem phenomenon. The clear evidence for the very tight binding of the body makes this unlikely. However, and the degree of disarticulation of the lower limbs and head suggests that the individual had either died elsewhere and only subsequently been interred in this location sometime later, or their body had been subject to interference many months if not years after it was first interred.

[26] Fairclough & Sloane 2017.

A second open excavation, Area B, measuring 20 x 20m was located in the field to the north of the church (fig 14). The target of this trench was geophysical anomalies suggestive of several enclosures, and it was anticipated that evidence for domestic occupation would be identified. Following the removal of the ploughsoil and a thick layer of water-lain clay that capped most of the exposed area and sealed the early medieval deposits, a sizeable subcircular feature approximately 15m in diameter could be seen in the south-western corner of the trench. Around half of this feature lay within the confines of the trench, and it contained a black organic-rich sediment (1031). Upon excavation, it was clear that this feature was in fact a shallow-sided pond, or pool, fed by the underlying water table. Indeed, despite extensive land drainage having taken place in the field for over a century, on the removal of the pond sediments during excavation it continued to fill with groundwater. It appears that this feature was naturally occurring and predated the settlement of the site; the primary fill (1107) of the pool, which was up to 0.25m deep towards the centre, was utterly devoid of any material culture and consisted only of fine water-lain silts and some small wooden twigs preserved as lighter coloured stains.

Overlying this initial silting was a deeper homogeneous deposit (1031), up to 0.45–0.50m thick in places and almost black in colour due to the high concentration of charcoal. This context also contained a very considerable quantity of cultural material, including animal bone, ceramics including local Maxey-type Wares, Ipswich Wares and Badorf Ware, and several fragments of vessel glass (see Appendix SM3 for a summary of excavated and field walked ceramics). On the basis of this remarkable finds profile, it appears that the pond was used as a feature for dumping domestic waste from elsewhere on the site. In this aspect, it fulfilled a similar function to other naturally occurring features found at contemporary early medieval centres,

such as the shallow valley at Flixborough, and the solution hollow at Lyminge in Kent, both of which contained the majority of finds recovered from each site. [27]

The pool yielded a significant number of more valuable finds too, the concentration of which within a limited area is hard to explain in terms of accidental loss. Items of recovered jewellery included two copper-alloy hooked tags, four copper pins (all of which were complete) and most remarkably a solid gold finger ring (fig 15). This last find is particularly unusual as, although similar copper alloy rings have been found at Brandon in Suffolk, Cottam in East Yorkshire and York, the recovery of a gold example from a sealed early medieval settlement context is unique.[28] Other finds from within the pool include three Series E primary sceattas, *c* AD 690–710, found clustered within a metre of each other, and four styli (fig 16). Although clearly worn when deposited, three of the styli were complete and unbent, and included a unique type without a flattened spatula end. The presence of a fourth stylus is probably indicated by the find of a poorly preserved silver foil mount still adhering to some copper backing which closely resembles those found on the Class VI styli from Flixborough.[29]

Whilst it is conceivable that some of the smaller items, such as the hooked tags, may have been deposited inadvertently and unnoticed amongst other domestic waste, this is less likely to be the case with the larger items. In particular, the styli were high status objects and still perfectly serviceable, and the concentration of such a significant number within a couple of metres of each other, and contained within this specific feature, cannot be a coincidence; no others were found in any other excavated area of the site. Likewise, the gold ring would have been a highly valuable object and,

[27] Loveluck and Atkinson 2007, 49; Thomas 2017, 103.
[28] Tester *et al* 2014, 264 fig 8.18; Haldenby 1992, fig 5.2; MacGregor 1982, 91 fig 47.453.
[29] Pestell 2009, 136–7.

found near the centre of the pool, it is unlikely that such a weighty item was accidentally dropped and carried so far into the deeper water. Instead a scenario might be presented where some form of intentional depositional practice was taking place at the pool which included the placement of precious objects. Artefacts such as the styli, given their use in the production of text, are likely to have been seen as sacred; their deposition in the pool may have been viewed as an accepted form of decommissioning, preventing them from being used in other, perhaps less sacrosanct, activities. Although such interpretations are impossible to prove definitively, it is clear that the pool was actively maintained and that both curation of the feature and deposition of material probably had more than 'functional' significance for the community.

A number of features surrounding the pool seem to relate directly to its use and, despite offering little datable material, they can be phased stratigraphically. The earliest archaeological features were a series of irregular intercutting gullies [1020], [1111], [1123], projecting east–west and emptying into the pool on its eastern side. The function of these gullies is unclear, but seemed to have drained water from the east and north, an action which created a slightly raised area of drier land in the south-east corner of the trench. Unfortunately, this rectangular strip was in a portion of the trench where modern ploughing had removed stratified deposits, restricting interpretation.

After these east–west running gullies had, at least in part, gone out of use, a straight fence line running roughly north-south in orientation was established [1032]. The structure, identifiable as a shallow and narrow trench, separated the raised area in the southeast corner from the pool to the west. A fragment of a sleeper beam with a shallow slot was recovered from the feature, revealing a construction that presumably

would have been secured with vertical uprights. The wood from the beam was radiocarbon dated to AD 660–770, at 95.4 per cent probability (Beta Lab-504573) and thus belongs to the same broad period as the revetting of the southern site boundary (see above).

A small extension to the fence gully [1109] ran south-westwards towards a raised subcircular clay platform, (1025) about 0.05–0.20m thick and 2–2.5m in diameter. The platform had been subject to substantial burning which had preserved the remains of several small stake holes, but no coherent pattern could be distinguished. Protruding into and partially sat upon the silted deposits of the pond, the platform was subsequently partially covered by these deposits in a later phase. The correlation of the platform both with the termination of the fence line and adjacent to the highest concentration of metal artefacts, suggests that it was from this position that much of the material culture was deposited into the pool. Immediately to the east of the platform was a very large posthole 1.25m in diameter, which was not related directly to any other cut feature. The function of this was unclear, but it seemed to hold a single, and probably substantial, pole that may have acted as a marker or other prominent feature.

Over the course of the excavations only one possible building was found, located in the northern portion of Area B. This took the form of a gully, possibly a wall foundation, projecting for 15m in a south-west to north-east orientation (fig 14). An alignment of four postholes, [1132], [1144], [1152] and [1160], along the eastern edge of the wall gully may have provided structural support for raking buttresses, a technique known as *feorstuða*.[30] Their small and shallow form argues against this interpretation, however, and it is more likely that the postholes maintained some form

[30] Biggam 2002, 54.

of projecting eave. This construction would not only have created a sheltered veranda, but also added visual depth and sophistication to the building exterior.[31] It may be significant that this architectural effort was made on the side of the building facing the pool, perhaps to impress individuals or amplify the sense of importance around the activities taking place. To the west, a pair of postholes, [1053] and [1059], represent further possible structural elements of the building.

Given the probability that the majority of the building lay outside of the excavation area, it is difficult to reconstruct with confidence its form and purpose. The proportions of the wall foundation hint at a structure of considerable size though, and its location immediately adjacent to the pool, marker post, and platform also heightens the probability that this was an important building in the life of early medieval Little Carlton.

DATING AND CHARCTERISING LITTLE CARLTON

Even though the excavated features at Little Carlton are overwhelmingly early medieval in origin, the finds assemblage from the ploughzone represents a range of activity (summarised in Appendix SM2). Late Iron Age and Roman finds still make up only a small proportion of the overall assemblage, which is abnormally weighted to the seventh to ninth centuries, particularly when viewed against the regional backdrop attested by PAS data. Six-hundred and sixty-eight finds from the ploughzone (excluding ceramics) can be dated between *c* AD 710 and *c* 850, 116 of which are coins. The rest of the assemblage complements the known pattern of artefact loss at contemporary, metal-rich sites.[34] This includes a large volume of pins

[31] Blair 2018, 60.
[34] e.g., Leahy 2000; Loveluck 2007.

(297 examples), hooked tags (twenty-eight examples), tweezers (seven examples) and strap-ends (forty examples).[35] Such objects are, inevitably, chronologically 'coarse-grained' and are therefore difficult to use as indicators of site development. Likewise, there is little that can be deduced from their distribution regarding zoning of activity; pins, tweezers, hooked tags, strap-ends, and coins form a homogenous spread across the island. There are, however, several categories of find which are more unusual when viewed against the backdrop of comparable early medieval sites, and which require particular attention.

COINAGE AND COIN WEIGHTS

One-hundred and thirteen coins of the period *c* 680–870 have been recovered from the plough zone, in addition to four further coins discovered in context during excavation.[36] An overview of the coinage by 'Naylor Groups' reveals coin-loss beginning *c* AD 680, with a significant peak in loss occurring with the secondary sceattas of Group 3 (AD 710–40), and relatively low levels of loss across the following century and a half (table 1).[37] The apparent lack of monetary activity at Little Carlton prior to *c* AD 680 is in contrast to other similar sites in the region such as Garwick near Heckington, Lincolnshire.[38] When compared to the national pattern, however, coin-loss at Little Carlton is not unusual except in terms of the quantity of coinage found on the site (fig 17).[39] The same is true with the peak in coinage in

[35] A large volume of lead and iron has been collected through the metal-detecting survey, though these finds are largely problematic to date. Indeed, while iron is a common feature on early medieval sites, later use of the site, and its environs confuses the matter. For instance, an entry in the bailiff's accounts for the manor of Little Carlton, (AD 1471–2), reveals that the construction of one house required 1,000 stake nails, 300 medium nails, 2,000 lathnails, 8 great nails, 4 gudgeons, 4 iron plates, and 4 iron clasps; Owen 1996, 54.
[36] All four coins recovered from context are Series E primary sceattas, struck *c* 690–710.
[37] Naylor 2007.
[38] Metcalf 2016.
[39] Daubney 2016, 257; Blackburn 2003, 32, figs 6.11 and 6.12.

Group 3, which merely reflects the proliferation of Frisian sceattas in use during the opening decades of the eighth century, a phenomenon which saw a massive influx of silver coinage into England from the Continent.[40] Similarly, the relative lack of coinage in Groups 4 onwards at Little Carlton is reflected in the national profile of coin-loss.[41] Accordingly, while the *concentration* of coins at Little Carlton is unusual, the general temporal pattern is mirrored at both national and regional levels.[42] Comment might be made, however, on the relatively high proportion of Series J sceattas contained within Group 3 (twenty-five of ninety-seven coins), more than any other site in Lincolnshire, particularly given these coins were probably issued somewhere in Lindsey.[43]

Non-numismatic evidence for economic trade is evidenced by two lead counters, both of which appear to have been used as coin weights (fig 18). The first weight is circular in plan, measuring 16mm in diameter and 3mm in thickness, and is decorated on both sides.[44] The 'obverse' bears a motif resembling the inverse impression of a Series E ‘porcupine’ sceatta. The 'reverse' bears four circular indentations, arranged to form a square. The object weighs 4.63g, approximately four times the weight of a standard Series E sceatta. The second lead weight is rectangular with neatly cut sides, decorated on one side only with two circular indentations.[45] This weight has a mass of 2.42g, equating to approximately two Series E sceattas. A third rectangular weight, very similar in form to the latter item, is known from a plough

[40] Blackburn 1993, 80.
[41] Richards *et al* 2009, fig. 80.
[42] Blackburn 1993; Blackburn 2003, 32; figs 6.11 and 6.12.
[43] Naylor 2006.
[44] PAS ref. LIN-DAD0DA.
[45] PAS ref. LIN-DB96D2.

zone context at Benniworth, Lincolnshire.[46] This item bears five circular indentations and, weighing 5.32g, represents the total weight of approximately five sceattas.

OBJECTS ASSOCIATED WITH LITERACY AND THE CHURCH

In addition to the four styli found during the excavations, a further twenty-four examples have been recovered from metal-detecting on the island. The Little Carlton styli corpus is thus the largest ever recovered from any site in Britain, and also exceeds the cumulative finds of styli from Lincolnshire as a whole (figs 19 and 20). The assemblage is broadly similar to the twenty-two examples found at Flixborough and the three from Brandon, the majority being of copper alloy, although one made of silver and another of iron were also recovered.[58] Literacy is also evidenced by an inscribed lead tablet (fig 21), perhaps used in a funerary context, bearing the Old English female personal name 'Cudburg'. According to Okasha, the script used is of a form that seems consistent with a date earlier than the early tenth century and could well have been executed by someone accustomed to writing on vellum.[59] A final category of find encountered during metal detecting is represented by fragments from fifteen copper-brazed iron hand bells (see Appendix SM4), a class of material culture that has been argued to have had close connections with the early church.[60]

LITTLE CARLTON IN CONTEXT

[46] PAS ref. LIN-5E6016.
[58] Pestell 2009; Riddler 2014.
[59] PAS ref. LIN-66AD26; Okasha 2014.
[60] Willmott and Daubney 2020.

From its finds profile, Little Carlton bears comparison with the most prolific of the metal-rich sites in eastern England that have been subject to extensive excavation, such as Flixborough and Brandon.[67] Both places have been identified as monasteries, and many scholars see the majority of metal-rich sites in a similar light.[68] As others have already highlighted, however, no material culture is diagnostic of ecclesiastical activity, and indeed the validity of seeking such a signature is highly questionable. [69] This is especially true for the period in question, given that the Church increasingly became *the* embodiment of elite consumption from the seventh century onwards. Indeed, from their inception clerical communities were founded, sustained, and populated by royal and sub-royal individuals.[70] Given these conditions, it is debatable whether, in the earlier part of the period, in particular, ecclesiastical foundations were distinguishable from other high-status centres.

While it is not currently possible to offer as detailed chronological sequence for Little Carlton as might be liked, an outline biography of the site and the people who shaped it, derived from archaeological analyses, can be offered. In addition to a comparative analysis with other contemporary centres, the character of the site can be brought further into focus, first by comparison with other archaeological evidence, and then with data derived from alternate sources. In terms of the chronological development of Little Carlton, the first noteworthy observation is that, akin to other metal-rich concentrations of the period, the location appears to have been important before the seventh century. The recovery of an amphora-shaped strap-end and a penannular brooch allude to activity some time before the use of settlement structures

[67] Loveluck 2007; Tester *et al* 2013.
[68] Ulmschneider 2000, 104–5; Blair 2005, 211.
[69] The debate over the extent to which early church communities can be recognised through archaeology, and in particular portable objects, now boasts an extensive literature. For key contributions and overviews see Rahtz 1973; Pestell 2004, 40–8; Blair 2005, 204–12; Gittos 2011.
[70] Wright 2015a, 27.

or burial in the seventh century. It is tempting to interpret this phase, albeit deriving from a slight dataset, as an example of what Hodges calls a 'gateway community': trading sites typically situated near the coast which were used either seasonally or episodically.[71] The peninsula setting of Little Carlton would undoubtedly have benefited mercantile enterprise, but there may also have been a symbolic rationale behind the choice of the site. Deposition of objects in the pool at the centre of the island, for instance, is unlikely to have been an innovation of the early medieval period, but instead was a long-established practice originating in prehistory. Archaeological evidence for this early activity is by its very nature opaque, but research into landscapes such as the Witham Valley in Lincolnshire demonstrates the longevity of such votive deposition, persisting uninterrupted by changes to the broader social, political or formal 'religious' fabric.[72]

The presence of at least one barrow on the southern part of the marsh island at Little Carlton has also been demonstrated through excavation and, whether representing a reused prehistoric monument or a *de novo* construction of the early medieval period, reflects a desire to 'create continuity' with a real or imagined past.[73] Burial practice may also have been used to claim ownership or legitimacy over the site, as evidenced by the interment of female skeleton SK46. Despite indications of tight wrapping before burial, the arrangement of the skeleton strongly suggests that this burial was disturbed post-mortem probably as a result of reopening. This event that must have occurred some time after initial burial as the remains were disarticulated. The phenomenon of grave reopening is well-recognised across Western Europe in the early medieval period, and is especially prevalent during the seventh

[71] Hodges 1982, 50–2.
[72] Everson and Stocker 2011.
[73] Bradley 1987; Williams 1998, 102–4.

century. In England a dozen or so confirmed or suspected examples of the practice have been identified through excavation, including at Westfield Farm on the Isle of Ely, Cambridgeshire, and at Wolverton, Buckinghamshire.[74] The motivations behind the reopening of graves are somewhat unclear, but are likely to have been varied. Instances in which grave goods have been removed may point to mal-practice, perhaps by rival kin-groups seeking to destroy or obtain for themselves symbolically important objects.[75] In other cases it may have been the body itself that was the target of manipulation or 'maiming', perhaps in an attempt to subdue perceived revenants and their supernatural power.[76] Reopening need not have been driven by malice, however. The burial of leading persons was central to legitimising newly-gained holdings in early medieval society, as illustrated by Helena Hamerow in her study of well-furnished female burials dating to the seventh century.[77] Although SK46 was found in an unfurnished grave, similar processes may have been at play at Little Carlton, the importance of the individual to the community reflected by the effort to disinter them from their original resting place for reburial at the site.

The floruit of activity detectable from the late seventh century onwards may, therefore, have been partly a product of organic growth over decades or centuries, although the broad dating of much of the archaeology limits precise reconstruction of Little Carlton's nascent stages. It should not be assumed that the use of the site in the post-Roman centuries was necessarily of low intensity or frequency, however, but instead acknowledge that the period is characterised by a more ephemeral archaeological signature than its later phases. The low level of early coin loss at Little Carlton compared with other centres in the region could be seen to support a model of

[74] Lucy *et al*. 2009; Hancock and Zeepvat 2018.
[75] Klevnäs 2015, 178-9.
[76] Blair 2009, 15.
[77] Hamerow 2016.

continued organic growth into the later seventh century, although other evidence hints at a genuine event horizon around the year 680. It is unlikely to be a coincidence that coinage appears in the archaeological profile at the same time as the first burials, suggesting an important step-change in the biography of the site. This watershed corresponds with wider developments in commercial activity across England from the late seventh century, most clearly manifest in the rise of coastal emporia but which is also detectable in the diversification of settlement types more generally.[78] Metal-rich places represent one element of this stratification, with the east coast lying in a particularly abundant zone around the North Sea, where accessibility to the continent provided enhanced opportunities to acquire imported high-status goods.[79]

Indeed, it is from this eastern zone that some of the most valuable insights into metal-rich places have been made, through excavations at the settlement of Flixborough, overlooking the River Trent and 8km south of the Humber Estuary. Christopher Loveluck, proposes that the site was subject to a sequence of complex settlement evolution, indicative of changing modes of elite display. In this model, conspicuous consumption during the seventh and eighth centuries was supported through direct exchange with mariners and ports as well as intensive agricultural exploitation, attributes which Loveluck argues 'encapsulates the secular elite milieu of the coast'.[80] This consumptive lifestyle appears to have shifted during the ninth century when Flixborough's economy was instead geared towards specialist production, perhaps for export to a parent centre. The possibility that settlement could undergo such considerable changes of character over time has major implications for understanding Little Carlton, particularly as the sequence at Flixborough was only

[78] Wright 2015b, 173–85.
[79] Loveluck and Tys 2006, 161.
[80] Loveluck 2013, 187.

discernible due to excellent surviving stratigraphy. Indeed, in what now reads as an almost prophetic observation of conditions at Little Carlton, Loveluck imagined that if Flixborough had been ploughed out and metal detected, it would have been seen as a site of intense eighth and ninth-century activity before abandonment in the tenth or eleventh centuries.[81] Like Flixborough then, the character of occupation at Little Carlton may too have been mutable, our ability to view such dynamism being obscured by comparatively poor levels of preservation and the limited extent of excavation to date.

Looking beyond the site, our current understanding of elite activity in East Lindsey during the early medieval period has recently been advanced by David Stocker and Paul Everson's research into the documented monastery at Louth. Prompted by the discovery of pre-Conquest sculpture in the market town, the pair have reassessed the setting of the early church and contended that the main complex lay within a valley in an area later occupied by Westgate.[82] A case now exists that Louth acted as one of two pre-Viking episcopal centres in Lindsey, initially developed as a cenobitic house but subsequently reformed into an institution of secular clergy in the early ninth century.[83] Although this detailed analysis dispels the possibility that Little Carlton itself represents the site of '*Hludensis monasterii*', first documented in AD 790, it does prompt consideration of the relationship between the two establishments in the period. Exactly when the episcopal interest in Louth first developed is uncertain, but is perhaps datable to around the year AD 679, when the Battle of Trent saw Lindsey finally and decisively come under the orbit of Mercia.[84]

[81] Loveluck 2007, 144–63.
[82] Everson and Stocker 2017, 354.
[83] Gem 1993; Stocker 1993, 118; Everson and Stocker 2017, 357–8.
[84] Foot 1993, 133–5.

It is noteworthy that the proliferation of finds, buildings, and burials at Little Carlton broadly coincides with these political developments, and it is perhaps under the aegis of the Mercian elite that the site was promoted, along with Louth, in their newly-conquered lands. On the continent, scattered elements of Church estates frequently correspond to important shipping and trading centres, and in England, ecclesiastical ownership at even the largest ports is evidenced by grants such as that to Chertsey Abbey in AD 672–4, which gave property 'by the port of London, where ships put in'.[85] As Katharina Ulmschneider has shown, continental monasteries also made extensive use of *villa*-markets; sites of markets or fairs promoted by the Church, but which did not necessarily function or develop into central places. She contends that in England some metal-rich sites may represent such *villa*-markets, as many are located on important nodes in transport and communication networks and in close proximity to early churches.[86]

It is tempting to graft this framework onto the evidence from East Lindsey, yet the nature of the association between Little Carlton and Louth, if there was any, is difficult to discern. It is a trap of historic research agendas that, where a monastery or other centre is documented, all contemporary settlement is assumed dependent. Such an outlook would interpret Louth, because it is recorded in written sources, as the settlement of leading import in early medieval East Lindsey, but from an archaeological viewpoint it is Little Carlton that is pre-eminent. A more tenable interpretation, which overcomes the disparities in the available data, is to see these two centres as part of a wider high-status 'meshwork', components of an entire

[85] Kelly 1992, 3-4.
[86] Ulmschneider 2000, 76.

landscape that was exploited to meet the economic, social and political needs of elite authorities.

Despite its situation in a nodal point in the regional communication network Little Carlton is unlikely to have acted merely as a 'point of entry' and was not necessarily utilised sporadically as might be assumed. The adjacent coastline provided prized maritime contacts but also access to crucial resources such as salt, for which Mercia had previously had to depend on Droitwich.[87] The evidence from Fishtoft near Boston provides an example of the kind of exploitation probably carried out along the coast at the time, and the importance of salt to the local economy of Little Carlton is reflected in later sources, including those relating to the adjacent failed medieval new town of Castle Carlton.[88] Lacking direct evidence for salt production in the early medieval period, recent excavations have nevertheless shown that Little Carlton was clearly a place of production, some of which is likely to have been transported into the region.

It is challenging to demonstrate permanence in occupation of a site through archaeological remains, but the balance of material from Little Carlton argues for rather more than the sporadic or seasonal use one might associate with a market or fair. The construction of at least one large building and the establishment of perhaps one, or more likely two, large cemeteries represents substantial investment. The execution of specialist industrial processing, such as bell making, would have required considerable coordination of labour and resources. Those occupying Little Carlton also invested heavily in practices the meaning of which are less clear, but all of which find comparators in the early medieval period. For instance, structured

[87] Maddicott 2005.
[88] Owen 1984; Cope-Faulkner and Allison 2012; Wright *et al* 2015.

deposition using natural features is known from many excavated sites,[89] but has been demonstrated most compellingly by Gabor Thomas who noted the use of a sink-hole for the discard of objects at the high-status settlement of Lyminge, Kent. Thomas cites the work of Bronze Age scholars, who have suggested that such features acted as cosmological portals to the Otherworld, and those using the pond at Little Carlton may have held similar beliefs.[90]

The importance of the activities taking place at the pond is likely to have been amplified by architectural setting, framed on one side by a building that had been pointedly enhanced through the construction of a veranda. At the water's edge too, and adjacent to the platform from where the most valuable artefacts were discarded, was erected a large pole or post. The concept that trees and posts were seen as 'holy' in early medieval society is relatively well established, but the significance of their use in settlements and landscapes has been most convincingly illustrated by John Blair.[91] In addition to acting as edifices of worship and as places for assembly, posts could be employed to structure the architecture of a site, as at Yeavering in Northumbria where during the seventh century a post-setting inserted into the 'Eastern Ring-Ditch' acted as an axial point for a precisely structured sacred geography.[92] Such insights strongly suggest a cultic aspect to at least some of the activities taking place at Little Carlton, most probably encouraged by the physical setting of the site. A coastal island with a naturally-accumulating central pool, such a place is likely to have been perceived as physically and cosmologically liminal, and attracted the indigenous practices visible in the material signature as a result.[93]

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[89] See Sofield 2015; 2017 for overviews of 'placed deposits' in early medieval settlements.
[90] Thomas 2017, 103.
[91] Blair 2013.
[92] Blair 2005, 54–7.
[93] The significance of 'accessible yet peripheral' landscape locations for attracting ritualised practice is reviewed by Semple 2011.

Little Carlton is, therefore, a site with a complex and evolving biography, which is best understood through careful consideration of the archaeological evidence. While the metal finds were key to the initial identification of the site, the excavated material has been crucial in determining the character and wide variety of activities that were undertaken. Forming one element of a high-status 'meshwork', Little Carlton was a key centre of trade and exchange, but also an appropriate location for settlement, burial, and the performance of deeply meaningful indigenous practice.[94] Although for the purposes of this assessment the focus of discussion has been on developments between the seventh and ninth centuries, it is worth considering here the later biography of Little Carlton or the 'afterlife' of the finds-rich phase. Our knowledge of the site after the middle of the ninth century is especially inhibited by the restricted size of investigation and is a period characterised by an almost non-existent finds profile. As the excavations at Flixborough demonstrate, this drop in material culture may not denote wholesale abandonment but rather a change in economy coupled with a shift in the settlement focus, perhaps towards the area around the parish church which has not been subject to excavation.

The sustained importance of Little Carlton into a later period is undoubtedly supported by the aforementioned identification of the grave cover of later tenth or eleventh-century date during the dismantling of the church,[95] one of several in the East Lindsey district dedicated to St Edith and conceivably dependencies of Louth.[96] -

One final strand which alludes to a persisting elite significance at Little Carlton is found in the chartulary of nearby Legbourne Priory, which details the foundation of the house by Robert FitzGilbert of Tathwell in around 1150. The priory

[94] Little Carlton's position within the wider ecclesiastical landscape of seventh and eighth-century Lindsey will be explored further in a future paper, Willmott in prep.
[95] Everson and Stocker 1999, 221–2.
[96] Daubney 2016, 264.

was apparently established for nuns who previously resided in a site known as *Carledale*, but the chartulary also alludes to nuns from Keddington and Hallington.[98] There has been uncertainty whether these citations represent distinct foundations or whether the same house is being referred to by different names, although given the geographical separation of the village of Keddington and Hallington, situated 4km apart on opposite sides of Louth, surely the former is the more likely. The location of *Carledale* is uncertain but the place-name and topographic setting of Little Carlton, situated at the bottom of an open valley, certainly commend it as a candidate. The existence of a small cell of nuns at Little Carlton into the twelfth century is an intriguing proposition. It is tempting to see this as the slightest fragment of continued high-status activity from its previously distinguished past, and serves to emphasise further the value in studying metal-rich places on a landscape scale and in long-term perspective.

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[98] Page 1906, 153.

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FIGURE CAPTIONS

Fig 1. Location of the site and distribution of metal detected finds
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Fig 6. Trench 8 hearth
Fig 7. Trench 8 tally
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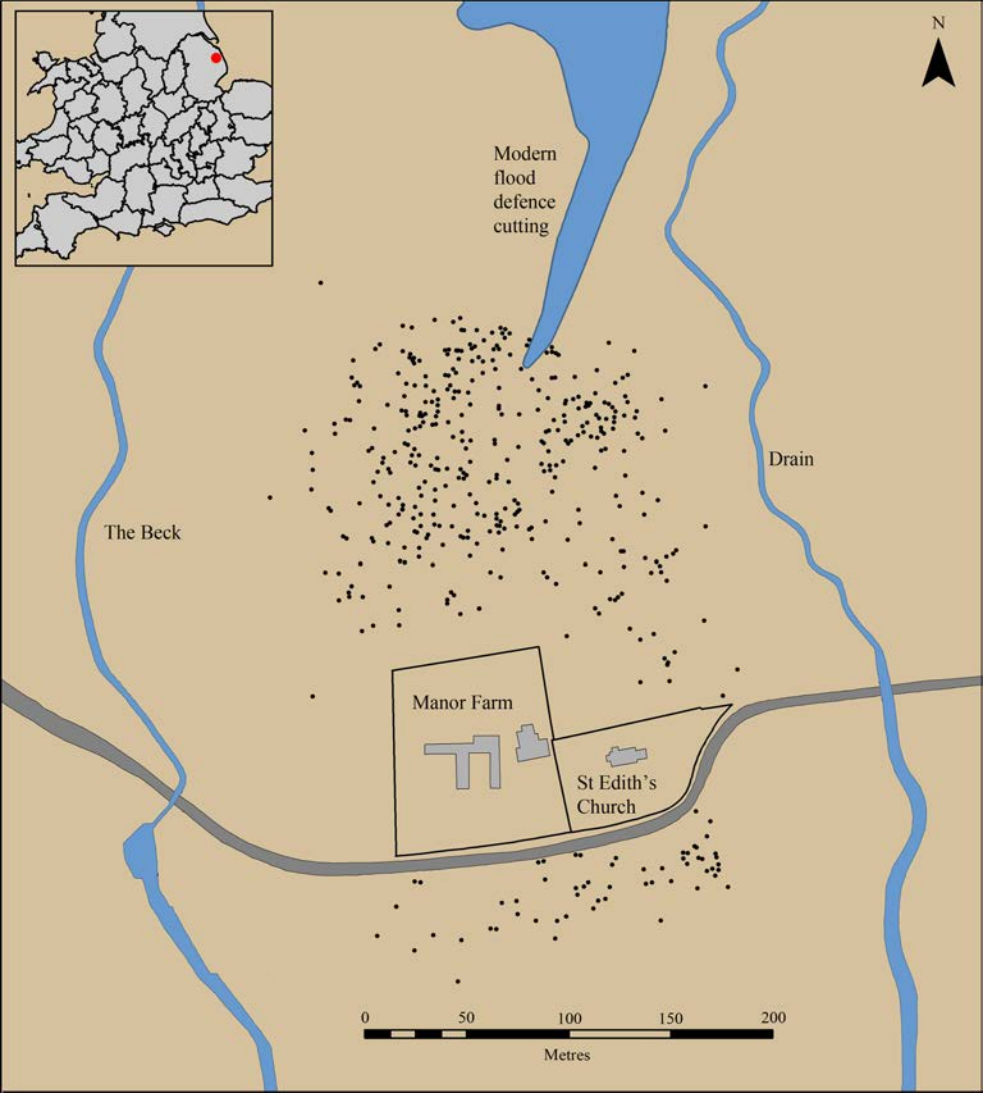
Fig 19. Metal-detected styli 1/2
Fig 20. Metal-detected styli 2/2
Fig 21. Lead plague inscribed with the name 'Cudburg'

TABLE CAPTIONS

1 Metal-detected sceattas

Naylor Group	Date range	No. coins
1	Pre-680	None
2	c.680-c.710	17
3	c.710-c.740	73
4	c.740-c.760	4
5	c.760-c.790	3
6	c.790-c.810	5
7	c.810-c.840	8
8	c.840-c.855	2
9	c.855-c.870	1
-	Uncertain c.675-c.750	3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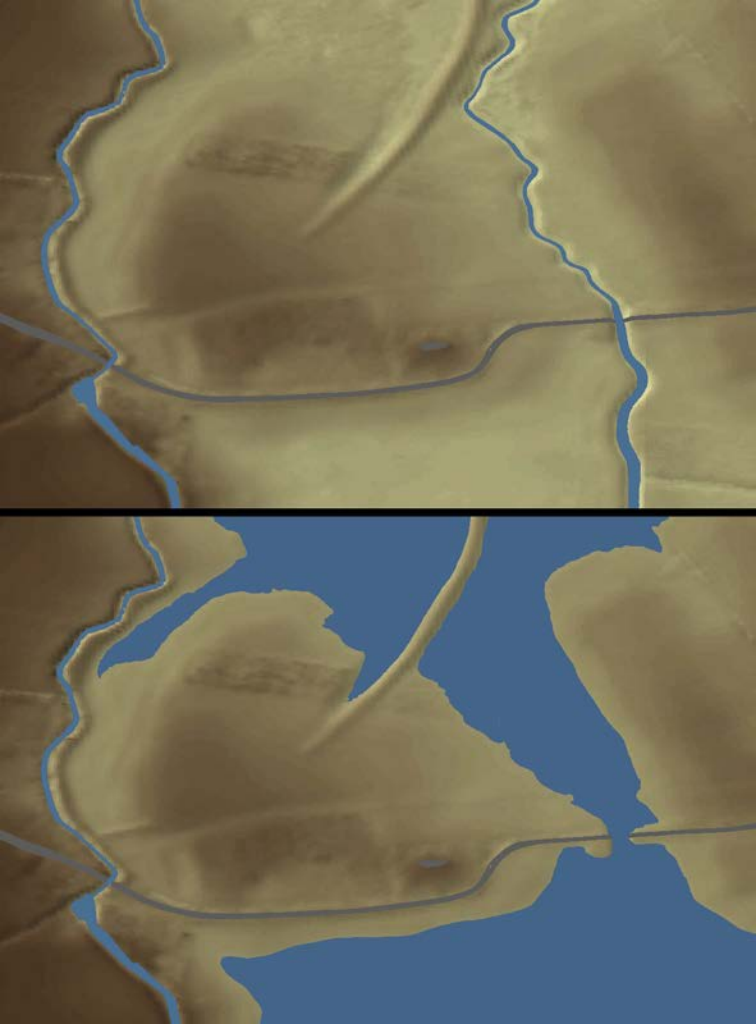
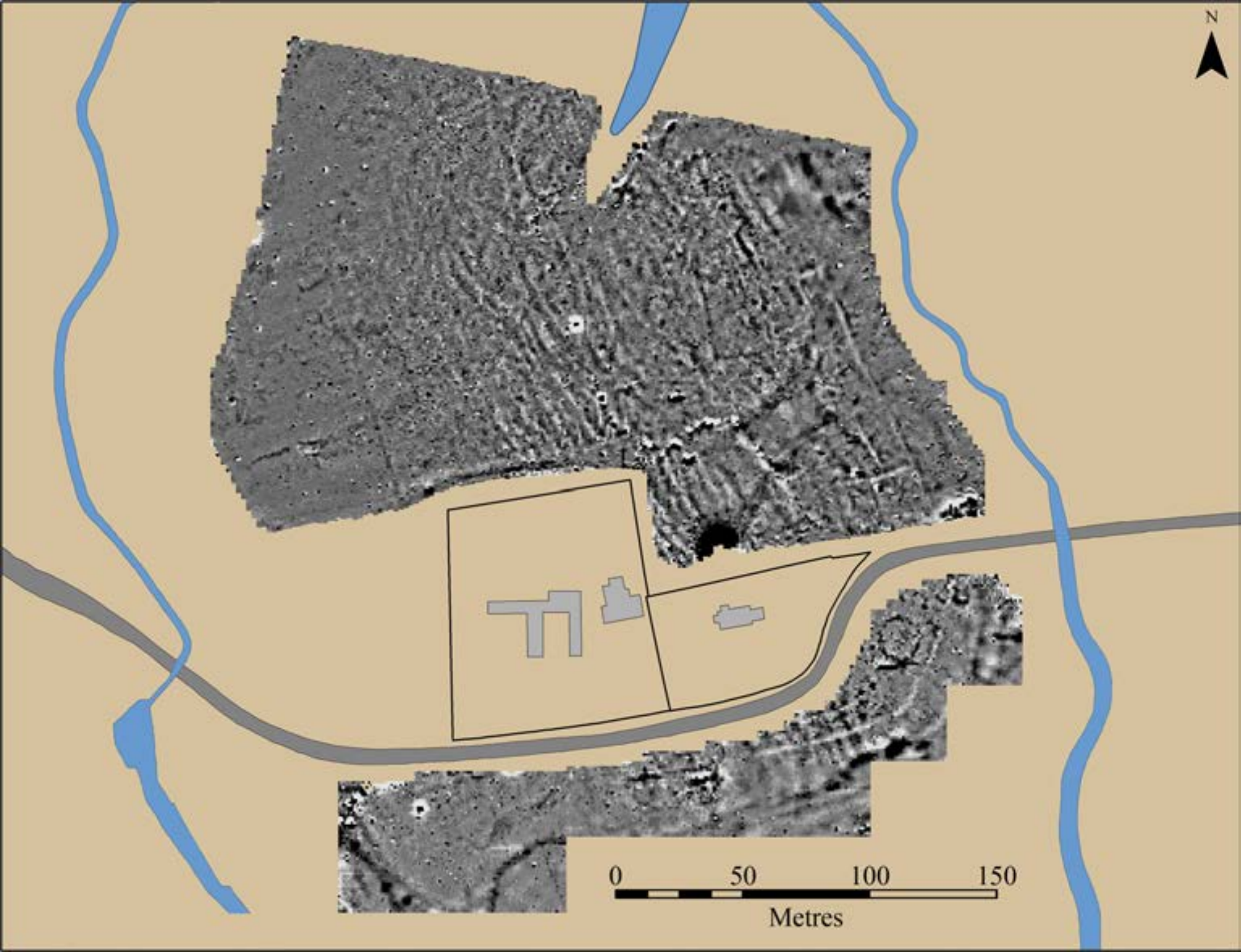
Modern
flood
defence
cutting
Drain
The Beck
Manor Farm
St Edith's
Church
0
50
100
150
200
Metres

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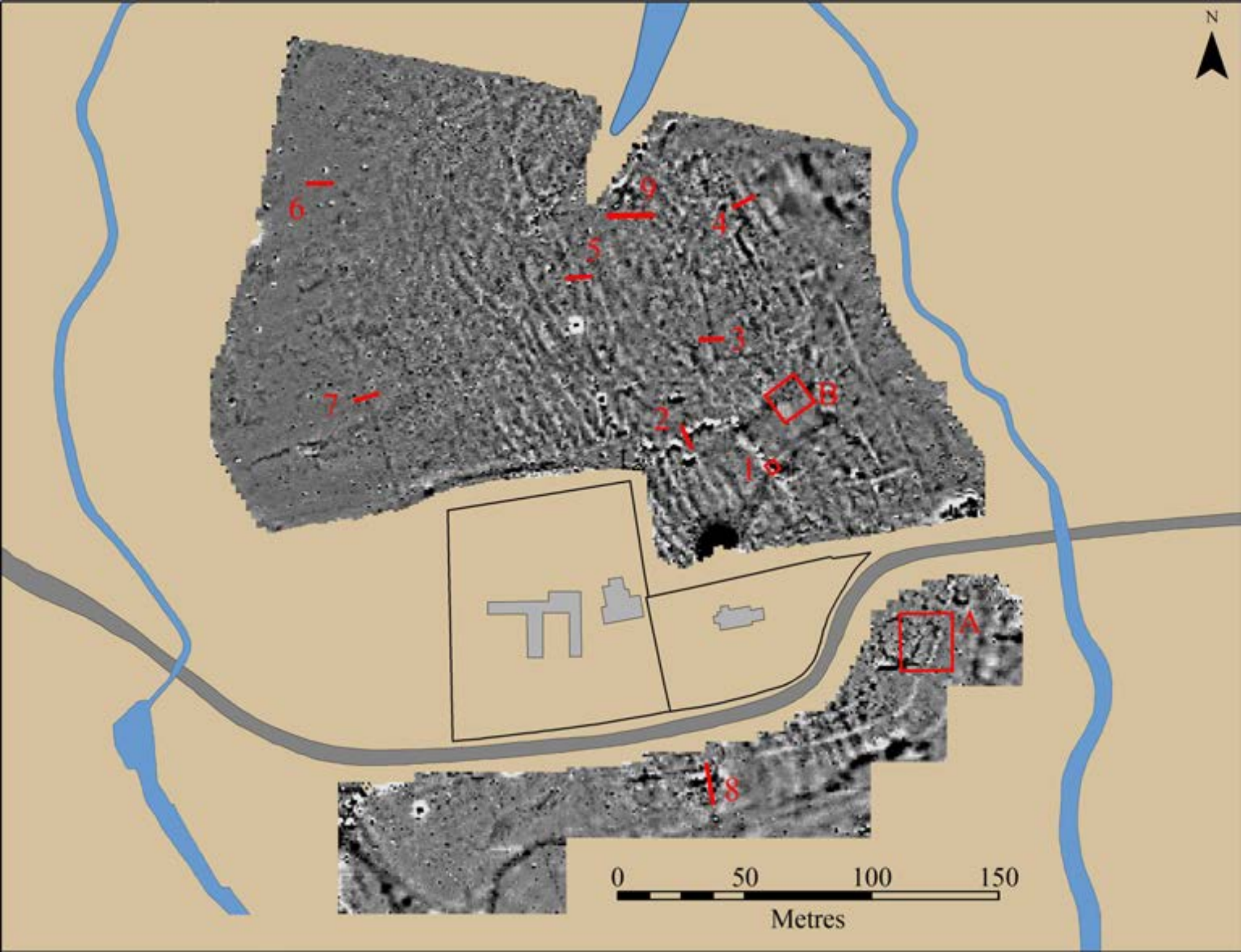
100
150
Metres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6
9
4
5
3
7
B
2
1
A
8
0
50
100
150
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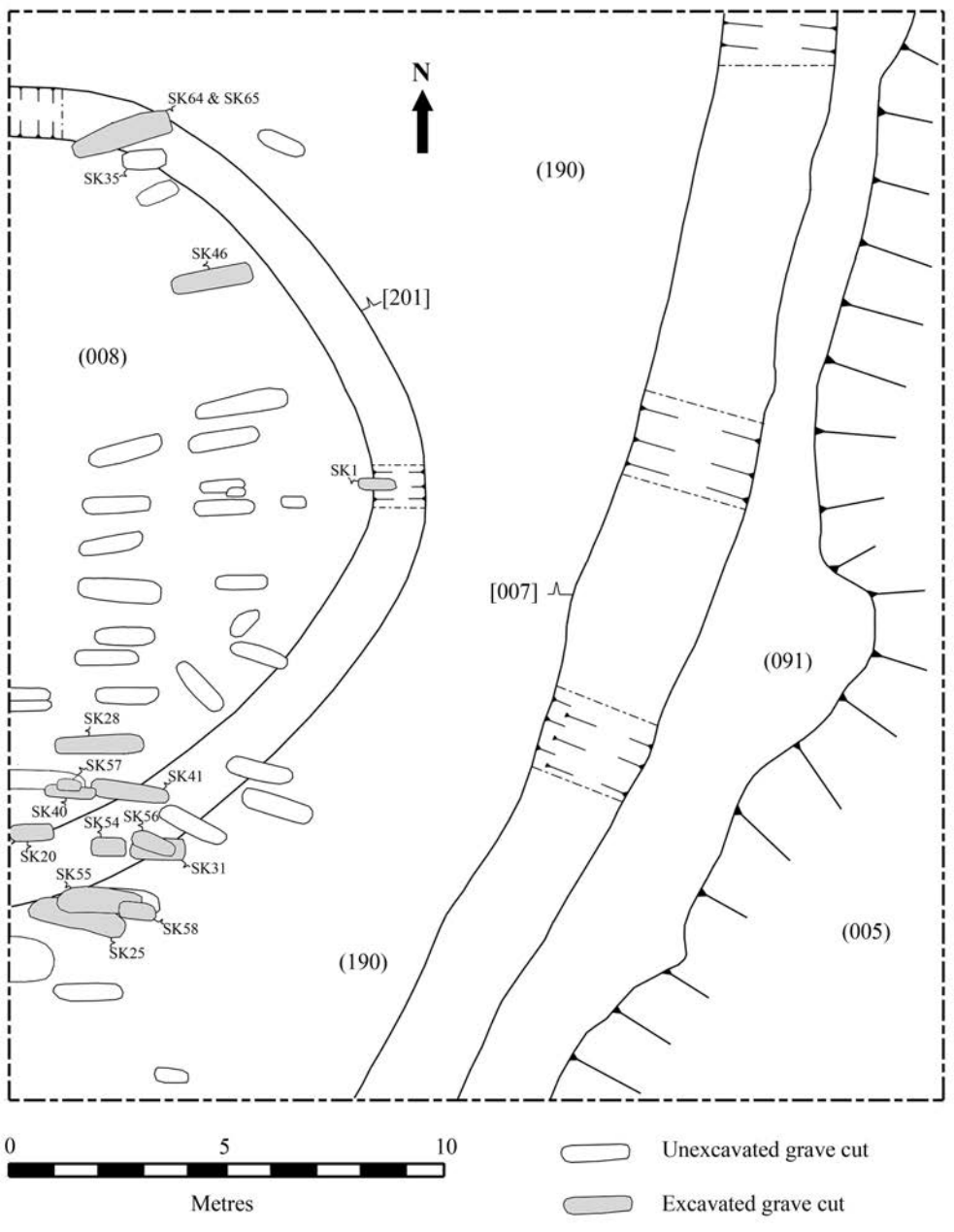
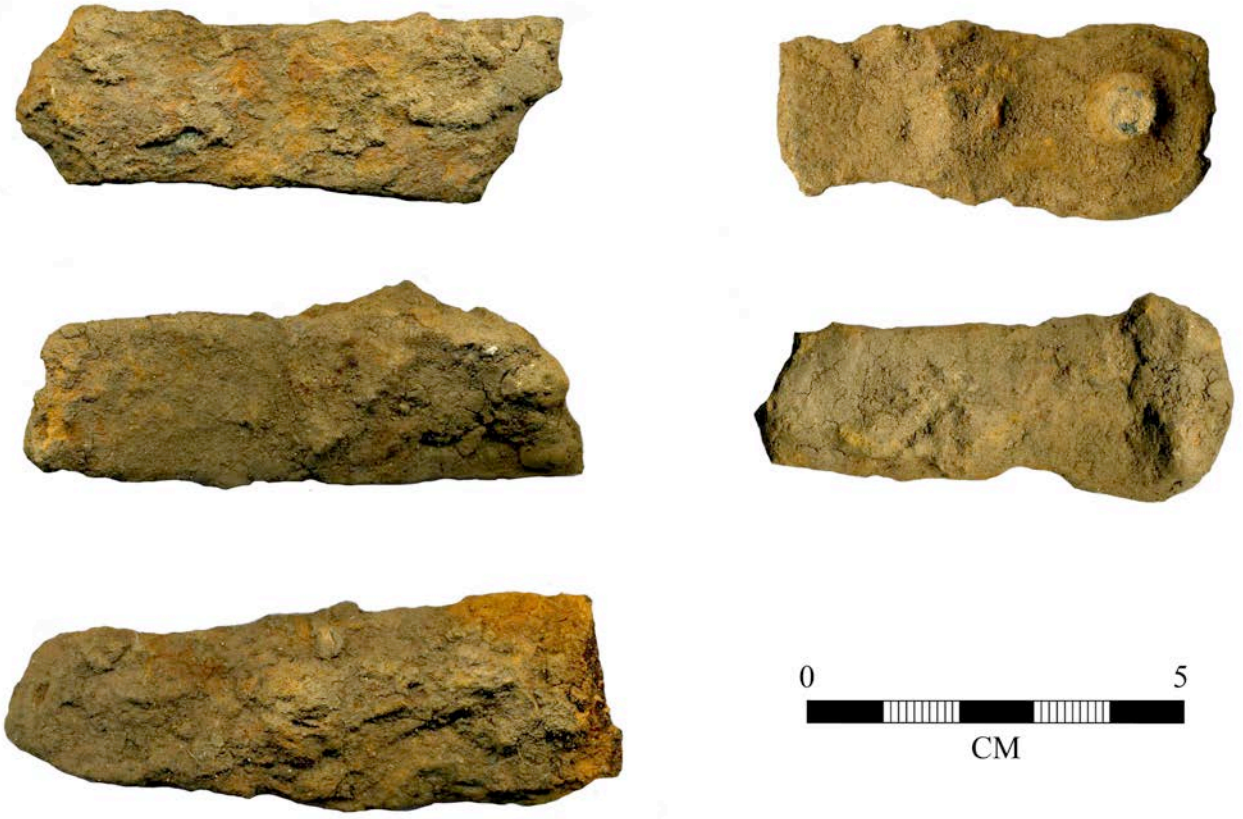
0
3
CM


N
SK64 & SK65
SK35
SK46
[201]
(008)
SK1
(190)
[007]
(091)
SK28
SK57
SK41
SK40
SK54
SK56
SK20
SK31
SK55
SK58
SK25
(190)
(005)
0
5
10
Metres
Unexcavated grave cut
Excavated grave cut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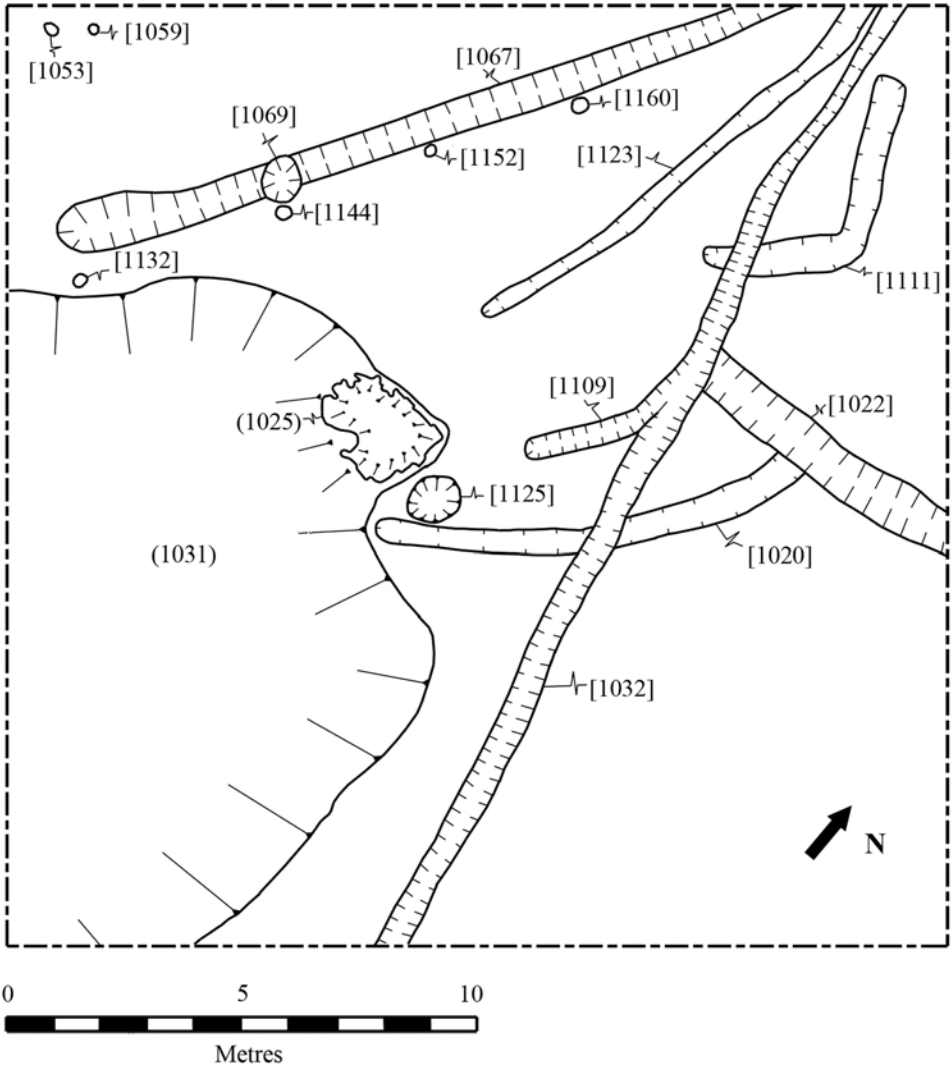
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(1031)
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[1032]
N
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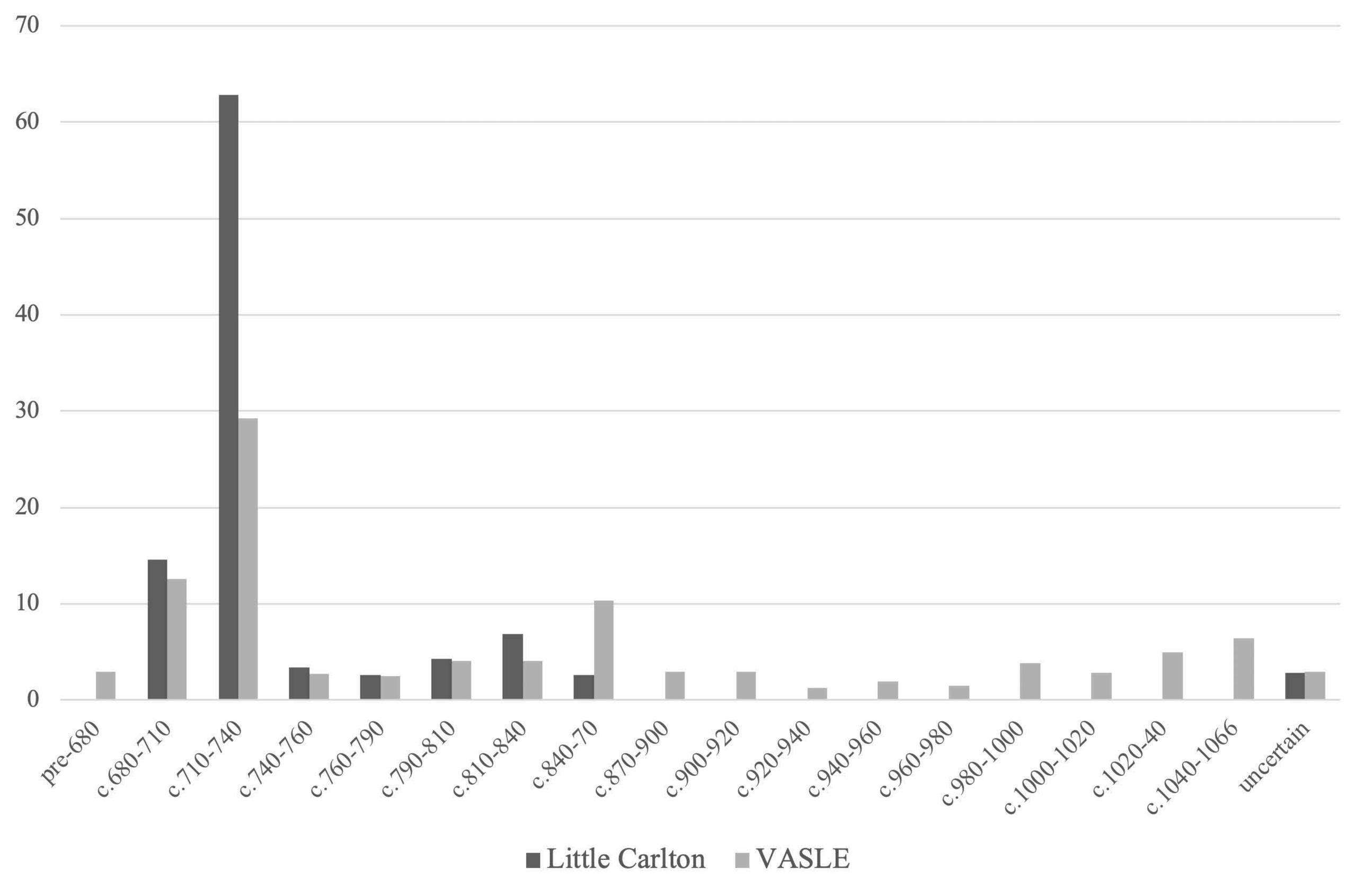
5
10
Metres


0
5
CM


0
5
CM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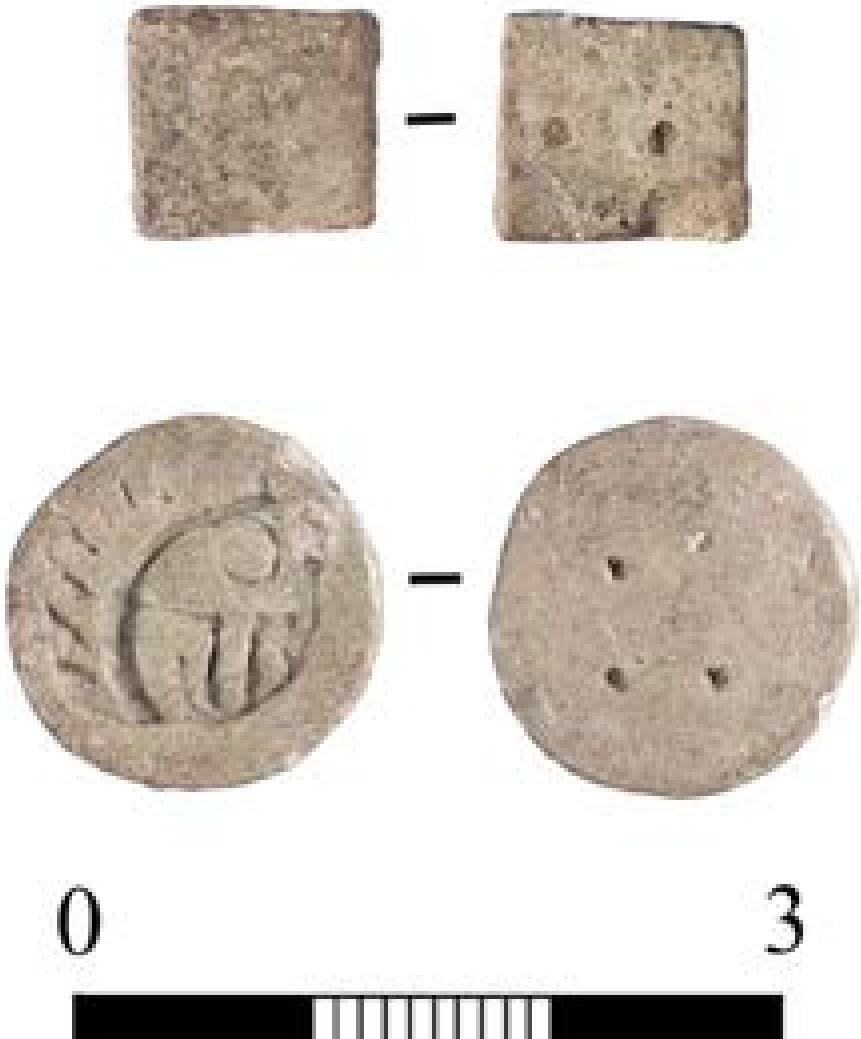
60
50
40
30
20
10
0
pre-680
c.680-710
c.710-740
c.740-760
c.760-790
c.790-810
c.810-840
c.840-70
c.870-900
c.900-920
c.920-940
c.940-960
c.960-980
c.980-1000
c.1000-1020
c.1020-40
c.1040-1066
uncertain
Little Carlton
VASLE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3
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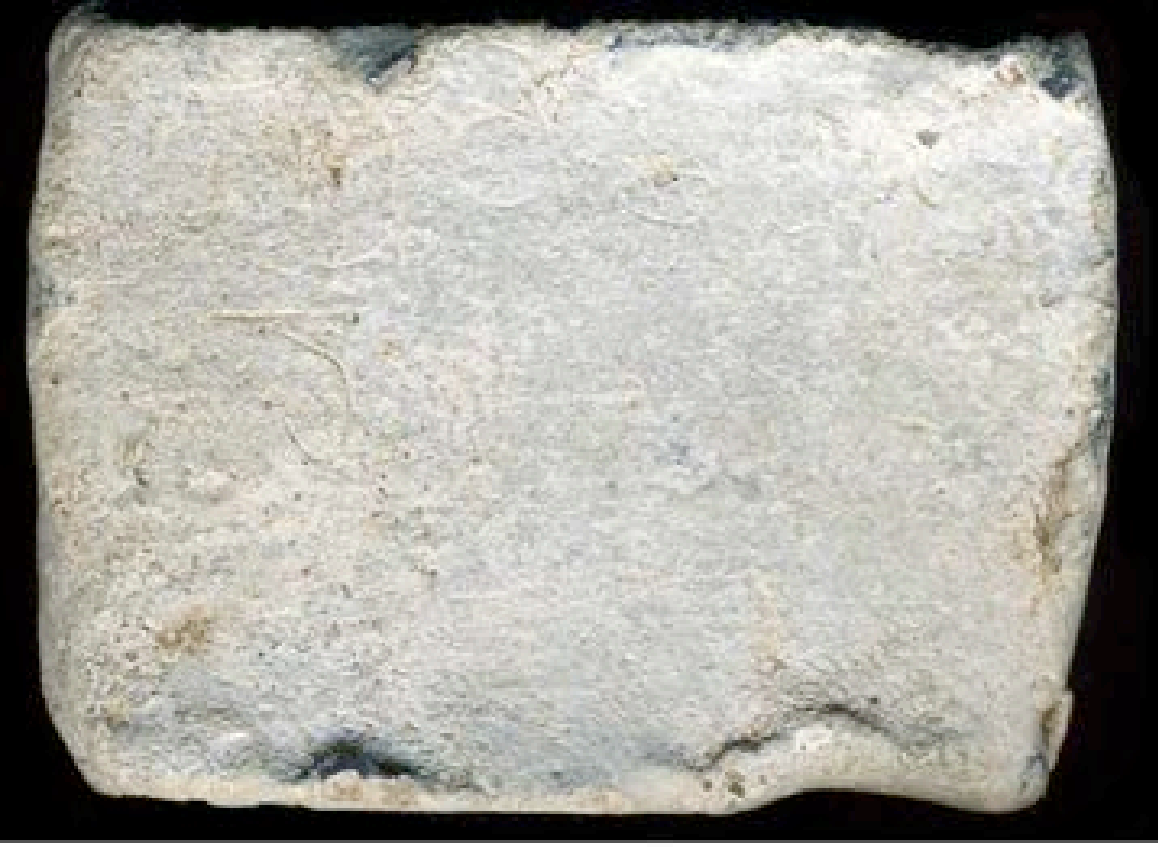

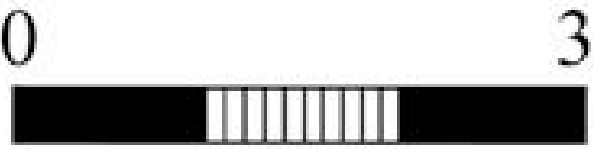
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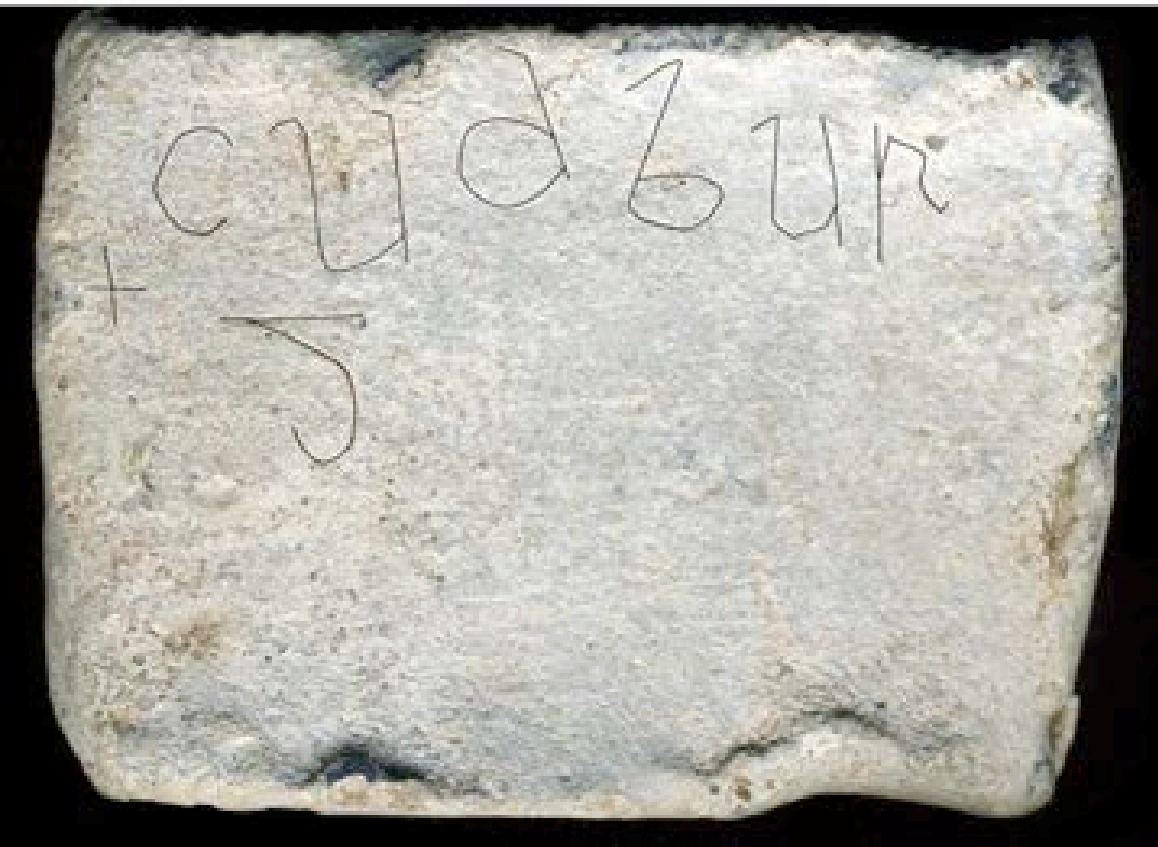

SUPPLEMENTARY MATERIAL

To be read in conjunction with

RETHINKING EARLY MEDIEVAL 'PRODUCTIVE SITES': WEALTH TRADE AND TRADITION AT LITTLE CARLTON, EAST LINDSEY

Hugh Willmott FSA and Duncan Wright FSA

with contributions from
Adam Daubney FSA, Paul Blinkhorn, Sophie Newman, Peter Townend and Graham Vickers.

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SUPPLEMENTARY MATERIAL

APPENDIX SM 1 THE SKELETAL POPULATION AND PATHOLOGIES
Table SM1. Summary of the Osteological Anlysis

APPENDIX SM 2 EARLIER FINDS FROM LITTLE CARLTON
Figure SM1 Amphora-Shaped Strapend and Penannular Brooch

APPENDIX SM 3 SUMMARY OF THE CERAMICS
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APPENDIX SM 4 BELLS AND BELL MANUFACTURE
Figure SM2 Fragments of Copper-Brazed Bells

APPENDIX SM 5 CALIBRATED RADIOCARBON DATES

APPENDIX SM1

THE SKELETAL POPULATION AND PATHOLOGIES

Sophie Newman

Due to the poor preservation conditions, of the twenty-three burials selected for excavation, only sixteen were suitable for analysis as part of an articulated sample. Eight of these skeletons were adult, the other half juvenile (summarised in Table SM1). It has been possible to ascertain more accurate age estimations for a proportion of the juvenile individuals, as age estimation of non-adults (those less than seventeen years of age) is based on reasonably accurate developmental stages of the teeth and skeleton, whereas age estimation of adults relies primarily on the assessment of degenerative changes that may vary between individuals (Byers 2008, 202). The majority of the non-adults were classed as older juveniles (six to eleven years of age). None of the articulated skeletons were foetal, perinatal, or infant (i.e., less than one year of age); however, evidence for their presence within the burial population was seen in the disarticulated material.

For three-quarters of the adults, a more accurate age estimation than 'adult' (more than eighteen years of age) could not be achieved due to poor preservation. Of these six individuals, SK41 may have been aged between 25–45 years of age, as a very small fragment of the auricular surface of the pelvis suggested they were not of particularly advanced age, but no other ageing criteria were present to support this. SK64 may have been more than forty-six years of age (mature adult), but this was only based on dental wear which is particularly unreliable when used as a sole indicator of age as it can also be heavily influenced by differences in diet and the use of the teeth as a tool (Brothwell 1981). SK65 was also likely a mature adult as their mandible was edentulous, all teeth had been lost during life, but other factors that could have led to premature tooth loss during life cannot be discounted.

Of the two adult individuals where an age estimate could be made, SK28 was a mature adult (more than forty-six years of age) based on degeneration of the auricular surfaces and pubic symphysis of the pelvis (Lovejoy *et al* 1985; Brooks and Suchey 1990). SK46 was likely aged between twenty-five and thirty-five years, but as this estimate is based solely on dental wear and a very small fragment of the auricular surface of the pelvis, this age range has been extended to forty years of age.

For the adult individuals, an estimation of sex was attempted for those where preservation of the necessary skeletal elements allowed (the skull and pelvis, depending on preservation) using standard osteological methods for scoring sexually dimorphic traits (Mays and Cox 2000). This was possible for five of the eight adults at Little Carlton, where three individuals were likely to be males or possible males, and two were likely females or possible females. One individual was of indeterminate sex, meaning skeletal criteria were present for assessment but were neither convincingly male nor female in character, and the remaining two individuals could not be assessed for sex. Both adults that had been given an age estimation could also be attributed a sex estimate. SK46 (aged 25–45 years) was likely a female, and SK28 (more than forty-six years of age) was likely a male.

Several individuals displayed evidence for skeletal pathology and trauma. *Cribra orbitalia*, presenting as pitting of the orbital roof, was seen in SK31 (older juvenile), SK40 (adolescent), and SK64 (adult). Although the exact aetiology of this condition is contentious, it is generally believed that it arises during childhood in response to factors such as unhygienic environment and dietary deficiencies (Walker *et al* 2009; Oxenham and Cavill 2010). The permanent dentition of SK31 (older juvenile) also had evidence of dental enamel hypoplasia. These linear defects in the enamel of the teeth likely resulted from malnutrition or disease experienced during the growth period, resulting in the cessation of enamel formation during the period of ill health (Hillson 1996; King *et al* 2005). Signs of degenerative changes in the adults were also seen, which may have been caused by factors such as advancing age, everyday physical activity, or in response to repetitive heavy workloads

(Roberts and Manchester 2010). The mature adult male SK28 and the adult, possible, male SK41 demonstrated degenerative disc disease and degenerative changes and osteoarthritis in their spines. SK41 also had degenerative changes in their right hip joint. The adult male had particularly severe osteoarthritic changes in both hips, as well as significant degenerative disc disease in the lower spine. It is likely that the changes seen in this individual would have had some impact on mobility. Evidence for trauma was also seen in the possible healed nasal fracture in mature adult male SK28, and a healed rib fracture in SK41 (adult, possible male). Both injuries may be indicators of interpersonal violence, but also could have occurred in response to accidental injury, such as falls, with rib fractures being especially common in archaeological populations (Roberts and Manchester 2010). Finally, dental disease appeared to be rife within the burial population, with conditions such as calculus (plaque) affecting four adults and three non-adults. Dental caries (cavities) were seen in two adults and one non-adult, and periodontal disease (gum disease) in four adults. Poor dental health had led to the loss of teeth during life for three adults, notably in SK65 who had lost all their lower teeth. Dental health is ultimately influenced by factors such as diet and oral hygiene (Hillson 1996; Roberts and Manchester 2010), therefore the high prevalence of these conditions in Little Carlton is suggestive of insufficient dental hygiene practices.

Table SM1 Summary of the Osteological Anlysis

SK	Age	Sex	Dental Pathology	Skeletal Pathology
1	<17 years	-	-	-
20	<17 years?	-	-	-
25	18+ years	U	-	-
28	45+ years	M	Calculus; caries; periodontal disease; possible abscess	Possible trauma to cranium, nasal fracture; degenerative disc disease in cervical and thoracic vertebrae; DJC in cervical and lumbar vertebrae; OA in lumbar vertebrae; possible DJC in hip
31	6-8 years	-	Calculus; DEH	Cribra orbitalia
35	18+ years	U	-	-
40	13-15 years	-	Calculus	Cribra orbitalia
41	25+ years	M?	-	Healed rib fracture; border shift; PNBF on endocranial surface of occipital and parietal bones; possible sinusitis in L frontal sinus; degenerative disc disease in cervical, thoracic, lumbar, and sacral vertebrae; DJC in lumbar vertebrae; OA in cervical, thoracic, lumbar, and sacral vertebrae; SN in thoracic vertebrae; DJC in R hip
46	25-40 years	F	Calculus; periodontal disease	Slight bowing of femora
54	10-12 years	-	-	-
55	25+ years	M	Caries; calculus; periodontal disease; AMTL	Severe OA in hips; possible healed PNBF on lower limbs; degenerative disc disease in cervical vertebrae; severe degenerative disc disease in thoracic vertebrae; DJC in thoracic vertebrae
56	7-9 years	-	Caries; calculus	-
57	<17 years?	-	-	-
58	9 mths-1.5 years	-	-	Possible metabolic disease
64	20+ years	F?	Possible dental abscess; periodontal disease; calculus; AMTL	Cribra orbitalia
65	18+ years	I	Edentulous mandible	-

APPENDIX SM2

EARLIER FINDS FROM LITTLE CARLTON

Adam Daubney FSA

Iron Age to post-medieval objects are all represented in the sample, the majority of which were recovered through metal-detecting and surface collection. Although the assemblage ostensibly indicates long-term occupation in some form, the lack of chronological precision offered by individual components encourages a cautious interpretation. No prehistoric material has been found at Little Carlton beyond the scatter of flints associated with the burial mound in Area A, but a small and rather eclectic group of Roman finds is present. These comprised two early copper-alloy brooches, a silver finger ring of late first or second-century date, a worn sestertius, two House of Constantine *nummi*, a spoon bowl, and a silver snake bracelet. The Roman finds are somewhat enigmatic, especially given the lack of any activity of this date recognised through excavation. Indeed, the chronology represented by these artefacts is somewhat haphazard, representing all four centuries of the Roman period but in very small quantities, and it is possible that these finds were curated in the early medieval period, as was the case at Coddenham in Suffolk, where Roman metalwork was converted into base-metal clothes fasteners and belt-stiffeners.[1]

Nonetheless, the discovery of an amphora-shaped strap-end dating between the fourth and early fifth centuries (fig SM1a) and a British penannular brooch of Fowler's type G (fig SM1b), dating to the fifth or early sixth century, are suggestive of high-status activity in the vicinity of Little Carlton, if not on the actual 'island' itself, during the earliest medieval centuries.[2]

Figure SM1 Amphora-Shaped Strapend and Penannular Brooch

[1] Plunkett 2001, 64, 77, 81; Fleming 2009, 419.
[2] PAS ref. LIN-0C5BF1; PAS ref. LIN-35B2BE; e.g. Green 2020, 71.

APPENDIX SM3

SUMMARY OF THE CERAMICS

Paul Blinkhorn

In addition to metalwork, a significant collection of ceramics was recovered through surface collection by the metal detectorist, as well as during excavation. Although the surface collection was not acquired via a systematic programme of fieldwalking, the assemblage is extensive, dating from the seventh to the eleventh centuries, and provides an indication of Little Carlton's access to traded and imported goods. The excavated assemblage broadly mirrors that from the surface, except that no ninth- to eleventh-century wares were found. The entire early medieval pottery assemblage consists of 1,542 sherds with a total weight of 31,554kg (Table SM2).

The Maxey-type Ware assemblage recovered from the excavation is entirely typical of the tradition, comprising mostly jars with simple flattened or upright rims, with only one sherd of note being a very unusual small handle which is similar to an example from Lincoln (Young and Vince 2005, fig 34). The surface-collected Shelly Ware assemblage is largely abraded, with most of the sherds having had the calcareous component leached out. The range of rims indicates that vessels of both seventh to ninth centuries and later dates were present. Simple, hand-built vessels with upright rims and pierced lugs similar to those found on the Maxey-type Wares are present, for example, as are a few everted and lid-seated forms. Shelly wares similar to Lincoln Kiln-type Wares were also recovered, although the latter are a small element of the total (Young and Vince 2005, figs 34, 45–6). Ninth-century and later wares are relatively few in number, hinting at a decline in activity shortly after the introduction of such pottery, at some time after *c* AD 850.

The assemblage of Ipswich Ware from Little Carlton (947 sherds, 23.99kg) is the largest known from any site outside of East Anglia, other than the emporium at London. It is the largest from Lincolnshire, even exceeding the excavated assemblage at Flixborough which comprised 282 sherds (8.11kg) (Blinkhorn 2009), although it is more fragmented due to the higher percentage of ploughsoil recovery. All the other known assemblages from the county comprise less than ten sherds each, other than the site at Fishtoft, which yielded forty-nine (Blinkhorn 2012, 82; Cope-Faulkner and Allison, 2012).

The surface assemblage of Ipswich Ware consisted of small jars (53.5 per cent), large jars (21 per cent), pitchers (25.5 per cent), and a single Buttermarket bottle, whilst that from excavation comprised almost entirely jars, as well as a single jug rim. In East Anglia, small jars usually make up around 80–90 per cent of any assemblage, whereas pitchers and large jars occur more frequently at sites outside the region (Blinkhorn 2012). It is worthy of note that Little Carlton has produced one of the highest proportions of pitchers at any known site, and similar to that at Flixborough, although the proportion of large jars is not as high (Blinkhorn 2012, 32). It is possible, however, that some of the rims from this site identified as small jars may, in fact, be from pitchers, but lacking evidence of spouts or handles, as Ipswich Ware pitchers are usually relatively small, with a mean rim diameter of around 150mm (Blinkhorn 2012, 63).

The presence of imported Badorf Ware sherds is also significant dating to between the eighth and eleventh centuries, the majority of surface sherds of Badorf Ware appear to derive from pitchers or jars. Small quantities of relief-band amphorae with thick applied strips are also present, including a rim with rouletted decoration (Blackmore 2003, 241). The six sherds of Badorf Ware recovered from excavation appear to be from the same vessel, which is handled and probably a jug. Further continental imports are represented by three surface sherds of North French Blackware, probably all from a single vessel: a burnished pitcher typical of the tradition.

Continental imports were present at Flixborough, but otherwise such pottery is very rare from rural settlements in Lincolnshire. The few sites on which foreign ceramics have been found, such as Riby Crossroads, typically yield only one or two sherds (Steedman 1994). Nationally, the main inland distribution of Badorf Ware tends to be at sites identified as ecclesiastical in character, such as North Elmham, Norfolk, or settlements that have been otherwise identified as high status, such as Flixborough or Wicken Bonhunt, Essex (Wade-Martins 1980; Wade 1980). North French Blackware is well known from major ports of the period, but like Badorf Ware has occurred at only a limited

number of locations in Lincolnshire (Steedman 1994). In summary, the presence at Little Carlton of continental imports, allied with the large quantity of Ipswich Ware, strongly suggests that this was a site of singular wealth and status between the seventh and ninth centuries.

Table SM2 Summary of the Ceramics

Type	Date	Surface Assemblage	Excavated Assemblage
Badorf-type wares	8th-11th century	9 sherds 136g	6 sherds 96g
North French Blackwares	7th-9th century	3 sherds 43	1 sherd 37g
Ipwich wares	AD 720-850	887 sherds 21,772g	60 sherds 2,213g
Sand and chaf tempered	5th-9th century	41 sherds 838g	18 sherds 273g
Maxey-type wares	Late 7th-late 9th century	-	284 sherds 2,954g
Late Saxon wares	mid 9th-11th century	36 sherds 654g	-
Misc shelly wares	Late 7th-11th century	197 sherds 2,538g	-

APPENDIX SM4

BELLS AND BELL MANUFACTURE

Hugh Willmott FSA and Adam Daubney FSA

A further significant aspect of the metal-detected finds assemblage at Little Carlton are the copper-brazed iron bells (fig SM2). One near-complete example is known, and shoulder fragments from a minimum of fifteen further incomplete examples have been found, in addition to fifty miscellaneous body fragments and a single large clapper. Dating of the bells is problematic, especially given that all fragments have so far been discovered in unstratified contexts. Parallels have been found on a variety of high-status centres in England, however, and also occur within graves dating between the sixth and the tenth centuries (Hinton 2000, 47; Tester *et al* 2014, 274; Oxford Historic Environment Record HER no. 5487). Copper-brazed iron handbells are well-known in Ireland, where their production on monastic sites has been dated between AD 600 and 900. Several examples are also known in Scotland (Bourke 1980; Stevens 2009; Bourke 1983, 464).

Whilst handbells are recognised to have performed liturgical functions in Ireland, in England they have tended to be interpreted as animal bells (E.g., Ottaway 1992, 558; Hinton 2000, 45). A recent revaluation of early medieval handbells from across England, however, has brought this assumption into question, and it is clear that the picture is far more complex. Whilst iron bells are found in southern England and the Midlands, they are invariably plain and possibly for prosaic use. Conversely, all finds of brazen bells occur in the more northerly counties of Cumbria, Yorkshire, and Lincolnshire, all areas that fell under the Northumbrian sphere of influence at some point in the early medieval period (Willmott and Daubney 2020).

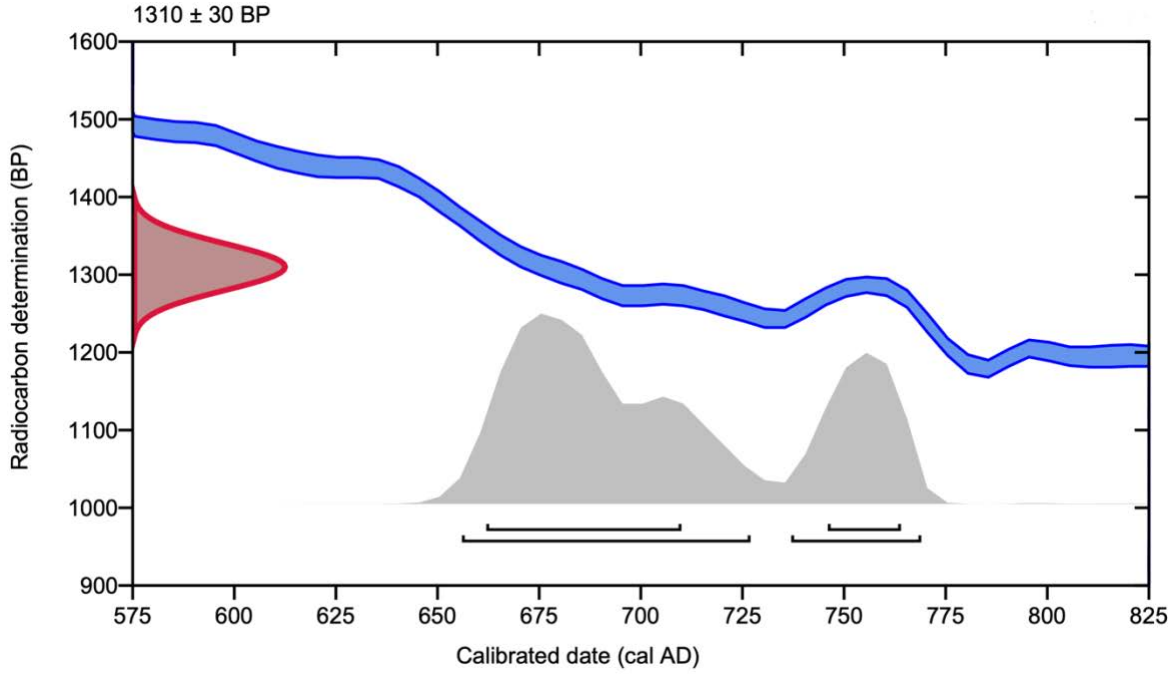
One fragment of a bell from Little Carlton bears mineralised textile impressions (PAS LIN-D7BED6), which seems to represent the wrapping that was placed around the bell during the copper-fusing process. Ordinarily, such evidence would have been removed by the surface treatment that took place after casting to polish the bell, so its survival suggests it was never properly finished, and it is, in fact, a piece of manufacturing debris. This fragment strongly suggests on-site manufacturing at Little Carlton, and is hugely significant in an international context; despite the large corpus of handbell finds in Ireland, for example, direct evidence for their manufacture has only been found at two sites, at Clonfad in Westmeath and Ballinglanna in Cork, both of which were monastic sites (Stevens 2009, 94).

Figure SM2 Fragments of Copper-Brazed Bells

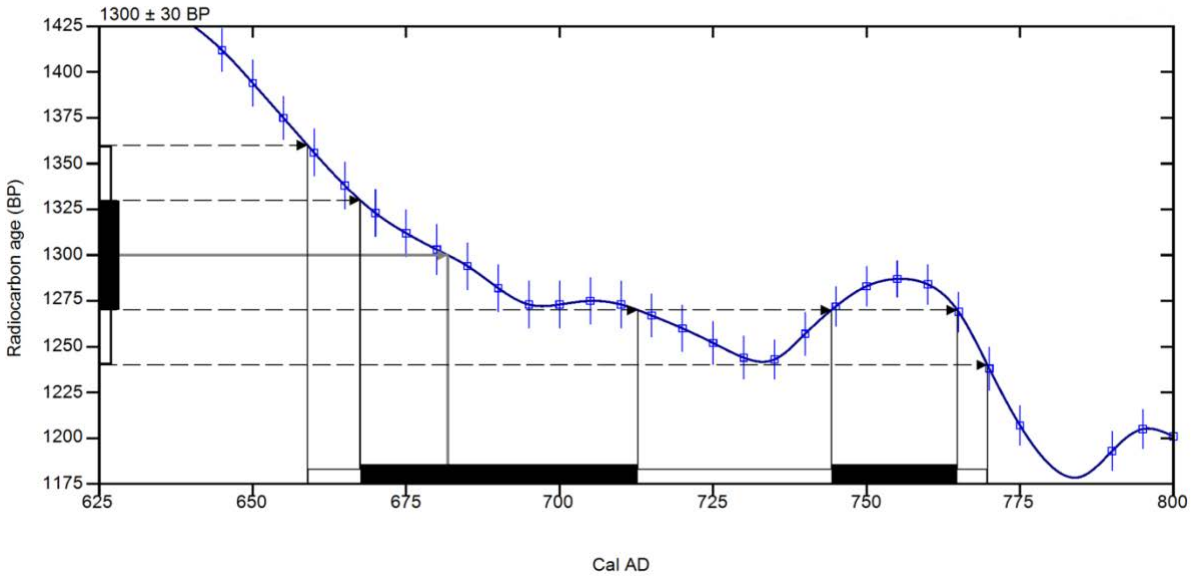
APPENDIX SM5

CALIBRATED RADIOCARBON DATES

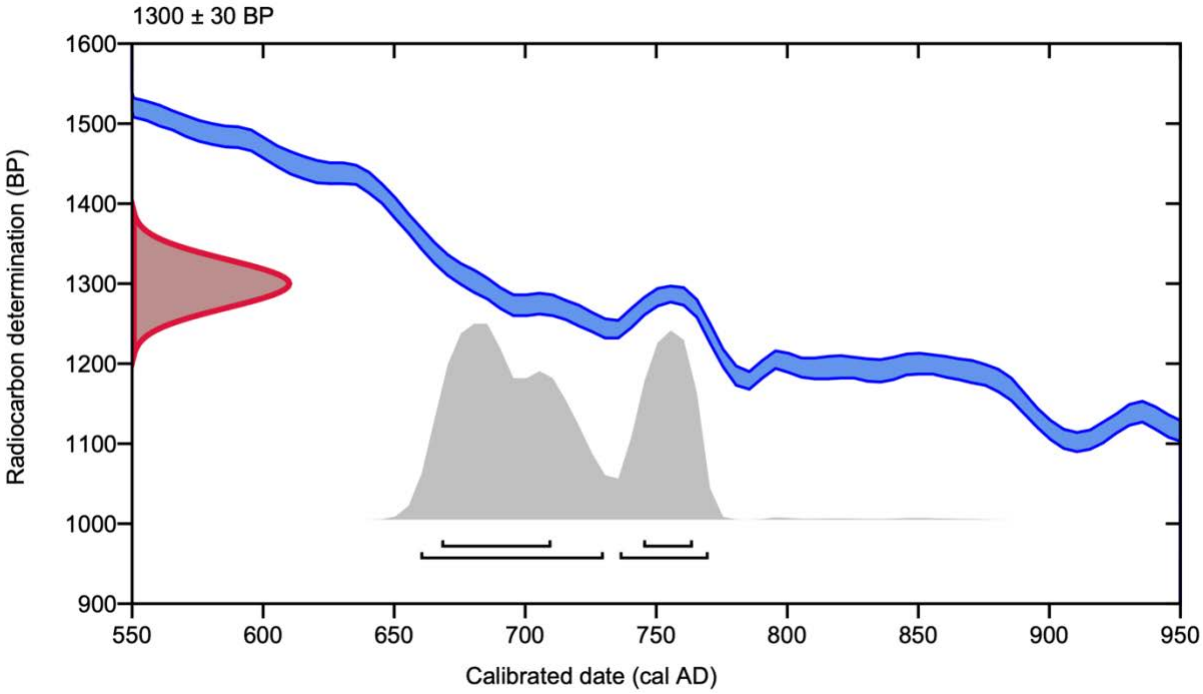
Wooden post (Beta Lab 504572)



Skeleton SK65 (Beta Lab 442776)



Wooden sleeper beam (Beta Lab 504573)



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