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Article:

Hadley, Dawn orcid.org/0000-0001-5452-5265 and Richards, Julian Daryl orcid.org/0000-0003-3938-899X (2018) In Search of the Viking Great Army:Beyond the Winter Camps. Medieval Settlement Research. pp. 1-17.

https://doi.org/10.5284/1017430

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IN SEARCH OF THE VIKING GREAT ARMY: BEYOND THE WINTER CAMPS

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Introduction

The *Anglo-Saxon Chronicle* recounts that a Viking Great Army (*micel here*) landed in East Anglia in 865, and over the following fifteen years fought numerous battles in all four Anglo-Saxon kingdoms, contracted (and broke) peace treaties, and deposed or killed at least three Anglo-Saxon kings, replacing them with their own appointees drawn from the local elite. Previous Viking armies had raided only in the summer months, but the Great Army was a constant presence in England during this period, over-wintering at various locations in northern and eastern England. The *Chronicle* presents the *micel here* as a rapidly moving force, taking on each of the Anglo-Saxon kingdoms in turn, and over-wintering at strategic locations between campaigns. In 872–873 it was based on the River Trent at Torksey in Lincolnshire, and the following year it was *c*. 115km upstream, at Repton in Derbyshire. From Repton the *Chronicle* tells us that this composite force split in two: part under its leaders Guthrum, Oscetel and Anwend headed south to Cambridge. Another group under Healfdene returned north where they are said to have over-wintered by the River Tyne, before they famously 'shared out the land of the Northumbrians and proceeded to plough and to support themselves' (Whitelock 1961, 48), and further groups settled in eastern Mercia (877) and East Anglia (880). These major land partitions mark the transition from raiding to political conquest and settlement, and our research brings new and tightly dated archaeological evidence to bear upon this critical period.

Until recently, knowledge of the movements and camps of the Viking Army which drove these changes has largely been limited to the brief entries in the *Anglo-Saxon Chronicle* and Asser's *Life of King Alfred*. The only excavated camp was that at Repton which came to be considered a type site, comprising a small D-shaped enclosure (Biddle and Kjølbye-Biddle 2001). Otherwise, little was known archaeologically about the other named camps, or other sites visited by the Army, although furnished burials at Reading and Sonning (Berkshire), on opposite banks of the Thames, and a hoard of coins deposited 'in a coffin' in St Mary's churchyard in Reading, have been associated with the over-wintering of the Army at Reading in 870–871 (Graham-Campbell 2004, 38). Indeed, there have been attempts to track the movements of the Army through various hoards deposited during this period, including both Viking hoards of coins and hacksilver, which were presumably deposited by members of the Army whilst on the move, and Anglo-Saxon coin hoards,

hidden to safeguard them from the Army. Examples include those at Croydon (Surrey), linked with the over-wintering in London (871–872) (Brooks and Graham-Campbell 2000), the Anglo-Saxon hoard from Beeston Tor (Staffordshire), which has been connected with the Repton over-wintering (Graham-Campbell 2004, 37), and most recently Watlington (Oxfordshire), associated with the campaign against Alfred in the late 870s (Williams and Naylor 2016). Until now, however, this approach has been limited to hoards of hacksilver and dateable coins. We believe that we can now identify a broader and distinctive assemblage of artefacts which may be associated with the Great Army.

Our recent research on the winter camp at Torksey (where the Army over-wintered in 872–873) has demonstrated that the published early medieval assemblage – of over 1500 artefacts – was largely deposited in a single episode (Hadley and Richards 2016).[2] The camp at Torksey encompassed an area of *c*.55ha, and must have been occupied by an army of considerable size. It lies above the floodplain of the River Trent and our geomorphological survey has demonstrated that it was effectively an island when the Great Army arrived. Indeed, the place name is derived from the OE element ēg ('an island; dry ground in fen raised land in a wet area') alongside a personal name of debated etymology, but probably OE *Turoc* (Cameron and Insley 2010, 122–126). However, we also need to look beyond the documented over-wintering sites. A similar, if smaller, assemblage has also been recovered by metal-detecting from Aldwark in North Yorkshire, *c*.20km north-west of York. Like Torksey, the camp is adjacent to a navigable river, in this case the River Ure, a little upstream of the River Ouse. The place name is also rather suggestive, as it is derived from the Old English '*ald*, *weorc*', or 'old fortification', and excavation by York Archaeological Trust revealed a large sub-rectangular enclosure of probable early medieval date. Gareth Williams (2015, 19) has dated the finds assemblage, principally from numismatic evidence, to the later 870s and has associated it with the move of Healfdene's part of the Army back into Northumbria, noting that the smaller area (*c*. 31ha) of the camp can be explained by the recorded division of the Army in 874.[3]

Together these sites provide an artefactual 'signature' for the activities of the Great Army and its offshoots.

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[2] Since publication a further c.500 artefacts of this date have been recovered and will be published in an updated version of our database (Richards and Hadley 2016).

[3] Aldwark was once known by the portmanteau name of Ainsbrook (from the surnames of the metal detectorists who identified the site) and more recently as 'a riverine site in north Yorkshire' or 'a riverine site north of York' (ARSNY).

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Subsequently, we have sought traces of this signature beyond the winter camps. At the rural settlement at Cottam (East Yorkshire), an initial but transient 'Great Army phase' has been identified, prior to the establishment of the Anglo-Scandinavian farmstead. In this paper we reveal some of the other places where this Great Army signature can now be seen, examining their relationship with the local landscape, communications networks, and estate centres. The activities of the Great Army are crucial to understanding the longer-term consequences of Scandinavian conquest and settlement in England, processes of urbanisation, transformation in craft production and trade, and major changes in the countryside. By identifying other places visited by the Army we can start to understand how it operated, how it moved through the landscape, and how it brought about these changes.

How the Great Army travelled

Halsall (2003) defines two forms of early medieval warfare: small-scale plundering raids and larger-scale campaigns. In both, the ability of warbands to move freely within enemy territory is regarded as the key to success. In their recent book on Anglo-Saxon civil defence Baker and Brookes (2013, 137) emphasise the speed at which the Viking Great Army was able to travel, attacking central places deep within opposition territory. They note the close association between the recorded movements of the Army and the principal roads and navigable waterways (Baker and Brookes 2013, Fig. 28) and the importance of accurate information about communications routes, as well as the ability to take effective control of them. The Army must have travelled overland, since it was 'supplied with horses' in East Anglia in 865 and 'rode across Mercia into East Anglia' in 870–871 (Whitelock 1961, 45–46). Its movements often appear to correlate with the course of Roman roads and prehistoric routeways. The primary arteries comprised the Icknield Way, and the Roman Watling Street, Ermine Street and Fosse Way (Baker and Brookes 2013, 142). However, whilst in Southern England the secondary routeways can sometimes be inferred from charter evidence, this is unavailable for most of Eastern and Northern England. Similarly place-names containing the OE here-pæð ('army road') are largely confined to Wessex (Baker 2011; Baker and Brookes 2013, 143–146; Brookes 2013, 49–51). Given the riverine location of many of the winter camps (as well as evidence for the presence of ships, such as clench bolts, at Torksey, Repton and Aldwark) it is safe to assume that the Great Army also reached these sites by boat. Baker and Brookes (2013, 172) note that our ability to map the extent of waterborne mobility in this period is limited by the lack of reliable written evidence for navigation. They suggest that the 'maximalist' model of river navigation presented by Edwards and Hindle (1991) may be too generous as it depends upon thirteenth-century and later sources. Nonetheless they observe, following Langdon (1993), that the upper reaches of rivers would probably have been accessible in winter, when river levels were higher, and note that the long-distance movements of the Great Army appear to take place immediately before taking up winter camp (Baker and Brookes 2013, 173).

River crossings acted as nodal points in the landscape and no doubt would have been important to the Great Army, especially for transshipment from boat to land and vice versa. Fords and bridges would also have been strategic locations for the control of movement through the landscape.

Finally, we also know that once a camp was established the Army did not remain closeted there all winter. Raiding forays were made from the camps – including one from Reading in 870 which was encountered by Ealderman Æthelwulf and the Berkshire fyrd (Stevenson 1904, 90–91; McLeod 2006, 145) – but archaeological evidence for such undertakings has not previously been identified (Graham-Campbell 2004). However, some of the places in the vicinity of the winter camps identified by our artefact signature may reflect the destinations of such foraging parties.

The archaeological signature of the Viking Great Army

The early medieval artefacts recovered from Torksey (Fig. 1) and Aldwark do not represent a typical settlement assemblage. They reflect instead the specialist nature of activities carried out whilst the Army, and its followers, over-wintered. These include trading, using both bullion and coins, and possibly minting; metal processing and manufacture, including melting down looted objects and transforming them into ingots; repair of ships and weapons; gambling and gaming.

The specific nature of the activities, and the limited background noise caused by earlier or later early medieval activity on these camps, means that it is possible to define a Great Army signature which comprises six main elements. Although the proportions of finds vary between Aldwark and Torksey, the elements are the same (Williams 2015, 99; Hadley and Richards 2016, 39, Table 1; Richards and Hadley 2016):
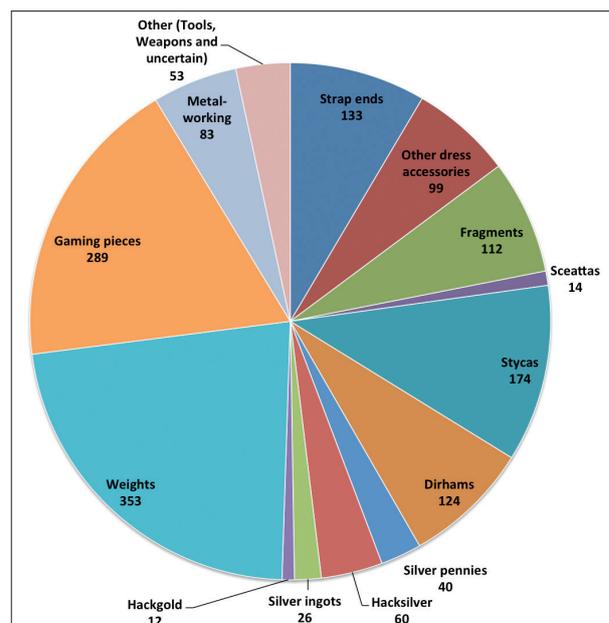

Figure 1   Early medieval finds recovered by metal detector from the winter camp at Torksey (to August 2015).

(1) Hack metal, including complete and fragmentary silver and gold ingots, and Arabic dirhams (generally cut into small pieces). There are 69 single finds of silver recorded from Aldwark and 86 from Torksey; two pieces of hackgold from Aldwark and twelve from Torksey; fourteen dirham fragments from Aldwark and 124 from Torksey.

(2) Lead and copper-alloy weights, which provide a second manifestation of a bullion economy (Fig. 2). There are 283 weights recorded from Aldwark and 353 published from Torksey, of which 37 are inset with coins or decorative metalwork. At Aldwark these include 24 cubo-octahedral weights; at Torksey there are 99 of this type.

(3) Stycas, although common at ninth-century sites in Northumbria, are a distinctive part of the Great Army signature when found outside their normal monetary circulation area. Those deposited at Torksey were probably acquired whilst the Army was in Northumbria, but were then used for small scale transactions. Over a quarter are blundered (Woods forthcoming), which may even suggest attempts by the Army to mint them (Williams 2014, 22). Whilst stycas might be expected at Aldwark the assemblage of 90 is unusually large; from Torksey 174 have been published.

(4) Anglo-Saxon silver pennies, outside their primary area of circulation, or where pierced or cut such as coins of Mercia and Wessex at Aldwark (Ager and Williams 2014). At Aldwark a hoard of ninth-century coins has been recorded, as well as two single finds; at Torksey some 40 examples have been published.

(5) Anglo-Saxon and Irish dress accessories and mounts, deliberately pierced or cut for re-use (*e.g.* insets in lead weights). The fact that there are many strap ends but very few pins at Aldwark and Torksey reinforces that these are not typical ninth-century settlement assemblages, in which pins and strap ends tend to be found in roughly equal numbers (Richards and Haldenby 2018).

(6) Lead gaming pieces, comprising hollowed or solid domed cones, sometimes with raised protuberances or knobs, and often crudely made (Fig. 3). More than 300 were recovered from Torksey and they may well represent the gambling of looted treasure on outcomes of games of strategy, which may in turn have created additional small pieces of silver, used as 'gambling chips'. It is also now clear that some of the lead objects recorded from Aldwark as weights are in fact gaming pieces (Lee Toone *pers. comm.*). These are not known from Scandinavia or the Continent, apart from four examples from Füsing and three from Hedeby, which Andres Dobat (2017, 602–603) interprets as objects imported by returning members of the Viking Army employed to garrison the Danevirke region. Nor have any yet been reported from sites known to have been visited by the Army prior to Torksey, where it is possible that lead derived from the Roman villa on the site, or alternatively acquired from local churches, provided a ready source of easily worked material from which to manufacture cruder versions of the glass, antler or bone playing pieces known from high-status burials (Hall 2016). The gaming pieces therefore provide a highly important *terminus post quem* of 872–873 and are a key element of the Great Army signature. Metal detecting has not been undertaken at Repton, but in 2016 several lead gaming pieces were discovered in a small excavation, outside the area defined by the D-shaped enclosure (Jarman 2018, 32–33). The lead gaming pieces are generally crudely manufactured objects, easily made and readily discarded. This enhances their value as dating indicators as they were not curated, and they do not occur in tenth-century Anglo-Scandinavian deposits, such as those in Coppergate in York, for example.

We have observed above that dateable hoards of coins and hacksilver have already been used in isolation to identify the passage of the Army. More recently, Kershaw (2017) has also recorded the presence of 180 individual finds of Viking Age silver bullion and weights in England, as evidence for a dual-currency economy operating in Eastern England from 865–940. Nonetheless the single finds and hoards are more selective than the winter camp assemblages, and the hoards reflect stocks of bullion, rather than the variety of activities from the camps. We believe that other elements of the signature – notably the presence of lead gaming pieces – are also diagnostic indicators. Generally, however, it is the presence in *combination* of several elements of the signature that is necessary in order to be confident that they reflect activities of the Army, following the principles of the classic definition of archaeological cultures as requiring the combination of several types (Childe 1929, v-vi). Elements of this signature, such as hacksilver, imported coinage, weights and evidence for metal-working, have been found at excavated Viking army bases in Ireland of earlier date (*e.g.* Woodstown (Co. Waterford) and Annagassan (Co. Louth)) but these have not yielded the same array of finds as the English winter camps (Russel and Hurley 2014; Kelly 2015). Woodstown was intensively metal-detected as part of the fieldwork programme and over 6000 objects were recorded. However, whilst it is thought to have been occupied on a permanent basis for several decades, just 41 items of Viking silver were recovered, and only one possible Anglo-Saxon coin, and two dirham fragments. Of the 199 lead weights from Woodstown discussed by Wallace (2014) almost all are plain; there are just six inset weights (and none inset with coins). There are no cubo-octahedral weights, and no lead gaming pieces. The Irish *longphuirt* may have their own characteristics but the assemblages are different from Torksey and Aldwark; it is specifically the Great Army of 865–878 with which we are concerned here. Furthermore, we certainly do not claim that every occurrence of Scandinavian-style objects has to relate to the Great Army. This was not the only Viking group active in England in the ninth and tenth centuries and other finds may relate to other warbands, as well as the presence of settlers and colonists. Indeed, we often find that there is a broader range of Scandinavian objects at sites which have a Great Army signature, and we suggest that these may relate to a subsequent settlement phase.

Figure 2   Selection of weights from various sites mentioned in the text. Photographs reproduced with permission from PAS, Andres Dobat, Dave Haldenby and Gary Johnson.

Figure 3   Selection of gaming pieces from various sites mentioned in the text. Photographs reproduced with permission from PAS, Andres Dobat, Dave Haldenby and Gary Johnson.

The Viking Great Army at Cottam, East Yorkshire

The Great Army was not a single unified force, but, rather, appears to have comprised multiple warbands drawn from different parts of Scandinavia, and also allies acquired along the way (McLeod 2014). Continental sources refer to ninth-century Viking armies comprising *sodalitates* ('brotherhoods') as Ben Raffield (2016, 324–330) has recently observed, suggesting that they were loose organisations of warrior retinues, akin to the *lið* of later Scandinavian runestones and heroic literature. In the unusually detailed account of the battles with the West Saxon forces in 871, it is apparent that the army was led by at least two kings – Bagsecg and Healfdene – and a number of *jarls*, with the army dividing into two at various stages. Moreover, this army was reinforced in this year by what the *Chronicle* describes as a 'great summer army' (Whitelock 1961, 47). Having defined the signature of the Great Army at the winter camps we have begun to identify the presence of what may reflect such smaller warbands and offshoots of the Army at rural settlements.

Key to our argument is the site known as Cottam B (SE975667) on the Yorkshire Wolds, where fieldwork has demonstrated the effects of the reorganization of land ownership following the Scandinavian settlement of Northumbria (Richards 1999). Excavation and geophysical survey revealed that an Anglo-Saxon settlement enclosure abandoned in the late ninth century was replaced by a new Anglo-Scandinavian farmstead some 100m to the north, comprising a gated entranceway and rectangular enclosures. Metal detecting and fieldwalking were crucial to refining the dating of this transformation. Of the 1082 catalogued objects (excluding pottery), 79% are early medieval, incorporating Anglo-Saxon and Anglo-Scandinavian finds. Artefacts of the eighth and ninth centuries were focused around the Anglo-Saxon enclosure, while those of the ninth and tenth centuries were associated with the gated enclosure, as was the concentration of Torksey ware pottery, introduced in the late ninth century (Richards 1999, 8-16).

Recent reassessment of the Cottam finds (Haldenby and Richards 2016) has revealed two phases of Viking activity, with an initial phase seemingly associated with an element of the Viking Great Army, before the establishment of the Anglo-Scandinavian farmstead. The first Viking finds at Cottam are widely distributed over an area of *c*. 6ha, and many are associated with bullion-related activities (Fig. 4). They include seventeen lead weights, fragments of two balance beams, a fragmentary *dirham,* and pieces of silver melt. A silver sceat of Eadberht (*c*. 750) is also a good candidate for a piece of bullion, partly given its juxtaposition to the weights, but even more tellingly because of the presence of a deep test 'peck' mark. An Anglo-Saxon book mount fragment, roughly chopped along one edge, and two crudely broken fragments of eighth-century metalwork may also have passed through Viking hands (Haldenby and Richards 2016, Section 4.4.1). The broad distribution of these bullion-related finds is shared by four quite distinct dress accessories, each of which has continental or Scandinavian origins: two Borre-style strap-ends; part of an ansate brooch; and a broad ribbed strap-end with ring-and-dot decoration.

The date of abandonment of the Middle Anglo-Saxon settlement at Cottam was underpinned by a roughly broken fragment of a silver penny of Æthelberht of Wessex, 858 – *c*. 862/4, found in the upper fill of a pit containing a human skull (Richards 1999, 36). Single broad Anglo-Saxon pennies are very rarely provenanced in Northumbria, with only seven examples from the Wolds in total, although over twenty are known from Torksey. Pirie's suggestion that the Cottam example represented long-distance trade, following the decline of the styca, was always at odds with the local origins of the other Anglo-Saxon finds. In the context of other hack metalwork this example can now be plausibly explained as having been brought to Cottam by a former member of the Viking Army, presumably from previous activity in southern England. Two iron spearheads and a sword guard similar to examples from Torksey are unusual finds for a settlement and may also derive from a visit by a part of the Army.

The case for this reflecting temporary occupation and maybe looting and processing rather than settlement rests upon several factors. Firstly, the dispersed nature of the finds from this phase suggests that those involved were not settling at this stage. Rather, the distribution is more consistent with a transitory presence, as also seen at the winter camps, by a faction of the Viking Great Army, engaged in stripping items of value from the Anglo-Saxon settlement, although some of the finds were presumably objects which they brought with them and subsequently discarded. Moreover, the lack of any settlement traces from the wide area from which the metalwork has been recovered, despite extensive geophysics and field-walking, is itself significant (Richards and Haldenby 2018).

Secondly, the assemblage mirrors that found at the winter camps, albeit in microcosm. It has a military character, but also reflects the melting down of extant objects, including exotic items. Less archaeologically visible commodities, such as people, animals, and food may also have been taken from Cottam. Certainly, trade may also have been involved, and those items which indicate bullion transactions may indicate exchange in archaeologically intangible goods, such as slaves, as well as precious metals, as is also assumed for the winter camps. Whilst a bullion economy continued to operate in the region into the tenth century, and there are notable silver hoards of the 920–930s, these are not from known settlement contexts and have been linked to later incursions from Ireland. Thirdly, the fact that the abandonment of the Anglo-Saxon site can be dated to the same moment confirms that this was not peaceful coexistence. It is not possible to say how long this phase of activity lasted but, as with the winter camps, our refined chronology may be allowing us to capture a single event, possibly around the seizure of York in 866–867 or subsequent years, or as a result of the recorded land partition in 876.

This apparent looting phase and initial takeover of the site was followed by a new Anglo-Scandinavian settlement which occupied a fraction of the area of the first phase and the finds come from within or immediately around the farmstead (Fig. 5). They include new forms and styles of dress accessories, including two lead-alloy disc brooches similar to examples from Coppergate in
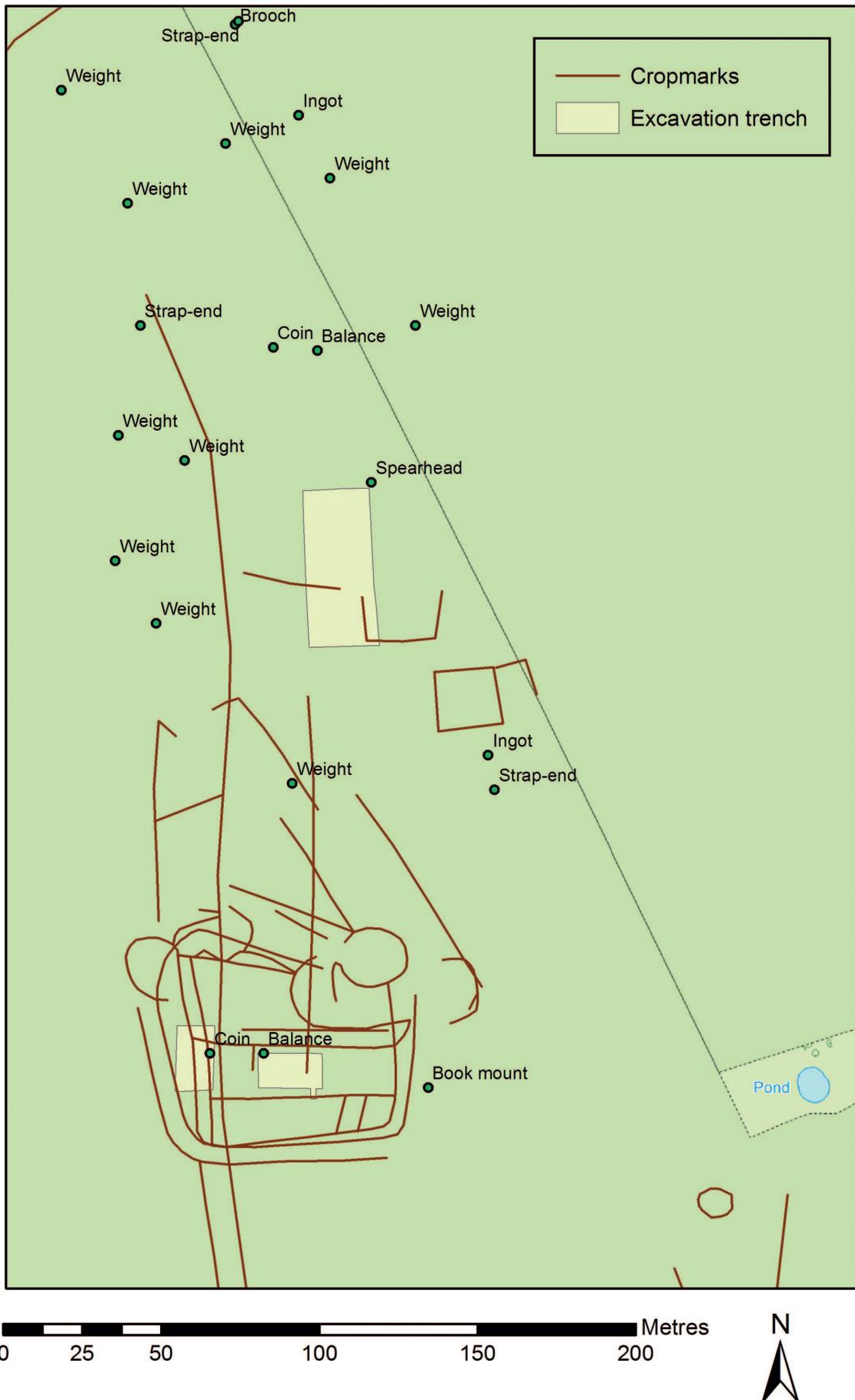
Figure 4   Distribution of finds attributed to the early Viking phase at Cottam, East Yorkshire. Figure by authors.
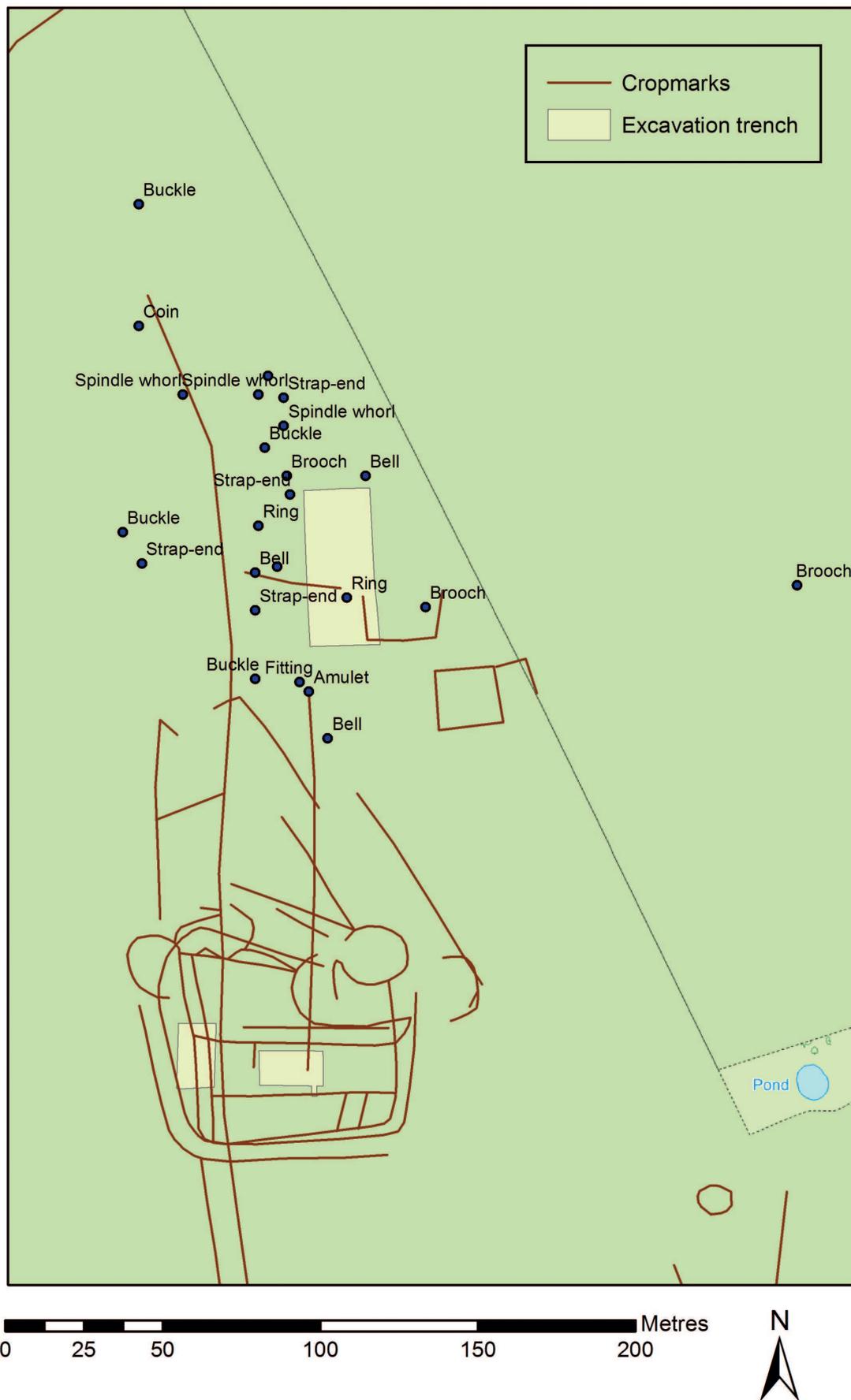
Figure 5   Distribution of finds attributed to the Scandinavian settlement phase at Cottam, East Yorkshire. Figure by authors.

York, three buckles, three Anglo-Scandinavian bells, and five lead spindle whorls, clearly reflecting permanent settlement and the appropriation of an outlying dependency of an Anglo-Saxon estate by Scandinavian settlers, who were indeed proceeding 'to plough and to support themselves' (Haldenby and Richards 2016, Section 4.4.2). In this context, the discovery of a hoard of three plough shares at Torksey may be more than coincidence.[4] If this were a deliberate collection of farming equipment gathered for use by new settlers, it indicates a level of intentionality already present at the winter camps. Cottam B therefore captures the moment of a critical transition in Viking behavior in England, from raiding to settlement activity, and it would appear to be the first time that the activity of a Viking raiding party has been identified at a rural settlement.

The Great Army on the move

The Viking Great Army left a distinctive archaeological signature at the winter camps of Aldwark and Torksey, and we have also traced aspects of this in a re-examination of finds from Cottam, where fieldwork and detailed plotting has suggested that a miniature signature reflects activity by an offshoot of the Army. It is now possible to apply this signature to areas of the country known to have been visited by the Army in order to identify its archaeological traces and the places it, and its offshoots, may have visited (Fig. 6). There are relatively small numbers of relevant excavated sites, but for England the Portable Antiquities Scheme (PAS) provides an invaluable resource in the search for artefact assemblages, despite being subject to the usual known limitations and biases (Richards *et al*. 2009, Section 2.6). For the purposes of this study these include the lack of evidence for urban areas (which includes many of the other known winter camp sites recorded in the *Anglo-Saxon Chronicle*, such as Nottingham, Thetford, Reading and London), as well as the relative paucity of detected finds in North-East England, including the Northumbrian sub-kingdom of Bernicia (Richards and Naylor 2012, 135–139). Other difficulties include the fact that some of the categories of finds have hitherto been unrecognized, notably lead gaming pieces, which are also often unassigned to a period. Other artefact types, such as weaponry, including iron axes, spears, and swords, were no doubt common possessions amongst members of the Great Army, and are recorded at Repton, Torksey and Aldwark, but they are underrepresented on the PAS as metal detectorists generally set their detectors to discriminate against iron.

Nonetheless the areas of Eastern Yorkshire and Lincolnshire which were later subject to longer term Scandinavian settlement are largely ploughed agricultural land today and are well served by the PAS and our research has identified large numbers of additional sites in these regions which were visited by the Great Army and its offshoots (Fig. 7). In the following sections, information derived from the PAS uses the location names by which they are known on the database, and distribution maps and detailed grid references are not provided as these are held as confidential information

by the PAS. Nonetheless, PAS finds reference numbers are provided in the footnotes, and the broad location is indicated.

In all the examples cited below the locations were initially identified from elements of the Great Army signature. Although the number of finds may be small in comparison to the winter camps it is worth noting that these sites have been subject to variable levels of survey, and not to the sustained level of metal detecting to which Aldwark, Torksey and Cottam have been subjected. In some of these places additional Scandinavian artefact types have also been recovered, for example of the types discussed by Kershaw (2013). Where that is the case we have noted their presence but these finds occur more widely, and are not part of the Great Army signature. They may have been dress accessories lost by members of the Army but they may also reflect a subsequent settlement phase, as at Cottam. As will become clear, the assemblages reflect a range of settlement histories, with some Anglo-Saxon sites also yielding a few Viking finds, and then being apparently abandoned; others which are re-occupied by Scandinavian settlers; and others which have only Viking finds, but which may neighbour Anglo-Saxon sites. It should also be noted that many of the finds have been recovered from a broad area, and may reflect multiple activity foci, relating to repeated visits by members of the Army to the locality.

The Trent Valley and the hinterland of Torksey and Repton in the 870s

Along the Trent Valley, there are numerous sites with elements of the Great Army signature, albeit on a much smaller scale than at the winter camps. These locations may represent places to which members of the Great Army forayed whilst they were based at Torksey or Repton, or places encountered en route as they travelled to and from their winter bases. Despite the *Anglo-Saxon Chronicle* only naming a single place, the Army may have spread over the immediate area whenever it over-wintered. Indeed, it has been argued that the cremation cemetery at Heath Wood was contemporary with the camp at Repton, *c*. 4km north-west (Richards *et al*. 2004, 100–101). Derbyshire has witnessed far less metal detecting than counties to the east, but there are several concentrations of finds around Catton, *c*. 15km south-west of Repton on the banks of the Trent, from where fifteen lead gaming pieces, two weights, one inset with an Anglo-Saxon coin, a silver ingot, copper-alloy Thor's hammer pendant and a mid-eighth-century dirham have been recovered.[5] Catton is close to several ancient crossing points over the Trent as well as the toll bridge at Walton Bridge, whilst at Stanton-by-Bridge, 8km east of Repton, a lead gaming piece and inset weight have been retrieved, close to another crossing point over the Trent.[6] The correspondence between components of a Great Army signature and riverine crossings suggests that they may have been occupied on a temporary basis

[4] NLM-F10454

[5] PUBLIC-0058FD, -14F64D, -E6DC4E, -1A6EE8, -071C0B, -E2A64A, -E27AD8, -55B858, -559762, -557681, -9B1DD8, -E5574E, -A5304F, -740CEE, -8790D1, -B8D647, -458D27, -DEDO73, -D21AF9
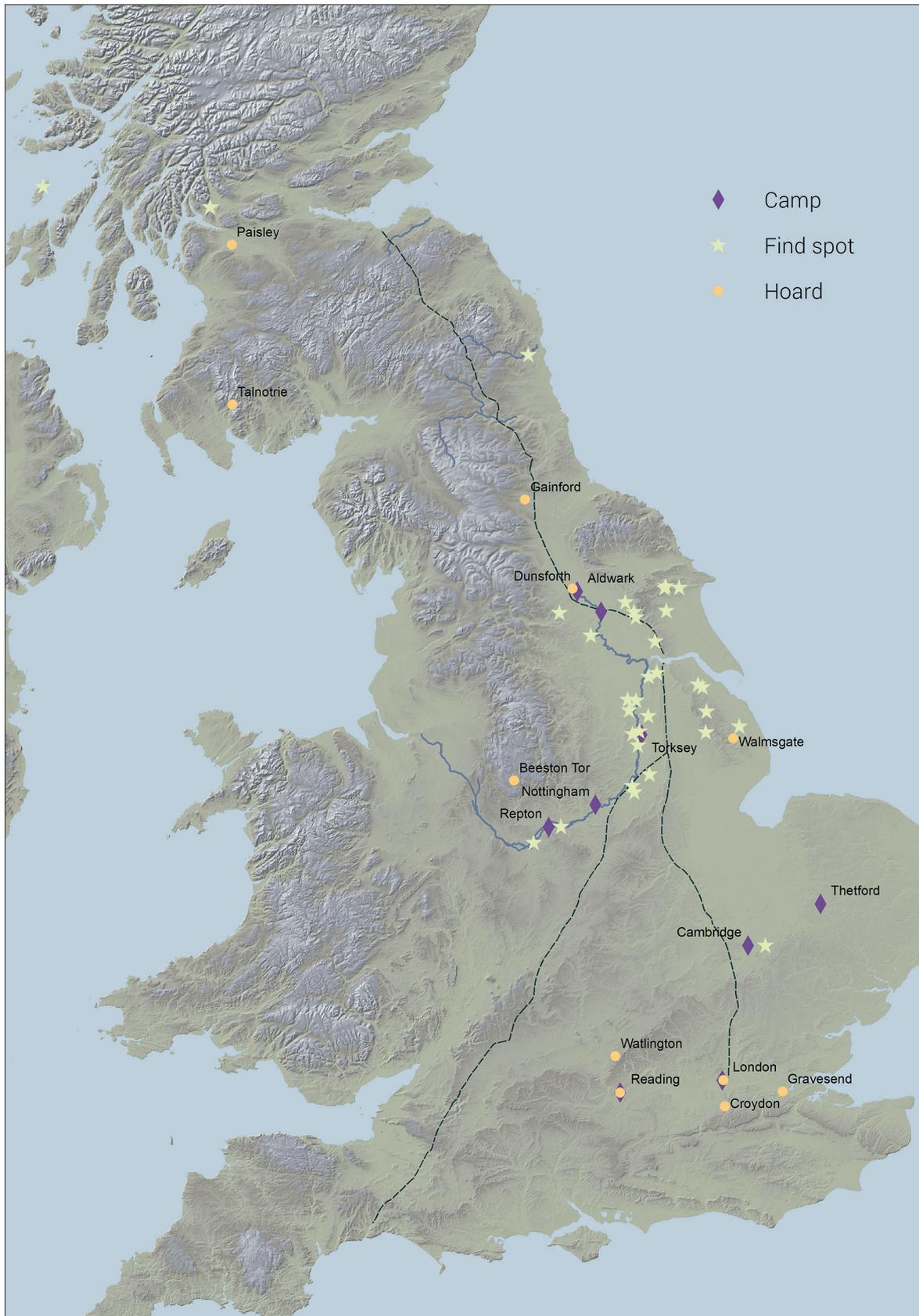[6] DENO-650DB1; DENO-646EE0

Figure 6   Places visited by the Viking Great Army and its offshoots, with the Roman roads Ermine Street and Fosse Way, and the Rivers Ouse and Trent. Contains Ordnance Survey data © Crown copyright and database right 2016. Elevation derived from Jarvis A., et al. 2008, Hole-filled seamless SRTM data V4, International Centre for Tropical Agriculture (CIAT), available from http://srtm.csi.cgiar.org. Roman roads derived from McCormick, M. et al. 2013. Roman Road Network (version 2008), DARMC Scholarly Data Series, Data Contribution Series #2013–5. DARMC, Center for Geographic Analysis, Harvard University. Figure by Helen Goodchild.

Figure 7   Places visited by the Viking Great Army and its offshoots in Eastern England. Base mapping as Figure 6. Figure by Helen Goodchild.

as strategic outposts of the winter camps to monitor and control movements.

Two sites on the River Devon, which joins the Trent at Newark, have produced a Great Army signature: hackmetal has been recovered from Hawton, including a group of six silver ingot fragments and melts, a silver bracelet fragment comprising five twisted silver wires with a zoomorphic terminal and a gold finger ring fragment;[7] while gaming pieces and lead weights have been found at Cotham, including one inset with a coin, possibly a styca.[8] Both sites are within 3km of a crossing point over the Trent to Fiskerton, and both are also located close to the Roman Fosse Way. Twenty-one lead gaming pieces have been found within *c*.3km of the Fosse Way at Stapleford (Lincolnshire), close to the River Witham; this must also have been a crossing point over the river to judge from the place name (OE *stapol, ford*, 'post/pillar, ford'; Cameron 1998, 117).[9] John Blair has recently argued that the place-name element 'stapol' may

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[7] NLM-1B0476; NLM-1B89B2

[8] DENO-FC3487, -7E724A, -489F9E, -9236D3, -918343, -912387, -7E724A, -7C8272, -174A55
[9] LIN-CB2640

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Figure 8   Selection of Viking finds from Roxby cum Risby. Photographs reproduced with permission from PAS.

sometimes have referred to something more significant than merely the form of construction for crossing a river. He has noted that Stapleford place-names are typically located near to Anglo-Saxon royal or urban centres, perhaps suggesting that 'a recurrent adjunct to such places was a *stapol* (for making announcements or speeches?) at a river crossing' (Blair 2013, 188). Indeed, the Lincolnshire Stapleford is on the opposite banks of the Witham to Brant Broughton, which has a place-name (*burh*, *tūn*, 'farmstead of the fortified place'; Cameron 1998, 21–22) often associated with Mercian royal centres or minsters (Blair 2013, 188).[10]

Two kilometres downriver of Torksey, where the prehistoric trackway Tillbridge Lane crosses the Trent at Littleborough (literally the 'little fortification', referring to a Roman fort), 25 stycas have been recovered by metal-detecting.[11] As at Torksey, where 174 stycas had been recorded by August 2015, this is a notable concentration outside Northumbria (Hadley and Richards 2016, 39, 61). Traces of Viking activity have also been recovered from three places on the opposite banks of the Trent to Torksey. There are two lead inset weights from Dunham-on-Trent, one of which appears to have contained a coin;[12] a gold ingot from South Leverton;[13] and a cubo-octahedral copper-alloy weight from Misterton (Notts).[14] While this is a limited body of evidence, it is intriguing that all three were the locations of important early churches. South Leverton has sculpture of early ninth-century date (Everson and Stocker 2007), and the place-name of Misterton (OE *mynster, tūn*) suggests early ecclesiastical origins. Dunham was a royal manor in 1066, and its church was among those granted by Henry I to the Archbishop of York, to make a prebend in Southwell minster, and these donations have elsewhere been demonstrated to have

been major early churches (Hadley 2000, 277–278). Dunham Bridge is still a toll bridge over the Trent, and may have been another ancient crossing point.

Further downstream of Torksey there are more sites with elements of a Great Army signature, marking a major route northwards. Close to the confluence of the Trent with the Humber, lead weights, gaming pieces, a Borre-style strap end and another of Irish Sea type, a Borre-style openwork lozenge brooch, a styca and a ninth-century East Anglian penny have been recovered from a number of locations on the Isle of Axholme.[15] Until drainage in the seventeenth century, this was an island, bounded by the rivers Trent, Idle and Don, and the peat bogs of Thorne and Hatfield moors, and the place name is derived from the *holmr* (island) of Haxey (ON 'Haki's island' OE ēg or ON *ey*). On the opposite banks of the Trent from the crossing point at Owston Ferry, two lead gaming pieces and a weight have been recovered from Laughton.[16] Immediately to the south, in the parishes of Corringham and Blyton, metal detecting has produced a lead inset weight, a copper-alloy barrel-shaped weight, three hollow concavo-convex lead gaming pieces identical to examples from Torksey, at least twenty other lead gaming pieces or weights, both copper-alloy and silver metalworking debris, and two copper-alloy ingot fragments.[17] The clustering of finds within a 2km radius suggests that there may have been two separate focal points of the Great Army's activity in the vicinity. Little is known of the ninth-century status of any of the settlements in this area, but the church of Corringham was certainly of regional significance in the

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[10] The first element of the place-name is Middle English *brende*, 'burnt', and must relate to an event long postdating the appearance of the Great Army in the vicinity.

[11] EMC-2009.0195-0222

[12] NLM-756FC2; NLM-941282

[13] DENO-938F3D

[14] SWYOR-3C5372

[15] NLM-75EF12,   -5A83F0,   -BB567B,   -137807,   -7C1945, -759F41, -230442, -0DB189, -DDEF4, -2D7972, -5E2C37, -B633CE, -8D4C97, -547633, -B9350A, -CA0E43, -0C91D4; -2504D3, -279166, NLM6083, NLM2763

[16] NLM-EC0B06; NLM-EBFBDB; SWYOR-4F8082

[17] NLM-C71CDE, -B3DF94, -B3D4A3, -FF0ABB, -B3CABD, -7B7E63,   -9CFE5C,   -521C15,   -7E0B64,   -FE17AA,   -C7D5FA, -69D461,   -61538D,   -F724E1,   -B125DF,   -930AB3,   -0BDE58, -34179D, -60F7E6, -DA64E7, -392657, -F6BDD4, -61ADD9, -AB4C48, -AB5823, -AC76DC, -ACBACA, -ACCF97, -B16D27, -B1FE86; LIN-E9D6E4, -F6BD25, -3A4E60. The sites are variously known as 'near Gainsborough' and 'West Lindsey'.

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later medieval period. It was the centre of a deanery and the church was granted by Henry I to Lincoln cathedral as a prebend; it is, thus, possible that this reflects origins as an important church at an earlier date (Owen 1971, 29).

The most extensively excavated rural settlement in Lincolnshire is Flixborough, close to the Trent, occupied from the seventh to the eleventh century. However, it experienced disruption in the later ninth century: continental imports ceased, there was a reduction in the range of craft working activity, and the earlier lifestyle 'of conspicuous consumption of larger cattle and wild "feast" species was completely unattainable' due to disruption of inter-regional networks, although these changes had largely been reversed by the tenth century (Loveluck 2007, 154–157). Many factors may account for the late ninth-century disruption, including reorganisation of landholding and estate structures, but the impact of the Great Army may be traced through evidence for a bullion economy, including a silver ingot, which metallurgical analysis suggested was melted down from coins, and twelve lead weights (Archibald *et al*. 2007, 422–424). Although Flixborough sits at the southern end of their main area of circulation, 27 stycas present a rare concentration in Lincolnshire. All but five are irregular issues, an unusually high proportion, and most have blundered inscriptions (Archibald *et al*. 2007, 413-20). There is little die matching with stycas from Yorkshire hoards, but four of the blundered coins appear to be die matched to each other, rendering local production likely, although not necessarily at Flixborough itself (Andrew Woods, *pers. comm*.). It is uncertain whether this is an unofficial late Anglian issue, or even a Viking issue, as has been suggested for other concentrations of blundered stycas (Williams 2014, 22).

Finds from the neighbouring parish of Roxby cum Risby recovered across an area of *c*. 400ha strengthen the case that the late ninth-century transformations at Flixborough can be linked to the Great Army. These include two copper-alloy cubo-octahedral weights, five discoid lead weights, one inset with an iron object, a silver ingot, and a lead gaming piece (Fig. 8).[18] Other notable finds are an Irish mount of ninth-century date, which seems most plausibly to be explained as being brought to the region under Scandinavian agency, a mount in the shape of a Thor's hammer, and a range of metalworking debris.[19] A coin of King Alfred found in 2012 may also indicate the presence of members of the Great Army in this region.[20] It is a rare single find of the cross-and-lozenge type, which dates to after the coinage reform of *c*. 875; indeed it was the first such coin to be reported to the PAS. Since then 180 examples have been found among the Watlington hoard, which was unquestionably a Viking collection given its hackmetal and Carolingian coins (Williams and Naylor 2016). A continuing Scandinavian presence in the Roxby area – equivalent to the settlement phase at Cottam – is suggested not only by local place-names of Scandinavian origin (including both Roxby and Risby), but also an array of

artefacts with Scandinavian stylistic influences (Leonard 2015, 104–179). These are of types identified by Jane Kershaw (2013) as indicating a Scandinavian presence across Eastern England. They include a flat disc brooch, of Anglo-Saxon form, decorated in the Borre style, a Jellinge-style brooch, an Anglo-Scandinavian bell, and rings, bridle fittings and buckles in Scandinavian styles. Whatever the nature of the Great Army's activity in this area, it clearly paved the way for subsequent settlement. By comparison with Flixborough, where there are no such tenth-century Scandinavian artefacts (Loveluck 2007, 155), we can see how diverse the impact was, even within the space of a little over a kilometre. Given its occupation through the ninth and tenth centuries, the absence of traces of Scandinavian activity at Flixborough has, indeed, been noted as a 'peculiarity' (Kershaw 2013, 199). However, we have shown that the crucial evidence lies in the neighbouring parishes, and this emphasises the importance of examining not only the archaeological profiles of individual sites, but also the relationships between them.

The Lincolnshire Wolds
In addition to the riverine route along the Trent to the Humber, sites with a Great Army signature occur on the major land routes across the Lincolnshire Wolds. Several well-studied substantial Middle Anglo-Saxon settlements contracted, were relocated, abandoned or underwent a change of status in the late ninth century. These include Little Carlton in the marshlands, just to the east of the Wolds, which has produced over 700 Middle Anglo-Saxon metal artefacts, and the largest assemblage of eighth- and ninth-century Ipswich ware pottery outside of East Anglia, other than London, as well as continental imports. This high-status site has evidence for long-distance trade, craft production and literacy, but has produced very few traces of any activity after the late ninth century, with the latest coin being a lunette of Burgred of Mercia from the early 870s. There is little of the wheel-thrown pottery characteristic of the tenth century, and only a handful of metal artefacts that may date to that period (Daubney 2016, 249–268). The site is notably just 6km from the only known hoard of the 870s from Lincolnshire, at Walmsgate, close to Barton Street, one of the major north-south routeways through the region, which is of probable prehistoric origins. Comprising nine West Saxon and Mercian coins, this hoard has been dated to *c*. 873, given the absence of the latest issues of Burgred (Pagan 1986, 209); these coins would, at the latest, have been demonetized by *c*. 875 when the Mercian and West Saxon coinage was reformed (Blackburn 1998). There is nothing Scandinavian about this hoard, the coins are typical of finds from the region, and so it seems likely to have been in local ownership and hidden for safekeeping, and may reflect the presence of the Army in this area in the early 870s. At the north end of the Wolds, also on Barton Street, late ninth-century disruption has been identified at Riby Cross Roads, where a pipeline excavation revealed a settlement occupied between the seventh and mid-ninth centuries, at which point both pottery and metalwork peters out (Steedman 1994). Three lead gaming pieces, at least three fragmentary ninth-century strap ends, a cut chip-carved mount or brooch and a gilt copper-alloy ninth-century

[18] NLM-A27134, -EBA6E3, -588554, -602494, -C995EB, -C7BB75, -296817, -683755, -CF5995
[19] NLM-92AFEC, -DA7151, -C6EB24
[20] NLM-124D04

Irish mount have subsequently been recovered by metal detecting within the vicinity of the excavated site, and have a Great Army signature.[21] A metal-detected site a little over a kilometre away 'near Keelby' has produced more than a hundred Middle Anglo-Saxon artefacts, but very little that can be securely dated to the late ninth or tenth century, suggesting abandonment of this site in the later ninth century. Similarly, six lead gaming pieces have been recovered from the Middle Anglo-Saxon site at Benniworth, on the western edge of the Wolds, which has otherwise produced nothing of later date.[22] Thus, once again the demise of a settlement corresponds with artefacts associated with the Great Army.

The neighbouring Wolds parishes of Swinhope and Binbrook have yielded in excess of 120 Middle Anglo-Saxon metal artefacts, among which are a handful that we may associate with the Great Army, including nine lead weights, one of which seems to have been of the inset variety, four lead gaming pieces, and a dirham, dated 786–809 (Fig. 9).[23] There is also a section of a copper-alloy strap end with iron spots on the reverse suggesting that it had been inserted as a mount on a weight.[24] Three continental ansate brooches, a strap-end of Irish Sea type, a Borre-style mount and two stycas may also be associated with the Army.[25] The majority of finds have been recovered from on sloping ground looking across the valley to Swinhope, where a Neolithic long barrow was reused for the burial of an adult female and a juvenile in the later Anglo-Saxon period. There were no accompanying artefacts, and the radiocarbon date range (published as cal AD885–1010 at the 68% confidence range) is too broad to be conclusive, but it is at least intriguing that a locale with a concentration of finds that must have been associated with Scandinavians should have two such irregular burials (Phillips 1989, 32–34).[26] Moreover, there are well known instances of Scandinavian re-use of prehistoric burial mounds elsewhere, such as Hesket in the Forest (Cumbria) and Claughton Hall (Lancs) (Richards 2000, 144). As at Roxby cum Risby, we can trace continuing Scandinavian influence, in the form of a St Peter's coin minted after 905 at York under Scandinavian agency, a Scandinavian copy of a coin of King Edward the Elder, perhaps minted at Lincoln, a die for producing filigree pendants, of the tenth-century Hidensee-Rügen type, similar to dies from Hedeby and Trelleborg (Kershaw 2013, 133), and ninth- and tenth-century jewellery, bridle fittings and dress accessories displaying Scandinavian influence.[27]

East Yorkshire
North of the Humber, there is further evidence for the presence of elements of the Great Army along the major routeways, and in the vicinity of Anglo-Saxon estate centres. In East Yorkshire most Middle Anglo-Saxon sites have been identified by metal-detecting, but the vast majority were abandoned in the late ninth century. At many of these sites there is a small proportion of Viking finds, which we believe reflects brief visits by elements of the Viking Great Army, either as part of raiding or trading activity, and possibly as reconnaissance. These include several in the vicinity of the Anglo-Saxon royal estate centre at Driffield (Loveluck 1996): Bainton, a recently discovered site 9km south-west of Driffield, with three weights and a gold ingot fragment;[28] Cowlam, 1km west of Cottam B, with two gaming pieces, one weight, and one fragment of a silver ingot;[29] and Kilham, with three gaming pieces.[30] Other sites, such as 'Near Pocklington' with two gaming pieces,[31] Yapham 1 with half a silver penny of Burgred, and a gold strip,[32] and South Newbald with four gaming pieces, two weights, and a bun-shaped silver ingot,[33] follow the line of the Roman road from the Humber crossing up to York. Stamford Bridge 1, with part of a chain from a balance and two ingots, is also at a key location where a Roman road crosses the River Derwent.[34] There is also plausible evidence for a visit by members of the Great Army to the putative *wic* site at Fishergate in York with a penny of Æthelberht of Wessex (858–865/6) and the terminal from a penannular brooch (Rogers 1993, 1358, object no. 5333; Abramson 2016, 190). The only other Æthelberht coin found in Northumbria is that from Cottam, mentioned above.

A second, much smaller group of sites, have aspects of the Great Army signature but also have a broader range of domestic artefacts and dress accessories associated with permanent settlement and are occupied into the Anglo-Scandinavian period, as at Cottam. These comprise Stamford Bridge 2, with seventeen weights, part of a balance chain, and a dirham fragment,[35] but also a range of Anglo-Scandinavian jewellery, three spindle whorls and two Anglo-Scandinavian bells; and Yapham 2, with twelve weights, two gaming pieces, a terminal from an eighth-/ninth-century Irish penannular brooch, and at least three pieces of bullion, including a silver ingot, a gold finger ring, and a fragment of a silver one (Fig. 10),[36] as well as ten spindle whorls and a range of Anglo-Scandinavian jewellery. In both the Lincolnshire and Yorkshire Wolds, therefore, there is evidence for the impact of the Great Army, with their visits leading to many settlements being abandoned, but with a smaller number of sites continuing in use with a tenth-century Anglo-Scandinavian presence.

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[21] NLM-948453, -94576D, -944778, -8E45DA, -8E3969, -8E22A7; LIN-B8FA61, -4997F4

[22] LIN-A61F45, -A6173D, -0EA63B, -5C189A, -5AC4F3, -5A4C35

[23] NLM-973C42, -736B77, -FAFB63, -FB2018, -81457A, -59445A, -5BA62D, -C17F91, -CE80A5, -B35042, -7AD374, -7ABE36; -67EA51, NLM7127

[24] NLM-1F77A8

[25] NLM-2063B4, -83A75F, -76B7C9, -D16E7E, -16D3F5; SUR-7EA696; EMC 1999.0053

[26] For further discussion of Swinhope and Binbrook see Hadley and Richards in prep.

[27] NLM-74E2E4, -22016, -690F57, -6309B5, -FC0D13

[28] YORYM-E7CE31; weights Haldenby *pers. comm.*

[29] Richards 2013; two gaming pieces Haldenby *pers. comm.*; YORYM-9A0961 (but recorded with wrong spatial information on PAS); FAKL-284426

[30] FAKL-CED235; FAKL-CEFD68; FAKL-CEE182

[31] Haldenby *pers. comm.*, in Hull Museum

[32] YORYM-90AE41; YORYM-9133BA

[33] Hull Museum KINCM 2000.86.282, 1991.74.782.1&2; two gaming pieces Haldenby *pers. comm.*; inset coin weight Booth and Blowers 1983, find no 64

[34] YORYM-EDECBA; YORYM-3BAF25; YORYM-FAE529

[35] YORYM-6AD518, -6AE013, -6B0A11, -37FD30, -6AC476, -37F393, -383C30, -383322, -6B45F7, -6B2904, -6B33B3, -382861, -37EB47, -377CE6, -01C134, -01F580, -01F154, -FD9151, -FD78D5, but latter two finds misidentified on PAS

[36] YORYM-29D955, -C2F885, -C2F130, -06B5C2, -6056B7, -F0F231

Figure 9   Selection of Viking finds from Swinhope. Photographs reproduced with permission from PAS.

Figure 10   Selection of Viking finds from Yapham. Photographs reproduced with permission from PAS.

North Yorkshire

West of York there are also examples of the Great Army signature, potentially linked with the camp at Aldwark, or the transpennine communications corridor to Dublin. From Ryther, on the River Wharfe, there are at least four gaming pieces[37], and a fragment of eighth-century chip-carved and openwork gilded copper-alloy jewellery, but also a broad range of Anglo-Scandinavian brooches and a spindle whorl indicating longer term settlement. From Spofforth ('the place by the ford') have come a ninth-century dirham, hacksilver in the form of a fragmentary strip decorated with triangular punches and part of an armring of Permian type, a Borre-style brooch, a kite-shaped pin of Irish origins and thirteen stycas, which although not unusual in Northumbria, present a striking concentration this far north.[38] The finds come from gently sloping land overlooking the causeway over the floodplain of the River Crimple, and are on the opposite bank to the medieval and modern village. Spofforth was the location of an important later medieval church, while excavation at Village Farm has identified a cemetery dating to the eighth/ninth century, containing high-status burials in wooden chests (Johnson 2002). As already noted, crossing places had strategic significance, but they were also places of political negotiation and may have had symbolic significance (Raffield 2014, 640).

East Anglia

Kershaw (2013) has documented large numbers of finds from East Anglia which she attributes to Scandinavian settlers of the ninth and tenth centuries, particularly female dress accessories. In contrast, the signature of the Great Army is surprisingly rare in this region, with just a small group of finds from Little Wilbraham (Cambs), 11km east of Cambridge, comprising three gaming pieces and a weight.[39] If we are correct that the gaming pieces post-date Torksey then this cluster dates to Guthrum's return to East Anglia, and his stay at Cambridge from 874–875 (Whitelock 1961, 48). Further corroboration for the dating of the gaming pieces is provided by the fact that whilst numerous Viking weights have been found in the Thetford region,[40] where the Army over-wintered in 869–870, not a single gaming piece has been recovered thus far.

Beyond the Tyne

Despite the *Anglo-Saxon Chronicle* reference to Healfdene's forces over-wintering on the Tyne in 874-875 there are few sites with a Great Army signature in the area, although this may reflect the built-up nature of much of the region and the lower level of metal-detecting. A notable exception is on the south banks of the River Coquet, enclosed within a peninsula formed by the Thirston Burn, which has produced seven lead gaming pieces, two irregular stycas and a third embedded in a copper-alloy disc, which may have been a weight, a

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[37] NLM-889AE0, plus three gaming pieces and chip-carved jewellery Haldenby *pers. comm.*
[38] SWYOR-598651, -58AFB4, -55BBB2, -7E3651, -7DE7F4, -7D9846, -3A1135, -39D257, -92B7D1, -929EF1, -1FC7A8, -BBC816; YORYM-EA9B13, -2767A3, -26E8A4, -C63C81

[39] SF-1CB627, -6F5256, -6F7361, -50B784, -B137C2
[40] e.g. NMS-E00012, -C87D47, -AC3743, -482D03, -05E756

lead weight inset with glass, and a copper-alloy domed stud of Scandinavian type.[41]

The *Chronicle* entry for 874–875 reports that Healfdene's forces based on the Tyne 'often ravaged among the Picts and the Strathclyde Britons' (Whitelock 1961, 48), and we believe that the activities of this offshoot of the Great Army can now be traced archaeologically. A hoard from Talnotrie in Kirkcudbrightshire contains six Northumbrian stycas, four pennies of Burgred of Mercia, a fragmentary dirham, a cut Frankish *denier*, a large inset weight, and several small pieces of metal, including two insular pins and a strap end (Graham-Campbell and Batey 1998, 109, 227). It has been dated to *c*. 875, and suggested to be a local metalworker's hoard, but the similarities with the Torksey and Aldwark assemblages, as well as the coins from a burial at Repton and the Croydon hoard, are striking. Finds of Anglo-Saxon coins are unusual in Scotland but among eight furnished burials at Carrick, Midross, are two containing Anglo-Saxon coins, one a West Saxon coin of Æthelred, dating to *c*. 871 (MacGregor 2009; Batey *pers*. *comm*.). A hoard of coins found in 1782 at Paisley, but since lost, appears to have comprised at least fifteen stycas (Metcalf 1960, 98; Graham-Campbell and Batey 1998, 227). Finally, a richly furnished warrior burial from Kiloran Bay on the island of Colonsay in the southern Hebrides included a set of bronze scales, comprising a balance beam, both pans, and six decorated lead weights, as well as three early-mid ninth-century Northumbrian stycas: one of Æthelred II (841–844); the second of Wigmund of York (*c*. 837–854); the third illegible (Graham-Campbell and Batey 1998, 118–122). The Hebrides may seem distant and remote from the Great Army that landed in East Anglia in 865. Nonetheless, the combination in this grave of two key elements of its signature – stycas and lead inset weights – as well as an object which is generally described as a weight, but has the raised knobs of a crowned gaming piece, is too unusual to be coincidence, and suggests an Army connection.

Conclusion

It is unusual to be able to define an artefactual signature for a specific group of people and range of activities, let alone to date it so precisely. Torksey is therefore exceptional in allowing us to achieve just that, and the key characteristics which make up the signature of the Viking Great Army have been further confirmed by the closely related assemblage from the slightly later site at Aldwark, and from the clear horizontal stratigraphy at Cottam. Use of this archaeological signature has led to the discovery of some 30 new places which appear to have been visited by members or former members of the Viking Great Army in the mid to late 870s, and our research confirms the potential of metal-detected data to add to the limited number of locations referred to in the *Anglo-Saxon Chronicle*. These sites are in precisely those regions where the *Chronicle* records that the Great Army was active, but the metal-detecting evidence is subtle and it reveals a number

of patterns. The assemblages may reflect a range of activities, including looting, foraging and trading, and they illuminate a number of settlement trajectories. Some Anglo-Saxon sites are visited and subsequently abandoned; others develop into new settlements. We have also demonstrated that the new data highlights the favoured targets of forays from the camps, the locations of subsidiary outposts, and the communications routes used by the Army. In particular, activity was focussed in the vicinity of former Anglo-Saxon estate centres and royal residences, and major churches. This is not surprising, as such places would have represented ready sources of additional loot, food and hostages. We already know that the sites of the major winter camps were chosen for their strategic locations. Torksey, Repton and Aldwark were each positioned at the junction of major riverine and road networks. They are still important crossing points today and it seems more than coincidence that modern toll bridges survive close to Aldwark, and Torksey (at Dunham Bridge). Indeed, Aldwark is the closest crossing point to York of the Ouse and its tributaries. The coin hoard from Lower Dunsforth, discovered in 1861, and dated to no earlier than *c*. 873, was found only 2km up river from Aldwark, and can now be seen to be linked to that camp. It is notable that many of our smaller sites identified by the Great Army signature are also at or adjacent to known crossing points. There is no reason to assume that the presence of the Army was confined to the camps named in the *Chronicle*. These crossing points may not have been permanently occupied but they would have channelled movement and not only provided the Army with important communication nodes for transhipment from road to river and vice versa, but would also have allowed them to observe and control the movement of any other forces through the landscape.

Our additional sites are also clustered, either along the major river networks (of the Trent, the Ouse, and the Wharfe), or along ancient road systems. In the Yorkshire Wolds they are found on the major Iron Age trackways which continued in use into the Anglo-Saxon period; in the Lincolnshire Wolds many lie adjacent to the prehistoric Barton Street. Others are adjacent to the Fosse Way (the A46) as it runs south-west of Lincoln to Leicester, or on the course of Ermine Street (the modern A15 and A1) as it heads north from Lincoln to the Humber crossing, and then continues north-west to York, the Tyne and beyond. We know this route was one the Army used; indeed, in the entry for 867 the *Anglo-Saxon Chronicle* records that the Army went from East Anglia to Northumbria 'across the Humber estuary to the city of York' and the PAS data helps us to trace this route. Clearly it was the combination of the relict Roman road system and the major river routes that allowed the Great Army to travel across the Anglo-Saxon kingdoms so rapidly in the 870s. In summary we have shown how, having identified the archaeological signature of the Army, we can use the valuable resource provided by the PAS to look afresh at the Anglo-Saxon countryside, to unlock the potential of much older discoveries, and to see the impact of the Army beyond the winter camps.

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[41] DUR-5F614C, -8BB722, NCL-795828, -FBC856, -7C3F94, -FC8D35, -CFFFC7, -C12321, -79B177, -4E6B72

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