An Archaeological Resource Assessment and Research Agenda for the Early and Middle Anglo-Saxon Period (*c*. 400-850) in the East Midlands

Alan Vince

I. Introduction

The 5th to 9th centuries are a period of British archaeology which is trapped between disciplines. In effect, the period is pre-historic until the early 8th century, when Bede provides the first contemporary account of the region, from the perspective of a Northumbrian monk living on an island which was politically, ethnically and religiously divided. However, the archaeology of the period has never been treated in a pre-historic manner, establishing a chronology on the basis of scientific methods and artefact typology. Instead, we try to construct a historical archaeology using a chronologically and religiously biased corpus of documentary sources. This is, of course, far from satisfactory. Much of what we accept as fact, or working hypothesis, is based on little or no archaeological evidence. There are, for example, no excavated settlements in huge areas of Derbyshire and Nottinghamshire. Settlement patterns and material culture in these areas are simply unknown.

One reaction to this lack of basic data would be to say that there is simply no point in establishing a detailed research agenda and that instead we should be requiring more data about everything. This is, however, a policy of despair. Instead, the approach adopted here is to break down the various aspects of 5th to 9th-century society into components or themes and to establish the sort of evidence we should be searching for and offer ideas as to where it might be obtained.

II. Existing state of regional knowledge and research

There have been several national surveys of the archaeology and history of the British Isles which cover all or part of the 5th to 9th centuries. However, the period suffers to a great extent from being treated as the final chapter of any survey of Roman Britain or the first chapter of any work on the Vikings in Britain, or medieval England. There are, however, extremely useful surveys in Wilson's *The Archaeology of Anglo-Saxon England* (1976) and, for the political development of the period Bassett's *The Origins of Anglo-Saxon Kingdoms* (1989) and Yorke's *Kings and Kingdoms of Early Anglo-Saxon England* (1990). The catalogue accompanying the British Museum's *The Making of England* exhibition (Webster & Backhouse 1991) includes useful summaries and fully documented catalogue entries, some of the artefacts coming from the East Midlands.

Surveys of the 5th to 9th-century archaeology of the East Midlands are less common (Dornier 1977; Stafford 1985). There are county-wide overviews of Lincolnshire (Sawyer 1998) and Northampton (Brown & Foard 1998) and a series of papers covering the archaeology and history of pre-Viking Lindsey (Vince 1993), of which the central and southern parts are included in the East Midlands as understood here.

Major landscape archaeology projects are nearing completion in the Raunds area of Northamptonshire (Parry forthcoming; Cadman & Foard REF) and in the Lincolnshire fens (REF FENLAND SURVEY VOLUMES) whilst there are surveys which include the 5th-9th-century archaeology of Derby, Lincoln, Nottingham, Stamford and Leicester (Hall 1989; Courtney 1996; Courtney 1998; Steane & Vince

1993) and a series of papers presenting the archaeological discoveries made in Northampton and debating their interpretation (Blair 1996; Foard 1985; Foard 2001; Welsh 1996; Williams & Farwell 1983; Williams 1977; Williams 1984; Williams *et al* 1985;). Additionally a collection of papers considering Anglo-Saxon Landscapes, centring on Leicestershire was published in 1996 (Bourne 1996).

III. Resource Assessment and Research Objectives

In the first draft of this document it was thought that the list of research objectives was so inclusive that no priorities could be discerned. Unfortunately, there are very few aspects of the 5th to 9th-century archaeology of the East Midlands which would not benefit from further research. However, it is indeed possible to recognise some major themes which stand out from the remainder. In many cases these encompass all or parts of other themes.

Major themes

Within the counties of Derbyshire, Leicestershire, Lincolnshire, Northamptonshire and Nottinghamshire there is a need to collect archaeological data about almost all aspects of the period from the 5th to the mid 9th centuries. For topic after topic we can only interpret what little we have from the region by reference to fieldwork and excavations elsewhere. This is clearly not a satisfactory situation, since one of the themes which we would wish to pursue is to see whether at any point there are distinctive, regional differences in the archaeology of the region in comparison to its neighbours.

That being said, it is still possible to prioritise the various research themes which emerge from a study of the period in the East Midlands. Three themes in particular can be recognised which, to some extent, embrace all remaining research themes. They are:

- The Roman/Anglo-Saxon transition
- The cultural, environment and, potentially, ethnic contrast between settlement and landuse to the north and west of the Trent valley and that within the valley and to its south and east.
- The re-emergence of a monetary economy in parts of the East Midlands in the 7th/8th centuries

The Roman/Anglo-Saxon Transition

Our traditional model of the process of transformation of Roman Britain to Anglo-Saxon England is based to a great extent on a literal interpretation of much later historical sources. Few archaeologists would question that there was some movement of peoples into Britain from that part of north-west Europe now known as Jutland and Schleswig-Holstein. However, most would not expect to find a wholesale removal of the British population from Eastern England in the 5th century and would certainly not hold that the presence of Anglo-Saxon artefacts or the use of buildings with sunken features implied that their users and makers were immigrants.

Furthermore, there is no reason to believe that the chronology of Anglo-Saxon settlement recording in the *Anglo-Saxon Chronicle* should be interpreted literally, either in its chronology or it its explanation of the emergence of the Anglo-Saxons and their political structures. It also seems that archaeologists on both sides of the North Sea have been overly influenced by this flimsy historical data so that there

is a suspiciously good correspondence between the artefact chronologies and evidence for desertion of terp sites in northwest Europe and the traditional mid 5th-century date for the beginnings of large-scale Anglo-Saxon settlement in England.

We should therefore take the traditional model of Romano-British history in the late 4th and 5th centuries as one of a number of possible models for this period and test them against evidence derived from archaeology.

The exact nature of this testing is not a matter for this document. It is likely, in fact, that several different approaches will be required to make any significant progress. In the past, these have included detailed studies of building techniques, metalwork types, burial practices and pottery distributions whilst it is widely believed that the analysis of DNA, both from past human populations and from their domestic animals and plants, might establish the degree of discontinuity in population, livestock and crops that took place between the late 4th and the late 5th centuries.

Any research on this theme will require an understanding of late Roman settlement as well as that of the Anglo-Saxon period. It is likely that, as in the Thames valley, the late Roman settlement pattern had a strong influence on immediately post-Roman settlement, even if there was a shift in settlement location and major disruption to the rural economy.

The Trent valley as a cultural boundary

The counties which form our region vary in their underlying geology, their climate and their pre-Anglo-Saxon history. In the detailed archaeological work which has taken place in these counties it has been noted that the counties themselves are composed on a patchwork of different landscapes within which settlement history and settlement patterns are constant but between which there can large differences. In many cases these landscapes developed in areas of similar geology: the valley gravels, the alder carr and salt marsh, heavy claylands, limestone and sandstone uplands for example.

Over and above those local differences, however, there appears to be a much more significant and long-lasting boundary, which separates Derbyshire and Nottinghamshire north and west of the Trent from the remainder of the east midlands. For much of our period, in the 5th to 9th centuries, the major difference between the archaeology of this upland area and the rest of the East Midlands is the almost complete lack of archaeological evidence. Only in the White Peak area of Derbyshire is this not the case, and indeed recent studies have suggested that the cultural history of the White Peak is perhaps even more similar to that of the Trent valley and the counties to its south and west that might first appear (Collis 1983; Jones 1997). It may be that the main differences between the Anglo-Saxon remains of the White Peak and elsewhere are due to the lack of opportunity to discover settlements and the visibility as field monuments of barrows which elsewhere in the east midlands have long ago been flattened.

It may be that the apparent invisibility of 5th- to 9th-century settlement or burial on the Derbyshire and Nottinghamshire sandstones is at least partly due to this lack of opportunity to view it. However, fieldwork has taken place in those counties with the express intention of finding evidence for this period (and indeed the later Anglo-Saxon period, which is equally difficult to identify archaeologically there. Despite this, new sites are few and far between.

It may therefore be time to accept, as a working model, that the Derbyshire and Nottinghamshire sandstones were indeed different in the nature of the material culture, settlement types, settlement pattern and land use to the rest of the region. Further north it is certain that similar landscapes formed part of the British kingdom of Elmet and it may be that the sandstones of Derbyshire and Nottinghamshire were also in British hands. Alternatively, they might have simply supported a very sparse population. In any case, they were probably exploited in different ways from the Trent valley and the southern and western counties.

Our research aim in this area should therefore be to locate settlements, cemeteries or any other sign of human activity in these counties dating to the 5th to 9th centuries and to use the results of investigations of any sites found as a guide to future research. At present we know too little to be specific about what our research aims should be other than to say that any archaeological evidence, however ephemeral, is potentially valuable.

As with our first theme, it may be that we have to employ lateral thinking in order to get information from an area which seems reluctant to reveal its 5th- to 9th-century history. Projects might therefore include the identification of evidence for exploitation of this area in settlements in the Trent valley itself, and to find and date pollen sequences which might reveal evidence for clearance and occupation during our period.

The emergence of a monetary economy in the middle Anglo-Saxon period

One of the differences between early and middle Anglo-Saxon society was the use of coinage in the latter. The use of coins seems to have ceased at the beginning of 5th century (perhaps even within the last two decades of the 4th century) and it is not until the middle of the 7th century that coins are again found with any regularity. The systematic recording of metal-detected coin finds and its publication online in the Early Medieval Coin database (EMC online) shows that Lindsey, the fens and the Nene valley in Northamptonshire were coin-using areas within the 7th century. Leicestershire, Derbyshire and Nottinghamshire (excluding the Trent gravels) have produced substantially fewer coins in total, and those that have been found have tended to be later. It is likely that the adoption of coinage both reflects other changes in the economy and stimulated them. It is, indeed, possible that all the changes which we can see happening during the transition from the early to the middle Anglo-Saxon period are intimately linked: such as the arrival of the church; the growth of large monastic estates; the production of surplus goods on those estates, and elsewhere; investment in mills and the modification to the landscape required to make those mills function; the use of middle Saxon pottery types such as Northern and Southern Maxey wares and Ipswich ware and the foreign contact represented by the discovery of continental *sceattas* (Blackburn 1993), imported pottery and 'productive sites' along the Lindsey Marshes, the lower Trent and the fens (including the richest 7th-century coin findspot known, 'South Lincolnshire', Ulmschneider 2000).

This model of substantial economic change during the 7th century receives support from settlement archaeology in Lincolnshire (eg Goltho, Beresford 1987) and East Anglia, as well as in the southeast and south central parts of England but in parts of our region the connection between these changes seems to be a lot less securely demonstrated. For example, large monastic estates existed in Derbyshire and Leicestershire but in both counties it is difficult to distinguish early from middle Anglo-Saxon settlement without independent scientific dating. Just outside of the region, at Catholme, it seems that the middle Anglo-Saxon settlement may be a direct successor to one which was established in the Romano-British period, or earlier. Even in Lincolnshire, it seems that a break in

settlement, with the establishment of nucleated settlements ancestral to the medieval villages, took place in the mid/late 9th century rather than the 7th century (or perhaps as well as in the 7th century).

One model for the transformation of Anglo-Saxon society from an embedded to a market-based economy would see these changes starting at the east and south coasts and the major navigable rivers, around the trading centres (*emporia)*, and only gradually spreading westwards. The model, and any competing models, can be tested only through regionally-based landscape studies, such as have taken place in Northamptonshire and Leicestershire, with chronology provided by high precision C14 dating, or dendrochronology if suitable timber can be found.

Other themes

Chronology and cultural history

The model we have for the Late Roman/Anglo-Saxon transition is as follows:

a) During the 4th and early 5th centuries Roman Britain is subjected to raiding from outside the Empire. There is a high barbarian element in the late Roman army but other arrangements, such as the trading of land for military duty, were also tried in some parts of the Empire, and quite possibly in Roman Britain too.

b) In the early 5th century the four provinces of Britannia were abandoned by Rome and the army withdrawn. Both British and Anglo-Saxon sources tell similar stories about the use of Germanic mercenaries to replace the army. Similarly, there are a few records which indicate the survival of some elements of Roman culture, principally the Christian church and the use of Latin, at least within an ecclesiastical context.

c) In the middle of the 5th century the British lost control of large parts of the country and large-scale immigration began. British kingdoms survived only in the highland zone, Wales and the southwest.

There then follows a period of about a century, during which Germanic settlers were living in the east of England and British in the west. The *Anglo-Saxon Chronicle* records several of the foundation myths current amongst the English in the late 9th century. These were probably orally transmitted and may give some clue as to the political events of the 5th and 6th centuries. They indicate, for example, the survival of British kingdoms in the Chilterns and the west of England into the mid 6th century. The northern parts of Derbyshire was either part or, or on the border of, one such kingdom, Elmet which lost its independence in 617 when it was conquered by Edwin of Northumbria. By this time the Anglo-Saxons were organised into a series of kingdoms, some of which had already established control over their less powerful neighbours.

As far as the East Midlands is concerned, the main political power was the kingdom of Mercia whose heartland was located in the upper Trent valley and the West Midlands. The kingdom of Lindsey, situated in north Lincolnshire, was already under the control of more powerful neighbours to the north (Northumbria) and south (Mercia) by the 7th century (Leahy & Coutts 1987; Vince 1993), whilst to the south, comprising the remainder of the East Midlands region, lay Middle Anglia.

Middle Anglia itself was composed of a number of small polities. Some of these were recorded in the Tribal Hidage, which is interpreted as a 7th-century Mercian tribute list. If so, this would imply that Middle Anglia was a later amalgamation of these tiny groups.

During the 7th and 8th centuries Mercia expanded by conquest to the south, west and east. To the east of the Trent the Humber formed the border with Northumbria whereas to the west what later became north Nottinghamshire and south Yorkshire was disputed territory, part of which was included in Lindsey (but this lies in Northeast Lincolnshire and is therefore not included in our region).

From the middle of the 7th century onwards there is evidence for long-distance trade organised through permanent trading settlements located normally at the mouths of navigable rivers - the Yorkshire Ouse, the East Anglian Gipping and the East Saxon Thames for example. Mercia, however, was landlocked and it is possible that the early conquest of Middle Anglia was intended to give access to the coast. In the mid 8th century, however, London and Middlesex were separated from the East Saxon kingdom and became a province of Mercia. In the early 9th century Mercia temporarily lost control of London to Wessex. We might therefore expect to find evidence for the changing axis of overseas contact during the 7th , 8th and early to mid 9th centuries. However, another factor in the development of the East Midlands during this period was Viking raiding. No documented raids took place in the region except for that of 841, which affected Lindsey, until the Viking host's arrival at Nottingham in 867. Nevertheless, it is probable that one of the pressing issues in the region in the mid 9th century, and perhaps even earlier was defence against Viking attack. A case has been made for several of the changes which we see at the start of the Anglo-Scandinavian period in the East Midlands having their origins in pre-Viking times, but equally, a number of changes which may actually belong to the re-organisation of the East Midlands following the defeat of the Viking kingdom of York in the mid 10th century have also been claimed as Viking innovations. Given the character of much of our archaeological evidence there is a great deal to be said for at least keeping our options open. However, to ignore political events in the 9th century in favour of a purely archaeological approach would probably not be sensible.

Thus, from the early 5th century onwards events in the East Midlands have to be seen in a wider setting. However, it is worth pointing out that at no time in this period does the "East Midlands" represent a political entity and to discuss the Anglo-Saxon archaeology of Lindsey without sites such as Riby Cross Roads (Steedman 1995), Flixborough (Loveluck & Dobney 1998), Cleatham, Elsham or Barton-upon-Humber, is quite absurd.

Demography

It is possible to extract a huge amount of information from the study of human remains, even after cremation. The osteological study of cemeteries can provide an indication of the ratio of males:females:juveniles and, within this, determine age at death. Where the cemetery is large enough this information can be used as an indication of the demography of the associated settlement (although it may be that certain social classes were excluded or favoured by burial practice, so care must be taken in drawing these conclusions). In addition to this basic data it is possible to measure: metrical data from which stature and build can be estimated; non-metrical traits which can be an indication of genetic links between individual burials and communities; injuries and adaptations, which can indicate the lifestyle (eg manual labour, violence, care for the infirm) and evidence for illness and nutrition.

5th to 7th-century cemeteries are one of the most common site types of the period in the East Midlands. However, many of these were excavated in the 19th-century and are an unreliable sample, even if bones survive. Several large cemetery excavations took place during the 20th century and would repay study. However, it must be borne in mind that the very largest cemeteries probably have an internal structure to them which makes the obtaining of a representative sample difficult without extensive, preferably near-total, excavation. Furthermore, for these large cemeteries we have no way to telling what living population was associated with them nor of establishing what rules governed the right of burial within the cemetery.

1. The osteological study of 5th to 7th-century cemeteries in the East Midlands

Human remains can now be dated with some accuracy using high precision C14 dating. However, at present this is an expensive technique and it is likely that many excavated collections can be dated with sufficient accuracy for our purposes using associated finds, stratigraphy or details of the burial rite. However, within this theme we know particularly little about 'sub-Roman' or 'British' cemeteries and these are almost certainly not going to be identifiable without recourse to scientific dating methods.

Late 7th to 9th-century cemeteries of any size have very rarely been excavated in the East Midlands. This is partly because there seems to have been a missing phase between the use of pagan cemeteries, which cease in the 7th or possibly the 8th centuries, and the establishment of most parish churches in the 10th and 11th centuries. Cemeteries associated with religious communities have been excavated, for example at Repton and Lincoln, but it is uncertain how representative their occupants will be of the population at large. Further south, it seems that some minster churches had a role as the burial place of large *parochia*, in which case the 'exceptional' sites such as Repton will actually have been the normal burial place of the surrounding districts.

2. Recognition of 7th-9th-century cemeteries

As with the earlier 'sub-Roman' and 'British' cemeteries it is likely that the recognition of 7th- to 9th-century cemeteries will depend on the use of scientific dating methods, since associated artefacts are likely to be rare, only present in a small proportion of graves (and possibly decreasing with time).

Political and Social Groups

The Fate of the Roman Provinces

The East Midlands mainly lies in the territory of that province of Britannia which in the early 5th century was governed from Lincoln (Lindum Colonia). To the north and northwest were the provinces governed from York and (arguably) Carlisle and to the south and west those governed from Cirencester and London. Provincial boundaries were important for tax management as well as security and it is likely that with the removal of central control from Rome these boundaries would have become much more important, since the provinces were effectively new states responsible for all aspects of government. We do not know precisely where the boundaries of these provinces ran but they are likely to have used natural barriers where possible and to have had regard for the road system whose primary purpose was military. It is in this context that various post-Roman earthworks must be considered.

The folk identify of Anglo-Saxons in the East Midlands

The Anglo-Saxons of the East Midlands considered themselves to be Anglian, as did those north of the Humber and in East Anglia. It may be significant that the Angle/Saxon division approximates to that between the Roman provinces governed from Lincoln and London. Even so, this need not reflect a genuine difference in origins but the adherence to different folk myths. This is reflected in an overall similarity in material culture within the Anglian territory. Documentary and place name evidence suggests that below this overarching concept of a race or people the Anglo-Saxons thought of themselves as belonging to lineages, such as the Spaldingas, whose name is preserved in the fenland town of Spalding. An attempt to identify the territory of this people by Hayes and Lane may well have succeeded, because by luck their territory was almost surrounded by uninhabitable freshwater fen (REF). However, it is highly unlikely that any aspect of their material culture alone would have led to this identification. Similar folk names are preserved in the place names of Wittering and, possibly, Kettering. Work being carried out in Lindsey is producing evidence of a British presence in the 6th century. This evidence so far consists of stray metalwork finds and needs to be pursued further to establish their context.

We should look for evidence for ethnic identity being reflected in dress, burial rite or other aspects of material culture in areas where sufficient evidence survives.

Anglo-Saxon and British kingdoms

Superimposed upon this ethnic division were political divisions. From the 7th century onwards we have historic records which help to establish the boundaries of the political divisions, kingdoms, of the period. Tracing these back from there into the 5th and 6th centuries is difficult. Clearly, there was a fragmentation of the late Roman provinces but the extent to which this splitting apart took place along pre-existing faultlines, such as *civitas* boundaries, and how much was brought about through the loss of territory in battle is debatable. At present the trend is to stress continuity and to postulate that at a local level estates may have passed intact from Roman to Anglo-Saxon or British holders. Such estates have been postulated in most of the East Midlands counties and in some cases appear to have been based on small Roman towns (Bishop 1981; Brown *et al* 1977; Foard 1985).

3. The identification of estate centres.

Detailed objectives might include the Roman/Anglo-Saxon transition but also the emergence of monastic estates. We sometimes hear of an initial holding granted by the king or a lesser magnate. Were these holdings created at the time of the grant or did they exist previously? A methodological problem here is to establish a means of progressing further than simply looking at later medieval relationships and projecting them tentatively back into our period. This is not to say that this approach is not value, just that a second stage is required. It may be that faunal remains or palaeobotanical evidence might be useful here, in providing a means of classifying settlements in relation to the estates in which they lay.

Lowland Derbyshire appears to have been part of Mercia but the upland was divided between the *Pecsaetan* (Fowler 1954; Ozanne 1962-3) and, perhaps, the British kingdom of Elmet north of the Buxton to Doncaster road. Even here, however, we do not seem to have the entire kingdom or province of the *Pecsaetan* in our region, since it probably extended into Staffordshire.

In Lincolnshire the southern Lindsey boundary is thought to have been formed by the Witham. There is a dearth of archaeological evidence south of the Witham and north of Sleaford. Although conditions in the fens seem to have fluctuated considerably after the Roman period, it seems that the fen on either side of the Witham was alder carr, of minor economic importance and so far as we know, not occupied either in the Roman period or the following centuries. Consequently, it formed a physical barrier between the kingdom of Lindsey on the north and smaller territories on the south. It seems unlikely that this territory would have existed in the Roman period, since it places Lincoln at the southwestern corner of the territory and it is more likely to have emerged at a time when the city was of little strategic or administrative importance, such as the 5th or 6th century (Foote 1993).

South of the Witham was Middle Anglia. The Tribal Hidage, which appears to reflect circumstances in the 7th century, indicates that this area was divided into numerous small regions: East and West Wixna, the Wigesta, the Spalda, the Faerpinga, Bilmiga and the Sweord ora. The hidage makes it clear that these were of variable size and it has been suggested that this region was in some way a survival of the type of political landscape present over the whole country in the 5th and 6th centuries but which in most places had been superceded by larger kingdoms.

Boundary ditches

Within the East Midlands there are relatively few late/sub-Roman earthworks. The Grey Ditch in Derbyshire is the clearest example in the region and illustrates all the features of this monument type. The Grey Ditch lies across the line of the Roman road from Buxton to Doncaster, just to the south of Brough (*Navio*). An excavation across the bank showed that it overlay a ploughsoil containing Roman pottery (Guilbert & Taylor 1992).

The only other earthwork claimed as being of a similar type from the East Midlands is King Lud's Bank or Intrenchment, which lies across the line of the road from Brough (*Croccolana*) to Great Casterton, on the Leicestershire/Nottinghamshire border. However, this is now accepted as a prehistoric land division and an excavation across its line in the 1970s failed to find any evidence for late/post-Roman renovation.

The Grey Ditch appear to have been thrown up in the late 4th or early 5th centuries. As such, it provides the possibility of studying landuse and environment, through the study of buried soils and other environmental evidence, as well as being perhaps the only tangible earthwork of this date in the East Midlands.

Uniform and Dress

Hawkes and Dunning's paper on the dress fittings from a burial from Dorchester-on-Thames identified a set of fittings, mainly belt buckles, strap-ends, disc-attachments with suspension loops and tubular-sided attachment plates, as being late Roman symbols of office or uniform (Hawkes & Dunning 1961). They further divided this class of dress fitting into three groups: those which were probably made on the continent, which they interpret as being brought into Britain with the late 4th-century troops of count Theodosius; those probably made in Britain but which they argue were military rather than a civilian fashion and those which were produced in the Anglo-Saxon period. Their examples from the East Midlands were sparse - nine objects in total of which one was from North Luffenham (AS context), three from Leicester (Roman town), one from Clipsham (Roman villa), one from

Sleaford (AS context), one from Saltersford (no context), and two from Duston (Roman village). To these can be added a 19th-century find from Youlgreave, Derbyshire (REF).

A recent review of the finds from Lincolnshire (Leahy 1993, 30-33) reveals 28 finds, almost all of the British-made group. Leahy argues that their distribution does not fit the model of garrisons attached to late Roman defenses, such as those at Lincoln, Caistor or Horncastle, nor is there any close correspondence with the distribution of Anglo-Saxon cemeteries producing 5th-century finds. Instead, they appear to be scattered through the countryside, close to major Roman roads or likely routeways and with a noticeable concentration in the Humber estuary. Leahy postulates that these belt sets were worn by Germanic soldiers, settled by the Empire in areas where barbarian attack might be expected. Finds of late 4th/early 5th-century Germanic brooches, of the type worn by women, occur in the same area and are taken to indicate that whole families were settled in the area bordering the Humber. Two of these finds are from Romano-British 'small towns': Hibaldstow and Kirmington.

Since the publication of this review, new pieces have continued to turn up, mainly through metal-detecting. They indicate that the concentration of finds in the northern third of the county (ie present-day North Lincolnshire and Northeast Lincolnshire) is still visible and that the finds are occurring in much larger quantities in Lincolnshire than any of the other East Midlands counties. A further development is evidence, in the form of unfinished pieces, that these objects were being made locally.

4. A review of non-Anglo-Saxon artefacts of late 4th and 5th-century date.

Although Lincolnshire finds are by far the most common in the east midlands and have been recently reviewed similar reviews are overdue in the other East Midlands counties. Sites which have produced fragments of this kind of late Roman metalwork should be examined to see whether there is any other artefactual evidence for Germanic settlement or whether within a generation or two any such settlers had been adsorbed into the prevailing Romano-British culture.

Although most of our evidence for male and female dress comes either from unassociated metal accessories or from antiquarian cemetery excavations the best available evidence comes from the scientific excavation of Anglo-Saxon inhumations, in which the deceased was buried fully clothed, allied with the investigation of mineralised textiles (eg Crowfoot 1981).

Study of the dress accessories from Anglo-Saxon cemeteries in the East Midlands indicates that female Anglo-Saxon dress was of 'Anglian' type, paralleled by that found north of the Humber and in East Anglia but distinguishable from that found in the 'Saxon' areas of the south and southeast. The typical female dress would have consisted of a sleeved undergown, sometimes fastened at the wrists, and a tubular gown. The latter would usually be fastened by a pair of brooches, one at each shoulder, although sometimes a single brooch is found, suggesting that the other shoulder was either left uncovered or was permanently fastened by stitching. Pins were sometimes used at the front of these gowns, to gather together the cloth which would otherwise have a tendency to flop forward. Both linen and wood were used for these garments, linen being the higher status material. Evidence for coarse twill cloaks is sometimes found, fastened at the neck with a cruciform brooch. Women were also sometimes buried wearing lightweight linen head veils.

Male burials are usually buried with a knife, tucked into a belt. This gave less chance for the accidental preservation of textile and therefore our knowledge of male fashion is less than for female.

There is evidence that Anglo-Saxon men worn belted trousers and tunics. A man at Castledyke, Barton-upon-Humber, was buried in a riding coat with a tablet-woven braided border (Drinkall & Foreman 1998).

There is probably scope to increase knowledge of Anglo-Saxon costume in the East Midlands through the examination of mineralised textiles on antiquarian finds.

5. The reconstruction of dress

Further advances can only come from the modern study of scientifically-excavated inhumations. This includes the publication of the backlog of Anglo-Saxon cemetery excavation reports where mineral-preserved organics probably exist and where sufficient information on the position of metal finds with these traces in graves has been recorded.

Ritual and belief

British Christianity

It is generally believed that, despite a 4th-century revival, Roman paganism was no longer practised in Britain in the late 4th/early 5th centuries and that by the mid 5th century the British were Christian. The only possible archaeological evidence for this in the East Midlands comes from St Paul in the Bail, Lincoln (Steane 1991). In 1977 a timber church with a polygonal apse was excavated on a site in the centre of the forum courtyard. Initially identified as the church of Paulinus, constructed following his conversion of Lindsey in 631 (Gilmour 1979). The site was that of a parish church until the 1970s and the earliest burials found were subjected to C14 dating. This indicated that four of the 22 dated burials were unlikely to be as late as the mid 7th century. Re-examining the evidence from the site revealed that this timber building was in fact a replacement of an earlier one, with a rectangular eastern cell (Steane 1991; 1992) and suggested a long chronology, with a sequence starting with a late or sub-Roman church, a 5th to 7th-century cemetery including a single-celled mausoleum (surrounding a robbed grave containing a 7th-century hanging bowl, Bruce-Mitford 1993) which survived to become the nave of the 11th-century parish church. This long chronology has been rejected by Sawyer (1998, App 4) in favour of the original interpretation.

Pagan temple sites

Guided by placename studies and charter boundaries, historians and field archaeologists have tried to identify sites dedicated to Germanic gods or recording the former existence of a pagan temple site. Within the East Midlands such sites have been postulated only Derbyshire and in Northamptonshire. Wensley, in Derbyshire, is the '*leah* dedicated to Woden' according to Eckwall 1960, 506). Wyham in Lincolnshire must also be considered as this may represent the pagan cult centre of Anglo-Saxon Lindsey. Given the open nature of the Derbyshire Hills it is likely that here the name refers to a sacred grove. The Northamptonshire placenames all refer to hills: at Great and Little Harrowden (where the name is plural 'hill with heathen temples' Ekwall 1960, 221), Harrow Hill in Brington, at Weedon Bec and Weedon Lois. Similar place-names survive in Bedfordshire and Middlesex and their absence from the remaining East Midlands counties is likely to be partly due to the Anglo-Scandinavian replacement of earlier placenames. Harrow in Middlesex is a prominent isolated hill and each of these Northamptonshire names is also indicative of a hill-top location. These sites might simply have consisted of holy places but it is likely that structures or boundaries would have been constructed and

perhaps areas of deliberate artefact deposition or casual loss during attendance at ceremonies. Therefore, traditional archaeological methods might well prove productive, if the site locations could be established.

6. A survey of the Northamptonshire pagan temple sites

Such a survey could include placing these sites in their immediate archaeological setting, by establishing the location of pre-existing, contemporary and subsequent settlement patterns within and surrounding the temple sites.

Metropolitan cemeteries

A minority of Anglo-Saxon cemeteries contained several hundred, sometimes thousands, of burials. This is in contrast to the typical cemetery where a couple of hundred burials would seem to be the upper limit. The large size of these cemeteries has evoked much discussion. It seems clear that they do not reflect the existence of large associated settlements and their spacing and regularity has led to the idea that they were used by regions rather than settlements. These metropolitan cemeteries are known from all the East Midlands counties except for Derbyshire. Their spacing is not quite as regular as this theory might suggest: Newark and Hough-on-the-Hill are quite close, as are Cleatham/Manton and Elsham. However, in both cases one can postulate distinct, exclusive territories. Newark (Kinsley 1989) is in the Trent valley with easy access to the southwest and north along the Trent whereas Hough-on-the-Hill's connections are with Jurassic ridge. Cleatham/Manton is separated from Elsham by the Ancholme valley, which was probably wetland at this time. The only other irregularity is the curious gap around Lincoln. By contrast, Thurmaston is on the Foss Way just north of Leicester.

Cremation is the dominant burial rite in these cemeteries, although many contain inhumations as well. In some cases the inhumations can be shown to be late within the cemetery's life but this is apparently not always the case.

Leahy has reviewed the evidence for the Lindsey and north Kesteven cremation cemeteries and is of the opinion that in general they start earlier than the inhumation cemeteries which surround them and which in the main seem to be smaller (Leahy 1993, 33). Nevertheless, he does not see cremation necessarily being replaced by inhumation, at least not before the middle of the 7th century and there are at least two 5th-century inhumation cemeteries in his sample, both close to Roman walled towns (Carlton Scroop, near Ancaster and Fonanby, near Caistor). During the 6th century it would seem that both large cremation and smaller inhumation cemeteries were in use side by side.

7.Full publication of excavated 'metropolitan' cemeteries

The first stage towards understanding these cemeteries better would be to fully publish those which have been excavated. Of these, the largest and most pressing is the Hough-on-the-Hill (Loveden Hill) excavations. This would make a good comparison with the report on the Cleatham cemetery, which is nearing completion. A second stage would be to define those cremation cemeteries known to exist from early antiquarian records but whose extent is uncertain. Using geophysical survey it should be possible to plot the incidence of cremation burials.

Single-settlement cemeteries

Smaller Anglo-Saxon cemeteries, those ranging in size from single burials to groups of one or two hundred, are known from all counties in the East Midlands (Bishop 1984; Cook 1981; Cooper 2000, Jackson & Adams 1998; Kinsley 1993; Meaney 1964; Timby 1996). There is, however, an uneven distribution across the counties, with 41 smaller cemeteries known in Lindsey and the northern part of Kesteven in 1993 and more being discovered every year. It is likely that many inhumation cemeteries have also been lost without record, especially those dating to the 7th century (or later?) which are likely to have produced few diagnostic finds to excite local antiquarian interest.

Despite the supposition that these smaller cemeteries were attached to single settlements there is little archaeological fieldwork to confirm or test this. Examples from other regions do suggest that cemeteries could be situated adjacent to their settlements rather than, say, being located on the borders of land units. There are, nevertheless, studies which appear to show a tendency for Anglo-Saxon cemeteries to occur more often than chance would allow on or close to parish boundaries. These studies, however, have to make the assumption that land divisions in the 10th to 12th centuries, when parish boundaries were being fixed in the East Midlands, are relevant to the 5th to 7th century social landscape.

There is, clearly, no substitute for archaeological fieldwork, to establish the context of these inhumation or mixed-rite cemeteries. ***However it is also important that the material from ploughed out cemeteries, recorded as part of the Portable Antiquities Scheme be analysed as this can provided valuable evidence of the spatial distribution of cemeteries and their chronologies. It is also important to locate and excavate one or more of the 7th century 'Final Phase' cemeteries as represented by Sheffield's Hill II.***

Barrow burials

Burial in barrows, either prehistoric monuments or freshly constructed mounds, is a long-known tradition in the Anglo-Saxon period (Bateman 1848; 1861). Within the region, barrow burials are best known from the Derbyshire Peak district. The Peak burials have been studied by several scholars (notably Ozanne 1962-3) and most recently re-evaluated by Howard Jones (1997). Previously, it has been claimed that the Peak burials are mainly 7th century, reflecting a late Anglo-Saxon colonisation of this area, or even the imposition of Anglo-Saxon overlords on a British population. Jones, however, finds evidence that the burials span a wider period and that in some cases the barrow burial may be associated with a larger, flat cemetery. The Peak burials include one 'princely' burial, at Benty Grange (Ozanne 1962-3, 20-22). An isolated rich burial excavated at Newark, by contrast, produced no evidence for a barrow (Samuels & Russell 1999).

Six barrow burials are known from Lincolnshire, all accompanied inhumations. None of these six has been excavated under modern conditions. They include one 'princely' burial, at Caenby Corner whose context is unknown but clearly in need of investigation (Everson 1993, 94-98).

8. The context of known 'princely' burials.

Investigation of the context of these princely burials should be carried out. The aims should be to establish whether or not there was any contemporary flat cemetery and to locate, if possible, any contemporary settlement and then to establish the character of that settlement.

Early Anglo-Saxon Burial rites

Scientific excavation of Anglo-Saxon inhumations and cremations is revealing that in addition to this major division there were several other variations in burial practice. To understand the rituals practised during burial we need to investigate not only the burial site itself but the surrounding area, for example to establish whether the area is bounded, and if so what by. Evidence for pyres should be sought, especially since one possible explanation for the large cremation cemeteries is that the dead were cremated elsewhere and brought for burial only at set periods.

9. The recognition and study of burial rites and associated ritual

No cemeteries in the East Midlands have been extensively excavated to this standard (Cleatham and Elsham, for the purposes of this document lie outside the region). The only possible exception is Loveden Hill. In many cases ploughing will have made the recovery of grave-side practices difficult or impossible. This makes it all the more important that well-preserved cemeteries be defined, protected and, after careful selection, investigated.

Monasteries and churches

From the middle of the 7th century onwards Christian communities were established in large numbers in the East Midlands (Franklin 1982). In general we know little of their internal organisation and development, despite major exceptions at Repton (Derbs; Bigsby 1984; Biddle 1986; 1993; Biddle & Kjølbye-Biddle 1986a; 1986b; 1987; 1992; Taylor 1987; 1989), Breedon-on-the-Hill (Leics), and Brixworth (Northants, Audouy REF; Everson REF; Ford 1995; Parsons 1977). It is in many cases not even certain whether a church existed at a particular site in the pre-Viking period. For Lincolnshire, Stocker has made a case for the existence of a Northumbrian type of community in which a sacred area defined either by nature or artificial means might contain numerous foci - churches or chapels (Stocker 1993). Such sites were exemplified by that at Crowland, whose early history is relatively well documented. Using this as a model, similar sites were identified at Bardney, Partney, Hibaldstow ('Cecesey') and South Kyme whilst other major Lincolnshire pre-Viking monasteries (Louth, Stow-by-Threekingham) did not so easily fit the model. Other Lincolnshire church sites of this period were at Kirton-in-Lindsey and Kirton-in-Holland (both identified by place-name evidence), Hough-on-the-Hill, Caistor, Redbourne and Edenham (all identified by the presence of pre-Viking sculpture, Everson & Stocker 1999). A number of these sites are close to those of early Anglo-Saxon cremation cemeteries and it is probable that they were situated partly in relation to the pagan sites. The exceptions are the fenland sites: South Kyme and Edenham. It has been noted that although contemporary sources emphasise the remote siting of early monastery sites they are also often located on communication routes and may have played a commercial role. The various interpretations are not, however, mutually exclusive and it is likely that the large cremation cemeteries themselves were sites at nodal points the Roman and pre-Roman routeways.

There are no pre-Viking church sites in Nottinghamshire that are known for certain, although they may be expected to have existed at royal estate centres, such as Mansfield, Dunham, Southwell and Orston. Other early church sites in the county include Kirkby in Ashfield whose placename suggests an existing church at the site in the late 9th/early 10th century and East Stoke, from whose *parochia* that of Newark was cut out in the 10th century.

A Pre-Viking monastery has been postulated at Wirksworth (Sidebottom 1999, 217-8).

Cathedrals

A summary of the historical evidence for the bishops of the East Midlands is given by Sawyer (1998, App. 6). Mercia's formal conversion to Christianity can be dated to the reign of Peada in the 650s but the conversion of Lindsey was from the north, and consequently Lindsey was initially part of the diocese of York whereas Middle Anglia was in the Mercian diocese of Litchfield. A church was built by Paulinus, first Bishop of York, at Lincoln and was the setting for the consecration of the Archbishop of Canterbury by Paulinus in or before 631. This may be the timber structure found at St Paul in the Bail immediately to the south of the Mint Wall, a section of the north wall of the Roman basilica.

From 678 Lindsey had its own bishop. The See survived until the late 9th century and in the 830s appears to have had two episcopal churches (Gem 1993, 123). The location of these churches is unknown. Suggestions include St Mary of Lincoln (the predecessor of the Norman Cathedral), a monastery in Lincoln dedicated to St Peter (which might be located in the lower city, on the site later occupied by the medieval churches of St Peter ad Motstow and St Peter at Arches) or the monastery of Bardney (Stocker 1993).

10. Investigation of pre-Viking church sites identified at Lincoln

Excavations at all three sites might be able to locate and identify a pre-Viking church.

The Middle Angles also has their own diocese, briefly in 692-706 and then permanently (until the Viking conquest) from 737. The latter see was definitely at Leicester but the location of the earlier see is uncertain, although it too might have been there. The identification of the cathedral at Leicester is uncertain but the most likely site is at St Nicholas' church, right next to the standing Roman Jewry Wall. Excavations by Kathleen Kenyon discovered two parallel stone walls which were later than the Roman wall and earlier than the medieval church which might be part of this cathedral.

It is possible that both the Mint Wall in Lincoln and the Jewry wall in Leicester survive because they were incorporated into a later structure, which in both cases would have to have been a church. Alternatively, the two monuments may survive because they were retained as symbols of the Imperial past, legitimising the role of the church (Courtney 1998, 20-24).

11.Investigation of the Anglo-Saxon Cathedral at Leicester.

A detailed study of the two standing Roman walls might be able to find evidence for this putative re-use. The setting of these sites also requires study, to establish the function of the Roman enclosures in which these sites lay, such as subsidiary chapels and churches, settlement and cemeteries.

Road Network

Roman roads

Evidence for the continued importance of the Roman road network in the 5th to 9th centuries is difficult to evaluate. There is quite often an assumption that if a medieval or later road had Roman antecedents then it must have been in continuous use. Furthermore, a distinction should be drawn between the use of a route and the upkeep of the actual road. Perhaps the most interesting cases, therefore, are where either major Roman settlements did not survive or where settlements rose to prominence in the 5th to 9th centuries and have no Roman antecedents. The two obvious cases in the region are Nottingham and Northampton. However, both of these settlements became important towns in the Anglo-Scandinavian period and it is to this period, probably, that the road system feeding into the towns should be dated.

There is, however, compelling evidence for the importance of certain Roman routeways during the period. In Derbyshire, for example, secondary burials in prehistoric barrows and new 7th-century barrows were constructed along the line of the Derby-Buxton road. Similarly, many of the large 5th-century and later cremation cemeteries of Lincolnshire and Leicestershire (and arguably also Northamptonshire) appear to be sited to take advantage of the Roman road network. Finally, the number of 7th to 9th-century coin finds made in parishes crossed by the major Roman roads (eg the Foss Way) appears to be greater than chance. In cases where the later routes deviate from the Roman lines it is worth trying to establish the chronology for this deviation, and the reasons behind it.

12. The upkeep of Roman Roads in the 5th to 9th centuries

Dating the latest metallings on Roman roads also holds potential for testing the nature of 5th-century authority in the region.

Unmetalled routeways

In addition, there are routeways which appear never to have been metalled but which may well have existed in this period, such as that along the ridge of the Lincolnshire Wolds and perhaps some of the east-west routes leading to the salterns in the Lindsey Marshes.

13. Dating the establishment, use and abandonment of unmetalled routeways in the 5th to 9th centuries

Establishing the chronology of these unmetalled routeways is probably beyond the reach of field archaeology. Nevertheless, even these routes, which presumably were intended for pack animals rather than wheeled transport, may have required intervention at river crossings. Metalled fords may well survive and should be archaeologically recognisable and datable,

Bridges and ferries

The recent discovery of the remains of a timber bridge at Cromwell, Nottinghamshire, dated by dendrochronology to the Middle Anglo-Saxon period shows the potential of archaeology to test ideas about routeways and communication, as well as to provide a measure of gauging the investment made in different routes (Salisbury 1995).

Settlement hierarchy

Two approaches to the study of Anglo-Saxon settlement hierarchy have been adopted in the East Midlands. One is archaeological and the other an attempt to reconstruct the pattern of estates through whatever contemporary documentary sources survive, augmented with a study of later records, place-names and the like.

In Leicestershire Peter Liddle has been undertaking intensive gridded fieldwalking. A similar approach has been used in Northamptonshire in the Raunds area. In both cases Anglo-Saxon settlement sites have been found. However, whereas in Northamptonshire these can at least be subdivided into those of the early Anglo-Saxon period and those of the mid Saxon period, because of the use of southern Maxey-type ware in the county, in Leicestershire there is either no use of pottery in the mid Saxon period or the use of pottery of identical character to that found in the earlier period. A similar problem in the Yorkshire Wolds has been dealt with by the use of metal detectors as part of the scientific field survey (REF Richards 19**).

In Leicestershire, Liddle has found evidence for the abandonment (or a move to less intensive land use) on areas of clay soils but a similar density of settlement sites to that of the Roman period in areas of lighter soils. However, given the difficulties of providing a chronological framework, it has proved impossible to provide clear answers to questions of continuity or the average life-span of settlements. This is an important problem. Using data from her analysis and publication of Mucking, Helena Hamerow has suggested that rural settlement in early Anglo-Saxon England was dispersed and impermanent. What appeared to be a large settlement at Mucking, in her view, actually consisted of one or more smaller settlements which were rebuilt on new sites, leaving the original site empty for a while before, perhaps, building on the new site. Fieldwalking of the Mucking site would not have been able to distinguish this palimpsest of discrete settlements. In other cases, however, the co-existence of several farming units on the same site (ie a "village" as opposed to the "farms" of Mucking) has been demonstrated through the study of their boundary ditches. Such a case is Catholme, in the Trent Valley but located just outside our region, in Staffordshire.

Fieldwork in the Lincolnshire Fens by the Fenland Survey revealed similar evidence for a dense scatter of early Anglo-Saxon settlements but there the change of pottery types allows us at least to distinguish 5th/7th from 7th/9th century settlements (Hayes & Lane 1992, Figs 126 & 127). However, in the fens any chronological progression in settlement location is masked by the changing fenland environment. The Survey found some areas which had been habitable in the early Anglo-Saxon period which produced no evidence for settlement in the mid Saxon period whereas others have a similar density of settlement in both periods (either on the same or different sites). Fen edge settlement, however, appears to have undergone some nucleation between the two periods as there are fewer, larger, more evenly distributed settlements in the later period.

Both the Fenland survey and those in Northamptonshire and Leicestershire demonstrate that the landscape of the East Midlands in the 5th to 9th-century is likely to have been as varied as in later times, and probably for a similar mixture of social and economic reasons. To investigate further the nature of the fenland settlements, and to establish whether the dewatering of the fens was leading to a loss of archaeological evidence, a sample of sites located from field walking was excavated. The results of this work are at present being prepared for publication.

Similarly the Raunds area survey in Northamptonshire was combined with a programme of excavation, aimed at understanding the development of the medieval settlement pattern.

This has led to the recognition of one likely cause of nucleation - the introduction of the watermill and the consequent reorganisation of the landscape. It can be argued that the water mill is part of a 'package' of new agricultural methods - open fields, larger ploughs, water meadows, the use of mill ponds for fishing and so on. The impetus to invest in these changes was probably from two, related directions. Firstly, the increasing power of the state led to higher taxation (and hence the need for food renders to be commuted to coin) and secondly the increase in trade, which also led to the need for coinage. Both of these forces probably also led to a more complex settlement hierarchy. The extent to which the Anglo-Saxon church was a catalyst in these changes is debatable. Similar transformations can be seen in Scandinavia, for example, predating by centuries the widespread adoption of Christianity and yet there is no doubt that the Anglo-Saxon church took advantage of these developments and may have been instrumental in imposing them on its own lands.

Thus, in any one area, the widespread use of coinage, milling, open field agriculture and settlement nucleation are all likely to occur at the same time. Nevertheless, these changes were certainly not synchronic across England, or even, across the East Midlands (as we see from the Fenland Survey). They are, however, likely to be related to soil quality and to the agricultural regime. Clearly, the preferred approach to settlement studies is a combination of the intensive fieldwalking of the Fenland Survey, Raunds or Leicestershire models (together with the use of metal detectors, as in the Yorkshire Wolds) with the 'total history' approaches of Foard, Roffe and Bishop. Although it is difficult to marry this collaborative, integrative approach with the planning process there is at least one objective which can be stated: It is more important to understand the development of the entire landscape than of individual settlements within it.

14. The 5th to 9th-century landscape.

Palaeo-environmental studies are needed in order to look for possible woodland regeneration in the sub-Roman period and for the pattern of land use throughout the early Medieval period

Inland towns/'central places'

There is little evidence for the existence of towns in an economic sense in the early Anglo-Saxon period. This is in sharp contrast to Roman Britain, which was economically integrated into the Roman Empire.

Despite some attempts to show that even by the late 4th century the economy of Roman Britain was moving away from the market economy and long-distance trade, this view does not gain support from a study of either pottery or animal bones, both of which indicate large-scale distribution of goods right to the end of the 4th century. This is certainly the case in Lincoln.

However, within a matter of years (at most decades) the population of Lincoln fell drastically, from several thousand in c.400 AD to, at most, a few hundred, in the mid 5th century. One might argue, however, that towns such as Lincoln and Leicester were much more reliant on the Empire than the lesser towns of the East Midlands and that the rural economy which supported these towns may have been relatively unaffected by the severance from the Empire and the consequent decline of the provincial capital. One might also expect Buxton to have suffered from the withdrawal of the army and the lack of Imperial administration since presumably soldiers and civil servants would have been

the main users of the spa. However, for Leicester and Buxton this supposition has not been tested by a revue of the archaeological evidence.

15. The Anglo-Saxon use of late Roman walled towns.

A review of the evidence for post-Roman occupation in Leicester and Buxton should be undertaken and, depending on its results, the elucidation of the Anglo-Saxon use of these towns should be a research priority.

The evidence for sub-Roman or Anglo-Saxon settlement in or immediately surrounding the lesser Roman walled towns of the East Midlands is interesting. Such towns existed at Towcester (*Lactodorum;* Brown & Alexander 1982; Woodfield 1992), Irchester, Margidunum, Ancaster (Stevens & Shotter 1996), Great Casterton, Horncastle, and Caistor. There is no correspondence at all between these sites and those which have produced late/sub-Roman military-style metalwork but there were Anglo-Saxon cemeteries containing 5th-century material at Great Casterton, Ancaster (Carlton Scroop) and Caistor (Fonanby). Furthermore, there is Anglo-Saxon pottery from *Margidunum* and a 6th-century burial, plus other early Anglo-Saxon finds from Horncastle. The absence of late/Sub-Roman metalwork might be significant. Leahy suggests that it indicates that the wearers were rural Britons following a Germanic fashion introduced by *foederati* (Leahy 1993, 33). However, this class of metalwork is so scarce that it may be pure chance. However, several of these sites have been excavated.

16. The non-Anglo-Saxon use of lesser walled towns in the 5th to 9th centuries.

The possibility of a British presence in the lesser walled towns into the 5th century should be investigated through careful excavation of the latest surviving Roman levels. The location and excavation of sub-Roman cemeteries should be seen as an important aim.

There is evidence for a religious presence in Lincoln in the 7th to 9th centuries, both in the upper city (St Paul in the Bail) and the lower city (the double churchyard of St Peter ad Motstow and St Peter at Arches). There is also evidence for diffuse activity over much of the two walled enclosures and a more localised settlement outside the west gate of the fortress. This clearly does not amount to an urban settlement, but neither is it likely to be an agricultural community. Perhaps the best term for such a settlement would be 'central place'. The evidence for Leicester has been summarised by Hall (1989). Clearly, the archaeology of these former Roman cities in the mid Saxon period is difficult to interpret. Similar evidence comes from the walled enclosures at both York and London, at both of which there was a large external commercial settlement (see **Emporia)**. No evidence for similar settlements has been found at Lincoln or Leicester.

Both Northampton and Nottingham, which were urban in the late 9th or 10th centuries, were occupied in the 7th to 9th centuries. The evidence from Northampton has been synthesised and published in two monographs (Williams *et al* 1995) whilst that from Nottingham remains to a great extent unclear (Young undated; Roffe 1997). Recent excavations in the city have produced a large fragment of a stamped Ipswich ware vessel which, occurring so far from the east coast, is thought to be an indicator of a settlement of some status.

17. Anglo-Saxon Nottingham

Publication of the various excavations and stray finds relating to the Anglo-Saxon period in Nottingham is long overdue, especially so since the archaeology of the city is so fragile.

Emporia

Cross-channel and North Sea trade in the Roman period in the East Midlands is poorly understood. It may be that there were ports suitable for sea-going ships at York, Brough-on-Humber (*Petuaria)* and Lincoln. There is archaeological evidence for late Roman long-distance trade, in the form of Eastern Mediterranean and North African amphorae, from Lincoln. These have not (yet?) been recognised on other sites in the East Midlands and imply that Lincoln was a centre at which the contents of these amphorae were either consumed or decanted into other containers for redistribution.

There is some evidence for the importation of luxury goods during the 5th, 6th and earlier 7th centuries. Some objects such as ivory coral and amber are relatively common finds in the cemeteries of this period but no indication of the mechanisms by which they entered the British Isles and no reason to believe that there was any trade, in either direction, in goods of lesser status.

By the later 7th century, however, at least three areas of the east coast were in direct and regular contact with the continent. In eastern Kent there were a number of ports, known from documentary sources and, in the case of Sandtun, from archaeological evidence. In the Thames valley the main port was at London (*Lundenwic*) and in East Anglia there is archaeological evidence for a port at Ipswich. In all three areas coinage was used. Initially, the coins were of gold and high denomination. As such they would have been unsuitable for everyday transactions. Nevertheless they were produced in Kent, London and York as well as being imported from the continent. There are 17 finds of such gold coins from the East Midlands, all but three of which come from Lincolnshire north of the Witham (excluding north-east and north Lincolnshire, whose inclusion would increase this total further). The exceptions come from Hasland (Derbs), Desborough (Northants) and Sleaford (Lincs). Although there are two finds from near Lincoln it is likely that a site on the Humber estuary or North Sea coast, such as Barton-upon-Humber, was their entry point into the country. However, in addition to these provenanced pieces there are six from a site, "South Lincolnshire", discovered by metal detectors and recorded by the Fitzwilliam Museum Early Medieval Coin (EMC online) corpus (Ulmschneider 2000).

18. The characterisation of the 'South Lincolnshire' productive site

The identity of "South Lincolnshire" should be established and the site investigated archaeologically to establish its nature, setting and history. From the information released by the numismatists who are liasing with the finders of this site it seems to include virtually no finds except for coins. This does not seem to be consistent with any type of site which we are currently aware of, except for a scattered coin hoard.

The second phase of coin use in Anglo-Saxon England consisted of the use of silver *sceattas*, introduced c.675 AD. These too appear to have been produced in Kent, London and East Anglia (Ipswich?) (although the attribution of types to Kingdoms, let alone mints, is disputable). There are 19 finds of this phase recorded in the EMC although eight of these are from the metal-detected south Lincolnshire site and therefore unprovenanced. The distribution of the remaining pieces falls into two groups: a northern group concentrated in the Trent Valley and northern Lincolnshire and a southern

group in central and southern Northamptonshire. There are no finds of this period recorded from Leicestershire at all. There is a difference in the type of *sceatta* found in the two groups. Both produced Series B coins (which might have been produced at London) but the southern group (specifically the central Northamptonshire area) has produced Series C coins (for which a Kentish origin is accepted but whose distribution points more to a source in East Anglia). These finds, few though they are, indicate that in the later 7th century coinage was just coming into use, from two directions: the Trent and Humber estuary in the north and East Anglia and the Thames Valley in the south. These coin finds do not suggest that there was any *emporium* in the East Midlands itself. Instead, at this stage goods may have been obtained from the Humber and, perhaps, Wash via the Ouse valley.

By the early 8th century coinage is found in all the East Midlands counties, but in very variable quantities. In Northamptonshire all but one find comes from the central or southern part of the county. In Leicestershire the only finds are from the extreme north of the county, and are clearly related to access to the Trent (multiple finds come from "near Six Hills" and "near Wymeswold"). In Derbyshire and Nottinghamshire too the finds are all in the Trent valley. Only in Lincolnshire is there a wider distribution but again dominated by sites in the northern part of the county (ie Lindsey). Several of these sites are riverine or near the coast and have produced several coins each. They may be evidence for riverbank trading centres, for example on the Trent between Marton and Torksey (and including Church Laneham, on the western side of the river); on the Witham at Bardney and "Near Horncastle" and on the Old Slea at Sleaford.

19. The archaeological investigation of so-called 'productive sites'

These concentrations of sceatta finds should be investigated archaeologically before all the evidence is removed by treasure hunters. In order to understand these sites the finds and find spots must be analysed on an interdisciplinary basis as has been employed in Leahy's work on the Melton Ross, Lincs Site.

By the middle of the 8th century the use of coinage was in decline in the East Midlands although sceattas continued to be used in East Anglia, the Thames valley (including a few finds in south Northamptonshire) and in Northumbria (again, a few coins are found on the Lincolnshire coast and the Trent valley). Whether this decline in coin use was matched by a decline in long-distance trade can only be tested through the archaeological investigation of the putative early 8th-century riverine trading centres described above.

In the late 8th century the Anglo-Saxon kingdoms started to issue coins struck on a thin flan and usually bearing the name of the authority under which they were issued and sometimes the moneyer. Coins from various states are found in the East Midlands, the most common of which, naturally enough are those of Mercia. In a sample of 114 coins recorded in the EMC southern and eastern coins (Wessex, Kent, Diocese of Canterbury and East Anglia) were found only in Northamptonshire whilst coins of Northumbria were found only in Lincolnshire, all but one on sites in Lindsey (the odd Kesteven site is Grimsthorpe). A dozen of the 55 or so sites have produced more than one coin. Some of these dozen sites are monasteries (Repton - Biddle 1986, Brixworth, Stow) and some are metal-detected sites whose nature is impossible to determine ('near Swinderby', 'near Alford', 'near Keelby', 'near Louth', 'near Gainsborough', Blackburn 1993, 87-90). These sites are discussed by Ulmschneider (2000, 66-72). Seven coins from St Paul in the Bail in Lincoln are possibly a scattered Viking-age hoard. However, by far the most prolific site in the East Midlands is Torksey, which has produced 30

coins, with a further 8 being recorded as 'Torksey or near Torksey'. Clearly, the site of the camp used by the Viking army in 873/4 has been discovered by metal-detectors. However, there are sufficient earlier pieces to suggest that there may have been activity at the site before the 870s.

20.Middle Anglo-Saxon Torksey.

Archaeological investigation of the Torksey riverine trading centre should be a high priority since, potentially, it is the site of the main trading centre on the Trent river system in the late 8th and 9th centuries.

Burhs

The Anglo-Saxon term *burh* appears to have had several shades of meaning, possibly changing over time. At its heart is the concept of a fortified place. Thus, it is used of Roman walled settlements as at Brough (Derbs and Notts), Burgh-le-Marsh (Lincs) and Brough on Bain and of prehistoric forts as at Irthlingborough (Northants). The received view is that in these cases the *burh* was not in contemporary use as a fort but was still recognised as a human defensive work. However there are several cases where Anglo-Saxon coins have been found in or close to one of these *-burh* placenames (for example at the Nottinghamshire Brough, and at Burgh-le-Marsh) and there is archaeological evidence from Irthlingborough for a late/sub-Roman refurbishment of the defenses (REF).

In addition it is used for a number of places which are not known to have either prehistoric or Roman fortifications, such as Gainsborough (Lincs), Washingborough (Lincs) or Wellingborough (Northants). In most cases the first record of the name is not until the Domesday survey but some incorporate a folk-name, as with Stallingborough (Lincs), Washingborough and Wellingborough which hints at a pre-Viking origin.

Mercian law codes and charters record the duty to undertake work on *Burhs* and bridges (and military service) as one of the common burdens of those who held bookland. It is thought to have been introduced during the reign of Aethelbald of Mercia in the mid-8th century (Abels 1999, 456-7). By the late 9th century burh-work was being carried out on the defenses of towns, such as those recorded in the burghal hidage. However, it has been postulated that in Mercia a similar system of public defence was in place a century earlier (Haslam REF). Two of these potential Mercian forts (Washingborough and Wellingborough) have produced late 8th/early 9th century pennies but there is at present no solid archaeological evidence for the existence of mid-Saxon public forts. Another interpretation of the burden of *burh*-work would be that the obligation had to be undertaken on defenses of elite, thegnly *burhs* but this does not sit well with the other two burdens, both of which are concerned with state defence.

21. Middle Anglo-Saxon defensive works

The possibility of mid-Saxon defensive works should be born in mind, especially if there is placename or documentary evidence. This work could include refurbishment of prehistoric or Roman defences or the construction of new works.

Industry

The general pattern of industrial activity in the 4th to 9th centuries is for a sudden collapse of the highly organised industries of the late Roman period, followed by a period when little is known and the re-emergence of these industries, during the later 7th to 9th centuries.

22. Industry in the 5th to 9th centuries

In general, therefore, any archaeological discovery which may throw light on industrial activity in the early to mid Anglo-Saxon period is of importance.

Extractive industries

Salt. There is evidence for salt-making in the Lincolnshire fens in the Iron Age and early Roman period in the form of briquetage. With the movement in the later Roman period to the use of lead trays there was less build-up of waste and consequently less evidence for production. There is no reason to doubt that the industry continued to the end of the Roman period, however. Before the early/mid 10th century "salt-hills" were accumulating along the Lindsey marshes. These result from the production of salt using the medieval method, in which salt-laden silt was first produced by creating large, shallow pools in which sea water could be isolated and evaporated. This impure salt-rich scum was gathered and filtered to separate the salt and the resulting brine was boiled to leave pure salt. The salt-hills were formed from the waste from the filtering process.

These salt-hills were initially exploited from settlements some way to the west but the movement of the coast further east, due partly to the salt-working itself, led to the creation of permanent settlements on the sites of these old salt-hills. These new settlements had their own parish churches, often built on salt-hills. Two of these churches contain fragments of Anglo-Scandinavian sculpture, including pieces of late 10th-century date.

23. The chronology of Anglo-Saxon salt production.

This is the only direct dating evidence for Anglo-Saxon salt-making in the Lindsey marshes. The chronology of the salt-hills requires archaeological investigation.

Salt production was obviously a major element of the Lindsey economy and probably accounts for the quantity and variety of coin finds on sites in the eastern part of the Wolds (and two from Mablethorpe). These sites include five 'productive sites' being worked by treasure hunters: Binbrook, 'near Alford', 'near Keelby', 'near Louth' and Riby. With the exception of 'near Louth' which is solely 9th-century, the sites span the sceatta and penny periods. Where the mint or kingdom issuing these coins can be guessed they are all eastern English (Northumbrian 7/44, Kentish 8/44, and East Anglian 3/44) or continental (17/44) pieces. The trading connection of this area with East Anglia is also shown by finds of Ipswich ware, which are much more common on sites in the eastern Wolds than elsewhere in Lindsey.

24. The marketing and distribution of salt

Without accurate and precise information on the location of these sites their character cannot be guessed. Ideally, at least one such site would be investigated through archaeological fieldwork to establish its nature (eg permanence, seasonality, internal organisation), its bounds, its relationship to the salt-hills and with inland routeways.

Lead. Lead was mined in Derbyshire and the Mendip Hills throughout the Roman period. The presence of a late/sub-Roman military-style buckle from Youlgreave in a lead-mining area hints that the area remained important to the end of the 4th century. However, there is virtually no use of lead evident on early Anglo-Saxon settlement sites, except for scraps which appear to have been looted/scavenged from Roman contexts. It is therefore unlikely that there would have been any local demand for Derbyshire lead at this time. This is not to say that lead could not have been mined for export whilst not used locally but it is highly unlikely.

It is likely, therefore, that the *Pecsaetan* settled in this area because the lead ore veins co-incide with the region of light limestone soils rather than because they had interests in extracting lead.

With the construction of stone churches from the later 7th century onwards, the demand for lead, both for roofing and windows, would have revived and there is evidence from this period for the use of lead for vessels, such as large lead tanks which have been found in mid Anglo-Saxon contexts in north Lincolnshire and Cambridgeshire. Presumably, lead mining in Derbyshire was again in operation in the county to supply this demand.

No archaeological evidence for lead mining or smelting of lead ores is known from this period in Derbyshire. Thus, we are ignorant of the technical processes carried out as well as the scale and location of the industry.

25. The Derbyshire Lead Industry in the 5th to 9th centuries

Evidence for 7th to 9th-century mining or smelting of lead ores in the Derbyshire Hills should be collected and the techniques of extraction, separation and smelting of the ore should be established and compared with those used in earlier and later periods.

In the 13th century the city of Lincoln had the staple for Derbyshire lead and Lincoln merchants were certainly involved in its export. This may, however, not be relevant to the situation in the 7th to 9th centuries. Nevertheless, it is clear that the main markets for Derbyshire lead at that time would have meant that it was exported via the River Trent (or, conceivably, ports in the Wash).

Iron. In the Romano-British period there is abundant evidence for ironworking in south-east Leicestershire, Northamptonshire and south and north Lincolnshire.

C14-dating of slag heaps in Rockingham Forest suggests that iron smelting was taking place there in the mid Anglo-Saxon period (Foard 2001, 68). Furthermore across the county border, in the Medbourne area of Leicestershire there is evidence for the smelting of iron ore associated with a dispersed settlement pattern which cannot at present be more closely dated than 'early to middle Anglo-Saxon' (Liddle 2000).

This is also the only area of the East Midlands which is likely to have been wooded in the Anglo-Saxon period but which has produced evidence for intensive early Anglo-Saxon settlement and burial. There are several possible explanations for this. One may well be that opencast iron ore extraction in a pre-mechanised age provided the opportunity to discover Anglo-Saxon remains, but it is also extremely likely that iron one was being smelted in this area in the Early Anglo-Saxon period. Little is know of the processes carried out in early to mid Anglo-Saxon iron smelting, nor is it known whether the iron produced was subsequently worked on site or exported in a raw state.

26. The Iron working industry in the Medbourne area

The excavation and dating of a sample of the Medbourne area iron-smelting sites is required. This should investigate whether or not iron smelting was taking place in this period and, if so, what the impact of this on the local environment was.

Of all the industrial processes carried out in the period, the smelting of iron is the most likely to have been carried out continuously because of the need for iron edge tools and weapons. However, there was less use made of iron in the early to mid Anglo-Saxon period than either before or later and this, together with the undoubtedly smaller population of the time, means that the demand for iron would have been considerably less than in the Roman period or after the Viking take-over. Thus, we should expect to find less evidence for iron production and working than in earlier or later periods. Nevertheless, this evidence is important and should be sought out and studied.

27. A study of the Rockingham Forest iron working industry.

Evidence for the existence, scale, and industrial processes of the iron smelting industry of Rockingham Forest should be a research priority. This may take the form of fieldwork in the production area but might also consider investigation of the possibility of movement of unworked iron.

Clay. In the late Roman period clay-based industries were operating on an industrial scale. The largest late Roman pottery industry in the East Midlands was located in the lower Nene valley. There was also a long-distance trade in ceramic building materials, including tiles produced from shelly middle Jurassic clays which outcrop to the south of the Northamptonshire border.

In the early Anglo-Saxon period the evidence for the production and distribution of pottery in the East Midlands requires review. The traditional view is that pottery in this period was domestically produced, and this view permeates the work of Myres, whose Corpus of early Anglo-Saxon pottery is nevertheless a starting point for any study of the pottery (Myres 1977). The East Midlands Anglo-Saxon Pottery Project (EMASPP), funded by the British Academy in the early 1990s, surveyed the pottery fabrics used in Lincolnshire, the Trent valley and the Derbyshire Hills (Vince & Young 1991). Very little pottery was found of this period elsewhere in Derbyshire or Nottinghamshire. This may be because pottery was not used in this area or because settlement sites of this period have yet to be found. The discovery of Anglo-Saxon pottery in the top fill of a Romano-British ditch at Carsington, Derbyshire, supports this view (Guilbert & Taylor 1992a). The conclusion of this survey, which omitted both Leicestershire and Northamptonshire (Blinkhorn 1996), was that there was evidence for pottery production in the upper Trent valley, in the Lincolnshire Wolds, in south Kesteven as well as a number of vessels which did not include distinctive inclusions. However, a sizeable proportion of this northern East Midlands pottery contained abundant, angular fragments of Mountsorrel granodiorite (Williams & Vince 1998). A recent distribution map of this ware shows that it is common throughout the East Midlands counties. More recent work suggests that it is also common on sites in the Cambridgeshire Fens and East Anglia. Pottery of this type was found in some quantity in excavations at the small Roman town of Barrow-upon-Soar, which is sufficiently close to the outcrop to be a production site. A petrological study of pottery from Brixworth suggests that although the ware is still common in Northamptonshire there are a range of other, petrologically distinct, wares used there. Similar results were obtained from a study of the pottery from the minster/palace complex at Northampton, although they were thought to pre-date the construction of that complex.

28. Anglo-Saxon pottery production in Charnwood Forest.

An investigation of the possible production site at Barrow-on-Soar and the scientific analysis of the early Anglo-Saxon pottery found there is required. Furthermore, a survey of the early Anglo-Saxon pottery found in Leicestershire and Northamptonshire should be undertaken and the results compared with those obtained from the EMASPP (Vince & Young 1991). Fabric classifications which can be correlated across all five East Midlands counties, should be agreed and implemented.

In the later 7th or early 8th century new wares were introduced to the region, but only in the eastern parts. Thus, in Lindsey Northern Maxey-type ware, made using Middle Jurassic shelly limestone as temper, was produced at one or more centres between Lincoln and Brigg and traded widely along the Trent valley and throughout Lindsey. In the south of the region, exploiting similar resources to those used in the late Roman period, Southern Maxey-type ware was produced and traded throughout the Lincolnshire Fenlands and to the lower Nene Valley. Ipswich ware was produced in Ipswich itself and is found on sites with access to the coast and, more rarely, inland. These inland sites tend to be those for which a higher status or central place function have been ascribed (such as monasteries and royal estate centres). However, there are no recorded finds of these wares from Northampton, nor from Brixworth despite the evidence for the high status of these places, nor is there any record of these wares from Leicester or the surrounding county. Furthermore, there is growing evidence to show that vessels produced in the granodiorite-tempered fabric and being indistinguishable from the earlier examples, was used alongside these new Mid-Saxon wares.

A study of the early- to middle Anglo-Saxon pottery from the sites of later medieval towns.

If so, then the suggestion that all the pottery of this type from within the walls of Leicester and from the mid-Saxon sites in Northampton is of 5th to 7th-century date requires review. It may be, for example, that subtle differences in fabric or chemistry might be found which would aid dating.

Imported pottery is extremely rate in the East Midlands counties, being mainly limited to sites with trading and/or high status associations (such as Newark, Riby and Holton-le-Clay). Only one 7th-century imported vessel has been recorded from a burial, in Derbyshire. Clearly, where highly-prized these vessels could be carried throughout the East Midlands. Unfortunately, most 7th to 9th-century imported pottery types look remarkably similar to Romano-British wares.

30. Identification of 5th to 9th-century continental pottery imports.

Any unclassed 'Romano-British' pottery found in early to middle Anglo-Saxon contexts therefore requires specialist identification to ensure that there are no unrecognised imported sherds present.

Metalworking

Evidence for the production of non-ferrous metalwork in either the early or middle Anglo-Saxon periods is rare within the east midlands, although copper alloy brooches and wrist-clasps are common finds on early settlement sites and in cemeteries. This metalwork is of very variable technical quality, ranging from extremely simple annular brooches to complex, cast and gilded items. One would

imagine that this implies that their producers varied in status, with the simpler items being produced at more sites than the others. However, it has long been recognised that dress fittings often show signs of repair and there are hints that they were often several generations old by the time they were buried, both of which might imply that they were difficult to replace.

There are several ways in which we could increase our knowledge of non-ferrous metalworking in the early to middle Anglo-Saxon period, of which a technical and typological study of finished artefacts is the easiest to implement. However, the discovery and investigation of workshops and manufacturing waste, and the setting of these finds in their social context, is most likely to lead to further insights.

Bone and Antler working

Artefacts made wholly or partly of bone or antler are relatively common on early to mid Anglo-Saxon sites. Whilst it is possible that they were made in the household, by the 8th/9th centuries there is evidence for commercial production, at Hamwic, and thus the possibility that bone and antler artefacts were being traded. Production evidence will consist of offcuts and partly-finished artefacts. The recognition and study of traded objects depends on the detailed study of typology and manufacture. If, indeed, bone and antler objects were within the settlement they provide one of the few aspects of material culture which directly reflects the cultural template of its makers.

Glassworking

It is assumed that most if not all the glass used in the early and mid Anglo-Saxon periods in the East Midlands was imported. There is, however, a little evidence for the production of glass at Hamwic (Saxon Southampton, Hampshire) and the possibility that some of the vessels found in Kentish graves was locally produced. There is, therefore, no technical reason why glass could not have been produced in the East Midlands. It is likely, however that the quantity of glass used was too low to warrant the setting up of glassworks. One possible context for local production, however, would be the church. Glass was used in the windows of the monastery at Jarrow, Tyne & Wear, for example.

31. The characterisation of 5th to 9th-century glass.

The origin of glass vessels (and window glass) could be established through the chemical analysis of examples from the East Midlands and comparison of the results with those from other regions, such as the database of results for Hamwic glass (Hunter & Heyworth 1998).

Imported goods

One of the features of early Anglo-Saxon material culture is the presence, usually in funerary contexts, of imported goods. In a survey published in 1988 Huggett studied the distribution of amber beads (probably of Baltic origin), Amethyst beads (of eastern Mediterranean origin), ivory rings (possibly walrus ivory but perhaps elephant), crystal beads, crystal balls, cowrie shells, glass vessels and imported pottery. From an East Midlands perspective the main interest in this material centres around the following questions:

1) How does the quantity and character of the imported goods present in the East Midlands in the 5th to 9th centuries compare with that found in other regions?

2) Does the distribution of imported goods within the East Midlands offer any clues as to the social importance of the site or context in which it was found?

Using Huggett's distribution maps, to which over a decade's worth of new finds could be added several features can be noted. Firstly, the Derbyshire burials, not unexpectedly given their distance from the coast, contain few imported goods and this is also true of those sites in the upper Trent valley as well as those in the Derbyshire Hills. Within Leicestershire, Northamptonshire and South Lincolnshire there is obviously variation between cemeteries but in general a scattering of imported goods is found throughout the counties. A remarkable quantity of imported material from the Sleaford cemetery is evident though. This was true of amber beads, ivory rings and crystal beads. It would seem, therefore, that the Sleaford cemetery reflects a community with remarkable access to imported goods, probably of Scandinavian origin. Lindsey cemeteries, on the other hand, contain very few imported goods, although more common than in Derbyshire sites.

There is a clear division into Lindsey and Middle Anglian sites which requires explanation. However, before any further analysis of the existing data is considered there should be a re-assessment of the data.

32. A survey of imported goods from Anglo-Saxon cemeteries.

Huggett's survey should be updated to include that material not accessible in 1988.

33. The social context of the Sleaford cemetery

The social context of the Sleaford cemetery should be established.

Subsistence

In the late Roman period food production was highly organised and specialised. Such a system depends on infrastructure and a market. It is widely assumed that this system could not have survived the withdrawal of Imperial superstructure, but at the same time evidence is brought forward to support the idea of continuity in landuse. Just outside of the region, at Orton Hall Farm, near Peterborough, a settlement was excavated which is said to have evidence for continuous occupation. However, a study of the environmental evidence shows that whereas in the Roman period the site specialised in stock-rearing in the Anglo-Saxon period there was a shift to a mixed economy. There is, indeed, evidence for a change in land use in some parts of the East Midlands, namely withdrawal from the areas of heavy soils. This has been found through field survey in Leicestershire and Northamptonshire and noted in the Anglo-Saxon pottery survey in the central clay vale in Lindsey. Similarly, the absence of Anglo-Saxon finds from large areas of Nottinghamshire and Derbyshire might be interpreted in terms of large-scale desertion or change to a less intensive landuse. However, it has also been suggested, by Bishop (2000), that in Nottinghamshire this may be due to the survival in this area of a British population whose material culture is not sufficiently distinctive to allow settlement sites to be identified. Agricultural settlements have been discovered and partly excavated in many parts of the region (Everson 1973; 1993; Field & Leahy 1993; Field 1981; Foard 1978; Hall & Martin 1979; Jackson & Foard 1993; Jackson 1969; 1993; Shaw 1993). However, until recently the agricultural

activity practised at those sites was not known (Giorgi & Rackham 1996; Murphy 1994). Furthermore, the evidence is strongly biased towards Lincolnshire, Leicestershire, Northamptonshire and the Trent valley gravels. Settlement archaeology in upland Derbyshire and clayland Nottinghamshire is almost non-existent. Fieldwork on the Nottinghamshire claylands has been a lot less successful in finding agricultural settlements of this period (Southgate & Garton 1999).

The mid-Saxon period, however, saw changes in agricultural practice in some parts of England (Rackham 1994). Amongst these changes were: nucleation of settlement; open field agriculture; the replacement of the ard plough by the mould board plough; the use of water mills and meadows, new cereal species and the production of animal surpluses. By the time of the Domesday survey similar agricultural systems existed throughout the East Midlands but it is impossible to assume that they occurred so widely, if at all, in the mid-Saxon period in the East Midlands. The Lincolnshire fenland has been studied in a similar manner and both there and in some parts of Lincolnshire it seems that a major shift in settlement pattern, which might be associated with these agricultural changes, took place in or after the late 9th century (REF to forthcoming Fenland vols). There is indeed evidence that some agricultural settlements were occupied solely within the early Anglo-Saxon period and some solely within the middle Anglo-Saxon period but there is no evidence yet to indicate that the agricultural regime in the two periods was different. It seems, from fieldwork in Leicestershire and elsewhere, that This question could now be addressed through the use of faunal and archaeobotanical evidence and through the study of field systems and their related settlements.

The study and dating of these changes throughout the East Midlands is at present hardly started. Anglo-Saxon settlements have been examined in the Trent valley in both Derbyshire and Nottinghamshire, but with little published work on the agricultural practices employed at these sites. Little is know of the origin of the upland settlement patterns or field systems in either county (eg Barrett 2000; Bishop 2000). In Leicestershire two large settlement excavations are at present being prepared for publication, and selected areas of the county have been systematically fieldwalked, which provides the potential basis for a study of agriculture. In Northamptonshire and the Lincolnshire fens such studies are well advanced (Parry forthcoming; the Fenland vols).

34. Settlement and economy in the 5th to 9th centuries.

There is a need to establish and study the settlement pattern and agricultural regime of every region of the East Midlands.

Agriculture

Field systems. Traces of Roman and medieval agriculture are found on most rural excavations but are usually treated summarily with most attention being spent on settlement sites. Evidence for the continued use of Roman field systems normally comes either from the recutting of ditches or from material deposited in the top fills of earlier features.

Plough types. The introduction of the mouldboard plough is likely to be associated with the use of ploughing in a single direction, which does not actually require long thin strips, but does allow them. Ard ploughing requires the turf surface to be broken in two directions.

35. Changes in ploughing

Opportunities to date the type of ploughing, should be taken to ensure that we have a region-wide view of the adoption of the new technology (and the retention of the old).

Cereal crops. Cereal crops can be identified through the study of carbonised or mineralised seeds. They can be used to identify the major cultivated species. Furthermore, a study of the weed seeds present can indicate the nature of the soil in which the accompanying cereals were grown whilst the presence/absence of chaff can indicate whether threshing took place on site or whether the crop arrived on site already threshed. The quantity of weed seeds can also be an indicator of crop processing. There is at present very little information published on the results of archaeobotanical studies in the East Midlands, although much work has taken place. A preliminary report has been published on the palaeobotanical results from Raunds (Campbell 1994). This included the study of material from both early and early-to-middle Anglo-Saxon contexts. A problem encountered by Campbell which is probably widespread is that of taphonomy. Single carbonised grains could be contamination from later deposits or redeposited from earlier deposits. On the other hand, to take samples only from material which is identified in the field as a carbonised grain deposit will result in loss of data and introduce bias.

Mills - hand querns. Fragments of rotary querns are common finds on early and middle Anglo-Saxon sites in the East Midlands. Their ubiquity suggests that at this period water mills, although known in England from the 7th century, were by no means widely available. Early water mill sites have, in recent years, been found in the process of gravel extraction and provide good opportunities to study a range of topics in addition to the details of mill construction and dating. None has yet been found in the East Midlands.

The systematic study of rotary quern fragments allows the distribution of querns to be established, through the petrological study of the rock they are made of.

Hay meadows. The deliberate cultivation of grasses and cereals for fodder can be studied through the study of carbonised seeds. Where dung has been used as pottery tempering or preserved through mineralisation or waterlogging this can be used as direct evidence for animal feeding.

Animal husbandry

The study of 5th to 9th-century animal bones is more advanced than that of palaeobotany in the East Midlands but here too there are still large areas in which there is absolutely no information at all, even on the ratio of the standard domestic species: cattle, sheep, goats and pigs, which were the main sources of meat at this period. One can predict that one will find less specialisation (concentration on a particular species) at this period than others and therefore the main interest is in the detail. By studying age-at-death data it may be possible to reconstruct the pattern of husbandry and, by inference, whether the bones found represent the full lifecycle of the species or whether animals have been either removed or brought to the site. Since one of the important points is to establish whether or not animals were being bred on site it is important to ensure that the bones of neonates are collected. Therefore, recovery methods must be controlled. Because much of the animal bone already collected is not from sieved assemblages there are methodological doubts about the conclusions which can be drawn from its study.

Pigs and pasture. In the Domesday survey it is clear that many woodland vills were specialising in the production of pigs. A high proportion of these woodland vills have Scandinavian, or

Scandinavian-influenced names and it has been suggested that it was during the late 9th century and the following century and a half that these areas were first heavily settled. In the counties around the Weald, in southeast England, however, a study of placename evidence has suggested that the Weald was being used as summer pasture and that the woodland was being exploited by communities with permanent settlements around its fringe. It is difficult to know what evidence might survive from such a seasonal usage other than the survival of traces of these distant links, for example in rights to pasture or the relationship of woodland parish churches to 'mother churches' outside the woodland. Even where such evidence survives it is rarely earlier than the late 11th century. However, it is also clear that the rearing of pigs and the consumption of pork was an important element in early to mid Anglo-Saxon diet, and that it may have a connection with high status (this has been suggested, for example, for the so-called 'pig horizon' at York Minster, Carver 1995).

In theory, the sort of woodland used for pig (and cattle) pasture should be distinguishable by its macroflora and pollen from that with a continuous canopy, which may have been used for coppicing, charcoal burning and forestry. However, at present there are few indications that a recognisable archaeology exists for this period in the areas likely to be wooded, with the exception of Rockingham Forest and the Medbourne area.

Cattle. Animal bone studies show that cattle were the main source of meat in this period, as in the Roman period and the Anglo-Scandinavian period. Establishing the proportion of beef within the diet is not therefore a research priority. However, there is a view, based upon the analysis of both rural sites such as Orton Hall Farm and urban sites such as Lincoln that late Roman cattle farming was carried out in a highly-specialised manner, with large-scale butchery in towns and specialist cattle-rearing on the fens (Dobney *et al* 1996; Mackreth 1996). A similar concentration on cattle has been noted on some middle Anglo-Saxon sites, as at *Lundenwic*. There is, however, no information about the nature of cattle-rearing in the East Midlands during the early to mid Anglo-Saxon period. In addition to data on the relative proportion of cattle to other species within domestic refuse information is required on the presence/absence of neo-natal calf bones, since these indicate that cattle were reared on site rather than simply brought to the settlement for slaughter and consumption, and age-at-death data. Judicious interpretation of these data can indicate whether a settlement was a consumer or producer of cattle and thus help to identify both high status settlements and those reliant on others for meat.

Sheep and Wool. Analysis of the animal bones from Lincoln has suggested to O'Connor and Dobney that there was a trend from the Anglo-Saxon period onwards for both an increasing consumption of lamb and mutton and for the increasing farming of sheep for wool rather than meat. From this, it can be inferred that both the Lincolnshire uplands (the Lincoln Limestone ridge and the chalk wolds) and the fens were increasingly concentrating on sheep-rearing. However, there is as yet no such data from the East Midlands region for the nature of sheep-rearing in the early to middle Anglo-Saxon period. That wool was an important raw material at this time cannot be doubted from the prevalence of clay loom weights and polished bone 'pin-beaters' found on settlement sites. Data are required both to examine the chronological pattern, to determine whether this increase in sheep through time started in the early or middle Anglo-Saxon period, and the geographical pattern. For example, in many parts of the region the woodland landscape would have favoured the keeping of goats rather than sheep.

36. Sheep husbandry

Data on the frequency of sheep bones in domestic refuse are required for sites throughout the East Midlands, paying particular attention to the ratio of sheep to goats and for details of age-at-death.

Fishing and shellfish.

The study of fish bones from archaeological sites indicates a trend towards the exploitation of deep sea fish from the Anglo-Scandinavian period onwards whereas in the earlier periods freshwater fish, marine fish from inshore waters and, particularly, eels, were consumed. The material evidence for this activity comes both from the study of faunal remains and the discovery of fish weirs, such as that at Colwick, on the Trent (Salisbury 1984). This is apparently true even of riverine settlements engaged in seaborne trade, such as *Lundenwic* and Fishergate, York. It would therefore be surprising to find a different pattern in the East Midlands. By the late 11th century it is clear that there is a strong connection between water mills and fishing, through the use of the mill ponds for fishing. Evidence for the place of fish (and particularly eels) within the diet may therefore provide a test for the suggestion that mills were introduced to the region quite late (ie in the late 9th century or later).

37.The consumption of fish

The recovery of evidence for fish consumption, and the origin of the fish eaten, is a research priority for the early to middle Anglo-Saxon period in the East Midlands.

Cetaceans.

Recent papers have brought to our attention the fact that marine mammals, such as the whale, porpoise and dolphin, were considered under royal protection. Therefore, the presence of cetacean bones on a site, and their frequency, ought to be an indicator of status.

38. Cetacean consumption

The recovery of evidence for cetacean consumption is a research priority for the early to middle Anglo-Saxon period in the East Midlands.

Hunting and Fowling

Another high status prerogative was hunting. It has been suggested that some Derbyshire estates originated as hunting parks (REF) and presumably other areas of open woodland may have had similar uses. In the medieval period there are recognisable field monuments which are associated with emparkment and hunting, such as deer leaps, constructed to allow animals to leap into the enclosed area but stopping them from escaping. Whether such features were indeed Norman introductions is doubtful. Therefore, boundaries and enclosures within areas likely to have been wooded within the early to middle Anglo-Saxon period should be investigated where appropriate to see if any date to this period.

The study of the bones of wild animals found in archaeological deposits can indicate both the reliance placed upon this resource for food and the nature of the exploitation of deer, wild boar and other species. A related industry is antler-working and a study of offcuts and unused antler can indicate whether shed antler or those removed from killed animals were used.

V. Research Agenda

In this overview a range of themes have been noted which could form themes for future research. They can be divided into several types:

a) the publication and study of previous excavations. In terms of future investment and preservation of the archaeological resource it is clearly preferable to make use of existing data rather than excavate new sites whose results may simply duplicate earlier findings. However, it also has to been remembered that collection policy and sampling for both artefacts and ecofacts may well have been uncontrolled. Nevertheless, there is a clear need to publish the results of cemetery excavations.

b) the survey and review of unstratified museum finds. Not one museum in the East Midlands has published a catalogue of its early to mid Anglo-Saxon collections and it is likely that finds whose study could advance knowledge of the period lie unrecognised in the region's museums. A new factor here is the new data being produced by the Portable Antiquities Scheme. This has produced large quantities of relatively datable objects that can tell us a great deal about the Anglo-Saxon period, particularly for the middle and later Saxon periods for which we lack cemetery evidence.

c) the survey and intensive study of specific sites. There are several sites across the region which have been identified as being potentially of interest for the study of the 5th to 9th centuries. In general archaeological research has moved away from an interest in 'sites' towards the understanding of processes but there are still some specific sites whose study would advance knowledge.

d) general research themes

Thirty-eight themes have been identified within this document. In the following table they are listed and classified according to their relevance to the three major themes of Roman/Anglo-Saxon transition (RAST), the upland/lowland division of the east midlands (ULD) and the emergence of a monetary economy (EME)

ID	Summary	RAST	ULD	EME
1	the osteological study of 5th to 9th-century cemeteries	y	y	y
2	Recognition of 7th to 9th-century cemeteries	n	y	y
3	The identification of estate centres	y	y	y
4	A review of non-Anglo-Saxon dress fittings of late 4th and 5th-century date	y	y	n
5	The reconstruction of dress	y	n	n
6	A detailed survey of the Northamptonshire pagan temple sites	y	n	n
7	Full publication of excavated 'metropolitan' cemeteries	y	n	possibly
8	The context of 'princely' burials	n	n	possibly
9	The recognition and study of burial rites and associated ritual	n	n	n
10	Investigation of pre-Viking church sites identified at Lincoln	n	n	n

11	Investigation of the Anglo-Saxon Cathedral at Leicester	n	n	n
12	The upkeep of Roman Roads in the 5th to 9th centuries	y	y	y
13	Dating the establishment, use and abandonment of unmetalled routeways in the 5th to 9th centuries	y	y	y
14	The 5th to 9th-century landscape	y	y	y
15	The Anglo-Saxon use of late Roman walled towns	y	y	y
16	The non-Anglo-Saxon use of lesser walled towns in the 5th to 9th centuries	y	y	y
17	Anglo-Saxon Nottingham	y	y	y
18	The characterisation of the 'South Lincolnshire' productive site	n	n	y
19	The archaeological investigation of so-called 'productive sites'	n	n	y
20	.Middle Anglo-Saxon Torksey	n	possibly	y
21	Middle Anglo-Saxon defensive works	n	possibly	y
22	Industry in the 5th to 9th centuries	y	possibly	y
23	The chronology of Anglo-Saxon salt production	possibly	n	y
24	The marketing and distribution of salt	possibly	possibly	y
25	The Derbyshire Lead Industry in the 5th to 9th centuries	possibly	y	y
26	The Iron working industry in Rockingham Forest and the Medbourne areas	possibly	n	y
27	A study of the Rockingham Forest iron working industry	possibly	n	y
28	Anglo-Saxon pottery production in Charnwood Forest	y	y	y
29	A study of the early- to middle Anglo-Saxon pottery from the sites of later medieval towns	y	n	y
30	Identification of 5th to 9th-century continental pottery imports	y	y	y
31	The characterisation of 5th to 9th-century glass	y	y	y
32	A survey of imported goods from Anglo-Saxon cemeteries	y	y	y
33	The social context of the Sleaford cemetery	y	n	y
34	Settlement and economy in the 5th to 9th centuries	y	y	y
35	Changes in ploughing	y	y	y
36	Sheep husbandry	y	y	y
37	The consumption of fish	y	y	y
38	The consumption of cetaceans	Y	y	y
39				

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